Juniper Networks | Engineering Simplicity

CTP151 Platform Hardware Documentation

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CTP151 Platform Hardware Documentation

The information in this document is current as of the date on the title page.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

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About This Guide

This page contains the latest CTP151 Circuit to Packet Platform hardware documentation.

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- CTP151 Platform Hardware Guide
- CTP151 Quick Start Guide

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PART

Overview

CHAPTER 1

CTP151 Platform Overview

IN THIS CHAPTER

Introducing CTP Series Platforms

Juniper Networks CTP Series Circuit to Packet platforms provide advanced technology and features required to reliably transport legacy time-division multiplexing (TDM) and other circuit-based applications across next-generation IP networks. CTP Series platforms create an IP packet flow from a serial data or analog voice connection at one end and provide the necessary processing to re-create the serial bit stream or analog signal from the received packet flow at the other end.

CTP Series platforms provide compact and lightweight chassis, high port density, and multiple Ethernet interfaces. Each CTP Series platform runs the CTP operating system (CTPOS) and can be managed by the Juniper Networks CTPView Network Management System. The CTPView Network Management System is a secure, Web-based management tool for provisioning, managing, running diagnostics, monitoring, and reporting on all CTP Series devices and circuits in the network.

CTP151 Platform Overview

The Juniper Networks CTP151 Circuit to Packet platform is a 1-U high, full-rack wide chassis and can be installed in a rack with the supplied rack-mounting kit. The CTP151 platform has two removable modules for serial interfaces, T1/E1 interfaces, or both.

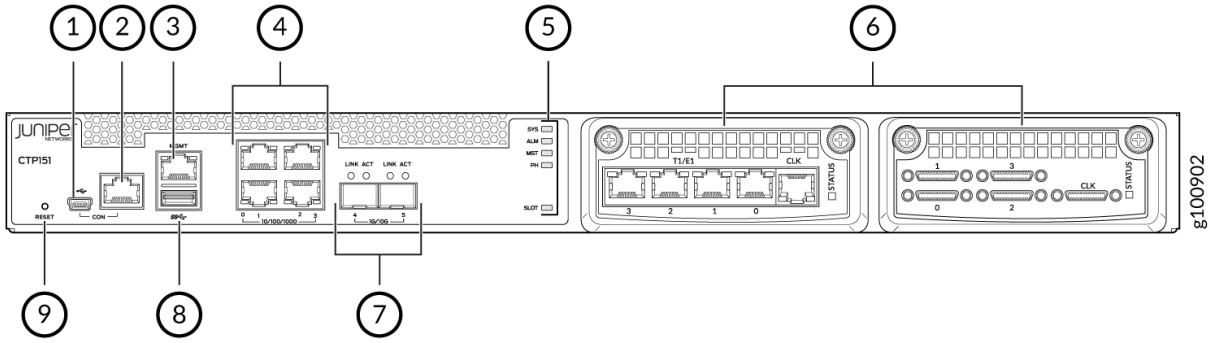
The CTP151 platform has four 10BASE-T, 100BASE-T, or 1000BASE-T RJ-45 ports that can be used as either access ports or uplink ports, two ports that support small form-factor pluggable plus (SFP+)

transceivers, one management port, one RJ-45 console port, one Mini-USB console port, and one USB 3.0 port. The CTP151 platform has a 1 U form factor and comes with three built-in fans and one built-in power supply.

NOTE: The SFP+ ports are not functional in CTPOS 9.1, CTPView 9.1, and earlier releases.

No Link Title shows the front panel components of a CTP151.

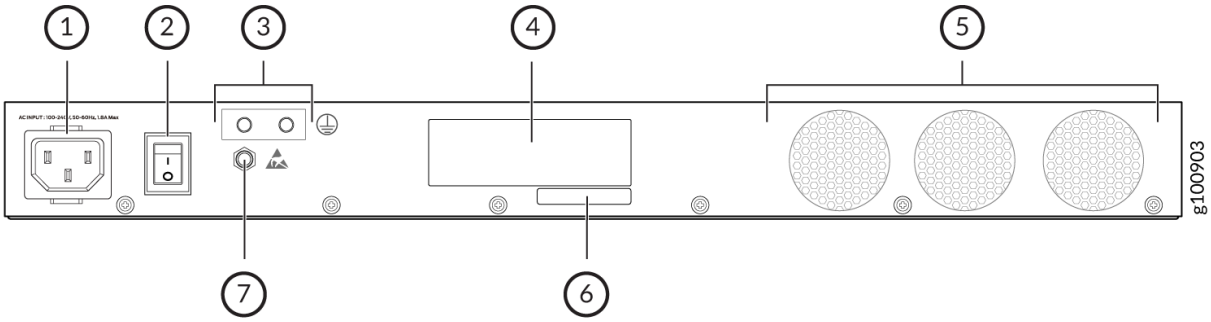
Figure 1: Front Panel Components of a CTP151



1– Mini-USB console port	6– Interface module slots
2– RJ-45 console port	7– Two 1-Gigabit Ethernet/10-Gigabit Ethernet SFP+ WAN ports
3– One 10/100/1000BASE-T RJ-45 management port	8– USB 3.0 port
4– Four 10/100/1000BASE-T RJ-45 LAN ports	9– Reset button
5– System status LEDs	

No Link Title shows the rear panel of a CTP151.

Figure 2: Rear Panel Components of a CTP151



1– AC power cord inlet	5– Fans
2– Power switch	6– CLEI code
3– Grounding points	7– Electrostatic discharge (ESD) point
4– Serial number	

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- CTP151 Serial Interface Module | 14
- CTP151 T1/E1 Interface Module | 19

LED Details of CTP151 Platform

IN THIS SECTION

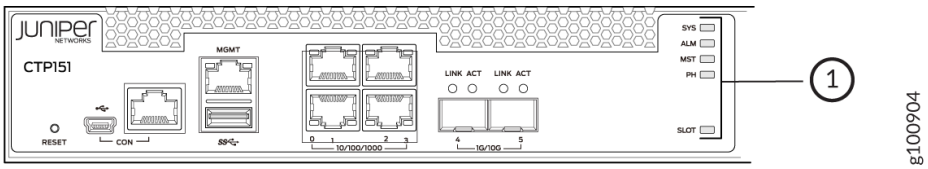
Chassis Status LEDs

The front panel of a CTP151 has chassis status LEDs labeled **ALM**, **SYS**, **MST**, **PH**, and **SLOT**.

NOTE: Only the **ALM** and **SYS** LEDs are functional on the chassis. The other LEDs are not used and are always off.

Figure 3 on page 8 shows the chassis status LEDs in a CTP151.

Figure 3: Chassis Status LEDs in a CTP151



1– Chassis status LEDs (**ALM**, **SYS**, **MST**, **PH**, and **SLOT**)	

Table 1 on page 9 describes the functional chassis status LEDs in a CTP151, their colors and states, and the status they indicate. You can view the colors of the LEDs remotely through the CLI by issuing the operational mode command `show chassis led`.

Table 1: Chassis Status LEDs in a CTP151

LED Label	Color/State		Description
SYS (System)	Off		The device is powered off or is halted.
	Blinking	Green	The device is running, but the ctpd process has not started up yet.
	On Steadily	Green	The ctpd process has started up successfully, and the device is usable.
ALM (Alarm)	Off		The device is not too hot, and the ctpd process is detected and operational.
	Amber/Yellow		The device temperature has reached the yellow alarm threshold, and the ctpd process is detected and operational.
	Red		The device temperature has reached the red alarm threshold, or the ctpd process is non-operational.

Both LEDs can be lit simultaneously.

SEE ALSO

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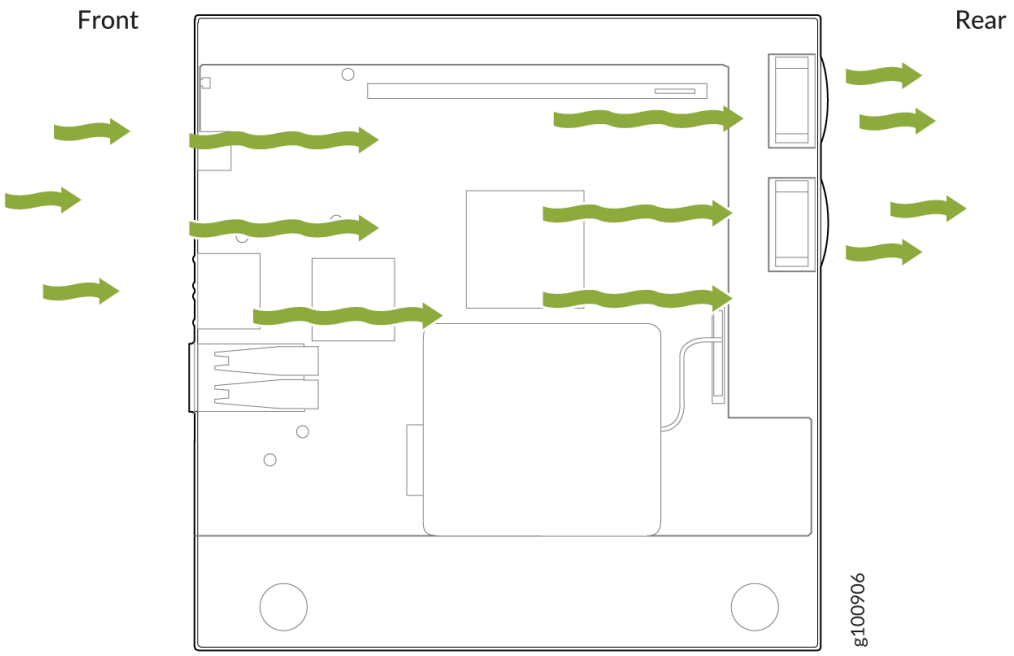
Understanding Alarm Types and Severity Levels on the CTP151 Device | 105

CTP151 Cooling System

The CTP151 device has front-to-back airflow. The air intake to cool the chassis is located on the front of the chassis. Air is pulled into the chassis and pushed toward the fans, which are built-in. Hot air exhausts from the rear of the chassis. See Figure 4 on page 11.

Figure 4: Front-to-Back Airflow Through the CTP151 Chassis



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Clearance Requirements for Airflow and Hardware Maintenance for a CTP151 Device | 27

Power Supply in the CTP151 Device

The CTP151 device uses a fixed, internal AC power supply. The power supply distributes different output voltages to the device components according to their voltage requirements. The power supply is fixed in the chassis and is not field-replaceable.

The power supply has a single AC appliance inlet that requires a dedicated AC power feed. The AC power cord inlet is on the rear panel of the device.

Table 2 on page 12 describes the AC power specifications for a CTP151 device.

Table 2: AC Power Specifications for a CTP151 Device

AC Input Voltage (Operating Range)	AC Input Line Frequency	AC Input Current Rating	Maximum Power Consumption	Power Supply Type
100–240 VAC	50–60 Hz nominal	1.8 A maximum	150 W	Internal

A detachable AC power cord is supplied with the AC power supplies. The coupler is type C13 as described by International Electrotechnical Commission (IEC) standard 60320. The plug end of the power cord fits into the power source outlet that is standard for your geographical location.

CAUTION: The AC power cord provided with each power supply is intended for use with that power supply only and not for any other use.

NOTE: In North America, AC power cords must not exceed 4.5 meters in length, to comply with National Electrical Code (NEC) Sections 400-8 (NFPA 75, 5-2.2) and 210-52 and Canadian Electrical Code (CEC) Section 4-010(3). The cords supplied with the switch are in compliance.

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CHAPTER 2

CTP151 Interface Modules

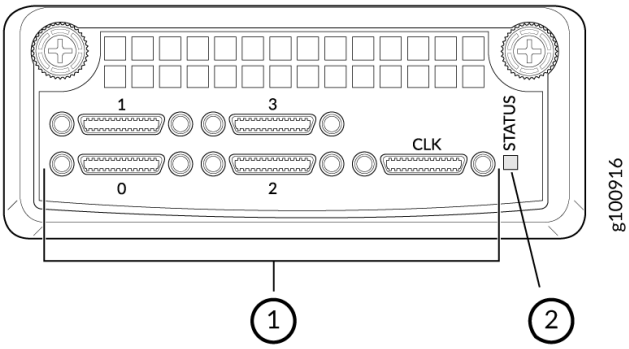
IN THIS CHAPTER

CTP151 Serial Interface Module

The Juniper Networks CTP151 Circuit to Packet platform optionally includes a replaceable CTP150–IM-SER serial interface module that can be paired with another module of the same type or a T1/E1 interface module. The serial interface module also has the option of supporting two multiservice daughter cards for 4-KHz or high-quality analog audio, or interrange instrumentation group (IRIG) signals. See "CTP151 Multiservice Interface Module" on page 16 for details.

The four-port serial interface module supports individual cabling for each port. The CTP151 ports have small serial ports for HD-26 26-pin connectors (see Figure 5 on page 15). The lowest-numbered port (marked 0) is at the bottom left, and the highest-numbered port (marked 3) is at the top right.

Figure 5: CTP151 Serial Interface Module



1– Four small serial ports and one clock reference port	2– STATUS LED

The software-selectable interfaces for the module are RS-232/V.24, EIA530/X.21, EIA530A, and V.35. Software-selectable rates range from 50 bps to 12.228 Mbps.

The module also includes an external clock reference port (CLK) for an HD-26 connector.

NOTE: The external clock reference port must be used only on the module in slot 0, the left-most slot on the front of the CTP151 chassis. For information about the CTP151 modules slot numbering, see "CTP151 Modules Slot and Port Numbering" on page 67.

On the CLK port, differential clock signals are output on the pins 4 and 17 of the HD-26 connector. When an EIA-530A DCE-F serial cable (CTP150-CBL-DB25-DCE-F) is connected to the CLK port, the TT pins 24 and 11 of the DB25 connector output clock signals. If you configure a 32 kHz reference output, an RS-422 32 kHz clock signal is generated on the pins. Even if you disable the 32 kHz reference output and configure an external clock reference, the module expects an RS-422 clock input (of the configured frequency) on the same pins.

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CTP151 T1/E1 Interface Module | **19**

CTP151 Interface Module HD-26 Connector Cable Pinouts | **41**

CTP151 Multiservice Interface Module

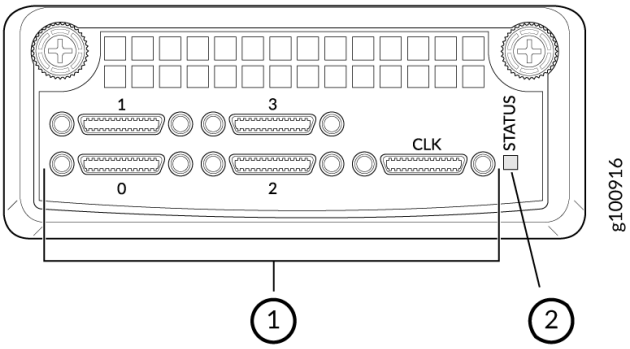
The Juniper Networks CTP151 Circuit to Packet platform optionally includes a Serial Multiservice Interface module CTP150-IM-SER-MS. The module provides 4-KHz or high-quality analog audio, or interrange instrumentation group (IRIG) signals.

The multiservice card enables an IRIG time code (IRIG-B) signal to be transported through an IP network. The IRIG-B standard consists of a family of rate-scaled serial time codes with formats containing up to three coded expressions or words. The IRIG-B pulse code contains one frame of 100 elements per second for the time of the year and GPS receiver status. IRIG-B encodes day of year, hour, minute, and second data on a 1-KHz carrier frequency, with an update rate of once per second.

NOTE: Only ports 0 and 2 (the bottom two ports) on the front of the serial module can be used for the multiservice features. You can configure direction, output high and low levels, and data range for this module.

The four-port serial interface module supports individual cabling for each port. The CTP151 ports have small serial ports for HD-26 26-pin connectors (see Figure 6 on page 18). The lowest-numbered port (marked 0) is at the bottom left, and the highest-numbered port (marked 3) is at the top right.

Figure 6: CTP151 Serial Multiservice Interface Module



1– Four small serial ports and one clock reference port	2– STATUS LED

The software-selectable interfaces for the module on all ports are RS-232/V.24, EIA530/X.21, EIA530A, and V.35. Software-selectable rates range from 50 bps to 12.228 Mbps. On ports 0 and 2 there are also options for 64Khz (4WTO) analog, high-quality analog, or IRIG.

The module also includes an external clock reference port (CLK) for an HD-26 connector. Note that only one external clock reference is required even if there are two interface modules, serial or T1/E1.

On the CLK port, differential clock signals are output on the pins 4 and 17 of the HD-26 connector. When an EIA-530A DCE-F serial cable (CTP150-CBL-DB25-DCE-F) is connected to the CLK port, the TT pins 24 and 11 of the DB25 connector output clock signals. If you configure a 32 kHz reference output, an RS-422 32 kHz clock signal is generated on the pins. Even if you disable the 32 kHz reference output and configure an external clock reference, the module expects an RS-422 clock input (of the configured frequency) on the same pins.

NOTE: The external clock reference port must be used only on the module in slot 0, the left-most slot on the front of the CTP151 chassis. For information about the CTP151 modules slot numbering, see "CTP151 Modules Slot and Port Numbering" on page 67.

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CTP151 T1/E1 Interface Module | **19**

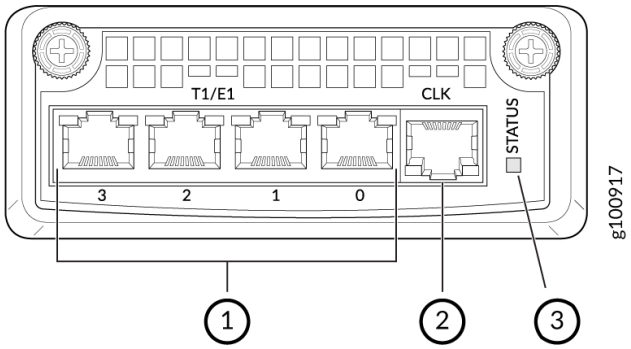
CTP151 Interface Module HD-26 Connector Cable Pinouts | **41**

CTP151 T1/E1 Interface Module

The Juniper Networks CTP151 Circuit to Packet platform optionally includes a replaceable CTP150-IM-T1E1 interface module that can be paired with another module of the same type or a serial interface module.

The four-port T1/E1 interface module supports individual cabling for each port. The CTP151 ports have T1/E1 ports for RJ-48 connectors (see Figure 7 on page 20). The highest-numbered port (labeled **3**) is on the left, and the lowest-numbered port (labeled **0**) is at the right, with the **CLK** port still farther to the right.

Figure 7: CTP151 T1/E1 Interface Module



1– Four T1/E1 ports	3– STATUS LED
2– One clock reference port	

The software-selectable T1/E1 interfaces for the module are T1, E1, fractional T1, and fractional E1. CSU options, encoding, and encapsulation are also software-selectable.

The module also includes an external clock reference port for an RJ-48 connector.

NOTE: The external clock reference port must be used only on the module in slot 0, the left-most slot on the front of the CTP151 chassis. For information about the CTP151 modules slot numbering, see "CTP151 Modules Slot and Port Numbering" on page 67.

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CTP151 Multiservice Interface Module | **16**

CTP151 Interface Module HD-26 Connector Cable Pinouts | **41**

2

PART

Planning

CHAPTER 3

System Specifications

IN THIS CHAPTER

CTP151 Platform Chassis Physical Specifications

Table 3: CTP151 Platform Chassis Physical Specifications

Category	Specification
Weight	9.9 lb (4.49 kg)
Height	1.73 in. (4.4 cm)
Width	17.36 in. (44.1 cm)
Depth	12 in. (30.5 cm)

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CHAPTER 4

Planning and Preparing the Site

IN THIS CHAPTER

General Site Guidelines

Efficient device operation requires proper site planning and maintenance. It also requires proper layout of the equipment, rack or cabinet, and wiring closet.

To plan and create an acceptable operating environment for your device and prevent environmentally caused equipment failures:

- Keep the area around the chassis free from dust and conductive material, such as metal flakes.
- Follow prescribed airflow guidelines to ensure that the cooling system functions properly. Ensure that exhaust from other equipment does not blow into the intake vents of the device.
- Follow the prescribed electrostatic discharge (ESD) prevention procedures to prevent damaging the equipment. Static discharge can cause components to fail completely or intermittently over time.
- Install the device in a secure area, so that only authorized personnel can access the device.

Environmental Requirements and Specifications

The device must be housed in a dry, clean, well-ventilated, and temperature-controlled environment.

Follow these environmental guidelines:

- The site must be as dust-free as possible, because dust can clog air intake vents and filters, reducing the efficiency of the device cooling system.
- Maintain ambient airflow for normal operation of the device. If the airflow is blocked or restricted, or if the intake air is too warm, the device might overheat, leading to the device temperature monitor shutting down the device to protect the hardware components.

Table 4 on page 25 provides the required environmental conditions for normal operation of the device.

Table 4: CTP151 Device Environmental Tolerances

Description	Tolerance
Altitude	No performance degradation up to 2000 meters at 96° F (40° C)
Relative humidity	Normal operation ensured in relative humidity range of 5% through 90%, noncondensing
Operating Temperature	32° F through 104° F (0° C through 40° C)
Storage Temperature	–40° F through 158° F (–40° C through 70° C)
Seismic	Complies with Zone 4 earthquake requirements as per GR-63, Issue 4

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Site Electrical Wiring Guidelines

Table 5 on page 26 describes the factors you must consider while planning the electrical wiring at your site.

WARNING: You must provide a properly grounded and shielded environment and use electrical surge-suppression devices.

Table 5: Site Electrical Wiring Guidelines

Site Wiring Factor	Guidelines
Signaling limitations	If your site experiences any of the following problems, consult experts in electrical surge suppression and shielding: • Improperly installed wires cause radio frequency interference (RFI). • Damage from lightning strikes occurs when wires exceed recommended distances or pass between buildings. • Electromagnetic pulses (EMPs) caused by lightning damage unshielded conductors and electronic devices.
Radio frequency interference	To reduce or eliminate RFI from your site wiring, do the following: • Use a twisted-pair cable with a good distribution of grounding conductors. • If you must exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable.
Electromagnetic compatibility	If your site is susceptible to problems with electromagnetic compatibility (EMC), particularly from lightning or radio transmitters, seek expert advice. Some of the problems caused by strong sources of electromagnetic interference (EMI) are: • Destruction of the signal drivers and receivers in the device • Electrical hazards as a result of power surges conducted over the lines into the equipment

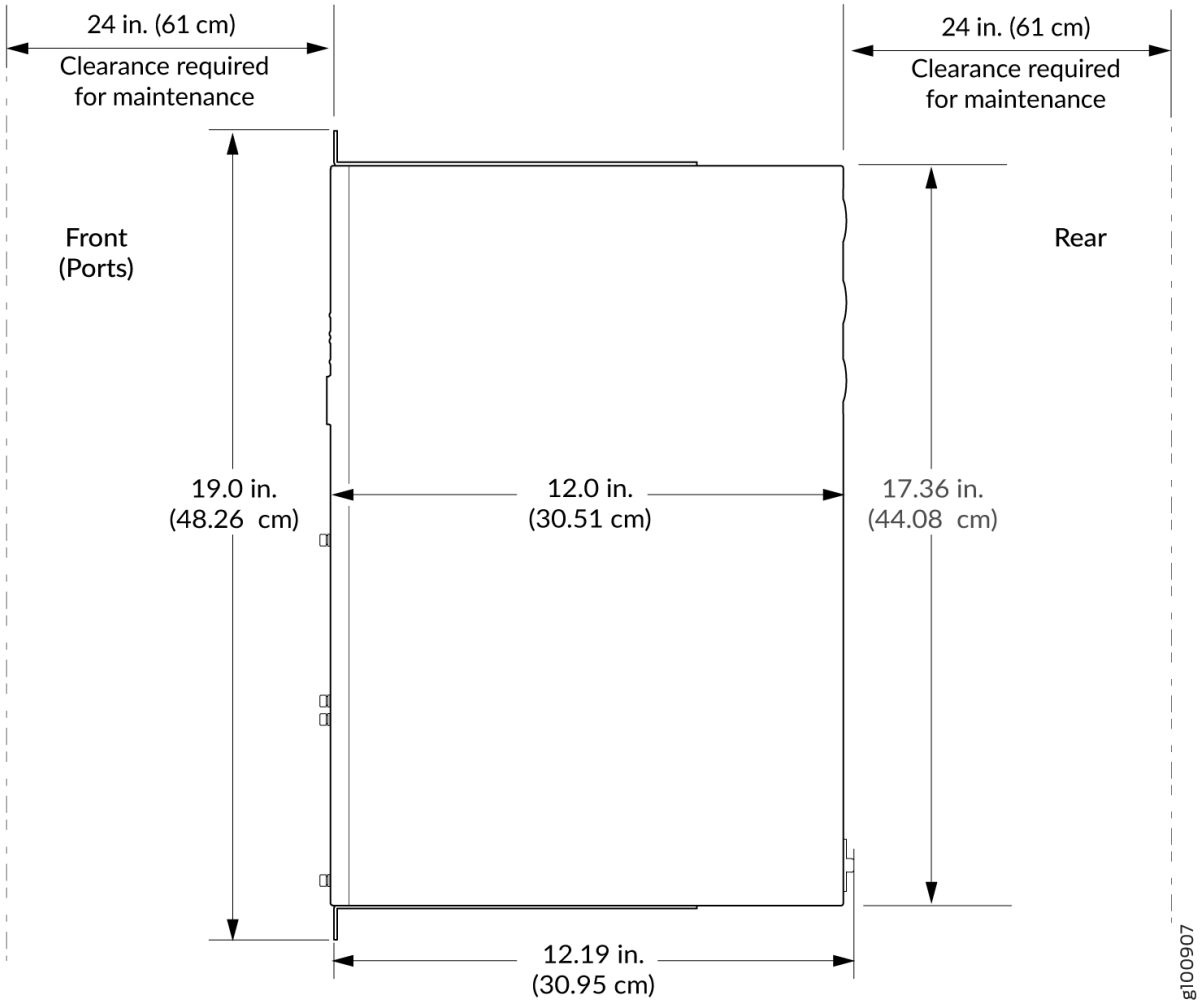
RELATED DOCUMENTATION

General Site Guidelines | 24

Clearance Requirements for Airflow and Hardware Maintenance for a CTP151 Device

When planning the site for installing a CTP151 device, you must allow sufficient clearance around the installed chassis (see Figure 8 on page 28).

Figure 8: Clearance Requirements for Airflow and Hardware Maintenance for a CTP151 Device



- For the cooling system to function properly, the airflow around the chassis must be unrestricted. See "CTP151 Cooling System" on page 10 for more information about the airflow through the chassis.
- If you are mounting a CTP151 device in a rack or cabinet with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.
- Leave at least 24 in. (61 cm) both in front of and behind the CTP151 device. For service personnel to remove and install hardware components, you must leave adequate space at the front and back of the CTP151 device. NEBS GR-63 recommends that you allow at least 30 in. (76.2 cm) in front of the rack or cabinet and 24 in. (61 cm) behind the rack or cabinet.

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CTP151 Cooling System | 10

Rack Requirements for a CTP151 Device

You can mount the CTP151 device on two-post racks or four-post racks.

Rack requirements consist of:

- Rack type
- Mounting bracket hole spacing
- Rack size and strength
- Rack connection to the building structure

Table 6 on page 30 provides the rack requirements and specifications for the device.

Table 6: Rack Requirements and Specifications for the Device

Rack Requirement	Guidelines
Rack type	Use a two-post rack or a four-post rack. You can mount the device on any two-post or four-post rack that provides bracket holes or hole patterns spaced at 1 U (1.75 in. or 4.45 cm) increments and that meets the size and strength requirements to support the weight. A U is the standard rack unit defined in *Cabinets, Racks, Panels, and Associated Equipment* (document number EIA-310–D) published by the Electronics Industry Association (http://www.ecianow.org/standards-practices/standards/). The rack must meet the strength requirements to support the weight of the chassis.
Mounting bracket hole spacing	The holes in the mounting brackets are spaced at 1 U (1.75 in. or 4.45 cm), so that the device can be mounted in any rack that provides holes spaced at that distance.
Rack size and strength	• Ensure that the rack complies with the standard defined for 19-in. rack as defined in *Cabinets, Racks, Panels, and Associated Equipment* (document number EIA-310–D) published by the Electronics Industry Association (http://www.ecianow.org/standards-practices/standards/). • Ensure that the rack rails are spaced widely enough to accommodate the device chassis' external dimensions of 1.72 in. (4.3 cm) height, 17.36 in. (44.1 cm) width, and 12 in. (30.5 cm) depth. The 19-in. rack brackets dimensions are 0.82 in. (2.1 cm) wide, 1.72 in. (4.3 cm) height, and 2.1 in. (5.4 cm) depth. The 23-in. rack brackets dimensions are 3.3 in. (8.4 cm) wide, 1.72 in. (4.3 cm) height, and 8.5 in. (21.6 cm) depth. • The rack must be strong enough to support the weight of the device. • Ensure that the spacing of rails and adjacent racks allows for the proper clearance around the device and rack.
Rack connection to building structure	• Secure the rack to the building structure. • If earthquakes are a possibility in your geographical area, secure the rack to the floor. • Secure the rack to the ceiling brackets as well as wall or floor brackets for maximum stability.

One pair of mounting brackets for mounting the device on two posts of a rack is supplied with each device. For mounting the device on four posts of a rack or cabinet, you can use the supplied two-post rack-mounting kit and secure the device to two of the posts.

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Mounting a CTP151 Device on Two Posts in a Rack | 60

Cabinet Requirements for a CTP151 Device

You can mount the CTP151 device in an enclosure or cabinet that contains a four-post 19-in. open rack as defined in *Cabinets, Racks, Panels, and Associated Equipment* (document number EIA-310-D) published by the Electronics Industry Association.

Cabinet requirements consist of:

- Cabinet size and clearance
- Cabinet airflow requirements

Table 7 on page 31 provides the cabinet requirements and specifications for the CTP151 device.

Table 7: Cabinet Requirements for the CTP151 Device

Cabinet Requirement	Guidelines
Cabinet size and clearance	The minimum cabinet size for accommodating a CTP151 device is 36 in. (91.4 cm) deep. Large cabinets improve airflow and reduce the chance of overheating.

Table 7: Cabinet Requirements for the CTP151 Device *(Continued)*

Cabinet Requirement	Guidelines
Cabinet airflow requirements	When you mount the CTP151 device in a cabinet, ensure that ventilation through the cabinet is sufficient to prevent overheating. • Ensure that the cool air supply you provide through the cabinet adequately dissipates the thermal output of the CTP151 device. • Ensure that the cabinet allows the chassis hot exhaust air to exit the cabinet without recirculating into the CTP151 device. An open cabinet (without a top or doors) that employs hot air exhaust extraction from the top allows the best airflow through the chassis. If the cabinet contains a top or doors, perforations in these elements assist with removing the hot air exhaust. • Install the CTP151 device in the cabinet in a way that maximizes the open space on the side of the chassis that has the hot air exhaust. • Route and dress all cables to minimize the blockage of airflow to and from the chassis. • Ensure that the spacing of rails and adjacent cabinets allows for the proper clearance around the CTP151 device and cabinet. • A cabinet larger than the minimum required provides better airflow and reduces the chance of overheating.

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Mounting a CTP151 Device on Two Posts in a Rack | 60

CTP Cabling Recommendations

We suggest that you comply with the following recommendations:

- Ensure that cable distance and rate limits meet IEEE-recommended maximum speeds and distances for signaling purposes. For information about attenuation and power loss in optical fiber cables see:

  - ANSI T1.646a-1997 Telecommunications – Broadband ISDN - Physical Layer Specification for User-Network Interfaces Including DS1/ATM (1997)
  - ANSI T1.646-1995 Telecommunications – Broadband ISDN - Physical Layer Specification for User-Network Interfaces Including DS1/ATM (1995)
- Ensure that power cables deliver sufficient power to the device.
- Attach laser fiber connectors only to Class 1 laser devices in accordance with IEC 60825-1, Safety of Laser Products - Part 1.
- Route cables so that they do not restrict ventilation or airflow.
- Route cables so that modules and field-replaceable units are easily accessible.
- Route cables in a logical direction to prevent loss of connectivity to other equipment in the rack, associated equipment in adjacent racks, or to the backbone network.
- Consider using cable-management brackets to keep network cables untangled and orderly and to prevent cables from hindering access to other slots.

For additional cable recommendations, consult the document *GR-63–CORE: Network Equipment Building System (NEBS) Requirements: Physical Protection, Issue 2, April 2002*.

CHAPTER 5

Cable and Pinout Specifications

IN THIS CHAPTER

Cable Specifications for Console Connections for the CTP151 Device

Table 8 on page 34 lists the specifications for the cables that connect the CTP151 device to a management device.

Table 8: Cable Specifications for Console Connections for the CTP151 Device

Port on CTP151 Device	Cable Specification	Cable Supplied	Maximum Length	Device Receptacle
RJ-45 Console port	RS-232 (EIA-232) serial cable	One 7-foot (2.13-meter) long RJ-45 patch cable and RJ-45 to DB-9 adapter (p/n 720-014126)	7 feet (2.13 meters)	RJ-45
Mini-USB Console port	USB 2.0 A to Mini-B cable	One 6-foot (1.8-meter) long USB 2.0 Standard-A to Mini-USB cable (p/n 720-037982)	6 feet (1.8 meters)	Mini-USB

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Management Port Connector Pinout Information for the CTP151 Device | 38

Connecting a CTP151 Device to a Management Console | 78

Mini-USB Type-B Console Port Specifications for a CTP151 Device

A CTP151 device has two ports: an RJ-45 port and a Mini-USB port.

By default, the RJ-45 port is set as the active console port. It can display all the early boot and low-level message output and you can access the device through this port in the debugger prompt.

The Mini-USB console port uses a Mini-B plug (5-pin) connector to connect to a console management device. The default baud rate for the console port is 9600 baud.

Table 9 on page 35 provides the pinout information of the Mini-USB Type-B console port.

Table 9: Mini-USB Type-B Console Port Pinout Information for CTP151 Device

Pin	Signal	Description
1	VCC	+5 VDC
2	D-	Data -
3	D+	Data +
X	N/C	May be N/C, GND or used as an attached device presence indicator
4	GND	Ground

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Console Port Connector Pinouts for a CTP151 Device

The console port (labeled **CON**) is an RS-232 serial interface that uses an RJ-45 connector to connect to a console management device. The default baud rate for the console port is 9600 baud.

Table 10 on page 36 provides the pinout information for the RJ-45 console connector. An RJ-45 cable and RJ-45 to DB-9 adapter (p/n 720-014126) are supplied with the CTP151 device.

NOTE: If your laptop or PC does not have a DB-9 plug connector pin, you must use the Mini-USB console port on the front panel of the CTP151 to connect your laptop or PC directly to the CTP151 device. If your PC or laptop has a DB-9 plug connector pin, you can use a combination of the RJ-45 cable and RJ-45 to DB-9 adapter supplied with the device to connect your PC to the CTP151 device.

Table 10: Console Port Connector Pinouts for the CTP151 Device

Pin	Signal	Description
1	RTS Output	Request to send
2	DTR Output	Data terminal ready
3	TxD Output	Transmit data
4	Signal Ground	Signal ground
5	Signal Ground	Signal ground
6	RxD Input	Receive data
7	DCD Input	Data carrier detect
8	CTS Input	Clear to send

RELATED DOCUMENTATION

Connecting a CTP151 Device to a Management Console | 78

CTP151 Platform Overview | 2

USB Port Specifications for a CTP151 Device

The following Juniper Networks USB flash drives have been tested and are officially supported for the USB port in the CTP151 device:

- RE-USB-1G-S—1-gigabyte (GB) USB flash drive
- RE-USB-2G-S—2-GB USB flash drive
- RE-USB-4G-S—4-GB USB flash drive

CAUTION: Any USB memory product not listed as supported for the CTP151 device has not been tested by Juniper Networks. The use of any unsupported USB memory product could expose your device to unpredictable behavior. Juniper Networks Technical Assistance Center (JTAC) can provide only limited support for issues related to unsupported hardware. We strongly recommend that you use only supported USB flash drives.

CAUTION: Remove the USB flash drive before upgrading CTPOS or rebooting the CTP151 device. Failure to do so could expose your device to unpredictable behavior.

NOTE: USB flash drives used with the CTP151 device must support USB 2.0 or later.

NOTE: If the CTP151 device does not boot from the internal SSD drive, you must reinstall the CTPOS software using a USB installation image.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Bringing Up the CTP151 with CTPOS on Internal SSD | 88

Management Port Connector Pinout Information for the CTP151 Device

The 1000BASE-T RJ-45 management port on the CTP151 device uses an RJ-45 connector to connect to a management device for out-of-band management.

Table 11 on page 38 provides the pinout information of the RJ-45 management port connector.

Table 11: RJ-45 Management Port Connector Pinouts for the CTP151 Device

Pin	Signal	Description
1	TRP1+	Transmit/receive data pair 1
2	TRP1–	Transmit/receive data pair 1
3	TRP2+	Transmit/receive data pair 2
4	TRP3+	Transmit/receive data pair 3
5	TRP3–	Transmit/receive data pair 3
6	TRP2–	Transmit/receive data pair 2
7	TRP4+	Transmit/receive data pair 4
8	TRP4–	Transmit/receive data pair 4

RELATED DOCUMENTATION

LED Details of CTP151 Platform | 7

Connecting a CTP151 Device to a Network for Out-of-Band Management | 76

Network Port Connector Pinout Information for a CTP151 Device

A network port on the CTP151 device uses an RJ-45 connector to connect to a device.

The port uses an autosensing RJ-45 connector to support a 10/100/1000Base-T connection.

Table 12 on page 39 provides the pinout information for the RJ-45 connector. An RJ-45 cable and RJ-45 to DB-9 adapter (p/n 720-014126) are supplied with the device.

Table 12: Network Port Connector Pinout Information for CTP151 Device

Pin	Signal	Description
1	TRP1+	Transmit/receive data pair 1 Negative Vport (in PoE models)
2	TRP1-	Transmit/receive data pair 1 Negative Vport (in PoE models)
3	TRP2+	Transmit/receive data pair 2 Positive Vport (in PoE models)
4	TRP3+	Transmit/receive data pair 3
5	TRP3-	Transmit/receive data pair 3
6	TRP2-	Transmit/receive data pair 2 Positive Vport (in PoE models)
7	TRP4+	Transmit/receive data pair 4
8	TRP4-	Transmit/receive data pair 4

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

RJ-45 to DB-9 Serial Port Adapter Pinout Information for a CTP151 Device

The console port is an RS-232 serial interface that uses an RJ-45 connector to connect to a management device such as a PC or a laptop. If your PC or laptop has a DB-9 plug connector pin, you can use a combination of the RJ-45 cable and RJ-45 to DB-9 adapter (p/n 720-014126) supplied with the device to connect your PC to the CTP151 device.

If your laptop or PC does not have a DB-9 plug connector pin, you must use the Mini-USB console port on the front panel of the CTP151 to connect your laptop or PC directly to the CTP151 device.

Table 13 on page 40 provides the pinout information for the RJ-45 to DB-9 serial port adapter.

Table 13: RJ-45 to DB-9 Serial Port Adapter Pinout Information

RJ-45 Pin	Signal	DB-9 Pin	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	GND	5	GND
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Connecting a CTP151 Device to a Management Console | 78

CTP151 Interface Module HD-26 Connector Cable Pinouts

IN THIS SECTION

The CTP151 device has five separate EIA-530 cabling options for the serial interface module, with a plug HD-26 connector on the module end and the following connectors on the DCE or DTE end:

- Socket DB-25 connector on the DCE end for EIA-530/RS-422/V.11, RS-232/V.24, V.35
- Plug DB-25 connector on the DTE end for EIA-530/RS-422/V.11, RS-232/V.24, V.35
- Socket DB-15 connector on the DCE end for X.21
- Plug DB-15 connector on the DTE end for X.21
- RJ-45 connector for Radio V.24 Sync interface

The pinouts for these connections have different configurations for EIA-530, RS-232, voice, and T1 interface signals.

EIA-530 Connector Interface Signal Pinouts (DB-25 Socket DCE)

Table 14 on page 41 lists the EIA-530 interface signal pinouts for the HD-26 connector to the socket DB-25 connector for the CTP151 platform.

Table 14: EIA-530 DCE Connector Interface Signals for HD-26 to Socket DB-25

HD-26 Pin	DB-25 Pin	Description	Circuit
1	3	Receive Data—A (output from CTP)	BB

Table 14: EIA-530 DCE Connector Interface Signals for HD-26 to Socket DB-25 *(Continued)*

HD-26 Pin	DB-25 Pin	Description	Circuit
2	17	Receive Clock—A (output from CTP)	DD
3	15	Transmit Clock (from DCE)—A (output from CTP)	DB
4	24	Transmit Clock (from DTE)—A (input to CTP)	DA
5	2	Transmit Data (SD)—A (input to CTP)	BA
6	8	Data carrier detect (DCD)—A (output from CTP)	CF
7	6	Data set ready (DSR)—A (output from CTP)	CC
8	5	Clear to send (CTS)—A (output from CTP)	CB
9	13	Clear to send (CTS)—B (output from CTP)	CB
10	19	Request to send (RTS)—B (input to CTP)	CA
11	4	Request to send (RTS)—A (input to CTP)	CA
12	20	Data terminal ready (DTR)—A (input to CTP)	CD
13	18	Local loopback (LL) (input to CTP)	LL
14	16	Receive Data (RD)—B (output from CTP)	BB
15	9	Receive Clock—B (output from CTP)	DD
16	12	Transmit Clock (from DCE)—B (output from CTP)	DB

Table 14: EIA-530 DCE Connector Interface Signals for HD-26 to Socket DB-25 *(Continued)*

HD-26 Pin	DB-25 Pin	Description	Circuit
17	11	Transmit Clock (from DTE)—B (input to CTP)	DA
18	14	Transmit Data—B (input to CTP)	BA
19	10	Data carrier detect (DCD)—B (output from CTP)	CF
20	22	Data set ready (DSR)—B (output from CTP)	CC
21	21	Remote loopback (RL) (input to CTP)	RL
22	25	Test mode (TM) (output from CTP)	TM
24, 26	7	Signal ground (GND)	Ground
25	23	Data terminal ready (DTR)—B (input to CTP)	CD

EIA-530 Connector Interface Signal Pinouts (DB-25 Plug DTE)

Table 15 on page 43 lists the EIA-530 interface signal pinouts for the HD-26 connector to the plug DB-25 connector for the CTP151 platform.

Table 15: EIA-530 DTE Connector Interface Signals for HD-26 to Plug DB-25

HD-26 Pin	DB-25 Pin	Description
1	2	Transmit Data—A (output from CTP)
2	24	Transmit Clock (from DTE)—A (output from CTP)
3	15	Transmit Clock (from DCE)—A (input to CTP)

Table 15: EIA-530 DTE Connector Interface Signals for HD-26 to Plug DB-25 *(Continued)*

HD-26 Pin	DB-25 Pin	Description
4	17	Receive Clock—A (input to CTP)
5	3	Receive Data—A (input to CTP)
6	8	Data carrier detect—A (input to CTP)
7	20	Data terminal ready—A (output from CTP)
8	4	Request to send—A (output from CTP)
9	19	Request to send—B (output from CTP)
10	13	Clear to send—B (input to CTP)
11	5	Clear to send—A (input to CTP)
12	6	Data set ready—A (input to CTP)
13	18	Local loopback (output from CTP)
14	14	Transmit Data—B (output from CTP)
15	11	Transmit Clock (from DTE)—B (output from CTP)
16	12	Transmit Clock (from DCE)—B (input to CTP)
17	9	Receive Clock—B (input to CTP)
18	16	Receive Data—B (input to CTP)

Table 15: EIA-530 DTE Connector Interface Signals for HD-26 to Plug DB-25 *(Continued)*

HD-26 Pin	DB-25 Pin	Description
19	10	Data carrier detect—B (input to CTP)
20	23	Data terminal ready—B (output from CTP)
21	25	Test mode (input to CTP)
22	21	Remote loop (output from CTP)
24, 26	7	Ground
25	22	Data set ready—B (input to CTP)

X.21 Connector Interface Signal Pinouts (DB-15 Socket DCE)

Table 16 on page 45 lists the X.21 interface signal pinouts for the HD-26 connector to the socket DB-15 connector for the CTP151 platform.

Table 16: X.21 DCE Connector Interface Signals for HD-26 to Socket DB-15

HD-26 Pin	DB-15 Pin	Description
1	4	Receive Data—A (output from CTP)
2	6	Receive Clock—A (output from CTP)
4	7	Transmit Clock—A (input to CTP)
5	2	Transmit Data—A (input to CTP)
8	5	Signal Out—A (output from CTP)

Table 16: X.21 DCE Connector Interface Signals for HD-26 to Socket DB-15 *(Continued)*

HD-26 Pin	DB-15 Pin	Description
9	12	Signal Out—B (output from CTP)
10	10	Signal In—B (input to CTP)
11	3	Signal In—A (input to CTP)
14	11	Receive Data—B (output from CTP)
15	13	Receive Clock—B (output from CTP)
17	14	Transmit Clock—B (input to CTP)
18	9	Transmit Data—B (input to CTP)
24, 26	8	Ground

X.21 Connector Interface Signal Pinouts (DB-15 Plug DTE)

Table 17 on page 46 lists the X.21 interface signal pinouts for the HD-26 connector to the plug DB-15 connector for the CTP151 platform.

Table 17: X.21 DTE Connector Interface Signals for HD-26 to Plug DB-15

HD-26 Pin	DB-15 Pin	Description
1	4	Transmit Data—A (output from CTP)
2	6	Transmit Clock—A (output from CTP)
4	7	Receive Clock—A (input to CTP)

Table 17: X.21 DTE Connector Interface Signals for HD-26 to Plug DB-15 *(Continued)*

HD-26 Pin	DB-15 Pin	Description
5	2	Receive Data—A (input to CTP)
8	5	Signal Out—A (output from CTP)
9	12	Signal Out—B (output from CTP)
10	10	Signal In—B (input to CTP)
11	3	Signal In—A (input to CTP)
14	11	Transmit Data—B (output from CTP)
15	13	Transmit Clock—B (output from CTP)
17	14	Receive Clock—B (input to CTP)
18	9	Receive Data—B (input to CTP)
24, 26	8	Ground

V.24 Connector Interface Signal Pinouts (RJ-45 Plug)

Table 18 on page 47 lists the V.24 interface signal pinouts for the HD-26 connector to the plug RJ-45 connector for the CTP151 platform.

Table 18: V.24 Connector Interface Signals for HD-26 to RJ-45

HD-26 Pin	RJ-45 Pin	Description
1	5	TX

Table 18: V.24 Connector Interface Signals for HD-26 to RJ-45 *(Continued)*

HD-26 Pin	RJ-45 Pin	Description
2	1	RCLK
3	3	TCLK
5	6	RX
6	2	CD
8	7	CTS
11	8	RTS
24, 26	4	GND

T1/E1 Interface Signal Pinouts (RJ-45 Plug)

Table 19 on page 48 lists the T1/E1 interface module pinout for the RJ-45 connector.

Table 19: T1/E1 Interface Module—RJ-45 Connector Pinout

RJ-45 Pin	Signal
1	RX Ring
2	RX Tip
3	–
4	TX Ring
5	TX Tip

Table 19: T1/E1 Interface Module—RJ-45 Connector Pinout *(Continued)*

RJ-45 Pin	Signal
6	–
7	–
8	–

RELATED DOCUMENTATION

- CTP151 Serial Interface Module | **14**
- CTP151 Multiservice Interface Module | **16**
- CTP151 T1/E1 Interface Module | **19**

3

PART

Safety

CHAPTER 6

General Safety Guidelines and Warnings

IN THIS CHAPTER

CTP151 Safety Guidelines and Warnings

IN THIS SECTION

For your safety, before installing the device, review all safety warnings in this section.

WARNING: The recommended maximum ambient temperature is 40° C (104° F). For safe operation, take into consideration the internal temperature within the rack.

WARNING: Install equipment in the rack from the bottom upward. Doing this helps maintain the stability of the rack and reduces the chance of the rack tipping over.

WARNING: Do not insert any metal object, such as a screwdriver, into an open slot or the backplane. Doing so can cause electric shock and serious burns.

WARNING: For the larger CTP Series devices, three people are required to install the device in a rack: two to lift the device into position and one to screw it to the rack.

WARNING: Connect the device or rack to ground (earth), and ensure that a reliable grounding path is maintained in the rack.

WARNING: Do not work on the device or connect or disconnect cables during lightning activity.

WARNING: Be sure that circuit breakers for the power source are in the OFF position before attaching power cables.

WARNING: Before servicing the device, turn off the power.

WARNING: Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. Metal objects heat up when connected to power and ground and can cause serious burns or become welded to the terminals.

CAUTION: Evaluate the overall loading of the branch circuit before you install any equipment into a rack.

Compliance Statement for Argentina

EQUIPO DE USO IDÓNEO.

RELATED DOCUMENTATION

Safety Guidelines and Warnings for Installing CTP151 Modules | 53

Agency Approvals for the CTP151 Platform | 55

CHAPTER 7

Module Installation Safety Guidelines and Warnings

IN THIS CHAPTER

Safety Guidelines and Warnings for Installing CTP151 Modules

Before and during the installation process, observe the following warnings:

WARNING: Do not work on the device or connect or disconnect cables during lightning activity.

WARNING: Be sure circuit breakers for the power source are in the OFF position before attaching power cables.

WARNING: Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. Metal objects heat up when connected to power and ground and can cause serious burns or become welded to the terminals.

WARNING: Do not insert any metal object, such as a screwdriver, into an open slot or the midplane. Doing so can cause electric shock and serious burns.

WARNING: Never attempt to repair parts of modules yourself. Only trained customer service personnel are authorized to service parts. Call Juniper Networks Customer Service to make arrangements to return defective modules for repair.

RELATED DOCUMENTATION

Required Tools and Safety Items for Installing CTP Modules | 68

Installing a CTP Interface Module, Processor Module, or Clock Module | 69

CHAPTER 8

Hardware Compliance and Homologation

IN THIS CHAPTER

Agency Approvals for the CTP151 Platform

The CTP151 platform complies with the following regulatory requirements:

- Safety
  - CAN/CSA-C22.2 No. 60950-1: Information Technology Equipment - Safety (Canada)
  - UL 60950-1 (2nd Edition): Information Technology Equipment - Safety (U.S.)
  - IEC 60950-1: 2005/A2:2013: Information Technology Equipment - Safety (All country deviations): CB Scheme
- Electromagnetic Compatibility (EMC)
  - EN 300 386: Telecom Network Equipment (EMC requirements)
  - EN 55032/CISPR 32, Class A: Electromagnetic compatibility of multimedia equipment (Emission requirements)
  - EN 55022/CISPR 22: Information Technology Equipment (Emissions)
  - EN 55024/CISPR 24: Information Technology Equipment (Immunity)
  - CISPR 35: Multimedia equipment Immunity requirements
  - FCC 47 CFR Part 15, Class A: U.S. Radiated and Conducted Emissions
  - ICES-003, Class A: Canada Radiated and Conducted Emissions
  - AS/NZS CISPR 32, Class A: Australia/New Zealand Radiated and Conducted Emissions
  - VCCI-CISPR 32, Class A: Japanese Radiated and Conducted Emissions

- QCVN 118:2018/BTTTT: Vietnam Emissions
- TCVN 7317:2003: Vietnam Immunity
- TEC/SD/DD/EMC-221/05/OCT-16 India EMC standard
- IEC/EN 61000: Immunity requirements

RELATED DOCUMENTATION

CTP151 Platform Overview | **2**

CTP151 Safety Guidelines and Warnings | **51**

4

PART

Installation

CHAPTER 9

Unpacking and Mounting the CTP151 Device

IN THIS CHAPTER

Unpacking a CTP151 Device

The CTP151 device is shipped in a cardboard carton, secured with foam packing material. The carton has an accessory compartment and contains the quick start instructions.

CAUTION: CTP151 device is maximally protected inside the shipping carton. Do not unpack the devices until you are ready to begin installation.

To unpack the device:

1. Open the carton.
2. Pull out the packing material holding the device in place.
3. Verify the parts received against the inventory on the label attached to the carton. See "Parts Inventory (Packing List) for a CTP151 Device" on page 59.
4. Save the shipping carton and packing materials in case you need to move or ship the device later.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Parts Inventory (Packing List) for a CTP151 Device | 59

Parts Inventory (Packing List) for a CTP151 Device

The device shipment includes a packing list. Check the parts you receive in the device shipping carton against the items on the packing list. The parts shipped depend on the configuration you order.

If any part on the packing list is missing, contact your customer service representative or contact Juniper customer care from within the U.S. or Canada by telephone at 1-888-314-5822. For international-dial or direct-dial options in countries without toll-free numbers, see https://www.juniper.net/support/requesting-support.html.

Table 20 on page 59 lists the parts and their quantities in the packing list.

Table 20: Packing List for a CTP151 Device

Component	Quantity
Device	1
AC power cord	1 **NOTE**: By default, one AC power cord that is suitable for use in the U.S. is supplied with the device. If you need a power cord for use in another country, you must order it while purchasing the CTP151 device.
AC power cord retainer clip	1
Mounting brackets	2
Mounting screws to attach the mounting brackets to the device chassis	8
Rubber feet	4
RJ-45 cable and RJ-45 to DB-9 serial port adapter	1
USB 2.0 Standard-A to Mini-USB cable	1
Documentation Roadmap	1

Table 20: Packing List for a CTP151 Device *(Continued)*

Component	Quantity
End User License Agreement	1

NOTE: You must provide mounting screws that are appropriate for your rack or cabinet to mount the chassis on a rack or a cabinet.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Unpacking a CTP151 Device | 58

Registering Products—Mandatory for Validating SLAs

Register all new Juniper Networks hardware products and changes to an existing installed product using the Juniper Networks website to activate your hardware replacement service-level agreements (SLAs).

CAUTION: Register product serial numbers on the Juniper Networks website and update the installation base data if there is any addition or change to the installation base or if the installation base is moved. Juniper Networks will not be held accountable for not meeting the hardware replacement service-level agreement for products that do not have registered serial numbers or accurate installation base data.

Register your product(s) at https://tools.juniper.net/svcreg/SRegSerialNum.jsp.
Update your installation base at https://www.juniper.net/customers/csc/management/updateinstallbase.jsp.

Mounting a CTP151 Device on Two Posts in a Rack

Before mounting a CTP151 device on two posts in a rack:

- Place the rack in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure.
- Read *CTP Safety Guidelines and Warnings*.
- Remove the device from the shipping carton.

Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2
- 2 mounting brackets and 8 mounting screws (provided in the accessory box shipped with the device)
- Screws to secure the chassis to the rack (not provided)

You can mount a CTP151 device on two posts of a 19-in. rack (either a two-post or a four-post rack). One pair of mounting brackets for mounting the device on two posts of a rack is supplied with each device. For mounting the device on a four-post rack, you can use the supplied two-post rack-mounting kit and secure the device to two of the posts.

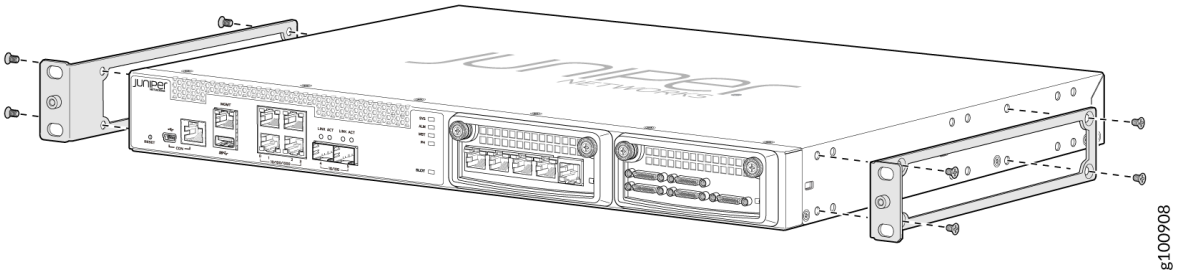
NOTE: One person must be available to lift the device while another secures the device to the rack.

⚠ **CAUTION**: If you are mounting multiple devices on a rack, mount a device in the bottom of the rack first and proceed to mount the rest of the devices from bottom to top.

To mount the device on two posts in a rack:

1. Place the device on a flat, stable surface.
2. Align the mounting brackets along the front, rear, or center of the side panels of the device chassis depending on how you want to mount the device. For example, if you want to front-mount the device, align the brackets along the front of the side panel. See Figure 9 on page 62.

Figure 9: Attaching the Mounting Brackets to the Side Panels of the CTP151 Device



3. Align the bottom holes in the mounting brackets with holes on the side panels of the device chassis.
4. Insert mounting screws into the aligned holes. Tighten the screws.
5. Ensure that the other holes in the mounting brackets are aligned with the holes in the side panels. Insert a screw in each hole and tighten the screws.
6. Have one person grasp both sides of the device, lift the device, and position it in the rack, aligning the mounting bracket holes with the threaded holes in the rack or cabinet rail. Align the bottom hole in both the mounting brackets with a hole in each rack rail, making sure the chassis is level. See Figure 10 on page 64 and Figure 11 on page 65.

Figure 10: Mounting the Device on Two Posts in a Two-Post Rack

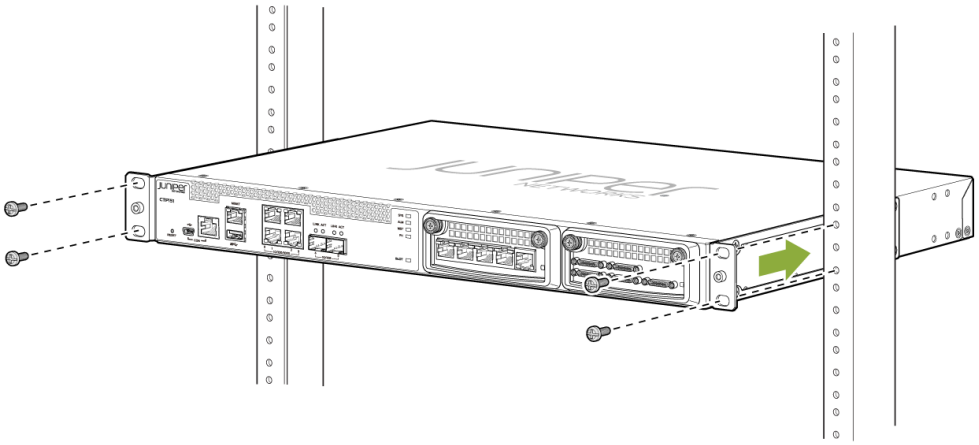


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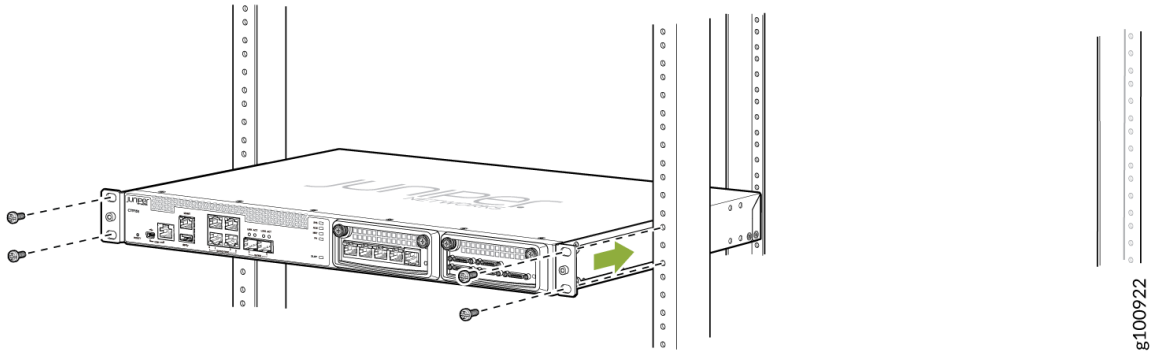
Figure 11: Mounting the Device on Two Posts in a Four-Post Rack



7. Have a second person secure the device to the rack by using the appropriate screws. Tighten the screws.
8. Ensure that the device chassis is level by verifying that all screws on one side of the rack are aligned with the screws on the other side.

RELATED DOCUMENTATION

Rack Requirements for a CTP151 Device | **29**

Cabinet Requirements for a CTP151 Device | **31**

CHAPTER 10

Installing Modules

IN THIS CHAPTER

CTP151 Modules Slot and Port Numbering

The CTP151 device has removable interface modules from the front, but no removable fan trays.

In the CTP151 device, slot numbering is from left to right, 0 to 1. Any single module must be installed in slot 0, and any single clock connection must come from the port in slot 0.

CTP151 port numbering on the front panel for the serial interface module is bottom left 0, top left 1, bottom right 2, and top right 3.

Port numbering for the T1/E1 interface module is 0, 1, 2, and 3, from right to left with a clock port at the far right.

RELATED DOCUMENTATION

Protecting CTP Modules and Slots | 68

Installing a CTP Interface Module, Processor Module, or Clock Module | 69

Protecting CTP Modules and Slots

To prevent damage from electrostatic discharge, wear an antistatic wrist strap, and ensure proper grounding when handling components.

To protect the modules, components, and slots when installing components, observe the following guidelines:

CAUTION: When handling components, use an antistatic wrist strap connected to a proper grounding device. This action helps to protect the module from damage by electrostatic discharge.

CAUTION: Always handle a module by its edges. Do not touch the components, pins, leads, or solder connections.

CAUTION: Be sure to cover every empty slot with a blank filler panel to protect the device from dust or other foreign substances and to ensure proper device cooling.

CAUTION: Do not discard the antistatic bag. When a module is not in use, store it in an antistatic bag.

RELATED DOCUMENTATION

Safety Guidelines and Warnings for Installing CTP151 Modules

Required Tools and Safety Items for Installing CTP Modules

Required Tools and Safety Items for Installing CTP Modules

You need the following tools to install the interface module of a CTP151 device:

- Phillips screwdriver
- ESD wrist strap or other grounding device

RELATED DOCUMENTATION

Safety Guidelines and Warnings for Installing CTP151 Modules

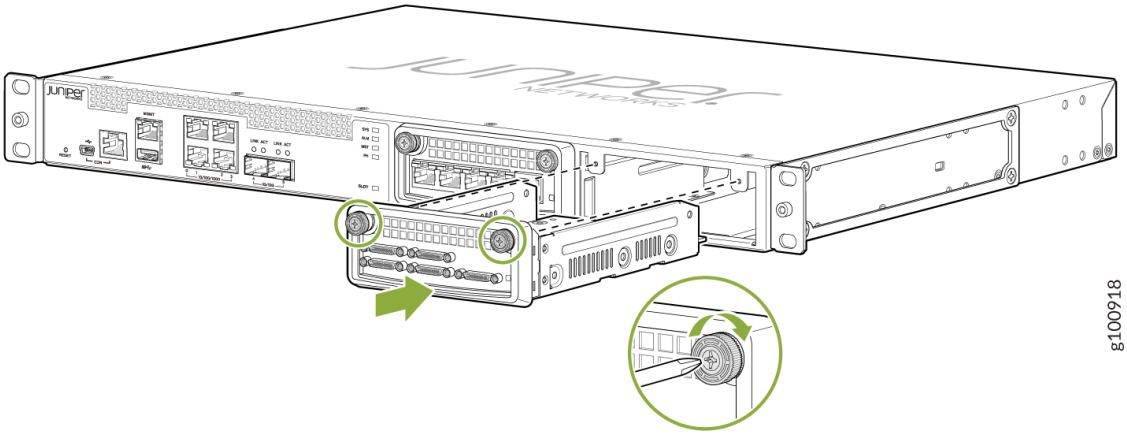
Installing a CTP Interface Module, Processor Module, or Clock Module

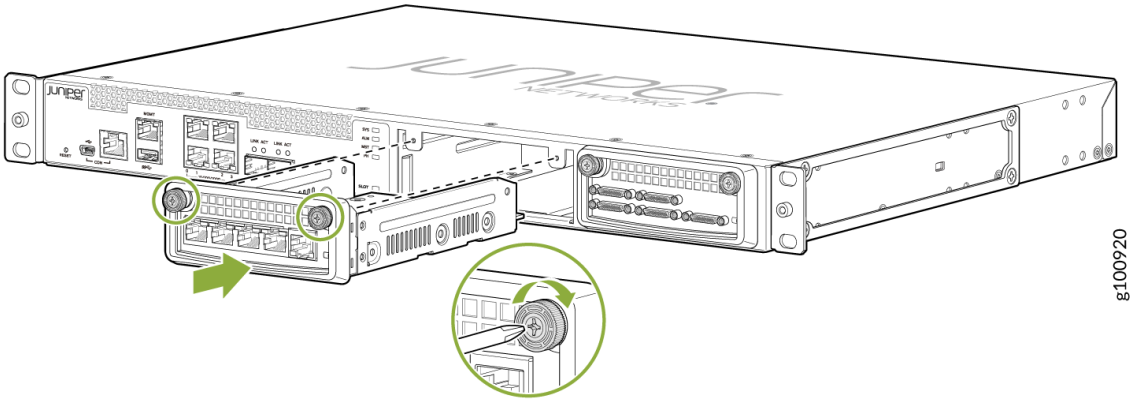
Installing a CTP Interface Module, Processor Module, or Clock Module

To install a CTP151 interface module:

1. Wrap and fasten one end of the ESD grounding strap around your wrist and connect the other end to a site ESD point.
2. Choose the slot where you want to insert the module. If only a single module is being installed, it must be installed in slot 0.
3. With a Phillips screwdriver, loosen the screws that secure the blank filler panel covering the empty chassis slot, if present, and remove the filler panel.
4. Remove the module from its antistatic bag, being careful not to touch module components, pins, leads, or solder connections.
5. Guide the module into the chassis by placing it between the guides of the selected slot, and gently push the module all the way into the slot.
6. Seat the module by pushing on the sheet metal tray until the plastic bezel contacts the chassis.
7. Tighten the module's captive screws using a Phillips screwdriver. See Figure 12 on page 70.

Figure 12: Installing Serial and T1/E1 Interface Modules

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NOTE: Tighten the captive screws completely before installing an adjacent module so that proper electromagnetic interference (EMI) gasket compression occurs. Failure to do this can make it difficult to install adjacent modules.

RELATED DOCUMENTATION

Removing a CTP Interface Module, Processor Module, or Clock Module | 72

CTP151 Serial Interface Module | 14

CTP151 T1/E1 Interface Module | 19

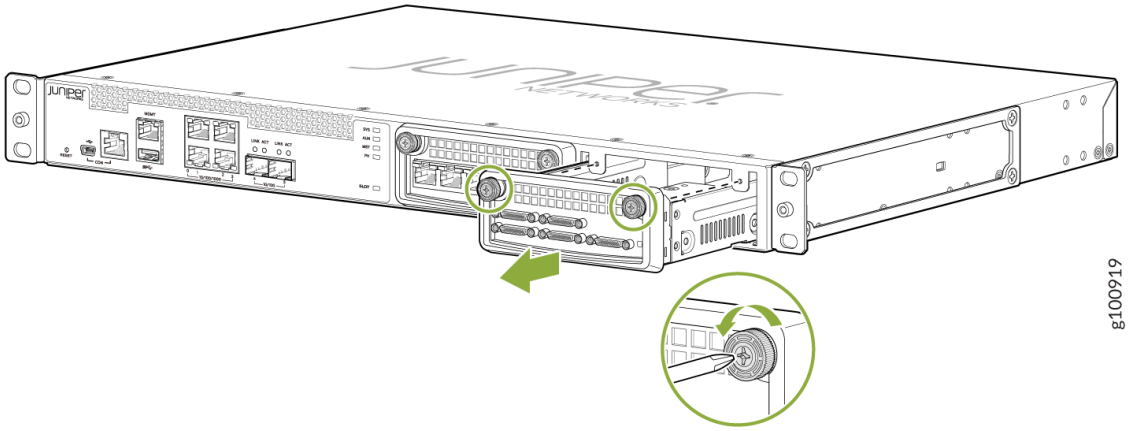
CTP151 Platform Overview | 2

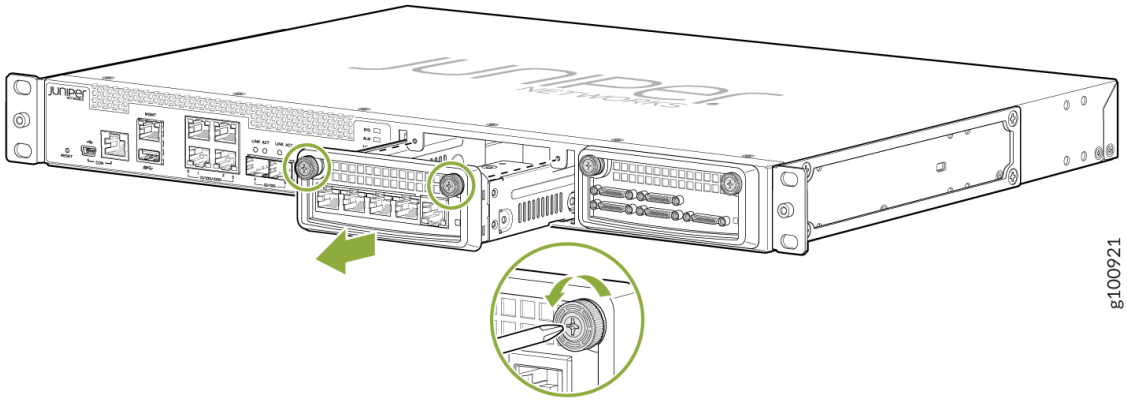
Removing a CTP Interface Module, Processor Module, or Clock Module

To remove a CTP module:

1. Issue the **halt** command.
2. Power off the CTP151 device.
3. Wrap and fasten one end of the ESD grounding strap around your wrist and connect the other end to a site ESD point.
4. Use a Phillips screwdriver to loosen the captive screws located at the upper right and upper left of the module panel.
5. Hold the captive screws and gently pull them outward to remove the module. See Figure 13 on page 73.

Figure 13: Removing Serial and T1/E1 Interface Modules





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6. Carefully slide the module out of the chassis.
7. Place the module in its antistatic bag, being careful not to touch module components, pins, leads or solder connections.
8. Cover the empty chassis slot with a blank filler panel, and tighten the filler panel's captive screws using a Phillips screwdriver. Turn both screws several times before tightening them completely.

RELATED DOCUMENTATION

Installing a CTP Interface Module, Processor Module, or Clock Module | 69

CTP151 Serial Interface Module | 14

CTP151 T1/E1 Interface Module | 19

CTP151 Platform Overview | 2

CHAPTER 11

Cabling

IN THIS CHAPTER

Connecting a CTP151 Device to a Network for Out-of-Band Management

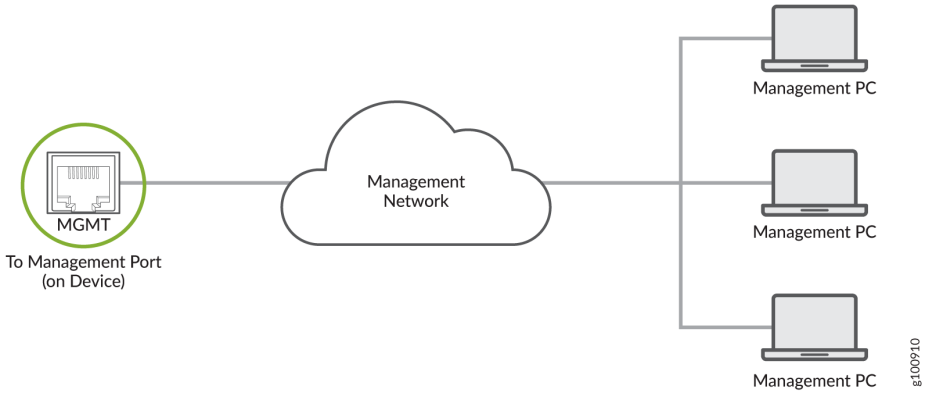
Ensure that you have an appropriate cable available.

You can monitor and manage the CTP151 device using a dedicated management channel. The CTP151 device has four 10/100/1000BASE-T RJ-45 ports, two SFP+ ports, one management port, one RJ-45 console port, one Mini-USB console port, and one USB 3.0 port. Use the management port to connect the CTP151 device to a network for out-of-band management.

To connect a CTP151 device to a network for out-of-band management (see Figure 14 on page 77):

1. Connect one end of the cable to the management port (labeled **MGMT**) on the CTP151 device.
2. Connect the other end of the cable to the management switch (see Figure 14 on page 77).

Figure 14: Connecting a CTP151 Device to a Network for Out-of-Band Management



RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Management Port Connector Pinout Information for the CTP151 Device | 38

Connecting a CTP151 Device to a Management Console

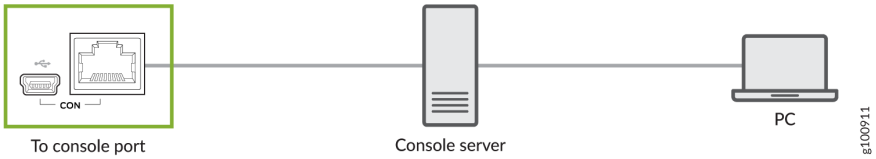
Before you begin, ensure that you have a rollover cable available.

The CTP151 device has a console port with an RJ-45 connector. Use the console port to connect the device to a management console or to a console server.

To connect the CTP151 device to a management console through a console server (see Figure 15 on page 79):

1. Connect one end of the rollover cable to the console port (labeled **CON**).
2. Connect the other end of the rollover cable to the console server (see Figure 15 on page 79).

Figure 15: Connecting the CTP151 Device to a Management Console Through a Console Server



If your PC or laptop has a DB-9 plug connector pin, you can use a combination of the RJ-45 cable and RJ-45 to DB-9 adapter supplied with the device to connect your PC to the CTP151 device (Figure 16 on page 81). If your laptop or PC does not have a DB-9 plug connector pin, you must use the Mini-USB console port on the front panel of the CTP151 to connect your laptop or PC directly to the CTP151 device.

Figure 16: Connecting the CTP151 Device Directly to a Management Console

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Console Port Connector Pinouts for a CTP151 Device | 36

Connecting a CTP151 Device to a Management Console Using Mini-USB Type-B Console Port

Before you begin connecting a CTP151 device by using the Mini-USB Type-B console port:

- Ensure that the USB to Serial driver is installed on the host machine. You can download the driver from https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers.
- Ensure that the HyperTerminal properties of the console server or laptop are set as follows:
  - Baud rate—9600
  - Flow control—None
  - Data—8
  - Parity—None
  - Stop bits—1
  - DCD state—Disregard
- Ensure that you have the following parts and tools available:
  - 1 USB 2.0 Standard-A to Mini-USB cable (p/n 720-037982).

You can configure and manage the CTP151 device by using the RJ-45 console port or the Mini-USB Type-B console port. The console input will be active only on one port at a time.

By default, the RJ-45 port is set as the active console port, and the Mini-USB Type-B port is the passive console port.

If your laptop or PC does not have a DB-9 plug connector pin or RJ-45 connector pin, you can connect your laptop or PC directly to a CTP151 device by using a Mini-USB cable that has a Standard-A USB connector on one end and a Mini-USB Type-B (5 pin) connector on the other end.

This section describes the process for connecting a CTP151 device to the management console by using the Mini-USB Type-B console port.

For information about configuring and managing a CTP151 device by using the RJ-45 console port, see "Connecting a CTP151 Device to a Management Console" on page 78.

To connect the CTP151 device to the console using the Mini-USB Type-B console port:

1. Connect the Standard-A connector of the Mini-USB cable to the host machine (PC or laptop).
2. Connect the Mini-USB Type-B (5-pin) connector of the Mini-USB cable to the Mini-USB Type-B console port (labeled **CON**) on the CTP151 device.
3. Reboot the CTP151 device.

After the connection is established, the Mini-USB Type-B console port becomes the active console port. The host machine connected to the Mini-USB Type-B console port displays log messages and lets you control the CTP151 device functionality through it.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Mini-USB Type-B Console Port Specifications for a CTP151 Device | 35

Cabling a CTP151 Interface Module

To install a cable in an interface module:

1. Wrap and fasten one end of the ESD grounding strap around your wrist and connect the other end to a site ESD point.
2. For the T1/E1 interface module, slide the cable as far as you can into the T1/E1 interface module until it clicks into place.

   For the serial/multiservice interface module, push the serial HD-26 cable into the module, and tighten the thumb screws.
3. Gently pull the cable to confirm that it is inserted correctly.

For more information about CTP151 cable and pinout specifications, see Cable Specifications for Console Connections for the CTP151 Device.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

CTP151 Interface Module HD-26 Connector Cable Pinouts | 41

PART 5

Configuration

CHAPTER 12

Accessing the CTP151 Platform

IN THIS CHAPTER

Using HyperTerminal to Access the CTP151 Device

You can use the HyperTerminal application to access the device console. Before you begin connecting a CTP151 device to a console management device, you must ensure that the HyperTerminal properties of the serial port on the console management device are set as follows:

- Baud rate—9600
- Flow control—None
- Data—8
- Parity—None
- Stop bits—1
- DCD state—Disregard

RELATED DOCUMENTATION

Bringing Up the CTP151 with CTPOS on Internal SSD | 88

Configuring the First Boot Script for the CTP151 Device | 89

Using SSH to Access the CTP151 Device | 86

Using SSH to Access the CTP151 Device

After you have configured an IP address for the CTP151 device, you can run SSH from a remote host to access the device through its Ethernet port. To connect the Ethernet port to the network:

1. Connect an Ethernet RJ-45 cable to the Ethernet port on which you configured the IP address on the front panel of the CTP151 chassis.
2. Connect the other end of the cable to the appropriate Ethernet network for an out-of-band connection.

CAUTION: Do not change the IP address for the Ethernet interface that you are using to communicate with the device. If you change the address, you will lose the SSH session.

RELATED DOCUMENTATION

- Using HyperTerminal to Access the CTP151 Device | **85**
- Bringing Up the CTP151 with CTPOS on Internal SSD | **88**
- Configuring the First Boot Script for the CTP151 Device | **89**

CHAPTER 13

Powering On and Initially Configuring the CTP151 Device

IN THIS CHAPTER

Powering On the CTP151 Device

In this procedure we assume that the device is already connected to a power source.

For specifications on the electrical requirements for the device, see "CTP151 Platform Chassis Physical Specifications" on page 23.

CAUTION: Evaluate the overall loading of the branch circuit before you install any equipment into a rack.

To power on the device:

1. Verify that the power source is operational.
2. Inspect all grounding and power connections to the device chassis.
3. Confirm that all cable connections are secure.
4. Switch any available power switches to ON.
5. Monitor the console to verify that the device is booting up properly.

   The device goes through a boot process. When a prompt appears on the console, the device is ready to be configured. If the device is new, it boots to a first boot script. If the device is already operational, it boots to a login prompt.

RELATED DOCUMENTATION

Bringing Up the CTP151 with CTPOS on Internal SSD | 88

Configuring the First Boot Script for the CTP151 Device | 89

Powering Off the CTP151 Device | 91

Bringing Up the CTP151 with CTPOS on Internal SSD

The CTP151 device is delivered with the CTPOS software preinstalled on the internal SSD. If the CTPOS software preinstalled on your device is corrupted, you can use a USB storage device to load the CTPOS software on the internal SSD.

To bring up the CTP151 device with CTPOS on the internal SSD using a USB storage device:

1. Download and copy the CTPOS software USB installation image to a USB storage device.
2. Insert the USB storage device to the CTP151 chassis, power on the CTP151 device, and monitor the console.
3. Press the **Del** key to open the BIOS menu.
4. Select the **Boot** tab and make the first boot device the one that includes “UEFI” and “Flash” in the name, which indicates that it is the USB install media.
5. Save the configuration and exit the setup.

   The device goes through a boot process, and then the CTPOS USB installation menu opens.
6. Select a destination disk (the internal SSD on the CTP151), and then verify the installation selections.
7. Enter **y** to continue with the CTPOS software installation.
8. Enter **y** to reboot the system.
9. After the system reboots, go back to the BIOS menu and change the first boot device to the one that includes “UEFI OS (P5: SFSA20...”.
10. Save the configuration and exit the BIOS menu.

RELATED DOCUMENTATION

Powering On the CTP151 Device | 87

Configuring the First Boot Script for the CTP151 Device | 89

Powering Off the CTP151 Device | 91

Configuring the First Boot Script for the CTP151 Device

For the first-time boot process, there is a series of login prompts that require the following settings:

- You must provide a password for the root account. The ctp and ctp_cmd accounts have default passwords. The default password for the ctp user account is "ctp", and the default password for the ctp_cmd user account is "ctp_cmd". You can change the default passwords later.
- Supported protocol or protocols—(0) IPv4 only, (1) IPv6 only, or (2) IPv4 and IPv6. Enter the appropriate number value.
- Default interface—From the list of available devices, such as eth0 and eth1 (or more), enter the name of the interface that you want to set as the default.
- Hostname of the device.
- IP address of the interface—Enter the IP address of the selected interface, or accept the loopback address (127.0.0.1) as the default.
- Netmask of the IP address—Enter the netmask (such as 255.255.255.128), or accept 255.255.255.0 as the default.
- Gateway IP address—Enter the IP address of the gateway, or accept the local address (127.0.0.1) as the default.
- Maximum transmission unit (MTU)—Enter the MTU in bytes, or accept 1500 bytes as the default.
- Static routes added to the default interface, if any.
- Date and time GMT (more precisely, UTC)—Enter these separately in digits for the month, day, hour, and minutes in Coordinated Universal Time (UTC), or accept the internal settings.

  The device goes into startup mode.

For example:

```
***** First boot of this flash. Setting up basic system configuration. *****
********** Setting up the root password ***********
Changing root's password!
Changing password for user root.
New password:
Retype new password:
BAD PASSWORD: it is too short
passwd: all authentication tokens updated successfully.
Backing up /etc to nonvolatile storage..
```

```
************** Setting up the network ***************
Configure supported protocols:
0)  IPv4 Only
1)  IPv6 Only
2)  IPv4 & IPv6

Please select your option (rtn for 0):

There are 2 ethernet devices available for use. The default device
is the device through which the default gateway can be accessed.
Ctp circuits can run over any ethernet device, default or not.
A default device must be configured, other devices may be configured
and enabled, or disabled. Here is a list to the available devices
and their descriptions:

       eth0: 10/100/1000 Copper (labeled 0 on processor card)
       eth1: 10/100/1000 Copper (labeled 1 on processor card)
       eth2: 10/100/1000 Copper (labeled 2 on processor card)
       eth3: 10/100/1000 Copper (labeled 3 on processor card)
       eth4: 10/100/1000 Copper (labeled MGMT on processor card)

What device would you like to make the IPV4 default device? (rtn for eth0):
OK, eth0 (10/100/1000 Copper (labeled 0 on processor card)) will be configured as IPV4 default
device.


Please input the hostname (return for (none)): ctp150bot

===== Configuration for eth0 (default device):
Please input the ip (return for 127.0.0.1): 10.3.206.10
Please input the netmask (return for 255.255.255.0): 255.255.0.0
Please input the gateway (return for 127.0.0.1): 10.3.0.1
Please input the mtu in bytes (return for 1500):

Add route to interface eth0 [n]



=====================================
=== OS Security level set to LOW ===
=====================================

Backing up /etc to nonvolatile storage..
```

```
Backing up /usr/local to nonvolatile storage..
************** Setting up date/time *****************
Setting the date (GMT). Please input the year [2008-2020] (return for 2010):

Setting the date (GMT). Please input the month [1-12] (return for 11):

Setting the date (GMT). Please input the day [1-31] (return for 14):

Setting the date (GMT). Please input the hour [0-23] (return for 16):

Setting the date (GMT). Please input the minute [0-59] (return for 41):

INIT: Entering runlevel: 3
Entering non-interactive startup
```

RELATED DOCUMENTATION

- Bringing Up the CTP151 with CTPOS on Internal SSD | 88
- Powering On the CTP151 Device | 87
- Powering Off the CTP151 Device | 91

Powering Off the CTP151 Device

To power off a CTP151 device gracefully using the CTP Menu:

1. On the system console (not an SSH session), go to the CTPOS Main Menu.
2. From the Main Menu, select **5) Node Operations**.
3. From the Node Operations Menu, select **10) Powerdown Node**.
4. Monitor the console output during shutdown and look for the following message: `reboot: Power down`.
5. Turn off the power switch on the rear panel of the CTP151 device.
6. Remove the power cord.

RELATED DOCUMENTATION

- Bringing Up the CTP151 with CTPOS on Internal SSD | 88
- Powering On the CTP151 Device | 87

PART 6

Maintenance

CHAPTER 14

Maintaining Components

IN THIS CHAPTER

Required Tools for Maintaining the CTP151 Device

You need the following tools and other items to replace platform components:

- Flathead and Phillips screwdrivers
- Insulated adjustable wrench
- Antistatic wrist strap
- Antistatic bags (or other protective packaging to hold components)
- Plastic boots or other protective covers for fiber-optic connectors

RELATED DOCUMENTATION

Storing CTP Modules and Other Components | 94

Cleaning the CTP151 Platform | 94

Storing CTP Modules and Other Components

Retain the packaging in which a module or other component was shipped, and use this packaging to store the item. Modules are shipped in antistatic bags and protective packaging. Components, such as transceivers, are shipped in antistatic plastic containers within an antistatic padded box.

CAUTION: Failure to store electronic modules and components correctly can lead to damage of these items.

Follow these guidelines for storing modules and other components:

- Store each module in a separate antistatic bag.
- Store other components in an antistatic plastic container. Some of these containers can accommodate several components in separate compartments.
- Do not store multiple modules or other components in an antistatic bag or container where they can touch other items.
- (Optional) Store the item in its antistatic bag or container within the protective packaging or padded box that the item was shipped in.

RELATED DOCUMENTATION

Required Tools for Maintaining the CTP151 Device | 93

Cleaning the CTP151 Platform | 94

Cleaning the CTP151 Platform

Dust is attracted to the area where the air intake vents are located. Clean the area with a dry cloth every few weeks to prevent excessive accumulation of dust. This cleaning helps to maintain the efficiency of the cooling system and to prevent damage to electronic components.

WARNING: Do not insert any metal object, such as a screwdriver, or place your hand into an open slot or the backplane when the device is on. Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. These actions prevent electric shock and serious burns.

CAUTION: When cleaning the device, wear an antistatic wrist strap connected to an ESD grounding jack. This action helps to protect modules from damage by electrostatic discharge.

RELATED DOCUMENTATION

Required Tools for Maintaining the CTP151 Device | 93

Storing CTP Modules and Other Components | 94

Removing the CTP151 Device from a Rack or Cabinet

Before removing the device from a rack:

Ensure that you have the following parts and tools available to remove the device:

- A Phillips (+) screwdriver, number 2 or number 3, depending on the size of your rack mounting screws.
- A labeled bag to hold the removed screws.

If you need to relocate an installed CTP151 device, use the procedure described in this topic. (The remainder of this topic uses *rack* to mean *rack or cabinet*.)

NOTE: When you remove multiple devices from a rack, remove the device at the top of the rack first and proceed to remove the rest of the devices from top to bottom.

CAUTION: At least two people must be available to lift a device chassis out of a rack—one person to unscrew the mounting screws from the brackets and the second person to hold the chassis.

- Ensure that the rack or cabinet is stable and secured to the building.
- Ensure that there is enough space to place the removed device in its new location and along the path to the new location.
- Read *CTP Safety Guidelines and Warnings*.

- Ensure that the device has been safely powered off and that you have unplugged (disconnected) the power cords.
- Ensure that you have disconnected any cables or wires attached to the device.

To remove the CTP151 device from a rack:

1. Use the appropriate Phillips (+) screwdriver to remove the mounting screws that attach the chassis front-mounting brackets to the rack.
2. Place the removed screws in a labeled bag. You will need them when you reinstall the chassis.
3. Lift the chassis from the rack and carefully move the chassis to its new location.

RELATED DOCUMENTATION

CTP151 Safety Guidelines and Warnings | **51**

Mounting a CTP151 Device on Two Posts in a Rack | **60**

CHAPTER 15

Product Reclamation and Recycling

IN THIS CHAPTER

Product Reclamation and Recycling Program

Juniper Networks is committed to environmentally responsible behavior. As part of this commitment, we continually work to comply with environmental standards such as the European Union's *Waste Electrical and Electronic Equipment* (WEEE) Directive and *Restriction of Hazardous Substances* (RoHS) Directive.

These directives and other similar regulations from countries outside the European Union regulate electronic waste management and the reduction or elimination of specific hazardous materials in electronic products. The WEEE Directive requires electrical and electronics manufacturers to provide mechanisms for the recycling and reuse of their products. The RoHS Directive restricts the use of certain substances that are commonly found in electronic products today. Restricted substances include heavy metals, including lead, and polybrominated materials. The RoHS Directive, with some exemptions, applies to all electrical and electronic equipment.

In accordance with Article 11(2) of Directive 2002/96/EC (WEEE), products put on the market after 13 August 2005 are marked with the following symbol or include it in their documentation: a crossed-out wheeled waste bin with a bar beneath.

Juniper Networks provides recycling support for our equipment worldwide to comply with the WEEE Directive. For recycling information, go to https://www.juniper.net/environmental, and indicate the type of Juniper Networks equipment that you wish to dispose of and the country where it is currently located, or contact your Juniper Networks account representative.

Products returned through our reclamation process are recycled, recovered, or disposed of in a responsible manner. Our packaging is designed to be recycled and should be handled in accordance with your local recycling policies.

RELATED DOCUMENTATION

Returning a CTP151 Device or Component for Repair or Replacement | 99

CHAPTER 16

Contacting Customer Support and Returning the Chassis or Components

IN THIS CHAPTER

Returning a CTP151 Device or Component for Repair or Replacement

If you need to return a CTP151 device or component to Juniper Networks for repair or replacement, follow this procedure:

1. Determine the serial number of the device or component. For instructions, see "Locating the Chassis Serial Number ID Label on a CTP151 Device" on page 100.
2. Obtain a Return Materials Authorization (RMA) number from the Juniper Technical Assistance Center (JTAC) as described in "Contacting Customer Support to Obtain a Return Materials Authorization for a CTP151 Device" on page 100.

   NOTE: Do not return any device or component to Juniper Networks unless you have first obtained an RMA number. Juniper Networks reserves the right to refuse shipments that do not have an RMA. Refused shipments are returned to the customer through collect freight.

3. Pack the CTP151 device or component for shipping as described in "Packing a CTP151 Device or Component for Shipping" on page 101.

For more information about return and repair policies, see the customer support page at https://www.juniper.net/support/guidelines.html .

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

Contacting Customer Support to Obtain a Return Materials Authorization for a CTP151 Device | 100

Packing a CTP151 Device or Component for Shipping | 101

Locating the Chassis Serial Number ID Label on a CTP151 Device

The serial number ID label is located on the back of the chassis on a CTP151 device. See "CTP151 Platform Overview" on page 2.

Contacting Customer Support to Obtain a Return Materials Authorization for a CTP151 Device

If you are returning a CTP151 device or component to Juniper Networks for repair or replacement, obtain a Return Materials Authorization (RMA) from the Juniper Networks Technical Assistance Center (JTAC).

After locating the serial number of the device or component you want to return, open a service request with Juniper Networks Technical Assistance Center (JTAC) on the Web or by telephone.

For instructions on locating the serial number of the device or component you want to return, see "Locating the Chassis Serial Number ID Label on a CTP151 Device" on page 100.

Before you request an RMA from JTAC, be prepared to provide the following information:

- Your existing service request number, if you have one
- Serial number of the component
- Your name, organization name, telephone number, fax number, and shipping address
- Details of the failure or problem
- Type of activity being performed on the device when the problem occurred
- Configuration data displayed by one or more `show` commands

You can contact JTAC 24 hours a day, seven days a week on the Web or by telephone:

- Service Request Manager: https://support.juniper.net/support

- Telephone: +1-888-314-JTAC (+1-888-314-5822), toll-free in the USA, Canada, and Mexico

> **NOTE**: For international or direct-dial options in countries without toll-free numbers, see https://support.juniper.net/support .

If you are contacting JTAC by telephone, enter your 12-digit service request number followed by the pound (#) key for an existing case, or press the star (*) key to be routed to the next available support engineer.

The support representative validates your request and issues an RMA number for return of the component.

RELATED DOCUMENTATION

Returning a CTP151 Device or Component for Repair or Replacement | 99

Packing a CTP151 Device or Component for Shipping | 101

Packing a CTP151 Device or Component for Shipping

IN THIS SECTION

If you are returning a CTP151 device or component to Juniper Networks for repair or replacement, pack the item as described in this topic.

Before you pack a CTP151 device or component:

- Ensure that you have taken the necessary precautions to prevent electrostatic discharge (ESD) damage.
- Retrieve the original shipping carton and packing materials. Contact your JTAC representative if you do not have these materials, to learn about approved packing materials. See "Contacting Customer Support to Obtain a Return Materials Authorization for a CTP151 Device" on page 100.

Ensure that you have the following parts and tools available:

- ESD grounding strap.
- Antistatic bag, one for each component.
- If you are returning the chassis, an appropriate screwdriver for the mounting screws used on your rack or cabinet.

Packing a CTP151 Device for Shipping

To pack a CTP151 device for shipping:

1. Power off the CTP151 device and remove the power cables. See "Powering Off the CTP151 Device" on page 91.
2. Remove the cables that connect the device to all external devices.
3. Remove all field-replaceable units (FRUs) from the CTP151 device.
4. Have one person support the weight of the device while another person unscrews and removes the mounting screws.
5. Remove the device from the rack or cabinet and place the device in an antistatic bag.
6. Place the device in the shipping carton.
7. Place the packing foam on top and around the device.
8. If you are returning accessories or FRUs with the device, pack them as instructed in "Packing a CTP151 Device or Component for Shipping" on page 101.
9. Replace the accessory box on top of the packing foam.
10. Close the top of the cardboard shipping box and seal it with packing tape.
11. Write the RMA number on the exterior of the box to ensure proper tracking.

Packing CTP151 Device Components for Shipping

CAUTION: Do not stack the CTP151 device components. Return individual components in separate boxes if they do not fit together on one level in the shipping box.

To pack and ship CTP151 device components:

- Place individual FRUs in antistatic bags.
- Ensure that the components are adequately protected with packing materials and packed so that the pieces are prevented from moving around inside the carton.
- Close the top of the cardboard shipping box and seal it with packing tape.

- Write the RMA number on the exterior of the box to ensure proper tracking.

RELATED DOCUMENTATION

Returning a CTP151 Device or Component for Repair or Replacement | 99

Contacting Customer Support to Obtain a Return Materials Authorization for a CTP151 Device | 100

PART 7

Troubleshooting

CHAPTER 17

Troubleshooting Hardware and Power Failures

IN THIS CHAPTER

Understanding Alarm Types and Severity Levels on the CTP151 Device

Alarms alert you to conditions that might prevent normal operation of the CTP151 device. Table 21 on page 105 provides a list of alarm terms and definitions that may help you in monitoring the device.

Table 21: Alarm Terms and Definitions

Term	Definition
Alarm	Signal alerting you to conditions that might prevent normal operation. LEDs are the alarm indicators on the device.

Alarm severity levels	Seriousness of the alarm. The level of severity can be either major (red) or minor (yellow).
	• Minor (yellow or amber)—Indicates a noncritical condition on the device that, if left unchecked, might cause an interruption in service or degradation in performance. A yellow alarm condition requires monitoring or maintenance. For example, if the device temperature has reached the yellow alarm threshold, a yellow system alarm is generated.
	• Major (red)—Indicates a critical situation on the device that has resulted from one of the following conditions. A red alarm condition requires immediate action.
	  • The ctpd process is non-operational.
	  • One or more hardware components have exceeded temperature thresholds.

Table 21: Alarm Terms and Definitions *(Continued)*

Term	Definition
Alarm types	Alarms include the following types: • Chassis alarm—Predefined alarm triggered by a physical condition on the device such as a power supply failure or excessive component temperature. • System alarm—Predefined alarm that might be triggered when the ctpd process fails to start up.

RELATED DOCUMENTATION

CTP151 Platform Overview | 2

LED Details of CTP151 Platform | 7

CTP151 Platform Does Not Power On

IN THIS SECTION

Problem

Description

Symptoms

- Device is not receiving power.
- Module's power supply has malfunctioned.

- Power source cannot handle system load.

Solution

1. Verify that all power connections are correct.
2. Verify that the power supply is delivering the correct voltage, current, and wattage to the device. See the system specifications for your particular CTP Series device.
3. If the device still does not operate, contact the Juniper Networks Technical Assistance Center (JTAC).

RELATED DOCUMENTATION

CTP151 Platform Shuts Down | 107

Understanding Alarm Types and Severity Levels on the CTP151 Device | 105

CTP151 Platform Shuts Down

IN THIS SECTION

Problem

Description

Symptoms

- Temperature is too high.
- Power is lost.

Solution

1. Verify that power connections are properly attached.
2. Verify that device is receiving power.
3. Look to see whether or not the LEDs are lit.
4. Run diagnostics using the CLI.
5. If the device does not reset, contact JTAC.

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