

CTP SERIES CIRCUIT TO PACKET PLATFORMS

Product Overview

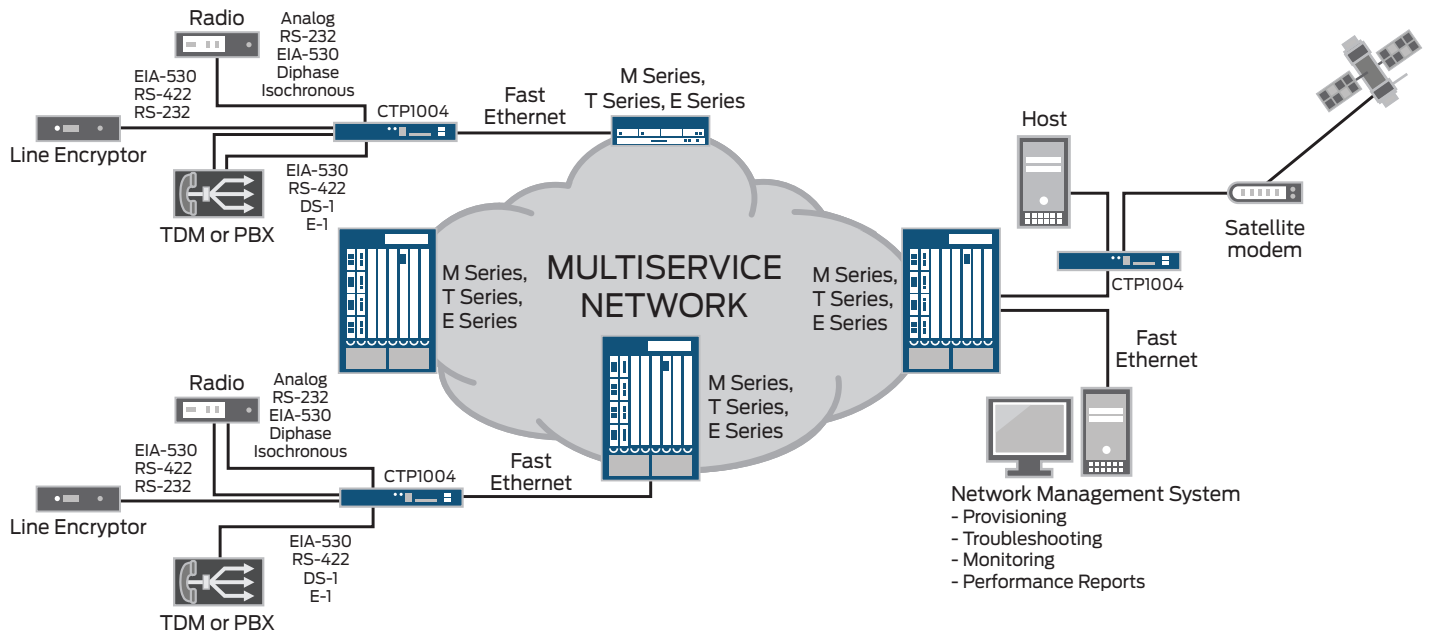
Juniper Networks CTP Series Circuit to Packet Platforms provide the advanced technology and features required to reliably transport Time Division Multiplexing and other circuit-based applications across next-generation IP networks. It has the field-proven flexibility, performance, and reliability required for circuit applications. The CTP Series technology includes an advanced clocking “toolkit” that enables customers to choose the appropriate method for the end-to-end timing of these critical circuits across an IP infrastructure. The Juniper Networks CTP Series enables customers to connect digital and analog voice applications easily and reliably across the IP network using circuit emulation over IP, bringing them the advantages of converged multiservice IP networking without the complexities and cost of upgrades required for VoIP.

Product Description

With the ongoing deployment of IP networks, the efficiency and cost-savings gains of IP are being realized for a variety of applications and functions. Largely left out of this evolution have been the circuit-based applications such as Time Division Multiplexing (TDM) leased line and voice Private Branch Exchange (PBX) connections, serial encryption connections, and analog and digital radio systems networking, because their synchronous transport requirements are not addressed by a packet-based network. The Juniper Networks® CTP Series Circuit to Packet Platforms enable customers to connect these circuit-based applications easily and reliably across the IP network, bringing them the advantages of converged multiservice IP networking.

The CTP Series includes the Juniper Networks CTP1002, CTP1004, CTP1012, CTP2008, CTP2024, CTP2056 Circuit to Packet Platforms, and the Juniper Networks CTPView Network Management System. The products are designed for government agencies, enterprises, and service providers running circuit-based applications and range in size, port capacity, and redundancy options.

PRODUCT	FEATURES
CTP1002	Juniper Networks CTP1002 Circuit to Packet Platform supports 2 interfaces of circuit emulation traffic in a 1 RU rack mountable chassis.
CTP1004	Juniper Networks CTP1004 Circuit to Packet Platform supports 4 interfaces of circuit emulation traffic in a 1 RU rack mountable chassis.
CTP1012	Juniper Networks CTP1012 Circuit to Packet Platform builds on the capabilities of the CTP1004 by tripling the port density in a 1 RU rack mountable chassis.
CTP2008	Juniper Networks CTP2008 Circuit to Packet Platform is a 1 RU rack mountable chassis that supports up to 8 circuit emulation interfaces. The interface modules are software configurable and are the same across the CTP2000 lines.
CTP2024	Juniper Networks CTP2024 Circuit to Packet Platform is a 2 RU rack mountable chassis that supports up to 24 circuit emulation interfaces. The chassis includes the option for redundant power.
CTP2056	Juniper Networks CTP2056 Circuit to Packet Platform is a 4 RU rack mountable chassis that supports up to 56 circuit emulation interfaces. The chassis includes the option for redundant power.
CTPView	Juniper Networks CTPView Network Management System provides network operators with the tools necessary to monitor network availability, report on IP networks performance, provision circuits, and troubleshoot circuit issues through a web based graphical user interface.



Primary Circuit to Packet Solutions

APPLICATION	APPLICATION DESCRIPTION	BENEFIT
SS7 transport over IP	Transport dedicated T1 or E1 SS7 links over the IP/MPLS network.	Eliminates point to point T1 and E1 links required for transporting SS7 traffic and allows convergence over the IP/MPLS network.
TDM over IP solution	Provisioning of point-to-point TDM trunks over the IP network without requiring changes to the TDM equipment.	Allows the continued use and investment protection of the existing TDM equipment or an easy transition path from a TDM network to an IP network.
PBX interconnect over IP solution	Provides T1,E1, and 4WE&M trunking for PBX interconnection over the IP network.	Reduce WAN infrastructure cost through the elimination of costly point to point circuits and leased lines required to support TDM and/or ATM networks. Circuit emulation over IP enables seamless transition to IP Transport without upgrading your entire infrastructure to VoIP.
PBX Extension over IP with 2WFXS/2WFXO	Provides two-wire analog PBX to phone extensions over IP and two-wire PBX to PBX/central office connections over IP.	Reduces IT expenditures by enabling PBX tie lines to be transported across less expensive IP data network connections. Analog voice traffic is converted to IP, eliminating the need for costly T1 tie lines.
Leased line extension over IP solution	Supports standards based encapsulation and DSO bundling. IETF PWEE3 RFC's: SAToP, and CESoPSN are supported.	Enables full, fractional and DSO bundling and mapping of T1 and E1 service provisioned over an IP/MPLS network and enables interoperability between vendors.
Radio over IP solution	Allows for connectivity of analog and digital radios over IP networks.	Provides a mechanism to deploy these systems over IP networks while maintaining critical communications.
Serial encryption over IP solution	Transport of KG/KIV bit-synchronous cipher text across an IP network.	Eliminates the need to deploy TDM or ATM equipment, saving money,time,space and power.
T1 and E1 backup over IP	Point-to-point T1 or E1 circuits can be automatically backed up over the IP/MPLS network.	Eliminates redundant point to point circuit costs. The end application does not need to be IP aware saving software and hardware upgrade costs.

Features and Benefits

Key features and benefits of the Juniper Networks CTP Series Circuit to Packet Platforms include:

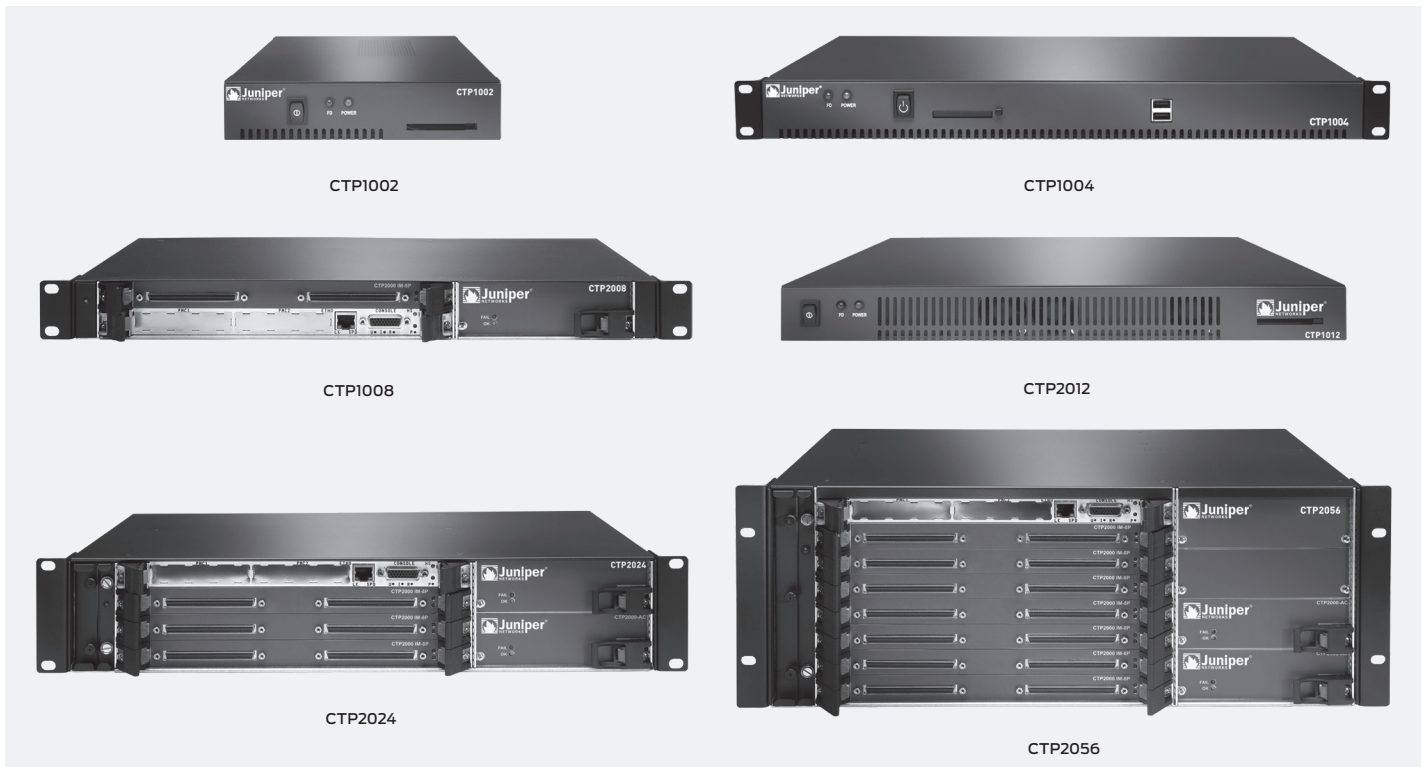
FEATURE	FEATURE DESCRIPTION	BENEFIT
Software circuit provisioning	EIA530, RS-232, V.35, 4WTO, T1 and E1 circuit types are software configured including the line encoding, clocking, rates, and IP settings.	The network quickly fulfills new and changing end-user requirements without deploying excess hardware.
Scalable product family	A family of six CTP Series Circuit to Packet Platforms provides different port densities. Products can address the requirements of small remote sites through large central network hubs.	Network designers control costs by selecting the CTP Series Circuit to Packet Platforms most suitable for the site when considering circuit quantities and anticipated growth.

Features and Benefits (continued)

FEATURE	FEATURE DESCRIPTION	BENEFIT
CTPView Network Management System	Secure, multi-user web-based network management system provides network monitoring, circuit provisioning, IP performance reporting, databased backup and circuit troubleshooting tools.	Managers quickly deploy circuits and services while proactively monitoring the network. IP performance reports provide detailed information on IP network jitter, delay, and packet loss. Circuit troubleshooting tools include integral BERTS and loops to facilitate quick trouble resolution.
Multiple system and circuit clocking solutions	CTP Series Circuit to Packet Platforms are designed to use multiple external clocks as monitored and prioritized system references. Circuits are configured to use the system clock, external circuit timing, or to adaptively recover clock information from the remote port when required by the application or when no reference is configured.	Circuit reliability is improved since ports and systems are configured with the clocking solution that is most appropriate for the particular application.
Auto switch	The status of the CTP Series circuit ports is monitored, and the circuit is automatically switched to an alternate local or remote port when a failure is detected.	Network and circuit reliability are increased when the circuits are automatically restored to alternate locations and equipment in the event of an equipment, site, or network failure.
Packet protector	Redundant packets are created and transmitted to the IP network and then processed by the receiving CTP Series.	Circuit quality and reliability are increased when IP connections experience significant packet loss caused by bit errors.
Autobaud	The input timing leads are monitored and the circuit rate is automatically changed at both ends of the network if a rate change is detected.	Flexible rate agility enables immediate provisioning changes.
Loops and BERTs	Each CTP Series port supports interface and network loops and the ability to generate and monitor a Bit Error Rate Test with up to 9 BERT patterns selectable.	Support for standard circuit troubleshooting tools that are built into the CTP Series help to quickly isolate network, circuit, or cable problems.
Layer 2 IP aggregation	The CTP Series Circuit to Packet Platforms can aggregate layer 2 traffic from serial EIA530 interfaces onto a fast ethernet or gigabit ethernet interface. Layer 2 protocols supported are frame relay, PPP, and Cisco-HDLC. Each CTP port is connected to a different VLAN.	The ability to aggregate layer 2 traffic on the CTP Series from multiple EIA530 serial interfaces reduces the router interfaces needed for low speed EIA530 IP aggregation.
Port mirroring	The CTP Series is able to port mirror any Transmit or any Receive up to ten local or remote destinations.	Port mirroring minimizes the bandwidth required to send the same traffic to multiple sites across the network. Port mirroring enables easy monitoring for troubleshooting circuit problems. Port mirroring enables the replication of data to multiple local or geographically dispersed locations.
Analog voice - 4WE&M	The CTP Series supports analog 4WE&M type I, II, and V analog interfaces with software selectable transmit and receive level adjustments per interface.	The ability to support analog 4WE&M interfaces allows the CTP Series Circuit to Packet Platforms to offer another PBX trunking option. The 4WE&M interface can also be used for radio interfaces with push to talk requirements.
Analog voice - 2WFXS	The CTP Series supports analog 2WFXS loop start, ground start, and PLAR modes with software selectable transmit and receive level adjustments per interface.	The ability to support analog 2WFXS interfaces allows the CTP Series Circuit to Packet Platforms to offer 2-wire voice extensions over IP for remote phones, remote central office or PBX equipment.
Analog voice - 2WFXO	The CTP Series support analog 2WFXO loop start and ground start modes with software selectable transmit and receive level adjustments per interface.	The ability to support analog 2WFXO interfaces allows the CTP Series Circuit to Packet Platforms to offer 2-wire voice extensions over IP to remote phones or remote central office or PBX equipment.
Voice compression	The CTP Series Voice Compression module supports 64k G.711, 32k G.726, 16k G.726, 16k G.728, 8k G.729, and 2.4k MELP compression algorithms. The voice compression module also supports Echo Cancellation, Silence Suppression, Fax and Modem detection, and companding conversion.	Voice Compression can be applied on any T1 or E1 DSO and on the analog 4WE&M interfaces. The use of voice compression and silence suppression can dramatically reduce the bandwidth required in the IP network. Multiple DSO's or analog channels can be bundled into one packet to further reduce the bandwidth required in the IP network.
IRIG-B	The CTP Series supports an inter-range instrumentation group time code (IRIG-B) signal to be transported through an IP network. 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.	The ability to support IRIG-B transport across and IP network and configure direction, output high and low levels, and data range per interface.

Product Options

OPTION	OPTION DESCRIPTION	APPLICABLE PRODUCTS
T1/E1 interface module	8-port T1 and E1 interface module with standard RJ48 interfaces and built in CSU for line build out. PWE3 RFC's SAToP and CESoPSN are supported.	CTP2008, CTP2024, CTP2056
Serial interface module	4-port and 8-port Serial interface module with standard DB25 interfaces. Per port software selectable interfaces. Interfaces with EIA232, V.24, EIA530, EIA449, V.35, and X.21.	CTP1002, CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
Serial with T1/E1 interface option	Provides additional software configurable T1 & E1 interface option to the standard DB25 interfaces.	CTP1002, CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
Serial with 4WTO interface option	Provides additional software configurable single or dual channel 4-wire trunk only interface option to the standard DB25 interfaces.	CTP1002, CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
Serial with IRIG-B interface option	Provides additional software configurable IRIG-B interface options to the standard DB25 interfaces.	CTP2008, CTP2024, CTP2056
4WE&M analog module	8-port 4WE&M front module and rear transition module supporting type I, II, and V signaling options. The interface is a standard RJ21 amphenol connector. One voice compression module is required in the CTP Series.	CTP2024, CTP2056
2WFXS analog module	24-port 2WFXS front module and rear transition module supporting loop start, ground start, and PLAR modes. The interfaces is a standard RJ21 amphenol connector. One voice compression module is required in the CTP Series.	CTP2024, CTP2056
2WFXO analog module	12-port 2WFXO front module and rear transition module supporting loop start and ground start modes. The interface is a standard RJ21 amphenol connector. One voice compression module is required in the CTP Series.	CTP2024, CTP2056
Voice compression module	The CTP Series Voice Compression module can compression T1 and E1 DSO's and all analog voice bundles. The module supports PCM, 32k G.726, 16k G.726, 16k G.728, 8k G.729, and 2.4k MELP compression algorithms. The voice compression module also supports Echo Cancellation, Silence Suppression, Fax and Modem detection, and companding conversion.	CTP2024, CTP2056
CTP clock main and spoke modules	The CTP Series clock main and spoke modules are required when the 8-port serial module and compression module are installed into one CTP Series Circuit to Packet Platform.	CTP2024, CTP2056
Gigabit Ethernet and Fast Ethernet fiber SC modules	Provides for two 1000BASE-FX or 100BASE-FX SC connectors for IP connectivity on the network side.	CTP2008, CTP2024, CTP2056
Gigabit Ethernet SFP fiber options	SFP options include 1000BASE-T, 1000BASE-SX, and 1000BASE-LX.	CTP2008, CTP2024, CTP2056
DCE cable	4-port serial interface breakout cable connects to a DCE device.	CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
DTE cable	4-port serial interface breakout cable connects to a DTE device.	CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
Y-cable	A cable that connects between two CTP Series Circuit to Packet Platforms that protects the application from a failure with 1:1 redundancy.	CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
AC power	External AC power supply. Internal AC power supply.	CTP1002 CTP1004, CTP1012, CTP2008, CTP2024, CTP2056
DC power	Internal DC power supply.	CTP1004, CTP2008, CTP2024, CTP2056
Redundant power	Provides for dual redundancy power supplies.	CTP2024, CTP2056



Specifications

	CTP1002	CTP1004	CTP1012	CTP2008	CTP2024	CTP2056
Dimensions and Power						
Dimensions (W x H x D)	8 x 1.75 x 12.5 in (20.3 x 4.5 x 31.8 cm)	17.25 x 1.75 x 13.9 in (43.8 x 4.5 x 35.3 cm)	17.25 x 1.75 x 16.75 in (43.8 x 4.5 x 42.5 cm)	17.25 x 1.75 x 11.75 in (43.8 x 4.5 x 29.8 cm)	17.25 x 3.5 x 11.75 in (43.8 x 8.9 x 29.8 cm)	17.25 x 7.0 x 11.75 in (43.8 x 17.8 x 29.8 cm)
Weight (lb)	6	12	14	12	20	27
Mounting	Front Rack	Front Rack	Front Rack	Front Rack	Front Rack	Front Rack
Input voltage (AC)	100-240 VAC	100-120 VAC 200-240 VAC	100-120 VAC 200-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Input voltage (DC)		40-72 VDC		40-72 VDC	40-72 VDC	40-72 VDC
Power supply	60 W	200 W	200 W	250 W	250 W x 2	250 W x 2
Input current	1.5 A at 110 VAC	1.5 A at 110 VAC	1.5 A at 110 VAC	2 A at 110 VAC	2 A at 110 VAC	2.5 A at 110 VAC
Operating temperature	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)
Humidity noncondensing	5% to 90%	5% to 90%	5% to 90%	5% to 90%	5% to 90%	5% to 90%
Serial Interfaces						
Interfaces	Yes	Yes	Yes	Yes	Yes	Yes
EIA232, EIA530, EIA530A, V.35, V.24, EIA449, X.21, T1, E1						
IRIG-B	N/A	N/A	N/A	Yes	Yes	Yes
Encoding NRZ, Conditioned Diphas, Isochronous, Asynchronous, AMI, B8ZS, HDB3, Milstar, Transparent	Yes	Yes	Yes	Yes	Yes	Yes
Interface quantity	2	4	12	8	24	56
Rates	50 bps - 2.048 Mbps	50 bps - 12.288 Mbps	50 bps - 12.288 Mbps	50 bps - 12.288 Mbps	50 bps - 12.288 Mbps	50 bps - 12.288 Mbps

Specifications (continued)

	CTP1002	CTP1004	CTP1012	CTP2008	CTP2024	CTP2056
Voice Interfaces						
Analog voice 4-wire TO interface quantity	4	8	24	16	48	112
4WE&M	N/A	N/A	N/A	N/A	16	48
2WFXS	N/A	N/A	N/A	N/A	48	144
2WFXO	N/A	N/A	N/A	N/A	24	72
T1 and E1	2	4	12	8	24	56
Voice compression	N/A	N/A	N/A	N/A	Yes	Yes
Echo cancellation	N/A	N/A	N/A	N/A	Yes	Yes
Silence suppression	N/A	N/A	N/A	N/A	Yes	Yes
Fax and Modem detection	N/A	N/A	N/A	N/A	Yes	Yes
Companding conversion	N/A	N/A	N/A	N/A	Yes	Yes
IP Interfaces						
100BASE-T (RJ-45)	1	1	1	N/A	N/A	N/A
100/1000BASE-T (RJ-45)	N/A	1	N/A	2	2	2
100BASE-FX (SC) - Optional	N/A	N/A	N/A	2	2	2
1000BASE-FX (SC) - Optional	N/A	N/A	N/A	2	2	2
SFP 1000BASE-T	N/A	N/A	N/A	2	2	2
SFP 1000BASE-SX	N/A	N/A	N/A	2	2	2
SFP 1000BASE-LX	N/A	N/A	N/A	2	2	2
Precedent setting: (DSCP), configurable TOS byte	Yes	Yes	Yes	Yes	Yes	Yes
VLAN tagging	Yes	Yes	Yes	Yes	Yes	Yes
Virtual IP	Yes	Yes	Yes	Yes	Yes	Yes
Circuit modes: symmetric, asymmetric, unidirectional, hairpin	Yes	Yes	Yes	Yes	Yes	Yes
IPv4 and IPv6	Yes	Yes	Yes	Yes	Yes	Yes
IETF PWE3 RFC SAToP	Yes	Yes	Yes	Yes	Yes	Yes
IETF PWE3 RFC CESoPSN	N/A	N/A	N/A	Yes	Yes	Yes
Layer 2 EIA530 aggregation	N/A	N/A	N/A	Yes	Yes	Yes
Port mirroring	Yes	Yes	Yes	Yes	Yes	Yes

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services and support, which are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to bring revenue-generating capabilities online faster so you can realize bigger productivity gains and faster rollouts of new business models and ventures. At the same time, Juniper Networks ensures operational excellence by optimizing your network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services/.

Ordering Information

CTP1000 UNITS	
CTP1002-P	CTP1002 chassis providing 2 EIA530, RS-232, V.35 ports
CTP1002-4WTO	CTP1002 chassis providing 2 EIA530, RS-232, V.35, 4WTO ports
CTP1002-T1E1	CTP1002 chassis providing 2 EIA530, RS-232, V.35, T1, E1 ports
CTP1004-P	CTP1004 chassis providing 4 EIA530, RS-232, V.35 ports
CTP1004-P-DC	CTP1004 DC chassis with 4 EIA, RS232, v.35 ports and CTP-OS-2K loaded
CTP1004-4WTO	CTP1004 chassis providing 4 EIA530, RS-232, V.35, 4WTO ports
CTP1004-4WTO-DC	CTP1004 DC chassis with 4 EIA, RS232, v.35, 4WTO ports and CTP-OS-2K loaded
CTP1004-T1E1	CTP1004 chassis providing 4 EIA530, RS-232, V.35, T1, E1 ports
CTP1004-T1E1-DC	CTP1004 DC chassis with 4 EIA, RS232, v.35, T1, E1 ports and CTP-OS-2K loaded
CTP1012-P	CTP1012 chassis providing 12 EIA530, RS-232, V.35 ports
CTP1012-4WTO	CTP1012 chassis providing 12 EIA530, RS-232, V.35, 4WTO ports
CTP1012-T1E1	CTP1012 chassis providing 12 EIA530, RS-232, V.35, T1, E1 ports
CTP2000 BASE UNITS	
CTP2008-AC-02	CTP2008 base chassis
CTP2008-DC-02	CTP2008 DC chassis
CTP2024-AC-02	CTP2024 base chassis
CTP2024-DC-02	CTP2024 DC chassis
CTP2056-AC-02	CTP2056 base chassis
CTP2056-DC-02	CTP2056 DC chassis
CTP2000 UPGRADE	
CTP-FX2000GE-UPG	CTP2000 dual SC multimode fiber gigabit ethernet PMC upgrade
CTP-FX2000FE-UPG	CTP2000 dual SC multimode fiber fast ethernet IM upgrade
CTP-Fiber-PMC	Fiber PMC card for CTP2000 to support up to 2 SFP modules
CTP-SFP-IGE-T	Small form factor pluggable 1000BASE-T gigabit ethernet module (uses Cat 5 cable)
CTP-SFP-IGE-SX	Small form factor pluggable 1000BASE-SX gigabit ethernet optic module
CTP-SFP-IGE-LX	Small form factor pluggable 1000BASE-LX gigabit ethernet optic module

CTP2000 INTERFACE MODULES	
CTP2000-IM-8P-T1E1	CTP2000 interface module with 8 T1, E1 ports
CTP2000-IM-8P	CTP2000 line - EIA530, RS-232 8-port Interface module
CTP2000-IM-8P-T1	CTP2000 line - EIA530, RS-232, T1, E1 8-port IM
CTP2000-IM-8P-V	CTP2000 line - EIA530, RS-232, 4WTO 8-port analog voice module
CTP2000-IM-8P-IRIG	CTP2000 line 8-port IRIG-B module
CTP2000-IM-4WEM	CTP2000 line 4WE&M 8-port analog voice module
4WEM-RTM	CTP2000 line 4WE&M 8-port rear transition module
CTP2000-Compression	CTP2000 line voice compression and echo cancellation module
CTP2000-IM-2WFXS	CTP2000 line 2WFXS 24-port analog voice module
2WFXS-RTM	CTP2000 line 2WFXS 24-port rear transition module
CTP2000-IM-2WFXO	CTP2000 line 2WFXO 12-port analog voice module
2WFXO-RTM	CTP2000 line 2WFXO 12-port rear transition module
CTP2000 SPARES	
CTP2000-PRC-S	CTP2000 processor spare
CTP2000-PWR-R	CTP2024 CTP2056 dual redundant power supply option
CTP2000-PWR-DC-R	CTP2024/CTP2026 dual redundant DC power supply option
CTP2000-RTC-S	CTP2000 rear transition module spare
CTP2008-REC-RMK	CTP2008 recessed rackmount kit
CTP2024-REC-RMK	CTP2024 recessed rackmount kit
CTP2056-REC-RMK	CTP2056 recessed rackmount kit
CTP-CBL-4Q	CTP Cable - 100 pin to four (4) DB-25 DCE
CTP-CBL-4Q-DTE	CTP Cable - 100 pin to four (4) DB-25 DTE
CTP-CBL-4Q-Y	Redundancy cable for connections between two CTP Series Circuit to Packet Platforms
CTP-CLK-MAIN	CTP2000 line clock main rear transition module
CTP-CLK-SPOKE	CTP2000 line clock spoke rear transition module
CTP SOFTWARE	
CTP-OS-1K	CTP1000 line - current software
CTP-OS-2K	CTP2000 line - current software
CTPView	CTPView
CTP-DOC	Additional CTP Series manual current version

About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at www.juniper.net.

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