

Channelized T3 Processor for Cisco 7000 Series Routers

Description

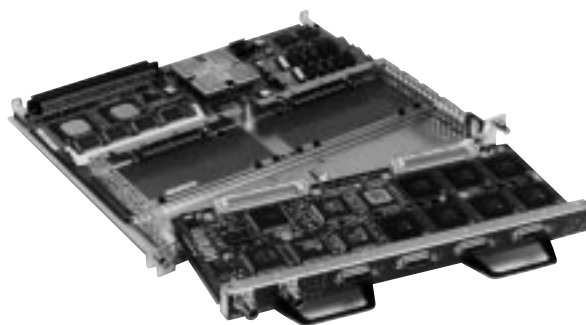
Cisco Systems' new channelized digital signal level 3 (DS-3) interface processor (CT3IP) for Cisco 7500 and 7000/Route Switch Processor (RSP) series routers delivers the next level of scalability in wide-area networking. The CT3IP aggregates 28 DS-1 ports into a single DS-3, offers onboard testing and troubleshooting, and delivers full line rate and fractional DS-1 support across all DS-1 channels. With this functionality, the CT3IP offers the highest level of integration and functionality in the industry.

Cisco pioneered high-density WAN interface solutions in 1992 with the MultiChannel Interface Processor (MIP) that met the demand for low-cost, scalable, DS-0 connectivity. With the exponential increase in Internet and intranet growth, carriers, service providers, and corporations worldwide are now facing the same problems for DS-1 connectivity. The new CT3IP is the next step in Cisco's commitment to meet this demand for economical DS-1 access.

The CT3IP provides one full-duplex DS-3 port for direct connection to channelized DS-3 services supporting aggregated connectivity of multiple DS-1s. Each of the 28 DS-1 channels within the DS-3 can be operated at the full line rate of 1.536 megabits per second (Mbps). In a subsequent software release, CT3IP will also allow each DS-1 channel to be operated at fractional rates up to 1.536 Mbps in increments of 64 kilobits per second (Kbps). Eight of those channels will be able to operate in increments of 56 Kbps.

Subsequent software releases will enable the CT3IP to support a wide range of enhanced connectivity and diagnostic capabilities. For optimum flexibility, four DS-1 channels are accessible via front-panel DSX-1-level connectors. These four channels can be connected directly to MIP cards for further demultiplexing down to DS-0 or to channel service units (CSUs) for direct connection to external DS-1 lines. To simplify bit error rate testing, one of these four DS-1 channels can be used as a test port to connect to any one of the 28 DS1s in the DS-3. In addition, full DS-1 facilities data link (FDL) and DS3 maintenance data link (MDL) support enable fast troubleshooting and isolation of problems on the DS-3 or any of its 28 DS-1 channels

Figure 1



The CT3IP operates in any Cisco 7500 series or Cisco 7000 series system equipped with an RSP. In Cisco 7000 series routers, the CT3IP can access the system's CxBus; in Cisco 7500 series systems it can utilize the full gigabit-per-second bandwidth provided by the Cisco 7500 CyBus.

In addition, the CT3IP operates with a version of the Cisco Internetwork Operating System (IOS™) that initially supports High-Level Data Link Control (HDLC), Point-to-Point Protocol (PPP), and distributed switching and distributed services. Switched Multimegabit Data Service (SMDS) and Frame Relay protocols will be supported in a future software update.

Features

General

- Standards-compliant DS-3 interface with built-in DSX-3 line interface unit
- Built-in M31 demultiplexing and four front-panel accessible T1 channels
- Built-in T1 data service units (DSUs) enabling T1 breakout ports to connect directly to Cisco MIP cards for demultiplexing down to DS-0 channels
- Full online insertion and removal (OIR) support, enabling users to remove, add, or replace interface processors on line

T3 Features

- M23 or C-bit parity
- Maintenance data link (MDL)
- B3ZS encoding
- DS-3 alarm/event detection (alarm indication signal [AIS], out of frame [OOF], far-end block error [FEBE], line code violation [LCV], excessive zeros [EXZ])
- Bit/byte oriented codes for C-bit parity

T1 Features

- Per-T1 BER testing
- Super Frame (SF) and Extended Superframe Format (ESF) framing
- FDL
- Fractional T1 support for N x 64 Kbps (all T1 channels) and N x 56 Kbps (last 8 T1 channels)

Product Numbers

- CT3IP-20 channelized DS-3 with Distributed Switching capability (DSW) and 16 MB of DRAM, 1 MB of SRAM
- CT3IP-40 channelized DS-3 with DSW and Distributed Services capability and 32 MB of DRAM, 2 MB of SRAM

Specifications

Physical Specifications

- Occupies one slot in any Cisco 7500 or 7000 series with RSP
- Weight: 5 lbs (2.25 kg)

Environmental Specifications

- Operating Temperature: 32 to 104 F (0 to 40 C)
- Storage Temperature: -4 to 149 F (-20 to 65 C)
- Relative Humidity: 10 to 90%, noncondensing

Safety Certifications

- UL1950
- CSA C22.2 No. 950-M29
- IEC 950
- EN60950

Electromagnetic Emissions Certifications

- FCC Class A
- EN55022A Class B
- CISPR-22 Class B
- VCCI Class 2

Network Loopbacks Supported

- DS-3 line loopback
- DS-3 remote line loopback (via FEAC codes as per ANSI T1.107a)
- DS-1 line loopback
- DS-1 payload loopback
- DS-1 remote line loopback (via inband codes, ANSI T1.403 FDL and AT&T TR54016 FDL)
- DS-1 remote payload loopback (via ANSI T1.403 FDL and AT&T TR54016 FDL)

Interface Standards

- ANSI T1.102-1987
- ANSI T1.403
- AT&T 62411

DS-3 Port Specifications

- Connectors: DSX-3 level BNC female (separate TX and RX)
- Impedance: 75 ohm
- Line Rate: 44.736 Mbps (20 ppm)
- Line Build-out: 450 feet (135 meters) of 75-ohm type 728A or equivalent coaxial cable

DS-1 Port Specifications

- Connectors: DSX-1 level DB-15 female
- Impedance: 100 ohms
- Line Rate: 1.544 Mbps (32 ppm)
- Line Build-out: 655 feet (196 meters) for 100-ohm twisted-pair cable

LEDs

- Enabled LED (Green): Channelized T3 card is powered and alive
- Status LED (Green): Support processor is booted and operational
- Alarm LED (Yellow): T3 or T1 alarm condition detected by the software
- T1 Port Enabled LEDs (Green): For each T1 connector, indicates port active
- AIS LED (Yellow): Indicates alarm indication signal (AIS) on DS-3 stream
- LOS LED (Yellow): Indicates loss of signal (LOS) on DS-3
- OOF LED (Yellow): Indicates OOF error
- FERF LED (Yellow): Indicates far end receive failure (FERF)
- T3EN LED (Green): DS-3 port is enabled and alive

Encapsulations

- Cisco HDLC
- PPP
- Frame Relay
- SMDS Data Exchange Interface (DXI)

Network Management

- T1 Management Information Base (MIB) (RFC 1406)
- T3 MIB (RFC 1407)



Cisco Systems
Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
World Wide Web URL:
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems Europe
s.a.r.l.
Parc Evolic-Batiment
L1/L2
16, Avenue du Quebec
BP 706-Villebon
91961 Courtaboeuf Cedex
France
Tel: 33 1 6918 61 00
Fax: 33 1 6928 83 26

**Intercontinental
Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
Tel: 408 526-7660
Fax: 408 526-4646

**Latin American
Headquarters**
Cisco Systems, Inc.
790 N.W. 107th Avenue
Suite 102
Miami, FL 33172
Tel: 305 228-1200
Fax: 305 222-8456

Japanese Headquarters
Nihon Cisco Systems K.K.
Fuji Building
3-2-3 Marunouchi
Chiyoda-ku, Tokyo 100
Japan
Tel: 81 3 5219 6000
Fax: 81 3 5219 6010

Cisco Systems has over 190 offices in the following countries. Addresses, phone numbers, and fax numbers are listed on the Cisco Connection Online Web site at <http://www.cisco.com>.

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • China (PRC) • Colombia • Costa Rica • Denmark • Finland • France • Germany
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