Cisco Channelized T1/E1 and ISDN PRI Modules

For the Integrated Services Routers Datasheet

Router-Switch.com
Leading Network Hardware Supplier

CONTENT

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OVERVIEW

The Cisco® Channelized T1/E1 and ISDN PRI High-Speed WAN Modules combine multiple T1/E1 WAN connectivity-Channelized T1/E1 and ISDN Primary Rate Interface (PRI), in the same card. Applications include fractional or full T1/E1 WAN connectivity, ISDN PRI for primary WAN link or WAN backup, and dial access aggregation. With flexible WAN connectivity options, together with integrated routing, security, voice, and wireless capabilities, the Cisco Integrated Services Routers can meet every need of enterprise-class branch office today and in the future. Three versions are available, 1- and 2-port cards in a single-wide high-speed WAN interface card (HWIC), and a 8-port cards in a single-wide network module. The different versions help enable customers to deploy different port densities according to the needs of individual offices.

The modules can be used in T1 or E1 networks, selectable by software configuration. The integrated channel service unit/data service unit (CSU/DSU) function allows customers to consolidate customer premises equipment (CPE). The modules support balanced and unbalanced E1 connectivity and conform to the G.703 and G.704 standards for unframed and framed E1 modes. The Channelized T1/E1 and ISDN PRI modules work with the digital modem module in the Cisco 2800, 2900, 3800, and 3900 Series Integrated Services Routers to provide V.90- and V.92-compliant digital dial access aggregation.

The 1- and 2-port Channelized T1/E1 and ISDN PRI HWICs are updated versions of the E1/T1 ISDN PRI network modules, with the same functions and performance in a compact form factor of HWIC. You can save the network module slots for other LAN/WAN connectivity, and your deployment flexibility is greatly enhanced.

APPEARANCE

Figure 1. 1- and 2-Port Channelized T1/E1 and ISDN PRI High-Speed WAN Interface Card

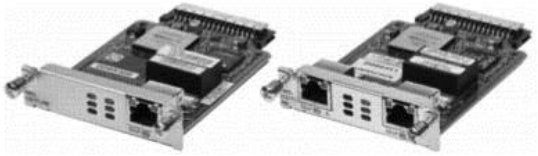
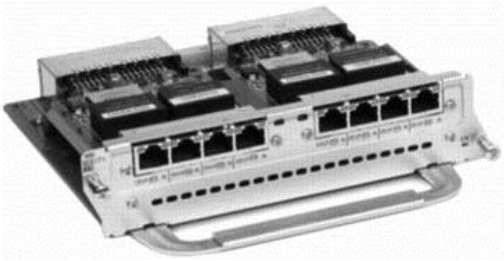


Figure 2. 8-Port Channelized T1/E1 and ISDN PRI Network Module



KEY FEATURES AND BENEFITS

Features and Benefits

• 1, 2, or 8 ports of RJ-48

• Cisco IOS® Software configurable for T1 or E1 operation

• Integrated CSU/DSU per port

• Fractional T1/E1 (n x DS-0) or full T1/E1

• Balanced or unbalanced E1 termination in the same module

• E1 unframed and framed modes (G.703 or G.704)

• Interoperable with Cisco digital modem modules PVDM2-12DM, PVDM2-24DM, and PVDM2-36DM (HWIC-1CE1T1-PRI and HWIC-2CE1T1-PRI modules only)

• Support for Multilink Point-to-Point Protocol (PPP) and Multilink Frame Relay (FRF.16)

• PRI for data

Key Benefits

Enhanced Flexibility

The Cisco E1/T1 ISDN PRI HWICs are software-configurable between E1 or T1 operation, balanced or unbalanced E1 termination, and CSU/DSU. Customers no longer need to buy a specific module for T1 support and then another card for E1 connectivity. In addition, the same modules provide for balanced (120-ohm) and unbalanced (75-ohm) E1 termination. Table 1 lists available cable adaptors.

Support for G.703 Unstructured E1 Signaling

ITU signaling standard G.703 was previously available only on Cisco midrange routers through the voice/WAN interface card (VWIC-xFT-G703), which did not support data PRI. Framed E1 (G.704) is also supported for international customers without G.703 service.

Increased Manageability and Troubleshooting

Critical loopback support makes the Cisco Channnelized T1/E1 and ISDN PRI Modules easy to manage. Both models can internally loop back the onboard framer chip toward the interface, thus eliminating

the need for an external loopback plug. Local, remote, line, and payload loopbacks, complement the management features of the Cisco Channelized T1/E1 and ISDN PRI Module.

Reliability

Integrating the external E1/T1 terminating device (CSU/DSU) increases the overall system reliability. Possible points of failure are reduced by eliminating the second power supply, additional fans, extra cabling, and other equipment that accompany a "two-box" solution. This increase in reliability allows service providers to more easily and cost-effectively meet the requirements of their customers' service-level agreements (SLAs) and provides enterprises with maximum equipment uptime.

PRODUCT SPECIFICATIONS OF CISCO CHANNELIZED T1/E1 AND ISDN PRI MODULES FOR THE INTEGRATED SERVICES ROUTERS

Feature	Benefit
Diagnostic Loopback Support	• E1 loopback modes: • Controller local loopback • Interface local loopback • T1 loopback modes: • Interface local loopback • Interface remote loopback • Controller local loopback • Controller remote loopback • CSU loopback modes for T1 CSU: • Data terminal equipment (DTE) loopback • Network loopback • Payload loopback

Alarm Detection	• Yellow Alarm-Receive/Send from/to network • Blue Alarm-Receive alarm indication signal (AIS) from network • Red Alarm-Loss of network signal
Relevant MIB Support	• T1 MIB (RFC1406-MIB) • Cisco Integrated DSU/CSU MIB (CISCO-ICSUDSU-MIB)
Remote Management	• Cisco CNS 2100 Series Intelligence Engine (IE2100) • CiscoWorks
Signaling Debugging	• ISDN Q.921 and Q.931 decode • All other previously existing applicable Cisco IOS Software debugs
Dimensions (H x W x D)	• HWIC-1CE1T1-PRI: 0.75 x 3.08 x 4.74 in. • (1.91 x 7.82 x 12.04 cm) • HWIC-2CE1T1-PRI: 0.75 x 3.08 X 4.74 in. • (1.91 x 7.82 x 12.04 cm) • NM-8CE1T1-PRI: 1.59 x 7.10 x 7.29 in. (4.0 x 18.0 x 18.5 cm)
Weight	• HWIC-1CE1T1-PRI: 0.18 lb (0.08 kg) • HWIC-2CE1T1-PRI: 0.19 lb (0.09 kg) • NM-8CE1T1-PRI: 1.4 lb (0.63 kg)
Operating Temperature	• 32 to 104°F (0 to 40°C)
Nonoperating Temperature	• -40 to 158° F (-40 to 70°C)
Relative Humidity	• 5-95% noncondensing
	LEDs per port • Carrier Detect/Loopback (CD/LP):

LEDs	• Off = No carrier detect • Green On = Carrier detect • Yellow On = Port in loopback mode • Alarm (AL): • Off = No alarms • Yellow On = Port in alarm mode LEDs per module (on NM-8CE1T1-PRI only): • EN: • Off = Card not available • On = Card enabled
Ports	• 1, 2, or 8 T1/E1 ports on RJ-48C connectors
Line Bit Rate (per Port)	• E1: (2.048 Mbps) • T1: (1.544 Mbps)
Line Coding	• E1: High-density bipolar three (HDB3) • T1: Alternate mark inversion (AMI) and binary 8-zero substitution (B8ZS
Framing Formats	• E1: CRC4 • T1: Super Frame (SF) and Extended Super Frame (ESF)
Output Levels	• E1: short-haul/long-haul • T1 (line build-out [LBO]): 0, -7.5, or -15 dB

CISCO CHANNELIZED T1/E1 AND ISDN PRI MODULES FOR THE INTEGRATED SERVICES ROUTERS ORDERING INFORMATION

Product Number	Product Description
HWIC-1CE1T1-PRI	1 Port Channelized T1/E1 and ISDN PRI High Speed WAN Interface Card
HWIC-2CE1T1-PRI	2 Port Channelized T1/E1 and ISDN PRI High Speed WAN Interface Card
NM-8CE1T1-PRI	8 Port Channelized T1/E1 and ISDN PRI Network Module
SM-NM-ADPTR	Network Module Adapter for SM Slot on Cisco 2900 and 3900 Series ISR
CAB-E1-RJ45BNC	E1 Cable RJ-45 to Dual BNC (Unbalanced)

SOURCES

https://www.cisco.com/c/en/us/products/collateral/interfaces-modules/network-modules/product_data_sheet0900aecd80710c88.html?dtid=osscdc000283