

High-Density E1 Card for the Cisco ONS 15454 SDH MSPP

The 42-Port E1 Interface card delivers greater service densities and advances overall platform economics by reducing system footprint for the ONS 15454 SDH multiservice provisioning platform (MSPP).

Product Overview

The E1-42 module provides 42 G.703 compliant E1 interfaces in a single-slot footprint for the ONS 15454 SDH. The E1-42 card is capable of receiving 42 independent asynchronous E1 signals and mapping them into VC-12s (Virtual Container) per ITU G.707 for further multiplexing, switching, or transport. The E1-42 card also provides performance monitoring and alarm reporting framing formats per ITU G.826.

Each E1 interface on the E1-42 card operates independently at 2.048 Mbps, with the physical termination of each E1 located at the Front Mount Electrical

Connection (FMEC) module in the Electrical Facility Connection Assembly (EFCA) chassis. The E1-120NP FMEC is required when the E1-42 card is configured in unprotected mode. When the E1-42 card is configured in a 1:3 protection group, the E1-120PROA and E1-120PROB FMECs provide a 120-Ohm balanced, termination capability. For 75-Ohm terminations, an external one rack unit high converter (E1-75BB) is available which allows conversion from 120-Ohm to 75-Ohm and vice versa.

The E1-42 card utilizes three card-level light indicator indicators on the card faceplate. The red FAIL light indicator indicates a hardware problem on the E1 module. The bi-color ACT/STBY light indicator indicates the modules' current operational status. When the ACT/STBY light indicator is green, it indicates that it is the working module and is in the active condition. When the ACT/STBY light indicator is amber, it indicates that it is the protection module and is operating in a stand-by condition. The yellow SF indicates a problem receiving incoming data (LOS, LOF, or high BER) on one or more of the E1 ports on the card. The user can query individual ports for further alarm resolution or port conditions via the LCD display located on the fan tray assembly or access the system via Cisco Transport Controller (CTC).

Figure 1
E1-42 Card for the ONS
15454 SDH





High Density E1 Applications

The E1-42 card is used for terminating 2.048 Mbps transport signals within a local exchange or customer premise. VC-12s present within other facilities coming into the system (via an optical interface, another E1-42 or E1-14 interface port) can be connected to the E1-42 facility interface card. Additionally, performance monitoring is provided via the interface to allow validation of signal quality.

The introduction of the E1-42 module allows service providers and enterprise users to terminate a higher density of E1 signals locally on the ONS 15454 SDH system. The high-density E1-42 card provides up to 336 unprotected/252 protected E1 interfaces per system, vs. the 140 unprotected/112 E1s available via the E1-14 card, providing a 3x increase in density over the E1-14 card.

The Cisco Advantage

The ONS 15454 SDH platform is a key building block in today's optical networks through its ability to offer next-generation transport capabilities and economics. It offers supercharged multiservice transport capability by combining the best of a TDM (time-division multiplexing) system along with extensive Ethernet/IP data service offerings in a single platform. The Cisco ONS 15454 MSPP can aggregate traditional facilities such as asynchronous E1, E3/DS3 or E4 circuits and synchronous optical interfaces along with data services, including 10BASE-T, 100BASE-T or Gigabit Ethernet onto optical transport facilities such as STM-16, STM-16 DWDM, STM-64, and STM-64 DWDM line interfaces. The ONS 15454's superior flexibility enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and lifecycle deployment.

Compact Design

- Single width card slot design for increased shelf flexibility and scalability
- Up to 8 High Density E1-42 cards per shelf assembly

Optical Transport Options

- Sub-Network Connection Protection (SNCP, Ring and Mesh)
- 2F and 4F Multiplex Section-Shared Protection Ring (MS-SPR)
- Multiplex Section Protection (MSP, 1+1 uni- or bidirectional)
- Unprotected (0+1)

Network Architecture Flexibility

- Ring
- Multiple rings
- Linear add/drop multiplexer
- Terminal



Table 1 System Requirements

| Component | ONS 15454 SDH |
|-----------------|---|
| Processor | TCC2 |
| Cross-connect | XC-10G*, XC-VXL-10G, XC-VXL2.5G |
| Shelf Assembly | ETSI version with SDH 48V fan tray assembly |
| System Software | R4.0.0 or greater |

*XC-10G supports VC-4 tunneling of E1 signals

Table 2 Technical Specifications

| Specification | E1-42 |
|---------------------------|---|
| Signal Interface | ITU-T G.703 for E1 Interfaces at 2.048 Mbps |
| Payload Mapping | VC-12 per ITU-T G.707 |
| Card Redundancy | Unprotected, 1:3 Protection |
| Facility Termination | 96-Pin LFH Molex Connector to FMEC cards |
| Performance Monitoring | ITU-T G.826 |
| Jitter | ITU-T G.813 for E1 Interfaces |
| Power (Max—Includes FMEC) | 25W |
| Operating Temperature | -5° to 45°C (ETSI Class 3.1E) |
| Storage Temperature | -40° to 85°C (ETSI Class 3.1E) |
| Operating Humidity | 5 to 95% non-condensing |
| Storage Humidity | 5 to 95% non-condensing |

Table 3 Product Part Numbers and Description

| Part Number | Description |
|-------------------|--|
| 15454E-E1-42 | High Density 42-Port E1 Card |
| 15454E-E1-120NP | 120 Ohm E1 FMEC, No Protection |
| 15454E-E1-120PROA | 120 Ohm E1 FMEC, 1:3 Protection for Side A |
| 15454E-E1-120PROB | 120 Ohm E1 FMEC, 1:3 Protection for Side B |
| 15454E-E1-75BB | External 75/120 Ohm E1 Converter |

For More Information

For more information on the Cisco ONS 15454 SDH MSPP, please contact your Cisco Account Representative, or visit:
<http://cisco.com/en/US/products/hw/optical/ps2006/ps2008/index.html>



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