Data Sheet

Cisco ONS 15454 SDH 12-Port STM-1 Electrical Interface Card

The Cisco® ONS 15454 SDH 12-Port STM-1 Electrical Interface Card (STM-1E) provides a cost-effective, high-speed electrical interface for interconnections between voice switches, digital cross-connects, add/drop multiplexers (ADMs), and other existing network equipment, while reducing footprint requirements and offering multiservice flexibility.

Product Overview
The Cisco ONS 15454 STM-1E Card provides 12 STM-1 electrical interfaces (ITU-T G.703, 155.520 Mbps) on a single card (Figure 1).

Figure 1
Cisco ONS 15454 STM-1E Card
The STM-1E card can be installed into multiservice slots 1–4 and 14–17 in the shelf assembly. With the front-mount-electrical-connection (FMEC) modules installed in the electrical-facility-connector-assembly (EFCA) slots, STM-1E services can be deployed in 1:1 protection or unprotected configurations. The high-density card footprint allows a single Cisco ONS 15454 SDH chassis to service up to 48 1:1 protected STM-1E interfaces or 96 unprotected interfaces.

The STM-1E card has three card-level LED indicators. The red FAIL LED indicates a hardware problem on the STM-1E card; the green ACTV LED indicates that the STM-1E card is active and ready to carry traffic. The yellow SF LED indicates a problem receiving incoming data (loss of signal [LOS], loss of frame [LOF], or high bit error rate [BER]) on one or more of the STM-1E ports on the card. You can query individual ports for further alarm resolution or port conditions through the LCD display located on the fan-tray assembly or access the system with the Cisco Transport Controller.

**Applications**

The STM-1E card for the Cisco ONS 15454 SDH Multiservice Provisioning Platform (MSPP) bridges the gap between existing traditional infrastructure and next-generation multiservice networks that require the flexibility to meet the demands of a wide variety of network applications found within many service provider and enterprise transport networks.

The STM-1E interface interconnects equipment such as ADMs and digital cross-connects (DXCs) at high rates (155 Mbps). The addition of the STM-1E interface card on the Cisco ONS 15454 SDH MSPP allows for ease of interconnection to the existing network infrastructure (Figure 2) as STM-1 electrical handoffs have become prevalent because of the significant cost savings of the electrical optical interfaces.

**Figure 2**

STM-1 Electrical Interconnections
Key Features and Benefits

The Cisco ONS 15454 MSPP with the STM-1E card offers the following features and benefits:

**Compact Design**
- Single-slot-width card design for improved shelf flexibility and scalability
- Up to 8 STM-1E cards per shelf assembly to support high-density applications

**Interface Provisioning Options**
- STM-1E subnetwork connection protection (SNCP), ring and mesh
- Multiplex section protection (MSP), 1 + 1 uni- or bidirectional
- Unprotected (0 + 1)

**Platform Network Architecture Flexibility**
- Ring
- Multiple rings
- Linear ADM
- Terminal

**Summary**
The Cisco ONS 15454 SDH MSPP is an important building block in today’s optical networks because of its next-generation transport capabilities and economics. It offers unprecedented multiservice transport capabilities by combining the best of a time-division multiplexing (TDM) system along with extensive Ethernet and IP data service offerings in a single platform. The Cisco ONS 15454 MSPP can aggregate traditional facilities such as asynchronous E1, or DS-3/E3 and synchronous optical interfaces onto optical transport facilities from STM-1 to STM-64. It can also aggregate data services such as 10BASE-T, 100BASE-T, or Gigabit Ethernet, and Fibre Channel storage interfaces. Lastly, it can aggregate dense wavelength-division multiplexing (DWDM) optics options for network scalability. The superior flexibility of the Cisco ONS 15454 helps enable drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and lifecycle deployment.

**Product Specifications**
Table 1 outlines the product specifications for the Cisco ONS 15454 STM-1E Card.

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal interface</td>
<td>12 ports, ITU-T G.703 STM-1 electrical</td>
</tr>
<tr>
<td>Payload mapping</td>
<td>VC-4 per ITU-T G.707 interfaces</td>
</tr>
<tr>
<td>Return loss</td>
<td>15 dB</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>12 dB</td>
</tr>
<tr>
<td>Card redundancy</td>
<td>Unprotected and 1:1 protection</td>
</tr>
<tr>
<td>Facility termination</td>
<td>75-ohm 1.0 or 2.3 subminiature connector</td>
</tr>
</tbody>
</table>
## Performance monitoring
ITU-T G.826

## Jitter
ITU-T G.825

## Power
60W maximum, including FMEC

## Operating temperature and humidity
–5 to 45°C/23 to 113°F (ETSI Class 3.1E)
5 to 95% noncondensing

## Storage temperature and humidity
–40 to 85°C/–40 to 185°F (ETSI Class 3.1E)
5 to 95% noncondensing

### System Requirements
Table 2 outlines the system requirements to deploy the Cisco ONS 15454 STM-1E Card.

#### Table 2.  System Requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td>Shelf assembly</td>
<td>ETSI version with SDH –48-VDC fan-tray assembly</td>
</tr>
<tr>
<td>Processor</td>
<td>TCC2 and TCC2P</td>
</tr>
<tr>
<td>Cross-connect</td>
<td>XC-10G, XC-VXL-2.5G, XC-VXL-10G, or XC-VXC-10G</td>
</tr>
<tr>
<td>System software</td>
<td>Release 6.1 or greater release number</td>
</tr>
<tr>
<td>Slot compatibility</td>
<td>Slots 1 to 4 and 14 to 17</td>
</tr>
</tbody>
</table>

### Ordering Information
To place an order, visit the [Cisco Ordering Home Page](http://www.cisco.com) or refer to Table 3.

#### Table 3.  Ordering Information for Cisco ONS 15454 STM-1E Card

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>STM-1E electrical interface card, 12 ports, SDH systems</td>
<td>15454E-STM1E-12</td>
</tr>
<tr>
<td>STM-1E FMEC, 12 ports for 1:1 protection or 24 ports for unprotected, 75-ohm 1.0 or 2.3 connectors, 2 slots, SDH systems</td>
<td>15454E-STM11-FMEC</td>
</tr>
</tbody>
</table>

### Service and Support
Cisco Systems offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, see [Cisco Technical Support Services](http://www.cisco.com) or [Cisco Advanced Services](http://www.cisco.com).

### For More Information