



DATA SHEET

CISCO ONS 15454 SONET 12-PORT DS-3 TRANSMULTIPLEXER CARD

The Cisco® ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card provides a cost-effective, high-density DS-3 interface solution for hand-offs between interexchange carriers (IXCs) and incumbent carriers as well as a channelized interface for router WAN connectivity.

PRODUCT OVERVIEW

The Cisco ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card (Figure 1) provides 12 Telcordia-compliant, GR-499-CORE DS-3 C-Bit or M2/3 framed interfaces operating at 44.736 Mbps. The card demultiplexes a channelized DS-3 into 28 DS-1s, maps each DS-1 to a VT1.5, then multiplexes the 28 VT1.5s into a VT-mapped STS-1 before hand-off to the Cisco ONS 15454 cross-connect card. The integration of transmultiplexing capabilities into the Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) reduces the need for outboard M13 multiplexers or wideband digital cross-connect systems to access and groom DS-1 signals from channelized DS-3 interfaces. The 12-port DS-3 transmultiplexer card offers grooming flexibility by supporting two ways to receive the DS-3 signal, ported or portless. Ported terminations refer to DS-3 interfaces that are received through 75-ohm coaxial cables from the shelf assembly's electrical interface adapter (EIA) panels. Portless termination is a channelized DS-3 signal received over an STS-1 circuit from a SONET optical line (OC-n). The portless capability eliminates the need to terminate a channelized DS-3 signal on the shelf assembly and then re-insert.

Figure 1

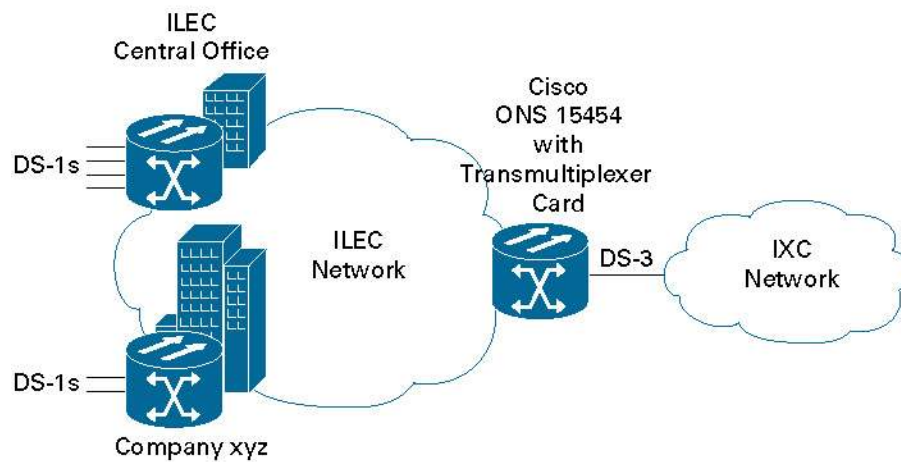
Cisco ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card



The 12-port DS-3 transmultiplexer card supports multiple card-protection options, including 1:0 (unprotected), 1:1 and 1:N, $N \leq 5$ for ported terminations, or $N \leq 7$ for portless terminations. It can be provisioned to operate as either a working or a protection card, reducing spares inventories and their associated cost. The 12-port DS-3 transmultiplexer card supports circuit-level interoperability with the existing Cisco ONS 15454 SONET 6-Port DS-3 Transmultiplexer Card. The system supports in-service upgrades from the 6-port card to the 12-port card, allowing the user to increase the number of interfaces supported on a shelf assembly or reduce the number of shelf slots required to terminate a given quantity of DS-3 interfaces.

To aid with troubleshooting and fault isolation, the 12-port DS-3 transmultiplexer card supports near-end and far-end performance-monitoring capabilities at the SONET, DS-3, and DS-1 levels. The card incorporates three faceplate-mounted status indicators: a red FAIL LED for hardware-level problems; dual color, green/yellow ACTIVE/STANDBY LED to indicate when the card is being used as the active or protection card; and a yellow SIGNAL FAIL LED for problems being received on incoming ports. The condition of the card's individual interface ports can be queried using the shelf's liquid crystal display (LCD) panel as well as the browser-based Cisco Transport Controller craft interface.

Figure 2
Hand-Off Between Service Providers

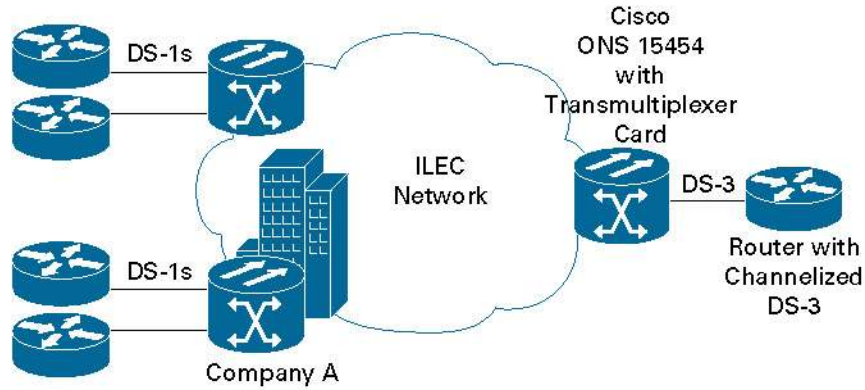


APPLICATIONS

The Cisco ONS 15454 12-Port DS-3 Transmultiplexer Card can be used in a variety of applications. The channelized DS-3 is a very popular intercarrier hand-off between two service providers (Figure 2) because it allows the aggregation of many lower-bandwidth, leased-line DS-1 services to a single, consolidated interface, reducing cabling complexity. The 12-port DS-3 transmultiplexer card's high port density allows the service provider to deploy fewer cards and chassis, reducing central-office footprint, power, and technician complexity.

A similar application is using a channelized DS-3 interface to hand off multiple services to an aggregation router (Figure 3). Again, the 12-port DS-3 transmultiplexer card's high port density allows the user to deploy fewer cards and chassis, reducing footprint, power, and technician complexity.

Figure 3
Aggregation Router Hand-Off



KEY FEATURES AND BENEFITS

The Cisco ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card offers the following features:

- Ported and portless DS-3 operation to provide flexible grooming options as well as eliminate some intrashelf cabling and interface card ports, reducing capital expenditures (CapEx).
- SONET (STS and VT), DS-1, and DS-3 performance monitoring for proactive maintenance as well as fault isolation.
- Facility data-link termination and generation to allow monitoring of customer premises equipment (CPE) supporting this capability.
- Provisionable response to far-end activation code (FEAC) requests allows users the flexibility to manage the behavior of their network.
- STS- and VT-level support (J1 and J2 bytes) verifies that the DS-3 and DS-1 circuits are correctly cross-connected.
- In-service upgrades from lower-density, 6-port transmultiplexer card (protected configurations).

PRODUCT SPECIFICATIONS

Table 1 and Table 2 outline the specifications for the Cisco ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card.

Table 1. Regulatory Compliance

Countries	
SONET platform	Canada European Union Hong Kong Japan Korea Mexico United States

Countries	
Electromagnetic Compliance - Class A	ETSI 300-386-TC Telcordia Technologies Network Equipment Building Standards (NEBS) GR-1089-CORE, Issue 3 (Level 3, Type 2 and Type 4) CISPR 22, CISPR 24 IC ICES-003 Issue 3, 1997 FCC 47CFR15 EN55022, EN55024
Product safety	Telcordia Technologies NEBS GR-1089-CORE, Issue 3 (Level 3, Type 2 and Type 4) IEC 60950-1/EN 60950-1, 1 st Edition UL and cUL/CSA 60950-1 1 st Edition
Environmental	Telcordia Technologies NEBS GR-63-CORE, Level 3 ETS 300 019-2-1 (Storage, Class 1.1) ETS 300 019-2-2 (Class 2.3) ETS 300 019-2-3 (Class 3.1E)
Customer requirements	AT&T Network Equipment Design Specification (NEDS) SBC (TP76200MP) Verizon TCG Checklist MCI/Worldcom ESD

Table 2. Product Specifications

Parameter	Value
Signal interface	DS-3, 44.736 Mbps \pm 0ppm, Telcordia GR-499-CORE and ITU-T G.703
Payload framing	DS-3: C-Bit, M23 DS-1: Extended super frame (ESF), D4, Unframed
Facilities per card	Ported interfaces: XC-VT or XC-10G cross-connect cards: 12 ports in all slots Portless interfaces: XC-10G cross-connect card: 12 ports in all slots XC-VT cross-connect card: 12 ports in slots 5, 6, 12, 13; 6 ports in slots 1 to 4 and 14 to 17
Slot compatibility	Slots 1 to 6, 12 to 17
Card-protection capabilities	1:0 (unprotected) 1:1 1:N, N \leq 5 (ported operation) Working slots: 1, 2, 4, 5, 6 or 12, 13, 14, 16, 17 Protect slots: 3 (A-side slots) and 15 (B-side slots) 1:N, N \leq 7 (portless operation) Working slots: 1 to 6 and 12 to 17 Protect slots: 3 or 15 (protects both A-side and B-side slots, maximum of 7 slots)
Line build-out	0 to 225 ft 226 to 450 ft
Loopback modes	DS-1 and DS-3 facility and terminal

Parameter	Value
Card-level Indicators	Red "Fail" LED—hardware problem Green/Amber "ACT/STBY" LED—identifies ACTIVE or STANDBY card state Yellow "SF" LED—signal failure on line
Physical dimensions	Single-slot width 12.65 x .716 x 9 in. (H x W x D)
Power	
Nominal	31 W
Maximum	34 W
Temperature and humidity	
Operating	–40 to 149°F (–40 to 65°C), 5 to 95%, noncondensing humidity
Storage	–40 to 185°F (–40 to 85°C), 5 to 95%, noncondensing humidity

SYSTEM REQUIREMENTS

The Cisco ONS 15454 system requirements for operation of the transmultiplexer card are outlined in Table 3.

Table 3. System Requirements

System Parameter	Value
Shelf assembly	Any version (cross-connect card dependent)
Processor	TCC2
Cross-connect	XC-VT, XC-10G
System software	Release 5.0 or later (SONET)
Slot compatibility	Slots 1 to 6, 12 to 17

ORDERING INFORMATION

To place an order, visit the [Cisco Ordering Home Page](#). Table 4 outlines the ordering code for the Cisco ONS 15454 12-Port DS-3 Transmultiplexer Card.

Table 4. Ordering Information

Product Description	Part Number
Cisco ONS 15454 SONET 12-Port DS-3 Transmultiplexer Card, 12 circuits, ported or portless operation, SONET system	15454-DS3XM-12

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FOR MORE INFORMATION

For more information about the Cisco ONS 15454, visit <http://www.cisco.com/en/US/products/hw/optical/ps2006/ps2010/index.html> or contact your local account representative.

**Corporate Headquarters**

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

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