Data Sheet

High Density OC-12/STM-4 Card for the Cisco ONS 15454 MSPP

The high-density OC-12/STM-4 card delivers greater service densities and advances system footprint on the Cisco® ONS 15454 Synchronous Optical Network (SONET) and Synchronous Digital Hierarchy (SDH) Multiservice Provisioning Platforms (MSPPs).

Background

The Cisco ONS 15454 is the industry's leading MSPP, with hundreds of customers and more than 40,000 systems deployed worldwide. The Cisco ONS 15454 SONET and Cisco ONS 15454 SDH platforms (see Figure 1) are a key building block in today's optical networks through its ability to offer next-generation transport capabilities and economics. The Cisco ONS 15454 offers supercharged multiservice transport capability by combining the best of a time-division multiplexing (TDM) system along with extensive Storage/Ethernet/IP data service offerings in a single platform. The Cisco ONS 15454 MSPP can aggregate traditional facilities such as asynchronous DS1/E1 or DS3/E3 circuits through OC-192/STM-64 along with data services, including 10BASE-T, 100BASE-T or Gigabit Ethernet onto optical transport facilities such as OC-48/STM-16, OC-48/STM-16 DWDM, and OC-192/STM-64 line interfaces. The Cisco ONS 15454's superior flexibility enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and lifecycle deployment.

Figure 1

Cisco ONS 15454 SONET and Cisco ONS 15454 SDH MSPP with Four-Port OC-12/STM-4 Card

Cisco continues to expand service densities on the Cisco ONS 15454 MSPP with the introduction of the high-density OC-12/STM-4 card. The four-port OC-12/STM-4 card offers four times the density of the current OC-12/STM-4 card and enables service providers to expand the number of revenue-generating service interfaces from an existing or new Cisco ONS 15454. Enterprise users and service providers can also take advantage of lower overall network infrastructure costs by reducing the number of chassis and interface cards for future network build-outs.

High-Density OC-12/STM-4 Solution

The Cisco ONS 15454 allows service providers to take greater advantage of operational and networking enhancements achieved through higher port and service densities driving increasing revenue streams. Improved economics of the four-port OC-12/STM-4 card allow additional system interfaces for traffic aggregation and transport.

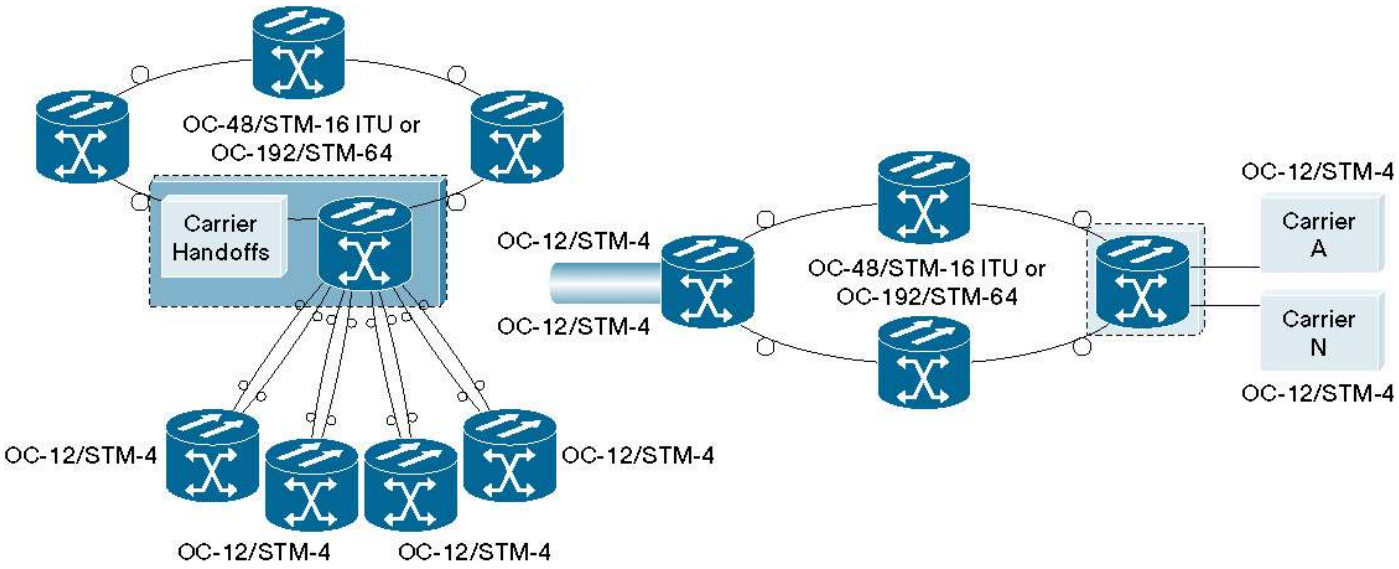
High-Density OC-12/STM-4 Applications

As the migration to 10 Gbps in the metro-optical network continues, bandwidth scalability and multiservice capability has become increasingly important for the next-generation optical network. The Cisco ONS 15454 and Cisco ONS 15454 SDH supports asynchronous traffic (DS1/E1, DS3/E3) and also scales up to OC-192/STM-64 for optical transport. In order to maximize footprint, cost, and flexibility, the four-port OC-12/STM-4 card provides four times the bandwidth per slot, versus the current single port OC-12/STM-4 cards.

With this increased port density, the service providers now have the option of dropping 10 Gb (see Figure 2) worth of protected bandwidth using eight four-port OC-12/STM-4 cards (1 + 1 protected) with a single Cisco ONS 15454 chassis. Each port is also configurable to support all Cisco ONS 15454 configurations and may be provisioned as part of a Bidirectional Line Switched Ring/Multiplex Section-Shared Protection Ring (BLSR/MS-SPR), Unidirectional Path Switched Ring/Sub-Network Connection Protection (UPSR/SNCP), or linear/multiplex switching protection (MSP) configuration. For SDH gateway applications, each port can be independently software provisioned as STM-4 for SDH tunneling applications on the Cisco ONS 15454 SONET platform.

Figure 2

High-Density OC-12/STM-4 Applications Using the Cisco ONS 15454 MSPP



Summary

The Cisco ONS 15454 MSPP is the industry's leading metro optical transport platform, with more than 700 customers and 40,000 systems deployed. The Cisco ONS 15454 combines supercharged SONET/SDH transport, integrated optical networking (including ITU grid wavelengths and DWDM), and unprecedented multiservice interfaces to deliver radical economic benefits to service providers and enterprise users. The Cisco ONS 15454 offers the functionality of multiple network elements, including SONET/SDH multiplexing, DWDM, TDM, and Ethernet bandwidth management, and seamless scaling to 10-Gbps transport.

Cisco ONS 15454 Four-Port OC-12/STM-4 Technical Specifications

Compact Design

- Single-width card slot with four OC-12/STM-4 ports with SC connectors
- Up to eight 4-port OC-12/STM-4 cards per chassis

Flexible Restoration Options

- UPSR/SNCP
- Two-fiber BLSR/MS-SPR
- Automatic protection switching (APS)/MSP (1 + 1 uni- or bidirectional)
- Unprotected (0 + 1)
- Path Protected Mesh Networking (PPMN)

Networking Flexibility

- Ring
- Multiple rings
- Linear ADM
- Terminal

Compliance

- GR-253 IR-1-compliant/ITU G.957-compliant optical interfaces
- GR-2918-CORE compliant
- TR-NWT-000332, Issue 4, Method 1 calculation for 20-year mean time between failures (MTBF)

Table 1. System Requirement

Component	Cisco ONS 15454 SONET/ANSI	Cisco ONS 15454 SDH/ETSI
Processor	TCC+, TCC2, or TCC2P	TCC-I, TCC2, or TCC2P
Cross-Connect	XC-10G or XC-VXC-10G	XC-10G, XC-VXL-10G, or XC-VXC-10G
Shelf Assembly	ANSI Shelf Assembly with FTA3 Version Fan Tray Assembly	ETSI Shelf Assembly with SDH 48V Fan Tray Assembly
System Software	Release 3.3.0 or greater	Release 3.4.0 or greater
Slot Compatibility	1–4 and 14–17	1–4 and 14–17

Table 2. Technical Specifications

Specification	OC12I4-1310/ S4.1-4
System Reach	15 dB
Wavelength (nominal)	1310 nm
Spectral Range	Between 1274 nm and 1356 nm
Number of Wavelengths	1
Targeted Fiber Distance (unamplified)	15 km
Transmit Power	–13 dBm
Transmit Type	MLM Fabry-Perot
Receive Sensitivity	–8 to –30 dBm
Bit Error Rate (BER)	10E-12
Receiver Type	PIN
Chromatic Dispersion Allowance	74 ps/nm max. for the spectral range of 1274 nm to 1356 nm 46 ps/nm max. for the spectral range of 1293 nm to 1334 nm
Connector Type	SC
Power (Maximum)	28W
Operating Temperature	32° to 122°F, 0° to 50°C
Operating Humidity	5 to 95% non-condensing
Storage Temperature	–40° to 185°F, –40° to 85°C
Storage Humidity	5 to 95% non-condensing

Table 3. Product Part Numbers and Descriptions

Product Name	Description
15454-OC12I4-1310	4-Port OC12/STM-4, IR, 1310 nm – SONET/ANSI
15454E-S4.1-4	4-Port STM-4, Intra-office, 1310 nm – SDH/ETSI

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

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