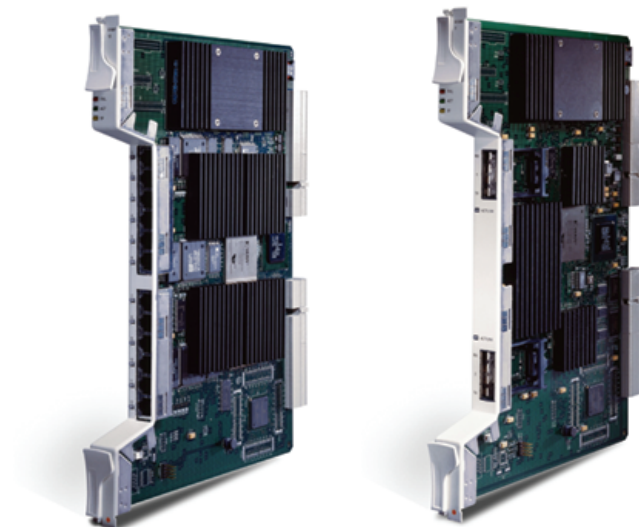


E-Series Ethernet Interface Cards for the Cisco ONS 15454 SONET/SDH MSPP

The Cisco ONS 15454 Ethernet solution consists of two interface cards, E100T and E1000-2, which can be installed in any of the ONS 15454 shelf assembly's 12 multiservice interface slots. The E100T-12 integrates an IEEE.802.1D Layer 2 switch with 12 autosensing 10BASET/100BASET RJ-45 copper interfaces. The E1000-2 integrates an IEEE.802.1D Layer 2 switch with two modular gigabit interface converter (GBIC) interface slots. Each GBIC slot can be populated with either 1000BASESX (short reach over multimode fiber at 850 nm) or 1000BASELX (long reach over single-mode fiber at 1310 nm) optics.

The Cisco ONS 15454 Ethernet solutions are extremely powerful as a result of the incorporation of Layer 2 switching within the optical transport system. They enable users to build point-to-point or shared-packet ring circuits. Most traditional transport devices map Ethernet frames directly over dedicated time-division multiplexing (TDM) bandwidth on a Synchronous Optical Network (SONET) or Synchronous Digital Hierarchy (SDH) transport network. This solution creates multiple physical, point-to-point circuits, which are severely underutilized as a result of the bursty nature of Ethernet traffic. This results in a transport network that is larger than the actual data traffic demands.

Figure 1
10/100BaseT (E100T) and Gigabit (E1000-2) Ethernet Cards



The Cisco ONS 15454 solution leverages the imbedded Ethernet switch to allow multiple Ethernet circuits to share the same network-side bandwidth, allowing for the efficient use of the transport bandwidth. User-side I/O ports on the cards, either 10/100BASE-T or Gigabit Ethernet can be linked, either individually or in groups, to network side bandwidth in STS-1, STS-3c, STS-6c, and STS-12c bandwidth increments for SONET and VC-4-2c/4c for SDH. Utilizing Institute of Electrical and Electronics Engineers (IEEE) 802.1Q virtual LAN (VLAN) capabilities, the multiple Ethernet ports or circuits can be logically segregated into user groups while maintaining complete separation of user traffic. High-priority, real-time traffic can also be given priority through incorporation of the IEEE 802.1P protocol. The Cisco ONS 15454 Ethernet solution provides the service provider with the flexibility to build their transport network, to support today's TDM based services while allowing the efficient transport of the exploding data services.

The E-Series cards support a provisionable private line operating mode, enabling the user to map Ethernet ports directly to SONET/SDH bandwidth. This service mode further simplifies network provisioning by disabling the L2 switching functionality and eliminates the need to provision spanning tree and VLANs. This mode enables the creation of transparent Ethernet circuits, behaving much like a TDM private line circuit.

Additional capabilities of the Ethernet switch are listed in Table 1.

Table 1

Technical Specifications Parameter	E100T-12	E1000-2
Ports	12 RJ-45	2 GBIC Interface Slots
Speed	10- or 100-Mbps autosensing and selectable	1000 Mbps
Ethernet Switching Capacity	1.2 Gbps	1.2 Gbps
VLAN Support (802.1Q)	512	512
MAC Address	8192 FIFO	8192 FIFO
Priority (802.1P)	2 level, high/low	2 level, high/low
Spanning Tree (802.1D)	Yes	Yes
Transport Bandwidth/Card	Up to 622 Mbps (STS-12/VC-4-4c)	Up to 622 Mbps (STS-12/VC-4-4c)
Transport Circuit Granularity	STS-1 (50 Mbps) (SONET only) STS-3c/VC-4 (155 Mbps) STS-6c/VC-4-2c (310 Mbps) STS-12c/VC-4-4c (622 Mbps)	STS-1 (50 Mbps) (SONET only) STS-3c/VC-4 (155 Mbps) STS-6c/VC-4-2c (310 Mbps) STS-12c/VC-4-4c (622 Mbps)
Dimensions (H x W x D)	Single Width 12.650 x 0.716 x 9 in.	Single Width 12.650 x 0.716 x 9 in.
Maximum Power Consumption	60W	54W
Operating Temperature	+25 to 131 F -5 to +55 C	+25 to 131 F -5 to +55 C
Operating Humidity	5 to 95%, non-condensing	5 to 95%, non-condensing
Storage Temperature	-40 to 185 F -40 to 85 C	-40 to 185 F -40 to 85 C
Storage Humidity	5 to 95%, non-condensing	5 to 95%, non-condensing
Maximum Transmission Units (MTU)	1522 Bytes	1522 Bytes

Table 2

System Requirements

Component	SONET Requirement	SDH Requirement
Processor	TCC+, TCC2	TCCi, TCC2
Cross-Connect	XC, XC-VT or XC-10G	XC-10G, xc-vxl-25G, xc-vxl-10G
System Software	R2.2.x to R4.0.x (TCC+) R4.0.0 or higher (TCC2)	R3.3.x to R3.4.x (TCCi) R4.0.0 or higher (TCC2)

Table 3

Ordering Information—SONET

Component	Description
15454-E100T-G	10/100Base T Card, 12 Ports, RJ45, compatible with XC, XC-VT and XC-10G cards
15454-E1000-2-G	Gigabit Ethernet card, 2 GBIC slots, compatible with XC, XC-VT and XC-10G cards

Table 4

Ordering Information—SDH

Component	Description
15454E-E100T-12	10/100Base T Card, 12 Ports, RJ45
15454E-E1000-2	Gigabit Ethernet card, 2 GBIC slots

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