



Hardware Specifications



Note

The terms “Unidirectional Path Switched Ring” and “UPSR” may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as “Path Protected Mesh Network” and “PPMN,” refer generally to Cisco’s path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This appendix contains hardware and software specifications for the ONS 15327.

A.1 Shelf Specifications

This section provides bandwidth specifications; slot assignments, card and topology lists; Cisco Transport Controller (CTC) specifications; the LAN, TL1, modem, alarm, and EIA interface specifications; timing, power, and environmental specifications; and shelf dimensions.

A.1.1 Bandwidth

- Total bandwidth: 240 Gbps
- Data plane bandwidth: 160 Gbps
- SONET plane bandwidth: 80 Gbps

A.1.2 Slot Assignments

- Total card slots: 8
- Traffic card slots (E10/100-4, G-1000-2, OC-3, OC-12, and OC-48): Slots 1 through 4
- Cross Connect, Timing and Control (XTC): Slots 5, 6
- Mechanical Interface Card (MIC): Slots 7, 8

A.1.3 Cards

- XTC-14

- XTC-28-3
- MIC A
- MIC B
- E10/100-4
- G1000-2
- OC3 IR 4 1310
- OC12 IR 1310
- OC12 LR 1550
- OC48-1-IR
- OC48 LR 1550

A.1.4 Configurations

- Two-fiber path protection
- Path protected mesh network (PPMN)
- Two-fiber bidirectional path-switched ring (BLSR)
- Add/drop multiplexer
- Point-to-point terminal mode

A.1.5 Cisco Transport Controller

- 10BaseT
- XTC access: RJ-45 connector

A.1.6 External LAN Interface

- 10BaseT Ethernet

A.1.7 TL1 Craft Interface

- Speed: 9600 bps
- XTC: EIA/TIA-232 DB-9 type connector

A.1.8 Modem Interface

- Hardware flow control
- XTC: EIA/TIA-232 DB-9 type connector

A.1.9 Alarm Interface

- Visual: Critical, Major, Minor, Remote
- Audible: Critical, Major, Minor, Remote
- Alarm contacts: 0.045mm, -48 V, 50 mA

A.1.10 Nonvolatile Memory

- 96 MB, flash memory

A.1.11 BITS Interface

- 2 DS-1 building integrated timing supply (BITS) inputs
- 2 derived DS-1 outputs

A.1.12 System Timing

- Stratum 3 per Telcordia GR-253-CORE
- Free running accuracy: +/-4.6 ppm
- Holdover stability: 3.7×10^{-7} /day, including temperature (< 255 slips in first 24 hours)
- Reference: External BITS, line, internal

A.1.13 Power Specifications

- Input power: -48 VDC
- Power consumption: 260 W (maximum draw with cards)
- Power requirements: -42 to -56 VDC
- Power terminals: Removable screw-locking (#12-14 AWG)

A.1.14 Environmental Specifications

- Operating temperature: 0 to +55 degrees Celsius (32 to 131 degrees Fahrenheit); -40 to +65 degrees Celsius (-40 to +149 degrees Fahrenheit) with industrial temperature-rated cards
- Operating humidity: 5 to 95%, non-condensing

The FTA is required to fulfill environmental specifications.

A.1.15 Fan-Tray Assembly Specifications

- Operating Temperature: -40 to +149 degrees Celsius (-40 to +149 degrees Fahrenheit)
- Operating Humidity: 5 - 95%, non-condensing

- Power Consumption: 35 W maximum, 0.73A, 119 BTU/hr

A.1.16 Dimensions

- Height: 5.1 inches (13. cm)
- Width: 19 or 23 inches (41.8 or 50.6 cm) with mounting ears attached
- Depth: 11 inches (28 cm)
- Weight: 15 lb empty (with fan tray assembly); (27 lb maximum)

A.2 SFP Specifications

The ONS 15327 G1000-2 card uses industry standard small form-factor pluggable connectors (SFPs). The type of SFP plugged into the card appears in Cisco Transport Controller (CTC) and Transaction Language One (TL1). Cisco offers SFPs as separate orderable products.

[Table A-1](#) lists the SFPs compatible with the G1000-2 card.

Table A-1 SFP Compatibility

Card	Compatible SFP (Cisco Product ID)	Cisco Top Assembly Number (TAN)
G1000-2	15327-SFP-LC-SX	30-1301-01
	15327-SFP-LC-LX	30-1299-01

A.3 Card Specifications

This section provides specifications for the XTC, MIC, OC3 IR 4 1310, OC12 IR 1310, OC12 LR 1550, OC48 IR 1310, OC48 LR 1550, E10/100-4, and G1000-2 cards.

For compliance information, refer to the *Cisco Optical Transport Products Safety and Compliance Information* document.

A.3.1 XTC Card (XTC 28-3/XTC-14) Specifications

- CTC software
 - Interface: 10BaseT LAN
- TL1 craft interface
 - Speed: 9600 baud
 - Front panel access: EIA/TIA-232 DB9 type connector
- Synchronization
 - Stratum 3, per Telcordia GR-253-CORE
 - Free running access: 4.6 ppm accuracy
 - Holdover stability: 3.7×10^{-7} ppm/day, including temperature (< 255 slips in first 24 hours)
 - Reference: External BITS, line, internal

- Environmental
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 56 W maximum, 1.17 A, 191 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 9.375 in. (238.1 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.2 MIC Specifications

- Environmental
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 4.8 W, 0.1 A, 16.4 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 9.375 in. (238.1 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.3 OC3 IR 4 1310 Card Specifications

- Line
 - Bit rate: 155.52 Mbps
 - Code: Scrambled nonreturn to zero (NRZ)
 - Fiber: 1310 nm single-mode
 - Loopback modes: Terminal and facility
 - Connector: LC
 - Compliance: Telcordia GR-253-CORE
- Transmitter
 - Maximum transmitter output power: –8 dBm
 - Minimum transmitter output power: –15 dBm
 - Center wavelength: 1274 nm to 1356 nm
 - Nominal wavelength: 1310 nm
 - Transmitter: Fabry Perot laser
- Receiver
 - Maximum receiver level: –8 dBm
 - Minimum receiver level: –28 dBm

- Receiver: InGaAs/InP photo detector
 - Link loss budget: 13 dBm
- Environmental
 - Eye safety compliance: Class I
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 14 W, 0.29 A, 48 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 4.280 in. (108.7 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.4 OC12 IR 1310 Card Specifications

- Line
 - Bit rate: 622.08 Mbps
 - Code: Scrambled NRZ
 - Fiber: 1310 nm single-mode
 - Loopback modes: Terminal and facility
 - Connector: SC
 - Compliance: Telcordia GR-253-CORE
- Transmitter
 - Maximum transmitter output power: –8 dBm
 - Minimum transmitter output power: –15 dBm
 - Center wavelength: 1274 nm to 1356 nm
 - Nominal wavelength: 1310 nm
 - Transmitter: Fabry Perot laser
- Receiver
 - Maximum receiver level: –7 dBm
 - Minimum receiver level: –29 dBm
 - Receiver: InGaAs/InP photo detector
 - Link loss budget: 14 dBm
- Environmental
 - Eye safety compliance: Class I
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 14 W, 0.29 A, 48 BTU/hr
- Dimensions

- Height: 1.080 in. (27.4 mm)
- Width: 4.280 in. (108.7 mm)
- Depth: 9.172 in. (233.0 mm)

A.3.5 OC12 LR 1550 Card Specifications

- Line
 - Bit rate: 622.08 Mbps
 - Code: Scrambled NRZ
 - Fiber: 1550 nm single-mode
 - Loopback modes: Terminal and facility
 - Connector: SC
 - Compliance: Telcordia GR-253-CORE
- Transmitter
 - Maximum transmitter output power: +2 dBm
 - Minimum transmitter output power: –3 dBm
 - Center wavelength: 1480 nm to 1580 nm
 - Nominal wavelength: 1550 nm
 - Transmitter: DFB (distributed feedback) laser
- Receiver
 - Maximum receiver level: –7 dBm
 - Minimum receiver level: –29 dBm
 - Receiver: InGaAs/InP photo detector
 - Link loss budget: 26 dBm
- Environmental
 - Eye safety compliance: Class I
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 14 W, 0.29 A, 48 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 4.280 in. (108.7 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.6 OC48-1-IR Card Specifications

- Line
 - Bit rate: 2488.320 Mbps

- Code: Scrambled NRZ
- Fiber: 1310-nm single-mode
- Loopback modes: Terminal and facility
- Connector: SC
- Compliance: Telcordia GR-253-CORE
- Transmitter
 - Maximum transmitter output power: 0 dBm
 - Minimum transmitter output power: –5 dBm
 - Center wavelength: 1280 nm to 1350 nm
 - Nominal wavelength: 1310 nm
 - Transmitter: Fabry Perot laser
- Receiver
 - Maximum receiver level: 0 dBm
 - Minimum receiver level: –18 dBm
 - Receiver: InGaAs InP photo detector
 - Link loss budget: 13 dBm minimum
- Environmental
 - Eye safety compliance: Class I
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 25 W, 0.52 A, 85 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 4.280 in. (108.7 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.7 OC48 LR 1550 Card Specifications

- Line
 - Bit rate: 2488.320 Mbps
 - Code: Scrambled NRZ
 - Fiber: 1550-nm single-mode
 - Loopback modes: Terminal and facility
 - Connector: SC
 - Compliance: Telcordia GR-253-CORE
- Transmitter
 - Maximum transmitter output power: +3dBm
 - Minimum transmitter output power: –2 dBm

- Center wavelength: 1520 nm to 1580 nm
- Nominal wavelength: 1550 nm
- Transmitter: Fabry Perot laser
- Receiver
 - Maximum receiver level: –8 dBm
 - Minimum receiver level: –28 dBm
 - Receiver: InGaAs InP photo detector
 - Link loss budget: 26 dBm minimum, with 1 dB dispersion penalty
- Environmental
 - Eye safety compliance: Class I
 - Operating temperature: –40 to +149 degrees Fahrenheit (–40 to +65 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 25 W, 0.52 A, 85 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 4.280 in. (108.7 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.8 E10/100-4 Card Specifications

- Environmental
 - Operating temperature: 32 to 131 degrees Fahrenheit (0 to +55 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 45 W, 0.95 A, 154 BTU/hr
- Dimensions
 - Height: 1.080 in. (27.4 mm)
 - Width: 4.280 in. (108.7 mm)
 - Depth: 9.172 in. (233.0 mm)

A.3.9 G1000-2 Card Specifications

- Environmental
 - Operating temperature:
 - C-Temp (15327-E1000-2): 32 to 131 degrees Fahrenheit (0 to +55 degrees Celsius)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: 53.50 W, 1.11 A, 182.67 BTU/hr.
- Dimensions
 - Height: 1.080 in. (27.4 mm)

■ A.3.9 G1000-2 Card Specifications

- Width: 4.280 in. (108.7 mm)
- Depth: 9.172 in. (233.0 mm)
- Card weight: 2.1 lb (0.9 kg)