**CISCO SYSTEMS**

**Data Sheet**

# Cisco ONS 15600 Series Any Service Any Port Optical Cards

The Cisco® ONS 15600 Series Multiservice Switching Platform (MSSP) offers up to 40 Gbps of transport bandwidth with Any Service Any Port (ASAP) interface cards, supporting 1 to 16 ports, providing users the capacity to aggregate and transport mission-critical regional and metropolitan-area (metro) traffic. ASAP brings outstanding performance using modular design, allowing single- and multiple-rate optics from OC-3 to OC-48, including Gigabit Ethernet Small Form-Factor Pluggable (SFP) optics (Figure 1) and DWDM. With Release 7.2, ASAP improves its tremendous flexibility with the addition of 10G pluggable optics.

**Figure 1.** Cisco ONS 15600 Series MSSP and the ASAP Carrier Card with Four Pluggable I/O Modules
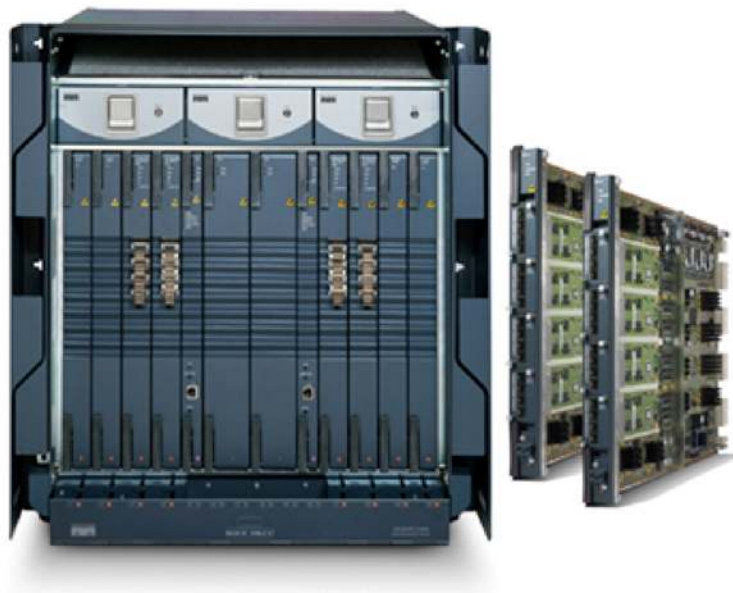


## BACKGROUND

Fully Cisco designed and engineered, the Cisco ONS 15600 Series MSSP simplifies and revolutionizes bandwidth management in the regional and metro core by allowing service providers to transparently integrate their metro core and metro edge networks, while dramatically reducing initial turn-up costs. The Cisco ONS 15600 Series MSSP combines the functions of multiple metro systems, including SONET/SDH multiplexers, and DWDM and digital cross-connect network elements, together in one scalable, easy-to-use platform with carrier-class reliability, availability, serviceability, operations, and management.

## PRODUCT OVERVIEW

The ASAP service cards on the Cisco ONS 15600 Series consist of a single ASAP carrier card that can hold up to four pluggable input/output (ASAP 4-PIO or ASAP 1-PIO) modules. Each ASAP 4-PIO module can hold up to four Small Form-Factor Pluggable (SFP) optics, each with a maximum data rate of 2.5 Gbps. The ASAP 4-PIO module supports both fixed-rate and multirate optics and 2.5-Gbps DWDM in Release 6.0. The three fixed-rate SFP optics offered are a 155-Mbps long-reach (LR-2), a 622-Mbps LR-2, and a 2.5-Gbps LR-2. The multirate SFP optics can be software-configurable to 155-Mbps short-reach (SR-1), 622-Mbps SR-1, 2.5-Gbps intermediate-reach (IR-1), or Gigabit Ethernet. Each ASAP 1-PIO module holds one small form-factor pluggable (XFP) optic, with a data rate of 10 Gbps. The ASAP 1-PIO module supports fixed-rate optics in Release 7.2. The two fixed-rate XFP optics offered are a 10-Gbps LR-2 and a 10-Gbps SR-1. Table 1 outlines the possible configurations of ASAP and the optics that are supported.

**Table 1.**    ASAP Cards and SFP Pluggable Optics and Their Applications

| Component (Part Number) | Application |
| --- | --- |
| ASAP carrier card (15600-ASAP-CC) | The ASAP carrier card plugs into any I/O slot (1–4 or 11–14) and can hold up to 4 ASAP-4PIO or ASAP-1PIO modules with each module supporting up to 4 SFP optics or 1 XFP, respectively. The ASAP carrier card has the maximum capacity of 40 Gbps. |
| ASAP 4-PIO module (15600-ASAP-4PIO) | The ASAP 4-PIO module plugs into the ASAP carrier card and can hold from 1–4 SFP optics each up to 2.5 Gbps. The ASAP 4-PIO module has the maximum capacity of 10 Gbps. |
| ASAP 1-PIO module (15600-ASAP-1PIO) | The ASAP 1-PIO module plugs into the ASAP carrier card and can hold 1 XFP optic. The ASAP 1-PIO module has the capacity of 10 Gbps. |
| Multirate SFP optics (ONS-SE-Z1) | The multirate 1310-nm IR-1 SFP in-service software is configurable to 2.5 Gbps, 622 Mbps, 155 Mbps, and Gigabit Ethernet:<br>• 2.5 Gbps suitable for 15 km (IR-1)<br>• 622 Mbps suitable for 2 km (short reach [SR]-1+)<br>• 155 Mbps suitable for 2 km (SR-1+)<br>• Gigabit Ethernet suitable for 10 km (long reach [LR]) |
| 2.5-Gbps fixed-rate (OC-48/STM-16) SFP optics (ONS-SC-2G.xx.x) | 2.5-Gbps DWDM SFP (ITU-T G.694.1 at 100 GHz) |
| 2.5-Gbps fixed-rate (OC-48/STM-16) SFP optics (ONS-SE-2G-L2) | 2.5-Gbps SFP suitable for 80 km (LR-2) |
| 622-Mbps fixed-rate (OC-12/STM-4) SFP optics (ONS-SI-622-L2) | 622-Mbps SFP suitable for 80 km (LR-2) |
| 155-Mbps fixed-rate (OC-3/STM-1) SFP optics (ONS-SI-155-L2) | 155-Mbps SFP suitable for 80 km (LR-2) |
| 10-Gbps fixed-rate (OC-192/STM-64) XFP optics (ONS-XC-10G-S1) | 10-Gbps XFP suitable for 2 km (SR-1) |
| 10-Gbps fixed-rate (OC-192/STM-64) XFP optics (ONS-XC-10G-L2) | 10-Gbps XFP suitable for 80 km (LR-2) |

The Cisco ONS 155-Mbps fixed-rate OC-3/STM-1 SFP optics provide both transmit and receive optical interfaces in a single SFP footprint, pluggable into any of the four ASAP 4-PIO slots. Each port interface operates at the standard SONET/SDH (Telcordia GR-253-CORE and ITU G.703) 155.52-Mbps bit rate. The Cisco ONS 155-Mbps fixed-rate OC-3/STM-1 SFP uses a duplex LC connector on the SFP faceplate that is routed through a fiber tray on to the cable-routing module for termination. The Cisco ONS 155-Mbps fixed-rate SFP carries both concatenated payloads of STS-3c/VC-4 and nonconcatenated payloads on an STS-1 basis. In SONET mode, each optical port can be provisioned as STM-1 to enable the tunneling of SDH payloads in the form of STS-Nc concatenated payload over a SONET network. This helps enable North American service providers to transport SDH traffic from international cable landing points to customer sites. When operated within the outlined specifications (refer to Table 5), each port interface transports a 155-Mbps signal with a minimum bit error rate (BER) of 10E-12.

The Cisco ONS 622-Mbps fixed-rate OC-12/STM-4 SFP optics provide both transmit and receive optical interfaces in a single SFP footprint, pluggable into any of the four ASAP 4-PIO slots. Each port interface operates at the standard SONET/SDH (Telcordia GR-253-CORE and ITU G.703) 622.08-Mbps bit rate. The Cisco ONS 622-Mbps fixed-rate OC-12/STM-4 SFP uses a duplex LC connector on the SFP faceplate that is routed through a fiber tray on to the cable-routing module for termination. The Cisco ONS 622-Mbps fixed-rate SFP

carries both concatenated payloads of STS-3c/VC-4, STS-6c/VC-4-2c, STS-9c/VC-4-3c, and STS-12c/VC-4-4c and nonconcatenated payloads on an STS-1 basis. In SONET mode, each optical port can be provisioned as STM-4 to enable the tunneling of SDH payloads in the form of STS-Nc concatenated payload over a SONET network. This helps enable North American service providers to transport SDH traffic from international cable landing points to customer sites. When operated within the outlined specifications (refer to Table 5), each port interface transports a 622-Mbps signal with a minimum BER of 10E-12.

The Cisco ONS 2.5-Gbps fixed-rate OC-48/STM-16 DWDM optics provide both transmit and receive optical interfaces in a single SFP footprint pluggable into any of the four ASAP 4-PIO slots. Each port interface operates at the standard SONET/SDH (Telcordia GR-253-CORE, ITU G.703 and ITU-T G.694.1) 2488.32-Mbps bit rate. The Cisco ONS 2.5-Gbps fixed-rate OC-48/STM-16 DWDM SFP uses a duplex LC connector on the SFP faceplate that is routed through a fiber tray on to the cable-routing module for termination. The Cisco ONS 2.5-Gbps fixed-rate DWDM SFP carries both concatenated payloads of STS-3c/VC-4, STS-6c/VC-4-2c, STS-9c/VC-4-3c, STS-12c/VC-4-4c, STS-24c/VC-4-8c, and STS-48c/VC-4-16c and nonconcatenated payloads on an STS-1 basis. In SONET mode, each optical port can be provisioned as STM-16 to enable the tunneling of SDH payloads in the form of STS-Nc concatenated payload over a SONET network. This helps enable North American service providers to transport SDH traffic from international cable landing points to customer sites. When operated within the outlined specifications (refer to Table 5), each port interface transports a 2.5-Gbps signal with a minimum BER of 10E-12. The Cisco ONS 2.5-Gbps fixed-rate OC-48/STM-16 DWDM SFP provides 32 wavelengths in the ITU-T G.694.1 C-Band channel plan.

The Cisco ONS multirate SFP optics provides SR OC-3/OC-12, IR OC-48, or LX Gigabit Ethernet. The Cisco ONS multirate optics provides both transmit and receive optical interfaces in a single SFP footprint pluggable into any of the four ASAP 4-PIO slots. Each port interface operates at the standard SONET/SDH (Telcordia GR-253-CORE and ITU G.703), depending on the selected OC-3, -12, or -48 155.52-, 622.08-, or 2488.32-Mbps bit rate, respectively. The Cisco ONS multirate OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, or Gigabit Ethernet SFP uses a duplex LC connector on the SFP faceplate that is routed through a fiber tray onto the cable-routing module for termination. The Cisco ONS multirate SFP carries both concatenated payloads of STS-3c/VC-4 for OC-3/STM-1; STS-3c/VC-4, STS-6c/VC-4-2c, STS-9c/VC-4-3c, and STS-12c/VC-4-4c for OC-12/STM-4; STS-3c/VC-4, STS-6c/VC-4-2c, STS-9c/VC-4-3c, STS-12c/VC-4-4c, STS-24c/VC-4-8c, and STS-48c/VC-4-16c for OC-48/STM-16; and nonconcatenated payloads on an STS-1 basis. In data mode the Cisco ONS multirate SFP optics supports full line-rate Gigabit Ethernet. In SONET mode, each configured OC-3, OC-12, or OC-48 optical port can be provisioned as STM-1, STM-4, or STM-16, respectively, to enable the tunneling of SDH payloads in the form of STS-Nc concatenated payload over a SONET network. This helps enable North American service providers to transport SDH traffic from international cable landing points to customer sites. When operated within the outlined specifications (refer to Table 5), each OC-3, OC-12, or OC-48 port interface transports a 155-Mbps, 622-Mbps, or 2.5-Gbps signal, respectively, with a minimum BER of 10E-12.

The Cisco ONS 10-Gbps fixed-rate OC-192/STM-64 optics provide both transmit and receive optical interfaces in a single XFP footprint pluggable into the ASAP 1-PIO. Each port interface operates at the standard SONET/SDH (Telcordia GR-253-CORE, ITU G.959.1) 9953.28-Mbps bit rate. The Cisco ONS 10-Gbps fixed-rate OC-192/STM-64 XFP uses a duplex LC connector on the XFP faceplate that is routed through a fiber tray on to the cable-routing module for termination. The Cisco ONS 10-Gbps fixed-rate XFP carries both concatenated payloads of STS-3c/VC-4, STS-6c/VC-4-2c, STS-9c/VC-4-3c, STS-12c/VC-4-4c, STS-24c/VC-4-8c, STS-48c/VC-4-16c and STs-192c/VC4-64c and nonconcatenated payloads on an STS-1 basis. In SONET mode, each optical port can be provisioned as STM-64 to enable the tunneling of SDH payloads in the form of STS-Nc concatenated payload over a SONET network. This helps enable North American service providers to transport SDH traffic from international cable landing points to customer sites. When operated within the outlined specifications (refer to Table 7), each port interface transports a 10-Gbps signal with a maximum BER of 10E-12.

The ASAP carrier cards are deployable in any of the eight multiservice slots (slots 1–4 or 11–14) of the Cisco ONS 15600 Series platform. Up to four ASAP 1-PIO and or 4-PIO modules are deployable in each ASAP carrier card. Each ASAP 4-PIO module supports any of the SFP optics and can be deployed in any of the four slots provided on the ASAP 4-PIO module. Each ASAP 1-PIO module supports any of the XFP optics. Any SONET SFP/XFP port can be commissioned for use in unidirectional-path switched ring (UPSR), 2-fiber and 4-fiber bidirectional line switched ring (BLSR), 1 + 1 automatic protection switching (APS), or path-protected mesh network (PPMN) architectures, offering service providers the flexibility to build the type of network required to meet their service demands, traffic patterns, and user needs. This card-provisioning flexibility also helps reduce the cost of inventory and simplifies engineering and deployment.

The ASAP carrier cards, ASAP 1-PIO and ASAP 4-PIO modules incorporate faceplate-mounted LEDs to provide a quick visual check of the operational status at the card. Printed on the faceplate is an icon, an orange circle, which indicates the shelf slot where the card can be physically installed. The card is supported by the integrated Cisco ONS 15600 Series Cisco Transport Controller Craft Manager, which provides the user access for operations, administration, maintenance, and provisioning (OAM&P) for the system.

## CISCO ONS 15600 SERIES ASAP CARRIER CARD OPTICAL FEATURES AND SPECIFICATIONS

### High-Density Compact Design

- Single-width card-slot design
- Flexibility with up to four pluggable modules (ASAP 4-PIO or ASAP-1PIO) per ASAP carrier card
- Four SFP optics for each ASAP 4-PIO module
- One XFP optic for each ASAP 1PIO module
- Up to and including eight ASAP carrier cards per shelf assembly

### Flexible Restoration Options

- UPSR
- 2-fiber BLSR
- 4-fiber BLSR
- 1 + 1 APS, 1 + 1 uni- or bidirectional
- Path-Protected Mesh Network (PPMN)
- Unprotected (0 + 1)

### Networking Flexibility

- Ring
- Multiple rings
- Terminal
- Linear add/drop multiplexer (ADM)

## Data Networking Functions

Table 2 gives data networking functions.

**Table 2.** Data Networking Functions

| Specification | Cisco Multirate Gigabit Ethernet Interface |
|---|---|
| Gigabit Ethernet interface | 4 x 4 = 16 ports I/O slot; 4 x SFP optics per ASAP 4-PIO module, 4 x ASAP 4-PIO module per ASAP carrier card; SFP: LX |
| Minimum software release | Release 5.0 |
| Standard 802.1Q VLAN support | VLANS are tunneled (not terminated) |
| Standard 802.1Q VLAN filtering | VLANs are tunneled (no filtering) |
| Standard 802.1Q-in-802.1Q (QinQ) hierarchical VLANs | Yes: VLANs are tunneled |
| Maximum frame size | 9600 bytes (maximum transmission unit [MTU]) |
| Broadcast and multicast | Yes: Port-to-port circuits supported |
| Rate limiting | STS-1 level rate limiting in increments of STS-1, 3c, 6c, 9c, 12c, 24c, and 48c |
| Dedicated virtual circuit size: Point-to-point | Up to STS-48c (port-to port provisioning) |

## CISCO ONS 15600 SERIES SYSTEM SPECIFICATIONS

Table 3 gives regulatory compliance information, Table 4 lists system requirements, and Tables 5 and 6 give card and SFP specifications.

**Table 3.** Regulatory Compliance[1]

| Countries |
|---|
| Canada |
| United States |
| European Union |

1. All compliance testing and documentation may not be completed at release of the product. Check with your Cisco Systems® account representative for countries outside of Canada, the United States, and the European Union.

**Table 4.** System Requirements

| Component | Cisco ONS 15600 Series |
|---|---|
| Processor | TSC |
| Cross-connect | SSXC |
| Shelf assembly | 15600-IO-SHELF shelf assembly |
| System software | Release 6.0 or greater for ASAP 4-PIO and Release 7.2 or greater for ASAP 1-PIO |
| Slot compatibility | 1–4 and 11–14 |

**Table 5.** Card Specifications

| Specification | ASAP Carrier Card | ASAP 1-PIO Module | ASAP 4-PIO Module |
|---|---|---|---|
| Spectral range | – | (Depends upon XFP selected) | (Depends upon SFP selected) |
| Bit rate | Up to 40 Gbps | 10 Gbps | Up to 10 Gbps |
| Connector type (Tx/Rx) | – | LC | LC |
| **Optical Transmitter**: Type | – | XFP | SFP |
| **Optical Receiver**: Type | – | XFP | SFP |

| Specification | ASAP Carrier Card | ASAP 1-PIO Module | ASAP 4-PIO Module |
|---|---|---|---|
| **Management** | | | |
| *Card LEDs* | | | |
| STAT | | | |
|    Card failure | Red | – | – |
|    Normal operation | OFF | – | – |
| SRV | | | |
|    In service | Green | – | – |
|    Out of service | Amber | – | – |
| LASER ON | Green | – | – |
| Per-port SONET status (signal degrade) | – | Amber | Amber |
| Per-port SONET status (signal fail) | – | Red | Red |
| Per-port SONET status (signal good) | – | Green | Green |
| Per-port Gigabit Ethernet (GE) status (link/no activity) | – | | Green |
| Per-port GE status (activity) | – | | Flashing green |
| Per-port GE status (link fault) | – | | Amber |
| Per-port GE status (port not provisioned) | – | | OFF |
| **Power** | | | |
| Card power draw | <200W (max) (includes carrier card, four 1/4-PIOs, and X/SFPs) | 27W (max) (includes 4 XFPs) | 15W (max) (includes 4 SFPs) |
| **Storage Environment** | | | |
| Operating temperature | 23 to 122°F (–5 to +50°C) | 23 to 122°F (–5 to +50°C) | 23 to 122°F (–5 to +50°C) |
| Humidity | 5 to 95% noncondensing | 5 to 95% noncondensing | 5 to 95% noncondensing |
| **Dimensions** | Height: 16.5 in. (419.1 mm) Width: 1.5 in. (38.1 mm) Depth: 18.31 in. (465.1 mm) Card weight: 5.5 lb (2.5 kg) | Height: 2.45 in. (62.33 mm) Width: 1.2 in. (30.48 mm) Depth: 7.75 in. (196.9 mm) Card weight: 0.2 lb (0.44 kg) | Height: 2.45 in. (62.33 mm) Width: 1.2 in. (30.48 mm) Depth: 7.75 in. (196.9 mm) Card weight: 0.75 lb (0.34 kg) |

**Table 6.**    SFP Specifications

| Specification | Cisco ONS 155-Mbps Fixed-Rate OC-3/STM-1 LR-2 SFP Optics | Cisco ONS Multirate SFP Optics |
|---|---|---|
| Wavelength, nominal | 1550 nm | 1310 nm |
| Spectral range | 1480 to 1580 nm | 1260 to 1360 nm |
| Bit rate | 155 Mbps | 155 Mbps to 2.49 Gbps |
| Connector type (Tx/Rx) | LC | LC |
| **Optical Transmitter** | | |
| Type | SFP | SFP |
| Output power | –5 to 0 dBm | –5 to 0 dBm |
| Laser safety class | 1 | 1 |
| **Optical Receiver** | | |
| Type | PIN | PIN |
| Input power | –34 to –10 dBm | –18 to 0 dBm |
| Link-loss budget | 28 dB min | 12 dB min |
| BER, minimum | 10E-12 | 10E-12 |

| Specification | Cisco ONS 155-Mbps Fixed-Rate OC-3/STM-1 LR-2 SFP Optics | Cisco ONS Multirate SFP Optics |
|---|---|---|
| **Power** | | |
| SFP power draw | <1W | <1W |
| **Storage Environment** | | |
| Operating temperature | 23 to 122°F (–5 to +50°C) | 23 to 122°F (–5 to +50°C) |
| Humidity | 5 to 95% noncondensing | 5 to 95% noncondensing |
| **Dimensions** | Height: 0.522 in. (13.3 mm) Width: 0.33 in. (8.5 mm) Depth: 2.24 in. (56.9 mm) Weight: 1 oz (0.028 kg) | Height: 0.522 in. (13.3 mm) Width: 0.33 in. (8.5 mm) Depth: 2.24 in. (56.9 mm) Weight: 1 oz (0.028 kg) |

| Specification | Cisco ONS 2.5-Gbps Fixed-Rate OC-48/STM-16 LR-2 Optics | Cisco ONS 622-Mbps Fixed-Rate OC-12/STM-4 LR-2 Optics |
|---|---|---|
| Wavelength, nominal | 1550 nm | 1550 nm |
| Spectral range | 1500 to 1580 nm | 1480 to 1580 nm |
| Bit rate | 2.49 Gbps | 622 Mbps |
| Connector type (Tx/Rx) | LC | LC |
| **Optical Transmitter** | | |
| Type | SFP | SFP |
| Output power | –2 to +3 dBm | –3 to +2 dBm |
| Laser safety class | 1 | 1 |
| **Optical Receiver** | | |
| Type | APD | PIN |
| Input power | –28 to –9 dBm | –28 to –8 dBm |
| Link-loss budget | 24 dB min, with 2-dB dispersion penalty | 24 dB min, with 1-dB dispersion penalty |
| BER, minimum | 10E-12 | 10E-12 |
| **Power** | | |
| SFP power draw | <1W | <1W |
| **Storage Environment** | | |
| Operating temperature | 23 to 122°F (–5 to +50°C) | 23 to 122°F (–5 to +50°C) |
| Humidity | 5 to 95% noncondensing | 5 to 95% noncondensing |
| **Dimensions** | Height: 0.522 in. (13.3 mm) Width: 0.33 in. (8.5 mm) Depth: 2.24 in. (56.9 mm) Weight: 1 oz (0.028 kg) | Height: 0.522 in. (13.3 mm) Width: 0.33 in. (8.5 mm) Depth: 2.24 in. (56.9 mm) Weight: 1 oz (0.028 kg) |

| Specification | Cisco ONS 2.5-Gbps Fixed-Rate OC-48/STM-16 DWDM Optics |
|---|---|
| Wavelength, nominal | 1530.3 to 1560.6 nm |
| Spectral range | 100 nm per wavelength |
| Bit rate | 2.49 Gbps |
| Connector type (Tx/Rx) | LC |
| **Optical Transmitter** | |
| Type | SFP |
| Output power | 0 dBm to +4 dBm |
| Laser safety class | 1 |
| **Optical Receiver** | |
| Type | APD |
| Input power | −9 to −28 dBm |
| Link-loss budget | 24 dB min, with 2-dB dispersion penalty |
| BER, minimum | 10E-12 |
| Dispersion Tolerance | −800 to +2400ps |
| **Power** | |
| SFP power draw | <1W |
| **Storage Environment** | |
| Operating temperature | 23 to 122°F (−5 to +50°C) |
| Humidity | 5 to 95% noncondensing |
| Dimensions | Height: 0.522 in. (13.3 mm)<br>Width: 0.33 in. (8.5 mm)<br>Depth: 2.24 in. (56.9 mm)<br>Weight: 1 oz (0.028 kg) |

**Table 7.**     XFP Specifications

| Specification | Cisco ONS 10-Gbps Fixed-Rate OC-192/STM-64 LR-2 XFP Optics | Cisco ONS 10-Gbps Fixed-Rate OC-192/STM-64 SR-1 XFP Optics |
|---|---|---|
| Wavelength, nominal | 1550 nm | 1310 nm |
| Spectral range | 1480 to 1580 nm | 1260 to 1360 nm |
| Bit rate | 10 Gbps | 10 Gbps |
| Connector type (Tx/Rx) | LC | LC |
| **Optical Transmitter** | | |
| Type | XFP | XFP |
| Output power | 0 to 4 dBm | −6 to -1 dBm |
| Laser safety class | 1 | 1 |
| **Optical Receiver** | | |
| Type | APD | APD |
| Input power | −24 to −7 dBm | −11 to -1 dBm |
| Link-loss budget | 24 dB min, with 2-dB dispersion penalty | 5 dB min, with 1-dB dispersion penalty |
| Dispersion Tolerance (ps/nm) | 1600 | 6.6 |
| BER, minimum | 10E-12 | 10E-12 |
| **Power** | | |

| Specification | Cisco ONS 10-Gbps Fixed-Rate OC-192/STM-64 LR-2 XFP Optics | Cisco ONS 10-Gbps Fixed-Rate OC-192/STM-64 SR-1 XFP Optics |
|---|---|---|
| XFP power draw | <4W | <2W |
| **Storage Environment** | | |
| Operating temperature | 23 to 122°F (−5 to +50°C) | 23 to 122°F (−5 to +50°C) |
| Humidity | 5 to 95% noncondensing | 5 to 95% noncondensing |
| **Dimensions** | Height: 0.33 in. (8.5 mm)<br>Width: 0.72 in. (18.3 mm)<br>Depth: 3.14 in. (78 mm)<br>Weight: 1 oz (0.028 kg) | Height: 0.33 in. (8.5 mm)<br>Width: 0.72 in. (18.3 mm)<br>Depth: 3.14 in. (78 mm)<br>Weight: 1 oz (0.028 kg) |

## ORDERING INFORMATION

Table 8 gives ordering information for the Cisco ASAP cards.

**Table 8.**    Ordering Information

| Part Number | Description |
|---|---|
| 15600-ASAP-CC | ASAP carrier card, plugs into any I/O slot |
| 15600-ASAP-1PIO | Single ASAP Pluggable I/O module with 1 empty XFP slot, plugs into ASAP carrier card |
| 15600-ASAP-4PIO | Single ASAP pluggable I/O module with 4 empty SFP slots, plugs into ASAP carrier card |
| ONS-XC-10G-S1 | XFP – OC192/STM64/10GE – 1310 SR – SM LC |
| ONS-XC-10G-L2 | XFP – OC192/STM64/10GE – 1550 LR2 – SM LC |
| ONS-SI-155-L2 | 155-Mbps fixed-rate OC-3 LR-2/STM-1 L.1.2 IND SFP optics, LC connector |
| ONS-SI-622-L2 | 622-Mbps fixed-rate OC-12 LR-2/STM-4 L.4.2 IND SFP optics, LC connector |
| ONS-SE-2G-L2 | 2.5-Gbps fixed-rate OC-48 LR-2/STM-1 L.16.2 EXT SFP optics, LC connector |
| ONS-SE-Z1 | Multirate OC-48 IR-1, 12/3 SR-1, Gigabit Ethernet LX STM-16 S-16.1, I-4, I-1 EXT SFP optics, LC connector |
| ONS-SC-2G-30.3 | OC-48/STM16, SFP, 1530.33, 100 GHz, LC |
| ONS-SC-2G-31.1 | OC-48/STM16, SFP, 1531.12, 100 GHz, LC |
| ONS-SC-2G-31.9 | OC-48/STM16, SFP, 1531.90, 100 GHz, LC |
| ONS-SC-2G-32.6 | OC-48/STM16, SFP, 1532.68, 100 GHz, LC |
| ONS-SC-2G-34.2 | OC-48/STM16, SFP, 1534.25, 100 GHz, LC |
| ONS-SC-2G-35.0 | OC-48/STM16, SFP, 1535.04, 100 GHz, LC |
| ONS-SC-2G-35.8 | OC-48/STM16, SFP, 1535.82, 100 GHz, LC |
| ONS-SC-2G-36.6 | OC-48/STM16, SFP, 1536.61, 100 GHz, LC |
| ONS-SC-2G-38.1 | OC-48/STM16, SFP, 1538.19, 100 GHz, LC |
| ONS-SC-2G-38.9 | OC-48/STM16, SFP, 1538.98, 100 GHz, LC |
| ONS-SC-2G-39.7 | OC-48/STM16, SFP, 1539.77, 100 GHz, LC |
| ONS-SC-2G-40.5 | OC-48/STM16, SFP, 1540.56, 100 GHz, LC |
| ONS-SC-2G-42.1 | OC-48/STM16, SFP, 1542.14, 100 GHz, LC |
| ONS-SC-2G-42.9 | OC-48/STM16, SFP, 1542.94, 100 GHz, LC |
| ONS-SC-2G-43.7 | OC-48/STM16, SFP, 1543.73, 100 GHz, LC |
| ONS-SC-2G-44.5 | OC-48/STM16, SFP, 1544.53, 100 GHz, LC |
| ONS-SC-2G-46.1 | OC-48/STM16, SFP, 1546.12, 100 GHz, LC |
| ONS-SC-2G-46.9 | OC-48/STM16, SFP, 1546.92, 100 GHz, LC |
| ONS-SC-2G-47.7 | OC-48/STM16, SFP, 1547.72, 100 GHz, LC |

| Part Number | Description |
|---|---|
| ONS-SC-2G-48.5 | OC-48/STM16, SFP, 1548.51, 100 GHz, LC |
| ONS-SC-2G-50.1 | OC-48/STM16, SFP, 1550.12, 100 GHz, LC |
| ONS-SC-2G-50.9 | OC-48/STM16, SFP, 1550.92, 100 GHz, LC |
| ONS-SC-2G-51.7 | OC-48/STM16, SFP, 1551.72, 100 GHz, LC |
| ONS-SC-2G-52.5 | OC-48/STM16, SFP, 1552.52, 100 GHz, LC |
| ONS-SC-2G-54.1 | OC-48/STM16, SFP, 1554.13, 100 GHz, LC |
| ONS-SC-2G-54.9 | OC-48/STM16, SFP, 1554.94, 100 GHz, LC |
| ONS-SC-2G-55.7 | OC-48/STM16, SFP, 1555.75, 100 GHz, LC |
| ONS-SC-2G-56.5 | OC-48/STM16, SFP, 1556.55, 100 GHz, LC |
| ONS-SC-2G-58.1 | OC-48/STM16, SFP, 1558.17, 100 GHz, LC |
| ONS-SC-2G-58.9 | OC-48/STM16, SFP, 1558.98, 100 GHz, LC |
| ONS-SC-2G-59.7 | OC-48/STM16, SFP, 1559.79, 100 GHz, LC |
| ONS-SC-2G-60.6 | OC-48/STM16, SFP, 1560.61, 100 GHz, LC |