ASCENT
Communication Technology

A1600 Optical Transport Platform

Datasheet

Revision 2F

ACT A1600 Optical Transport Platform

Datasheet

ACT Document Number: ACT A1600 Optical Transport Platform

Datasheet Revision 2F

This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
2E	12/12/2024	New Format Update
2F	06/28/2025	Hardware Update

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A1600 Series Optical Transport Platform Overview

A1600 series OTP products are new generation optical transmission platforms supporting high capacity, multi services connection. It bears advantages of high service integration, high terminal density, multi services, flexible configuration etc, it supports C/S graphic management interface based on SNMP protocol, showing clear bug position for maintenance team and saving maintenance cost.

A1600 platforms are widely used in Telcos, Broadcast & TV, Power grid, Education, Cloud computing, IT security. Catering for fully optical networks, they are applied in national/provincial/inter-city trunk lines.

The platforms deliver independent & clear services, multiplex different channels, save fiber optic resources, are secure and reliable. They can facilitate customers to build optical transmission network featuring long haul, high reliability, flexibility, disaster proof. They are optimum solution for current shortage of fiber optic resources.

Typical Network Applications

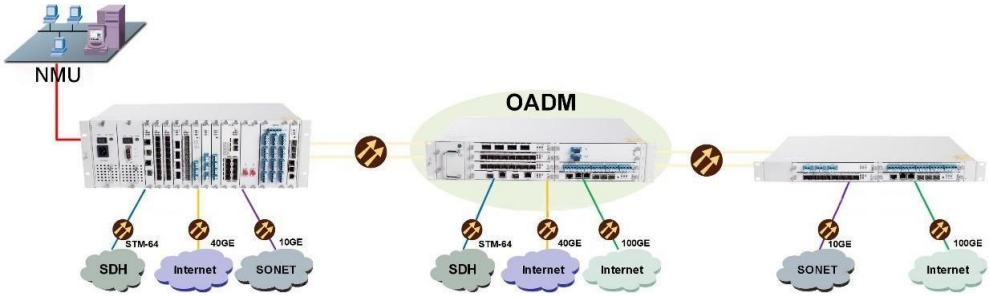
The major advantages of multi services, high capacity and clear transmission cater for the telecom carrier's requirements of mega capacity and extra long-haul, multi-services operation and smooth future network expansion. Trunk core layer, intra-city core layer, intra-city convergence layer, point of presence, data center interconnect etc.

Point to point network

Multiplex single fiber or dual fiber to dozens of fiber channels, integrating multi-services (SDH, SONET, Internet, SAN) in a single fiber or dual fiber.

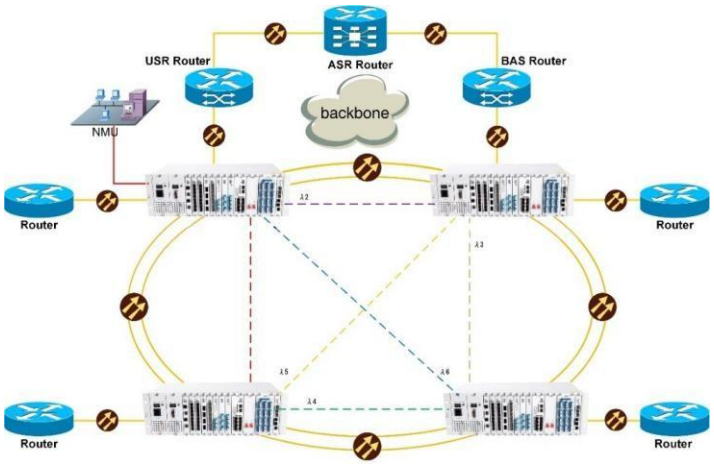
Daisy Chain network

Use WDM and OADM equipment, add/drop multi services in each node, interconnecting multi services (SDH, SONET, Internet, SAN) in a single fiber or dual fiber in intra-city network.



Ring network

Use WDM equipment, add/drop multi services in each node, interconnecting multi services (SDH, SONET, Internet, SAN) in a single fiber or dual fiber in intra-city ring network



Network Management

Support SNMP unified network management platform

Comply with TMN, enabling comprehensive management from device level to network level

Supports Web network management graphic interface, interconnecting multi services (SDH, SONET, Internet, SAN) in a single fiber or dual fiber in intra-city ring network.

A1600 Optical Layer Series Chassis

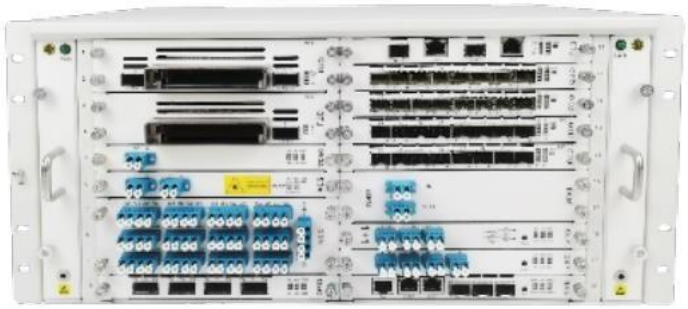
Ascent's A1600 Series CWDM/DWDM System (Optical Layer) is highly integrated and small platform. It adopts a 19-inch standard RU rack to provide 1+1 redundant backup of power (AC/DC optional), and is easy to install and deploy. A1600 Series CWDM/DWDM System provides up to 16 service slots, supports mixed insertion and hot swap of different service cards, supports in-band and out-of-band network management; selects each channel bandwidth according to requirements to meet different customers; remote online upgrade, maintainability.

1U Chassis - A1608-CHAS-1U:

2U Chassis - A1608-CHAS-2U:

4U Chassis - A1608-CHAS-4U:

5U Chassis - A1608-CHAS-5U:



System Parameter	Description			
	1U (A1608-CHAS-1U)	**2U (A1608-CHAS-2U)**	**4U (A1608-CHAS-4U)**	**5U (A1608-CHAS-5U)**
Dimensions (mm)	440(W)*44(H)*285(D)	440(W)×85(H)*285(D)	440(W)*176(H)*250(D)	440(W)×220(H)×285(D)
Slot Number	4	8	16	20
Service Slot Included	1 x A1600-EDFA-B-V-M 1 x A1600-EDFA-P-V-M	3 x A1600-EDFA-B-V-M 3 x A1600-EDFA-P-V-M	5 x A1600-EDFA-B-V-M 5 x A1600-EDFA-P-V-M	7 x A1600-EDFA-B-V-M 7 x A1600-EDFA-P-V-M
Power Consumption	< 120W	< 200W	< 350W	< 500W
Wavelength Range	DWDM: 1529.16nm to 1567.14nm CWDM: 1271nm to 1611nm			
Channel Spacing	50/100GHz fixed 37.5 to 400 GHz, flex-grid			
Service Access Types	SDH, SONET, Ethernet, SAN, OTN, Video			
Single Channel Max. Rate	100G, 200G, 400G			
Optical Port Transmission mode	2R transmission mode: each channel supports 32M to 111.81Gbit/s rate transparent transmission; 3R transmission mode: each channel supports 155Mbit/s, 622Mbit/s, 1.25Gbit/s, 2.488Gbit/s, 4GFC, 8GFC, 10GFC, 11.3Gbit/s, 25Gbis/s, 40Gbis/s, 56Gbit/s, 100Gbis/s, 200Gbit/s, 400Gbit/s rate.(optional)			
Network Topology	Point-to-point, chain, star, ring, belt chain, tangent ring, intersecting ring and mesh networking			
Management Port	Ports Ethernet mgmt port, RJ-45 console port			
Management Mode	CLI, NetRiver, Web			
Working Temperature	-10°C to 70°C			
Storage Temperature	-40°C to 80°C			
Relative Humidity	5% to 95% no condensation			
Power Supply Requirements	AC power supply (AC) voltage range: support 90V to 264V 50/60HZ DC power supply (DC) voltage range: support -36V to 60V			
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards			

Product Feature

- Flexible networking, small footprint, and super scalability
- Supports CWDM/DWDM/EDFA/OLPS/OTAP and other business cards hot-swapping mode
- When using the Mux/Demux module (A1600-DWDM-X-YY), an additional NMU card (A1600-X-NMU) must be ordered separately.
- Support SDH, SONET, Ethernet, SAN, OTN, Video and other business access
- Support single channel maximum rate 100G, 200G, 400G
- Supports single-fiber unidirectional, single-fiber bidirectional, dual-fiber bidirectional chain, star and ring types and other networking methods
- Supports client access from different vendors, interconnecting with devices from multiple vendors, Supports client devices for single mode(1310nm/1550nm), multi-mode(850nm/1310nm), electrical port (RJ45), etc., can realize OADM optical add-drop multiplexing function, and intermediate nodes can be up and down wavelength
- Supports SNMP-based unified network management platform. The network management methods are CLI, Web, and NetRiver (graphical interface)
- Support 1 + 1 power supply, hot swapping, redundant backup, AC and DC power supply is unit

Optical Layer Network Management Unit (NMU)

NMU interface module is special module designed for A1600 series products; it can manage all devices under A1600 platform. NMU embeds high speed ARM processor with strong data processing, provides management interfaces NetRiver, Web, CLI. Both Server edition (C/S structure) and Standalone edition are available. Ideal network management solution to networks with different scale for telcos and enterprises. The NMU interface module is not required for configuration and management of EDFA amplification module. For other Service Cards, an NMU interface module is required to provide configuration and management functions. When an NMU interface module is installed, the Management ports are blocked and cannot be used for device management.

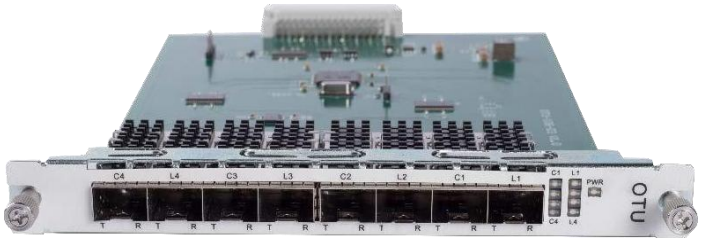
NMU Interface Module (A1600-CHAS-NMU)

- Hot swappable, which will not affect the normal operation of the business card after failure.
- Local/remote upgrade simultaneously, not affecting operation of other interface modules.
- Unified SNMP network management platform, CLI, Web, NetRiver.
- In-band and out-of-band network management, 2 SFP ports, 2 RJ45 ports, 1 Console serial port.
- Provides strong multi-layers network topology management, automatic recognition of network topology, generating intuitive graphics display for analysis.
- Complies with TMN, enabling comprehensive management from device level to network level: device management, monitoring and deployment, software upgrade, configuration, alarm and performance management.

Item	Description
Ports	Optical ports: 2 × SFP ports
	Ethernet ports: 2 × RJ45 ports
	Serial interface: 1 × console port
Network Management	NetRiver, Web, CLI
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5 % to 95 % (non-condensing)
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<15W

10G SFP+ Transponder

The 10G SFP+ transponder is a service access module designed for optical fiber links. It can implement 3R signal regeneration for services with any rate protocol from 1.25Gbit/s to 11.3Gbit/s and can be converted into CWDM/DWDM standard wavelength optical signal, cooperate with CWDM/DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission, and is suitable for optical communication systems such as PDH/SDH/POS/SONET/SAN/ETHERNET. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.



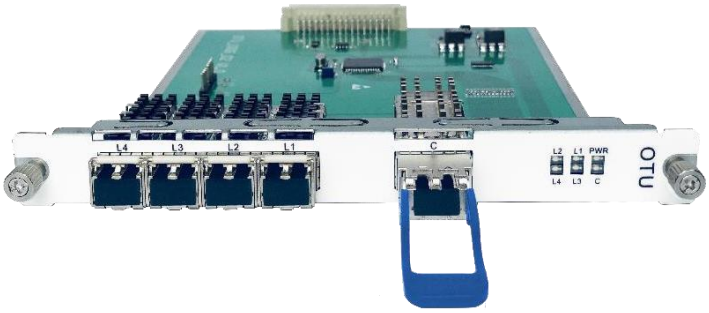
10G SFP+ Transponder (A1600-SFPP-10G)

- Supports CWDM/DWDM transmission, wavelength conversion.
- Supports a variety of transmission distances: no relay supports up to 80km.
- Supports 4 channels bidirectional or 8 channels unidirectional 1.25Gbit/s to 11.3Gbit/s protocol services access at any rate, supports client single mode or multimode.
- Supports SNMP-based unified network management platform, network management methods CLI, Web, NetRiver (graphical interface).
- Supports CDR function, which can optimize output, DDM signal monitoring and ALS (automatic laser shutdown) function.
- Supports software to close theport.

Item	Description
Max Capacity	4*10G bidirectional 8*10G unidirectional
Wavelength Range	CWDM: 1271 nm to 1611 nm DWDM: C-Band (100 GHz or 50 GHz)
Applicable Services	SDH, SAN, SONET, ETHERNET, OTN
Service Access Types	10G SFP OTU: PDH, SDH: STM-16/STM-64, Ethernet, SONET: OC-48/OC-192, FE, GE, 10GE, 1G, 2G, 4G, 8G, 10G, CPRI 1 to 7, POS, FICON, ESCON.
3R Technology	3R: Re-amplifying, Re-timing, Re-shaping
Network Management	CDR function (DDM real-time monitoring), different rate adaptive setting function, business bidirectional/unidirectional setting.
NMU Mode	CLI, NetRiver, Web
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<20 W

40G QSFP Transponder

The 40G Transponder is a service access module designed by Ascent for optical fiber links. It can implement 3R signal regeneration for services with 40Gbit/s rate protocol and can be converted into DWDM standard wavelength optical signal, cooperate with DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.



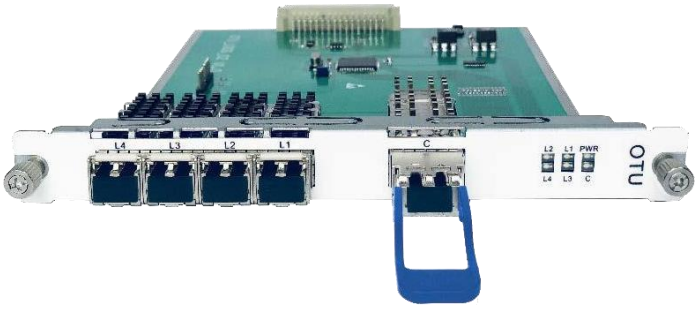
40G QSFP Transponder (A1600-QSFP-40G)

- Support DWDM transmission, wavelength conversion
- Support 1 channel bidirectional 40Gbit/s services access
- Transparent transmission
- Support hot swappable
- Support FEC function, can optimize output, DDM signal monitoring, link detection(automatic laser shutdown) function
- Support SNMP-based unified network management platform, network management methods CLI(telnet and console), Web, NetRiver(graphical interface)

Item	Description
Maximum Capacity	1*40G bidirectional transmission
Wavelength Range	DWDM: 1529.16nm to 1567.14nm
Service Access Types	40GE
3R Technology	3R functions: (Re-amplifying), (Re-timing), (Re-shaping)
Dimensions (W×H×D)	177 mm × 20 mm × 225mm
Working Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% no condensation
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards
Power Consumption	<13W

100G OTU Interface Module

The 100G OTU interface module is a 100G service access module designed for optical fiber links. It can implement 3R(re-amplifying, reshaping, retiming) signal regeneration for services with any rate protocol from 103.125Gbit/s to 111.81Gbit/s, and can be converted into 4*25G DWDM standard wavelength optical signal, cooperates with DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.



100G OTU Interface Module (A1600-OTU-100G)

- Supports DWDM transmission, wavelength conversion.
- The single card supports 1 channel 103.125 Gbit/s to 111.81 Gbit/s bidirectional or unidirectional service access.
- Supports multiple client-side services access: 100GBase-SR4/CWDM4/LR4/PSM4, line side 4*25G.
- Supports SNMP-based unified network management platform, network management methods CLI, Web, NetRiver (graphical interface).
- Supports CDR function, which can optimize output, DDM signal monitoring and ALS (automatic laser shutdown) function.
- Supports software to close theport.

Item	Description
Max Capacity	1*100G bidirectional 1*100G unidirectional
Wavelength Range	DWDM: C-Band (100 GHz or 50 GHz)
Service Access Types	100GE, OTU4
3R Technology	3R functions: Re-amplifying, Re-timing, Re-shaping
Network Management	CDR function (DDM real-time monitoring), different rate adaptive setting function, business bidirectional/unidirectional setting.
NMU Mode	CLI, NetRiver, Web
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<13 W

100G CFP Coherent Transponder

The CFP 100G transponder is a 100G service access module designed by for optical fiber links. It can realize the wavelength tunable of CFP coherent transceiver module, and can be converted into DWDM standard wavelength optical signal, cooperates with DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.

100G CFP Coherent Transponder (A1600-CFP-100G)

- Supports DWDM transmission, wavelength conversion.
- The single card supports 1 channel 100G bidirectional or 1 channel unidirectional service access.
- The line side supports 100G CFP coherent transceiver module or 4*25G CFP incoherent transceiver module.
- Supports multiple client-side services access: 100GBase-SR4/CWDM4/LR4/PSM4
- Supports SNMP-based unified network management platform, network management methods CLI, Web, NetRiver (graphical interface).
- Supports CDR function, which can optimize output, DDM signal monitoring and ALS (automatic laser shutdown) function.
- Supports software to close theport.

Item	Description
Max Capacity	1*100G bidirectional 1*100G unidirectional
Wavelength Range	DWDM: C-Band (100 GHz or 50 GHz)
Service Access Types	100GE, OTU4
Dispersion Tolerance	±40000 ps/nm @ 100G
OSNR Tolerance	<12.5 dB @ 100G
Network Management	CDR function (DDM real-time monitoring), different rate adaptive setting function, business bidirectional/unidirectional setting.
NMU Mode	CLI, NetRiver, Web
Dimensions (W×H×D)	177 mm × 40 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<20 W

200G CFP Coherent Transponder

The 200G CFP OTU board is a 100G service access module designed and developed for optical fiber links. It can realize the wavelength tunable of CFP coherent optical modules and can be converted into DWDM standard wavelength optical signals. Interconnection with DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.

200G CFP Coherent Transponder (A1600-CFP-200G)

- Supports DWDM transmission, wavelength conversion.
- The single board supports 2 channels 100G bidirectional service access
- The line side supports 200G CFP coherent optical modules and 100G CFP coherent optical modules.
- Supporting multiple client-side service access: 100GBase-SR4/CWDM4/LR4/PSM4.
- Supporting SNMP-based unified network management platform, network management mode CLI, WEB, NetRiver (graphical interface).
- Supporting CDR function, which can optimize output, DDM signal monitoring and ALS (Automatic Laser Shutdown) function.
- Supporting software to close the port.

Item	Description
Max Capacity	2*100G bidirectional transmission
Wavelength Range	DWDM: C-Band (100 GHz or 50 GHz)
Service Access Types	100GE, OTU4
Dispersion Tolerance	±40000 ps/nm @ 100G, ±10000 ps/nm @ 200G
OSNR Tolerance	<12.5 dB @ 100G, <21 dB @ 200G
Network Management	CDR function (DDM real-time monitoring), different rate adaptive setting function, business bidirectional/unidirectional setting.
NMU Mode	CLI, NetRiver, Web
Dimensions (W×H×D)	177 mm × 40 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<20 W

200G CFP2 Coherent Muxponder

The 2*200G CFP2 Muxponder is a 100G service access module designed by Ascent for optical fiber links. It can realize the wavelength tunable of CFP2 coherent transceiver module, and can be converted to standard DWDM wavelength optical signal, cooperates with DWDM multiplexer/demultiplexer to realize wavelength division multiplexing transmission. It provides a high-quality solution for solving transmission lines with insufficient fiber resources and high fiber line loss.

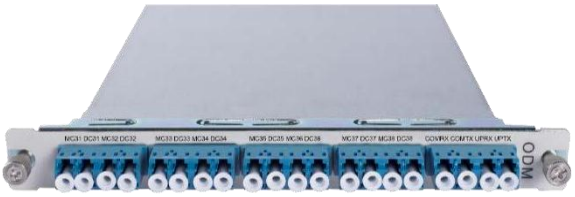
100G/200G CFP2 Coherent Muxponder (A1600-CFP2-200G)

- Supports DWDM transmission, wavelength conversion.
- Supports 4 channels 103.125 Gbit/s to 111.81 Gbit/s bidirectional services access.
- The line side supports 2*200G CFP2 coherent transceiver module access.
- Support multiple client-side service access: 100G Base-SR4/CWDM4/LR4/PSM4.
- Support turning off the TX power function.
- Transparent transmission.
- Supports hot swapping.
- Supports FEC function, can optimize output, DDM signal monitoring, link detection (automatic laser shutdown) function.
- Supports SNMP-based unified network management platform, network management methods CLI (telnet and console), Web, NetRiver (graphical interface).

Item	Description
Maximum Capacity	2*100G unidirectional/bidirectional transmission 2*200G unidirectional/bidirectional transmission
Wavelength (Frequency) Range	DWDM: 1529.16 nm to 1567.14 nm (191.3 THz to 196.05 THz)
Modulation	DP-QPSK@100G, DP-16QAM@200G, DP-16QAM-PCS@200G, DP-QPSK@200G
Service Access Types	100GE, OTU4
Dispersion Tolerance	±40000 ps/nm @ 100G
OSNR Tolerance	<12dB@100G QPSK, <21dB@200G DP-16QAM, <16dB@200G DP-16QAM-PCS, <13.5dB@200G DP-QPSK
Dimensions (W×H×D)	177 mm × 40 mm ×225 mm
Working Temperature	-10 °C to +70 °C
Storage Temperature	-40 °C to +80 °C
Relative Humidity	5 % to 95 % (non-condensing)
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards
Power Consumption	<80 W

OADM/ODM - Optical Add-Drop Multiplexer/Demultiplexer

ODM optical add-drop multiplexer/demultiplexer is a CWDM/DWDM multiplexer/demultiplexer introduced by Ascent. It can mux and demux CWDM/DWDM channels, greatly save customers' optical fiber resources, and flexibly change network configuration according to customers' requirements. The 100GHz DWDM system supports smooth upgrade to 48 channels, the 75GHz DWDM system supports smooth upgrade to 64 channels, and the 50GHz DWDM system supports smooth upgrade to 96 channels. Higher spectrum utilization, saving bandwidth resources. Moreover, the CWDM system supports a smooth upgrade to 18 channels.



OADM/ODM Card

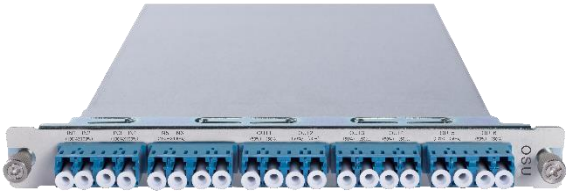
Rack-Mounted OADM/ODM Equipment

- Support up to 18 channels for CWDM system.
- Support up to 96 channels for DWDM system.
- Pure passive without power supply, no debugging required, transparent transmission.
- Support online upgrade and expansion, simple maintenance and convenient operation.
- Support CWDM and DWDM(100GHz/75GHz/50GHz) applications.
- Support single-fiber unidirectional, single-fiber bidirectional, dual-fiber bidirectional and other scenarios.
- Low insertion loss, high channel isolation, high reliability and stability, in line with GR-1221 standard.

Item	Description
Wavelength Range	CWDM: 1271nm to 1611nm DWDM: C-Band(100GHz/75GHz/50GHz)
Channel Spacing	CWDM: 20nm DWDM:0.8nm/0.6nm /0.4nm
Passband Width	CWDM: ±6.5nm DWDM: 0.1nm
Passband flatness	<0.5dB@Flat-top <0.5dB@Gaussian
Channel insertion loss	4CH: <1.0dB, 6CH: <2.0dB, 8CH: <2.5dB, 12CH: <2.8dB 16CH: <3.2dB, 40CH: <6dB, 48CH: <6dB, 80CH: <6dB, 96CH: <7dB
Adjacent Channel Isolation	>25dB
Non-adjacent Channel Isolation	>30dB
Polarization Dependent Loss(PDL)	<0.5dB
Polarization Mode Dispersion	<0.1ps
Return Loss	>45dB
Maximum Input Optical Power	>300mw
Dimensions (mm)	Single card: 177(W)*20(H)*225(D) Chassis unit: 440(W)*44(H)*220(D)
Working Temperature	-10°C to 70°C
Storage Temperature	-40°C to 80°C
Relative Humidity	5% to 95% no condensation
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards

OSU - Optical Splitter Unit

OSU optical splitter unit is a splitter based on PLC and FBT technology introduced by Ascent. It is mainly used for communication trunk, MAN, LAN, private network, DPI, FTTX of PON, etc. Ascent 1*N, 2*N PLC and FBT optical splitter are compact size and cost effective. They support a wide range of wavelengths (1260-1620nm), and provide customers with low insertion loss and low polarization dependent loss.



Splitter Card

1U Rack Splitter

Product Feature

- Support single-mode and multi-mode, various network applications.
- Support single window and multiple windows, optional splitting ratio.
- Support PLC and FBT technology, low insertion loss, low polarization dependent loss.
- Pure passive without power supply, no debugging required, transparent transmission.

Product Specification

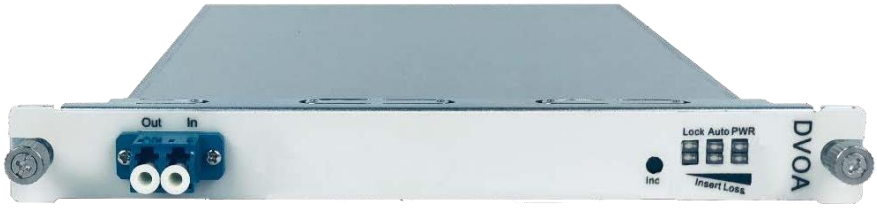
Item		Description
Wavelength range		Single mode: 1260nm to 1650nm, Multimode: 850nm
Insert Loss	1x2(even)	Single mode: 50%: ≤3.50dB, Multimode: 50%: ≤4.10dB
	1x3(even)	Single mode: 33.3%: ≤5.40dB, Multimode: 33.3%: ≤5.80dB
	1x4(even)	Single mode: 25%: ≤7.00dB, Multimode: 25%: ≤7.60dB
	1x8(even)	Single mode: 12.5%: ≤10.30dB, Multimode: 12.5%: ≤11.10dB
	1x16(even)	Single mode: 6.25%: ≤13.50dB, Multimode: 6.25%: ≤14.20dB
	1x32(even)	Single mode: 3.125%: ≤17.00dB, Multimode: 3.125%: ≤17.70dB
	1x64(even)	Single mode: 1.563%: ≤20.50dB, Multimode: 1.563%: ≤21.20dB
	60:40	Single mode: 60%: ≤2.70 dB / 40%: ≤4.70dB Multimode: 60%: ≤3.20 dB / 40%: ≤5.20dB
	70:30	Single mode: 70%: ≤1.90 dB / 30%: ≤6.00dB Multimode: 70%: ≤2.50dB / 30%: ≤6.50dB
	80:20	Single mode: 80%: ≤1.20 dB / 20%: ≤7.90dB Multimode: 80%: ≤1.40dB / 20%: ≤9.00dB
	90:10	Single mode: 90%: ≤0.80dB / 10%: ≤11.60dB Multimode: 90%: ≤1.30 dB / 10%: ≤12.00dB
	70:15:15	Single mode: 70%: ≤1.90dB / 15%: ≤9.00dB Multimode: 70%: ≤2.50dB / 15%: ≤10.50dB
	80:10:10	Single mode: 80%: ≤1.20dB / 10%: ≤11.60dB Multimode: 80%: ≤1.20dB / 10%: ≤12.00dB
	70:10:10:10	Single mode: 70%: ≤1.90dB / 10%: ≤11.60dB Multimode: 70%: ≤2.50dB / 10%: ≤12.00dB
	60:20:10:10	Single mode: 60%: ≤2.70dB / 20%: ≤7.90dB / 10%: ≤11.60dB Multimode: 60%: ≤3.20dB / 20%: ≤9.00dB / 10%: ≤12.00dB

Item	Description
Polarization Dependent Loss(PDL)	≤0.15dB
Return Loss	≥55dB
Directivity	≥55dB
Dimensions (mm)	Single card: 177(W)*20(H)*225(D) Chassis unit: 440(W)*44(H)*220(D)
Working Temperature	-10°C to 70°C
Storage Temperature	-40°C to 80°C
Relative Humidity	5% to 95% no condensation
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards

Note: The above specifications do not include fiber connector loss, and the test temperature is indoor temperature.

DVOA - Dynamic Variable Optical Attenuator

The DVOA intelligent optical attenuation board is a board developed for the unstable optical power of optical communication lines. It plays the role of automatic optical gain adjustment and protection of optical receivers. It is connected in series with the communication fiber link to ensure uninterrupted communication. The panel provides setting buttons for easy installation and debugging. The panel LED indicator shows the current system operating status at a glance. The system is designed to work stably in harsh environments according to industrial design. It is widely used in intelligent adjustment of optical lines such as PDH, SDH systems, Ethernet systems, and WDM systems.



DVOA Dynamic Variable Optical Attenuator

- Supports hot swapping, easy maintenance.
- Supports intelligent and manual adjustment methods.
- Excellent heat dissipation design and temperature adaptability, can work in various harsh environmental conditions.
- AC/DC dual backup redundant power supply, wide voltage range adaptation, support hot swapping, and easy maintenance.
- Supports SNMP-based unified network management platform, network management methods CLI, Web, NetRiver(graphical interface).

Item	Description
Wavelength Range	1260 nm to 1650 nm
Attenuation Range	0 dB to 30 dB
Insertion Loss	Not including connector loss ≤ 0.7 dB (0.5 dBtypical)
Wavelength Dependent Loss	Test in 0 dB: ≤0.3 dB, test in 20 dB: ≤1.5 dB
Temperature Dependent Loss	Test in 0 dB: ≤0.2 dB, test in 20 dB: ≤1.0 dB
Polarization Dependent Loss	Test in 0 dB: ≤0.1 dB, test in 20 dB: ≤0.3 dB
Response Time	≤2 ms (1 ms typical)
PMD	≤0.1 ps
Return Loss	≥55 dB
NMU Mode	CLI, NetRiver, WEB
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<5 W

Amplification Board (100G OEO)

100G OEO amplification board reshape optical signals by optical-electrical-optical transforming, Re-amplifying, Re-shaping, Re-timing (3R), thus transform the input signals to standard CWDM or DWDM wavelength signals, ready for DWDM Mux/Demux to carry multiplexing transmission. Applicable to SDH, SAN, SONET, ETHERNET, OTN, DCI. Ideal solution to alleviate fiber optic shortage and mitigate dissipation en route.

100G OEO module

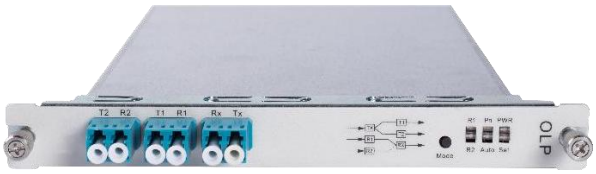
- Applicable to SM/MM wavelength conversion, optical application.
- Supports unidirectional relay amplification or bidirectional relay amplification.
- Supports 2CH 100G bidirectional or 4CH 100G unidirectional input.
- Multi services acceptable: 100G Base-SR4/CWDM4/LR4/PSM4/OTU4。
- Unified SNMP network management platform, CLI, Web, NetRiver.
- CDR, optimize output, DDM, Automatic switch off without signal.
- Shut down terminal by software.

Item	Description
Max Capacity	2*100G bidirectional 4*100G unidirectional
Wavelength Range	CWDM: 1271 nm to 1611 nm, MM:850 nm, 1310 nm DWDM: C-Band (100 GHz or 50 GHz)
Applicable Services	SDH, SAN, SONET, ETHERNET, OTN
3R Technology	3R functions: Re-amplifying, Re-timing, Re-shaping
Network Management	CDR (DDM), Automatic switch off without signal, setting bidirectional or unidirectional.
NMU Mode	CLI, NetRiver, WEB
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<16W

A1600 Optical Line Protection

Ascent optical line protection(OLP) is a protection system, which is developed for optical fiber line backup. It adopts the advanced fiber line auto switching module, it is an optical device used in the optical fiber communication field as the main and backup optical path switching; it can automatically identify the optical path signal status of the main and backup systems and perform instantaneous optical path switching, in this way, when the main optical cable has a total resistance obstacle, the system can be protected to operate normally and the service quality of the operator can be improved.

OLP is widely used in the main-standby protection of various trunks and in various networks of different optical path switching. Its advantage is that the optical signal can be directly converted and used in the optical line, which is compact package, economical and safe, so it is used in many optical transmission fields.



A1600 Optical Line Protection (A1600-OLP)

- Support single-mode and multi-mode optical line protection
- Support dual-fiber bidirectional and single-fiber bidirectional protection
- Support 1+1(dual-transmitting, selective receiving), 1:1(selective transmitting, selective receiving) protection methods
- Wide optical power monitoring range: -50dBm~+25dBm
- Short optical path protection switching time: ≤25ms.
- Support SNMP-based unified network management platform, network management methods CLI(telnet and console), Web, NetRiver(graphical interface)
- Support local and remote control

System Parameters		**Description**	
Working Wavelength		1310±50nm & 1550±50nm	
Monitoring Optical Power Range	TX	+25dBm to -50dBm	
	RX	+10dBm to -50dBm	
Insertion Loss	1+1 Protection	Transmitting End	≤ 4.0dB
		Receiving End	≤ 1.5dB
	1:1 Protection	≤ 1.2dB	
Accuracy of Optical Power Measurement		≤0.5dB(+20dBm to -50dBm) ≤1.0dB(-40dBm to -50dBm)	
Optical Power Resolution		≤0.01dB	
Wavelength Dependent Loss		≤0.25dB	
Polarization Dependent Loss		≤0.1dB	
Switching Rime		≤25ms	
Return Loss		≥45dB	
Crosstalk		≥55dB	
Dimensions (W×H×D)		177 mm × 20 mm × 225 mm	
Working Temperature		-10°C to 70°C	
Storage Temperature		-40°C to 80°C	
Relative Humidity		5% to 95% no condensation	
Safety and EMC		Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards	
Power Consumption		<5W	

Optical Amplifier (EDFA)

EDFA amplification module is designed to accompany with DCM for long-haul digital fiber optic transmission. Its core parts consist of reliable PUMP laser, unique APC (Automatic Power Control), ATC (Automatic Temperature Control), generating stable power output and great reliability. Sophisticated GFF (Gain Flat Filter) and advanced optical route design optimize the flatness and noise.

A1600 EDFA amplifier is deployed in 3 application methods:

1. The Power Amplifier(BA: A1600-EDFA-B-V-M) is applied after the multiplexer to increase the power of multiple wavelength signals after multiplexing and then transmit them. Since the signal power after multiplexing is generally large, the noise figure and gain requirements of a power amplifier are not very high, but after amplification, a relatively large output power is required.

2. Line Amplifier(LA: A1600-EDFA-L-V-M) is applied after the power amplifier to periodically compensate the transmission loss of the line. Generally, it requires a relatively small noise figure and a large output optical power.

3. Pre-Amplifier(PA: A1600-EDFA-P-V-M) is applied before the demultiplexer and after the line amplifier, is used to amplify the signal and improve the receiver's sensitivity(under the condition that the optical signal-to-noise ratio(OSNR) meets the requirements, a larger input power can suppress the receiver's noise, improve receiving sensitivity), the noise figure is required to be small, and there is not much requirement for output power.

EDFA amplifcation module (A1600-EDFA series)

- Supports optical amplification of C-band DWDM system.
- Supports amplification of optional OSC signal input.
- Max saturated output +23 dB, Minimum input -35 dB.
- Booster amplification, Line amplification, Pre-amplification.
- Unified SNMP network management platform, CLI, Web, NetRiver.
- It can monitor: PUMP drive current, PUMP power output, PUMP switch, PUMP temperature, input power, output power, module temperature.
- It can configure PUMP switch, AGC mode and APC mode.
- Supports optical monitoring port (MON).

Item	Description
Wavelength Range	1528 nm to 1565 nm
Input Range	-35 dBm to +6 dBm
Saturated Output	+23 dBm
Max Gain	30 dB
Noise Index	4.5 dB to 6 dB
Gain Flatness	1.0 dB
Input/Output Isolation	30 dB
Input/Out Echo Loss	45 dB
Output Pump Leakage	-30 dBm
Polarization-Dependent Loss	0.5 dB
Polarization Mode Dispersion	0.5ps
Network Management	CLI, NetRiver, Web
Dimension	177 (W)× 20(H)× 225(D)(mm)
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<30W

Raman Optical Amplifier (RFA)

The RFA amplifier card is developed by Ascent for DWDM optical communication systems, and is used in conjunction with EDFA amplification. Based on the fiber Stimulated Raman Scattering (SRS) effect, it can effectively overcome the influence of non-linear effects such as four-wave mixing, and improve the optical signal-to-noise ratio (OSNR) of the system, which greatly extends the transmission distance.

RFA Amplifier (A1600-RFA series)

- Support C-band DWDM system optical amplification.
- Support maximum saturated output power -5dBm, minimum input power -42dBm.
- Low noise figure, high gain and low power consumption.
- Monitoring: Pump drive current, pump output power, pump switch, pump temperature, input optical power, output optical power, module temperature.
- Support SNMP-based unified network management platform, network management methods CLI (telnet and console), Web, NetRiver (graphical interface).

Item	Description
Wavelength Range	1528 nm to 1565 nm
Input Power Range	-25 dBm to -42 dBm
Output Power Range	400 mW
Maximum Gain	12 dB
Noise Index	0 dB
Gain Flatness	2 dB
Polarization Dependent Gain	0.3 dB
Polarization Mode Dispersion	0.3 ps
Dimensions (W×H×D)	177 mm × 40 mm × 225 mm
Working Temperature	-5 °C to +45 °C
Storage Temperature	-40 °C to +80 °C
Relative Humidity	5 % to 85 % no condensation
Safety And EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards
Power Consumption	<30 W

Semiconductor Optical Amplifier (SOA)

SOA amplification module is designed to amplify the O-band optical signals 1230 nm to 1360 nm, it works with 100G/40G/10G data traffic. Each module can amplify max 4 channels of service signals, it can be applied in information system or data transmission system.

SOA amplification module (A1600-SOA series)

- Optical amplification of O-band signals
- Applicable to 100G/40G/10G data rates
- Max saturated output +10 dB, minimum input -20 dB
- Unified SNMP network management platform, CLI, Web, NetRiver
- It can monitor: PUMP drive current, PUMP power output, PUMP switch, PUMP temperature, input power, output power, module temperature
- It can configure PUMP switch, APC mode

Item	Description
Wavelength Range	1230 nm to 1360 nm
Input Range	-20 dBm to +3 dBm
Saturated Output	+10 dBm
Gain Per Channel	12 dB to 20 dB
Noise Index	7.5 dB to 8 dB
Gain Flatness	2.0 dB
Uniformity	1.0 dB
Stability	0.5 dB
Bias Current	300 mA
Polarization-Dependent Gain	2.0 dB
Network Management	CLI, NetRiver, Web
Dimensions (W×H×D)	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5% to 95% (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<24W

Fixed Dispersion Compensation Module (DCM)

DCM is widely used in long-haul high-speed communication systems to mitigate the optical dispersion, applicable to popular G.652&G.655 standard SM fiber cables. DCM Complies with slope compensation function, it can compensate wide wavelength dispersion in C-Band for G.652 SM fiber cables, optimize the residual dispersion of system.

Based on mature and reliable fiber optic technology, it can improve the performance of optical transmission system. The dispersion range at 1550 nm wavelength can reach -10 to -2100 ps/nm. We can customize DCM with special requirements for central wavelength and dispersion.

DCM fixed dispersion compensation module (A1600-DCM-xx)

- Low insertion loss, low polarization mode dispersion.
- Wide wavelength dispersion compensation to DWDM system.
- G.652 fiber cable, C-band 100 % slope compensation (typical value).
- Performance compliant with Telcordia GR-2854-CORE.
- Reliability compliant with Telcordia GR-2854-CORE。
- Available in different package, connector and fiber length.
- Supports unified SNMP network management platform, CLI, Web, NetRiver.

Item	Unit	Specification				
Dispersion Compensation @ 1545 nm	Ps/nm	20 km	40 km	60 km	80 km	100 km
	Ps/nm	-340 ± 20	-670 ± 20	-1000 ± 20	-1340 ± 20	-1680 ± 20
Relative Dispersion @ 1545 nm	Nm-1	0.0036 % ± 20 % (general), 0.0036 % ± 10 % (advanced)				
Insertion Loss @ 1525 nm to 1565 nm	dB	≤3	≤4.8	≤6	≤7.6	≤8.8
Insertion Loss (Typ.) @1525 to 1565 nm	dB	≤2.8	≤4.4	≤5.8	≤7.2	≤8.4
Polarization Mode Dispersion	ps	≤0.7	≤0.8	≤0.9	≤1.0	≤1.1
Polarization Mode Dispersion (Typ.)	ps	0.2	0.3	0.4	0.5	0.6
Polarization-Dependent Loss	dB	≤0.1				
Brillouin Scattering Threshold	dBm	Minimum 6				
Nonlinear System	n2/Aeff	Max 1.4*10-9				
Area Effective	Aeff	Minimum 20				
Network Management		CLI, NetRiver, Web				
Dimensions (W×H×D)	mm	177 × 20 × 225 (size varies based on the distance)				
Operating Case Temperature		-10 °C to 70 °C				
Storage Temperature		-40 °C to 80 °C				
Relative Humidity		5% to 95% (non-condensing)				
Safety And EMC		Compliant with FCC, UL, CE, TUV, CSA				
Power Consumption		<2W				

Tunable Dispersion Compensation Module (TDC)

TDC is based on temperature adjustment to compensate dispersion of fiber optic precisely, applicable to 10G/40G/100G long-haul optical transmission system and data center interconnect. Its main features are: long-haul compensation, high output accuracy, low insertion loss, low phase jitter, low group latency jitter, low PDL and PMD etc.

TDC tunable dispersion compensation module (A1600-TDC series)

- low insertion loss, low polarization mode dispersion.
- High compensation to dispersion, compensation reach to 60km.
- Clear transmission, no alteration of optical signals.
- Wide wavelength dispersion compensation to DWDM system.
- Supports unified SNMP network management platform, CLI, Web, NetRiver.

Item	Description
Dispersion Compensation	±700 nm or ±1360 nm
Working Wavelength	C&C+ Band (1528.97 nm to 1567.13 nm)
Channel Spacing	50 GHZ or 100 GHZ
Absolute Dispersion Accuracy	±25 Ps/ nm or ±60 Ps/ nm
Insertion Loss	<4 dB
Echo Loss	50 dB
Polarization-Dependent Loss	0.1 dB
Max Output	27 dBm
Max Power Output	<4.5 W
Network Management	CLI, NetRiver, Web
Dimensions	177 mm × 20 mm × 225 mm
Operating Case Temperature	-10 °C to 70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5 % to 95 % (non-condensing)
Safety And EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Consumption	<10W

Integrated WDM Equipment

Integrated WDM equipment is specially designed for DCI optical transmission network, its advantage is: clear transmission, low latency, high capacity, low consumption, easy operation, reliability and stability. Maximum service 1.2T is supported. Data rates 10G/100G/200G, applicable to SDH, SAN, SONET, ETHERNET, OT, DCI etc. It is innovative solution to tight fiber resource and high dissipation optical route.

- 10G *48CH or 100G*12CH converged fiber optic transmission.
- Ultra-high integration, front and rear ventilation, 1+1 protection, physical terminal isolation, clear transmission.
- Multi inputs:8GFC/10GE/100G Base-SR4/CWDM4/LR4/PSM4/OTU4
- SNMP unified network management platform, CLI, Web, NetRiver.
- CDR, optimize output, DDM, Automatic switch off without signal.
- Shut down terminal by software.

Item	Description
Max Capacity	12*100G bidirectional or 48*10G bidirectional
Wavelength	DWDM: C-Band (100 GHz or 50 GHz)
Service Type	SDH, SAN, SONET, ETHERNET, OTN
Transmission Reach	10 km, 40 km, 80 km (optional)
Network Protection	Line side 1+1 protection
Network Management	CDR (DDM), Automatic switch off without signal, unidirectional or bidirectional service, in-band and out-of-band networkmanagement
Network Management Type	CLI, NetRiver, Web
Dimensions (W×H×D)	482.6 mm × 44 mm × 600 mm
Operating Case Temperature	-10 °C to +70 °C
Storage Temperature	-40 °C to 80 °C
Relative Humidity	5 % to 95 % (non-condensing)
Safety and EMC	Compliant with FCC, UL, CE, TUV, CSA
Power Supply	AC 90V to 264V 50/60HZ DC -36V to 60V
Power Consumption	<200W

DWDM Open Line System

Ascent's A1600 Series is a true open line DWDM networking platform designed by Ascent specifically for modern data center interconnect (DCI). It works with any combination of PAM4 and coherent DWDM interface types and offers an unparalleled level of plug and play simplicity regardless of traffic type and network application. It has the same form factor and simple plug and play usability of a passive multiplexer, but unlike a passive multiplexer it monitors the traffic, amplifies the signals for longer distances and can handle higher data rate protocols. A best of both worlds approach to DCI networking. This is because it has all the features usually reserved for the more complex DWDM platforms fully integrated in to a simple plug and play 1U module. No separate amplifier, management, dispersion compensation and traffic cards to configure. No messy wiring between modules. No additional knowledge or spares handling usually associated with the bigger systems. Instead, it provides the traffic transmission with OLP protection, it provides everything required for an open line networking system for all protocol types.

System Parameter	Description
Maximum Capacity	40 channels DWDM bidirectional transmission
Wavelength Range	DWDM: 1529.16nm to 1567.14nm
Service Access Types	1/10/25/100/200/400G Ethernet 32/16/8G Fiber Channel
Transmission Distance	Support transmission distance: 0.1KM to 120KM, etc.(optional)
Network-Level Protection	Line side 1+1 protection
Dimensions (W×H×D)	440mm*44mm*600mm
Working Temperature	-10°C to 70°C
Storage Temperature	-40°C to 80°C
Relative Humidity	5% to 95% no condensation
Safety and EMC	Compliance with FCC, UL, CE, RoHS, TUV, and CSA standards
Power Supply	AC power supply (AC) voltage range: support 90V to 264V 50/60HZ DC power supply (DC) voltage range: support -36V to 60V
Power Consumption	200W

Product Feature

- Any combination of DWDM inputs: PAM4 and coherent transceivers, transponders, muxponders
- Industry defining 1U open-line networking system
- Ultra-high integration design, front-to-back airflow, 1 + 1 protection
- Intelligence and distance extension in a 40 or 80 channel DWDM multiplexer
- Automatic fiber distance measurement and dispersion compensation setting
- Complete zero-touch automatic optical setup, just like using a passive multiplexer
- High speed multi-protocol DCI
- Unprecedented level of cost efficiency and ROI for 100G DCI
- Network management supports industrial standard SNMP, HTTP, HTTPS, Telnet, etc

Ordering Information

Product Name	Variable	Options
A16XX-Y-Z	XX = Chassis	04: 1RU chassis, 4-slots
		08: 2RU chassis, 8-slots
		16: 4RU chassis, 16-slots
		20: 5RU chassis, 20-slots
	Y = CHAS	CHAS: Chassis
	Z = System Configuration	1U: 1U 4-slots & 1U 3-slots
		2U: 2U 8-slots
		4U: 4U 16-slots
		5U: 5U 20-slots
		I: Integrated case
A1600-X-NMU	X = System Type	C: Compact case
		CHAS
A1600-X-Y (OTU)	X = Form Factor	OTU: 100G OTU
		CFP: CFP OTU
		CFP2: CFP2 OTU
		SFPP: SFPP 10G OTU
	Y = Data Rates	2.5G: 155M to 2.5G
		10G: 10G
		100G: 100G
		200G: 200G
		400G: 400G
A1600-EDFA-X-Y-Z	X = Amplification	P: Pre-amplifier
		L: Line amplifier
		B: Booster amplifier
		R: Raman amplifier
	Y = Enhanced	V: VOA
	Z = System	M: Monitor
A1600-SOA-X	X = System	1: 1CH
		2: 2CH
A1600-DWDM-X-YY	X = Mux/Demux	D: Mux & Demux card
	YY = Channels	08: 8-channel Mux & Demux
A1600-DCM-X	X = Reach to Compensate	XX: km
A1600-TDC-X	X = Connector	L: LC connector
		S: SC connector
		F: FC connector

Contact Information

Ascent Communication Technology Ltd

AUSTRALIA
140 William Street, Melbourne
Victoria 3000, AUSTRALIA
Phone: +61-3-8691 2902

CHINA
Unit 1933, 600 Luban Road
200023, Shanghai, CHINA
Phone: +86-21-60232616

EUROPE
Pfarrer-Bensheimer-Strasse 7a
55129 Mainz, GERMANY
Phone: +49 (0) 6136 926 3246

Hong Kong SAR
Unit 9, 12th Floor, Wing Tuck Commercial Centre
177 Wing Lok Street, Sheung Wan, Hong Kong SAR
Phone: +852-2851 4722

USA
2710 Thomes Ave
Cheyenne, WY 82001, USA
Phone: + 1 203 350 9822

VIETNAM
11th Floor, Hoa Binh Office Tower
106 Hoang Quoc Viet Street, Nghia Do Ward
Cau Giay District, Hanoi 10649, VIETNAM
Phone: +84-24-37955917

WEB: www.ascentcomtec.com

EMAIL: sales@ascentcomtec.com

Specifications and product availability are subject to change without notice.

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