Alphion

Product Brief

AMUX-72F0

240-port XG(S)PON & GPON (Co-Existence) OLT

Feature Summary

- 19" standard rack mountable 11RU Chassis
- Redundant DC Power inputs
- Redundant Switch modules (SM), supporting two different types (Type 1 and Type II) with four 25GE/10GE uplink ports on each type
- Uplink cards supporting two different types with two 100GE uplink ports on Type 1 and eight 25GE/10GE/1GE uplink ports on Type II
- Supports 240 GPON/XG(S)PON/Combo-PON ports across 15 Service slots
- Hot-Swappable Modular design for Switch Modules (SM)
- Supports multiple 16-Port GPON Cards, 16-Port XG(S)PON Cards and 8/16 Port Combo-PON line cards across any Service slot
- Class-B PON Protection on XG(S)PON/GPON Ports
- Also supports an Intelligent Computing Card for achieving localized computing for OLTs, and provide edge-oriented intelligent applications and enhanced controlling

XG(S)PON & GPON Technology

- Complies with ITU-T G.984.1-5, G.987/G.988, G.9807 standards
- Supports 10 Gbps/2.5Gbps downstream & 10 Gbps/2.5Gbps/1.25Gbps upstream XG(S)PON/GPON Interfaces
- Supports 5 T-CONT types as per G.984.3 standards
- Supports SN/SN+Password ONU Authentication
- Supports Dynamic Bandwidth Allocation (DBA)
- Supports FEC and Rogue ONU detection

Switching and advanced features

- Supports line-speed switching and forwarding capabilities
- Supports 710K MAC address table
- Supports advanced L2 Switching features and VLAN functionality
- Supports IPv4/IPv6 DHCP Server / DHCP Relay functionality
- Supports IPV4 and IPV6 Multicasting
- Supports time-synchronization using 1588V2 PTP
- Supports abundant QOS functions
- Supports advanced security features

Powering

Dual DC redundant power inputs (pluggable)

Applications

The AMUX-72F0 is an 11RU Chassis based hybrid platform which supports next next-generation converged PON technology. AMUX-72F0 provides GPON, XG-PON, XGS-PON, Combo-PON access and 100GE/25GE/10GE/GE uplinks. The device can be deployed in FTTH, FTTB, FTTC, FTTD, FTTM scenarios to provide service for residential subscribers, business customers, mobile and fixed backhauling, Wi-Fi hotspot backhaul, etc.

With 1588V2 PTP support, the AMUX-72F0 can be also used in mobile backhaul solutions. By supporting 1588V2 synchronization without extra clock equipment it saves investment for FTTM application. The AMUX-72F0 gets external 1588V2 signals and transfers to the connected ONTs through OMCI. ONT then transfers 1588V2 signals to 4G/5G station or small cell.

Standards

The AMUX-72F0 design takes advantages of the latest switching technologies. By complying with the FSAN/ITU-T XG(S)PON and GPON standards, the AMUX-72F0 achieves interoperability with a wide range of XG(S)PON and GPON ONTs.

Flexible Provisioning, Management and QoS

The AMUX-72F0 supports Telnet/SNMP/CLI for remote management. Its powerful OMCI functions enable remote diagnostics and flexible provisioning of the ONU/ONTs. It's enriched QOS functions such as traffic policy/traffic shaping/rate limit/schedule allows operators to provide flexible bandwidth allocation policy for multiple customized services.

SPECIFICATIONS

XG(S)PON/GPON Interface

Ports:	240 XG(S)PON & GPON combo PON ports
Standards:	ITU-T G.984, G.987/G.988, G.9807 compliant
Line rate:	GPON: 1.25Gbps (Upstream), 2.5Gbps (Downstream) XGPON: 2.5Gbps (Upstream), 10Gbps (Downstream) XGSPON: 10Gbps (Upstream), 10Gbps (Downstream)
Fiber Type:	Single-Mode, BIDI
Transceiver:	Supports B+/C+(GPON) and N1&B+/N2&C+/E2&D XG(S)PON&GPON Combo transceivers
Split ratio:	1:64 (GPON) and 1:128 (XG(S)PON)
Interface Type:	SC/UPC
Tx Power:	3~7dBm (C+), 4~8dBm (N2a)
Rx Sensitivity:	-30 dBm (C+), -29.5dBm (N2a)
Rx Overload:	-12 dBm (C+), -9dBm (N2a)
Wavelength:	GPON - Rx: 1310nm and Tx: 1490nm XG(S)PON - Rx: 1270 nm and Tx:1577nm
T-CONT:	1-5

Ethernet Uplink Trunking Interfaces

25GE/10GE:	4xQSFP/SFP+ Ports per SM card (Type I or Type II)
25GE/10GE/GE	8xQSFP/SFP+/SFP Ports per Uplink Card Type1
100GE	2xQSF28 Ports per Uplink Card Type II

Management Interfaces

Out-Of-Band	1xRJ45 Ethernet port
Console	1xRJ45 COM port

Switching

Switching Capacity	7.2Tbps (Type 1 SM) or 3.8Tbps (Type II SM)
Per Slot: Bandwidth:	200 Gbps
VLAN Support:	Port based VLAN, Protocol based VLAN and 801.q VLAN
VLAN Mapping:	ONU-Based Q-in-Q: 1:1/ N:1 VLAN translation
Spanning Tree:	STP (802.1d), RSTP (802.1w), MSTP (802.1s)
Multicast:	IGMP V2/V1 Snooping & Proxy, MLD V1 Snooping, IGMP Fast leave
Link Aggregation:	LAG/LACP
Forwarding:	IPv4, IPv6
Mirroring:	Port mirroring
Congestion Control	Flow control / Back pressure

Security

DHCP Option:	Option 82 (RFC3046)
PPPoE:	PPPoE+
Protection:	Broadcast / Unknown Multicast / DLF packet limit
PON:	Downstream AES, Rogue ONU/ONT detection, SN, Password. SN+Password Authentication
Access control:	SSH, Packet Filtering (ACL), QoS Policing, User isolation

Quality of Service

Classification:	8 priority queues per GEM port, 802.1p TCI, 802.1q CoS, IPv4 ToS/IP Precedence
Congestion:	Back pressure (802.3x Flow Control)
Scheduling:	SP, WRR, SP+WRR, Egress Traffic Shaping, Rate-limiting

Management

OAM:	Ethernet OAM, FTP/TFTP, ONU Auto-provisioning, ONU Digital diagnostic monitor, Performance Monitoring(PM)
Local:	CLI via CONSOLE/MGMT port
Remote:	SNMP v1/v2c
ONT/ONUs:	Managed over OMCI
Time Sync:	PTP - IEEE1588V2

Power

Power Supply:	Dual DC (Pluggable), -40V DC to -60V DC input
Power:	1143 Watts (Typical)

Physical

Operating Temp:	0°C to 50 °C
Storage Temp:	-40 °C to 70 °C
Operating RH:	10% to 90% Non-condensing
Storage RH:	5% to 95% Non-condensing
Rack:	19 inch ANSI/ETSI standard rack
Dimensions:	482.6mm (W) x 286mm (D) x 488mm (H)
Weight:	Fully loaded: 44 kg, Chassis only: 18.5 kg
Cooling:	Fan Tray

Regulatory Compliance

Certification:	CE (Conformité Européenne) compliant
EMC Emissions:	CISPR-32:2015 Class A
EMC Immunity:	Radiated RF: EN/IEC61000-4-3: 2006 + A1: 2007 + A2: 2010 level 2
Conducted RF:	EN/IEC61000-4-6: 2013 level 2
Safety:	CE, EN/IEC60950-1/UL60950, UL2043-ready
Laser safety:	IEC60825-1 Class 1 laser safety per G.664
ESD:	EN/IEC61000-4-2: 2008 contact level 2, air discharge level 3
Transient:	EN/IEC61000-4-4: 2012 level 2
Surge:	EN/IEC61000-4-5:2014+A1: 2017 1KV (Line), 2 KV (Earth), 2 KV (Signal)
DC Voltage Dips:	EN61000-4-29
Environment:	EN300019-1-3, QM-333 B2 Category (-5 °C to 50 °C; 50% RH) and QM-333 D Category (-10 °C to 60°C; 50% RH) when in an Outdoor Cabinet
Altitude, Pressure:	GR-63-CORE, IEC 60068-2-13
Drop Test:	GR-63-CORE, IEC 60068-2-31, IEC 60068-2-32
Mechanical:	EN300119-4
Energy:	Broadband Equipment Code of Conduct (2008)
Hazardous	RoHS6, WEEE

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