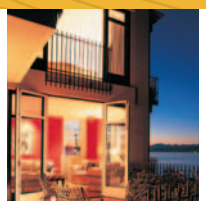
Alloptic edge10™ OLT





Providing seamless, reliable connectivity between the core network and optical access network, the **edge10** is Alloptic's EPON OLT. The edge10 delivers voice, video, and data services to business and residential customers with the flexibility to support TDM and IP voice, RF and IP video, and high speed residential and SLA-based business data. Built around a 800Gbps backplane, the edge10 supports up to 88 Gigabit Ethernet PONs from a compact, high-density, NEBS compliant design. The edge10 OLT provides a wealth of standards-compliant protocols and services over wire speed, non-blocking, 1Gbps and 10Gbps bidirectional flows. The edge10 OLT is an integral part of a PON migration strategy, offering scalable, high density PON aggregation and ONT management. DOCSIS management of system functions is enabled via the DPC™ DOCSIS PON controller software. With a full complement of testing and remote management capabilities, the edge10 provides unparalleled bandwidth, functionality, and reliability today and well into the future.

Benefits

High reliability – Carrier grade chassis and electronics

- All modules are hot-swappable and can be configured for redundancy
- 19" rack mounting with front accessed connectivity (suitable for ANSI or ETSI rack mounting)
- NEBS compliant with redundant -48VDC power feeds
- Temperature hardened
- External alarm (outputs and inputs) for integration into headend monitoring systems

Secure, high capacity data services

- Network interfaces for up to 80Gbps network-facing data capacity with link aggregation
- VLAN managed services with QoS prioritization
- Error-free delivery of VoIP and streaming video content
- Universal PON bridging capabilities allows private LAN serivces
- Non-blocking, 1Gbps and 10Gbps bidirectional wirespeed capacity per PON interface
- DBA (Dynamic Bandwidth Allocation) support

Universal video distribution

- SDTV & HDTV support via RF and/or IP video
- RF video support via optical overlay with remote RF video service controls
- IP video using IGMP v2 multicast and proxy functionality
- VoD capability with 2-way transport

Industry-standard TDM services

- Standard OC-3, OC-12, STM-1, STM-4 interfaces for TDM/POTS traffic
- Integrated 3-1-0 digital cross connect device
- Synchronous T1/E1 delivery
- Private T1/E1 point-to-point services

Centralized configuration, testing, and management

- Subscriber and service provisioning via DPC™ DOCSIS PON controller
- Built in web-based configuration manager
- SNMP network management interface
- Software download and distribution control
- Circuit testing and loopback testing for telephony services
- Extensive data port statistics
- Remote RF alarms and controls

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Imagine the Possibilities™

Alloptic edge10™ OLT

Specifications

The SHLF0010 is the card cage chassis for Alloptic's edge10 platform. The unit contains the fans, the power entry modules, alarm card, and backplane that support the FAB, PIM, NIM, and TIM cards.

SHLF0010

Physical

- 14U 19" rack mount
- Dimensions: 24.5" H x 17" W x 12" D 62.23cm H x 43.18cm W x 30.48cm D
- Weight: 93.8 lbs/42.6kg (fully loaded chassis)
- Card slots
  - 12 slots available for PIMs or NIMs, any card/any slot with optional redundancy mode
  - 2 FAB slots (optional redundancy mode)

Indicators/External Alarms

- Critical, Major, Minor alarm LED indicators on shelf and plug-in cards
- Audible alarm indicator relay contacts
- Visual alarm indicator relay contacts
- ACO & lamp test push-button

System Timing

- Primary, secondary & tertiary system clock source selections
  - Internal (free-run)
  - 2 external BITS clock inputs, at 64kbps, 1.544Mbps or 2.048Mbps

System Service Capacities

- 800GB backplane
- Up to 88 x 1Gbps or 14 x 10Gbps PONs
- 4,032 VLANs
- 5 designated high-priority service facilities
- Up to 1:1 PON/Network interface concentration

Network Management

- Redundant 10/100BaseT Ethernet management ports with configurable IP addresses
- In-band or out-of-band management access
- Web-enabled GUI for local and remote configuration
- SNMP remote management capabilities
- Service management and provisioning via GEMS® EMS
- DOCSIS management of system functions via DPC™ software

Testing and Maintenance Capabilities

- OTDR automatically ranges the ONTs
- Packet analysis tools
- TDM performance monitoring
- Digital pattern validation for POTS and T1 channels
- Loopback controls on TDM ports

Power and Environmental

- Power: Dual -48VDC feeds
- Power input voltage: -40 to -57VDC
- Power consumption: 1600W maxiumum (fully loaded chassis)
- Operating temperature: -40°C to +65°C
- Humidity: 5% to 95% (non-condensing)

Standards, Certifications, and Patents

- UL 1950 3rd Edition, Class A, UL/CSA 22.2 EOC
- ANSI T1.102,T1.107,T1.107A, T1.404,T1.231
- Telcordia TR-TSY-000009, TR-NWT-000499
- ITU G.703, G.704, G.706, G.747, G.775
- IEEE 802.3ad, 802.3p, 802.3Q, 802.1ad, 802.x/RFC2495, 802.3ab, 802.3z, 802.3U, 802.3ab, 802.1D, 802.1w
- UL and CE mark
- NEBS
- FCC part 15a
- EMC Directive 2004/108/EC
- RoHS
- Patents
  - United States (US Pat 7 031 343)
  - Taiwan (#90128223)
  - China (ZL01821736.2)

Plug-in Cards for the edge10™ OLT

FAB01601

The FAB01601 is a system controller for the edge10. It contains a 160 Gigabit layer 2 switching fabric and CPU control complex that manages all aspects of the Alloptic edge10 system and attached ONTs. It provides network management and timing.

Management interfaces

- RJ45 connector
- 10/100 Ethernet with automatic negotiation
- SNMP v1 network management
- HTML-based GUI for optional local provisioning
- Name/password security with access list and closed user groups

Timing interfaces

- BITS clock
- Stratum-3

PIM001G8

The PIM001G8 supports 8 x 1Gbps PONs per card.

Features

- 8 x 1 Gigabit PONs on each card
- OAM&P control
- Automatic ONT ranging
- PON to PON bridging
- Same PON bridging
- Alarm management and forwarding
- Alarm status indicators

PON Interface

- 8 faceplate mounted SFP optical PHY (single-mode fiber)
- 1.25Gbps Gigabit Ethernet PON
- Operating Range: 0 to 75km (loss limited)

Optical Characteristics

Downstream PON (transmitter)

- Class 1 laser
- Optical output power level: >+3dBm
- Laser wavelength: 1490nm ±2nm

Return path PON (receiver)

- Optical receive wavelength: 1310nm ±50nm
- Optical receiver dynamic range: -8 to -29dBm

Rev20090908

PIM10GA2

The PIM10GA2 supports 2 x 10Gbps/ 1Gbps PONs per card.

Features

- 2 x 10 Gigabit/1Gigabit PONS on each card
- OAM&P control
- Automatic ONT ranging
- PON to PON bridging
- Same PON bridging
- Alarm management and forwarding
- Alarm status indicators

PON Interface

- 2 faceplate mounted XFP optical PHY
- 10 Gigabit Ethernet PON
- Broadcast downstream @ 10Gbps, return path @ 1Gbps

Optical Characteristics

Downstream PON (transmitter)

- Class 1 laser
- Optical output power level: >+3dBm
- Laser wavelength: 1577nm -2,+3nm

Return path PON (receiver)

- Optical receive wavelength: 1310nm ±50nm
- Optical receiver dynamic range: -8 to -29dBm

PIM10GS2

The PIM10GS2 supports 2 x 10Gbps/ 10Gbps PONs per card.

Features

- 2 x 10 Gigabit/10Gigabit PONS on each card
- OAM&P control
- Automatic ONT ranging
- PON to PON bridging
- Same PON bridging
- Alarm management and forwarding
- Alarm status indicators

PON Interfaces

- 2 faceplate mounted XFP optical PHY
- 10 Gigabit Ethernet PON
- Bidirectional 10 Gbps

Optical Characteristics

Downstream PON (transmitter)

- Class 1 laser
- Optical output power level: >+3dBm
- Laser wavelength: 1577nm -2,+3nm

Return path PON (receiver)

- Optical receive wavelength: 1270nm ±10nm
- Optical receiver dynamic range: -8 to -29dBm

Ordering information

Part #	Description
SHLF0010	edge10 chassis

Plug-in cards & Transceivers for edge10

Part #	Description
PIM001G8	PON Interface Module, 1G/1G
PIM10GA2	PON Interface Module 10G/1G
PIM10GS2	PON Interface Module 10G/10G
OPT2100H	1000base-X, SFP, 850nm, MM, 200m
OPT2110H	1000base-PX20-D, SFP, SC/UPC
OPT2200H	1000base-X, SFP, 1310nm, SM, 20km
OPT2300H	1000base-X, SFP, 1550nm, SM, 70km
OPT410GA	Optical Xcvr, 10G down/1G up, 10Km, PON
OPT410GS	Optical Xcvr, 10G down/10G up, 10Km, PON
TIM031X8	TDM Module, 8xOC3/STM1 Interfaces
OPT3030H	Optical Xcvr, OC3, 1310nm SM
NIM001G8	Network Interface Module, 8x1G
NIM010G2	Network Interface Module, 2x10G
COP4010G	Copper Xcvr, 10G symmetrical, RJ45, 300 feet
OPT4110G	Optical Xcvr, 10G symmetrical, 850nm, Multi-mode, 500m
OPT4210G	Optical Xcvr, 10G symmetrical, 1310nm, Singlemode, 10Km
FAB01601	Switching Fabric Module, 160Gb
RTUF006	Software RTU Fee

NIM001G8

The NIM001G8 supports 8 x 1Gbps network facing ports.

Features

- 8 x 1000base-X Ethernet, SFP interface ports
- Port aggregation
- Spanning tree support
- VLAN tagging
- Double-tagged packet support
- TOS and Ethernet priority support
- IP video multicast and unicast support

NIM010G2

The NIM010G2 supports 2 x 10Gbps network facing ports.

Features

- 2 x 10G Ethernet, XFP interface ports
- Port aggregation
- Spanning tree support
- VLAN tagging
- Double-tagged packet support
- TOS and Ethernet priority support
- IP video multicast and unicast support

TIM031X8

The TIM031X8 is a 3-1-0 cross connect switch that accepts standard OC-3/STM-1 TDM interfaces and allows an operator to connect T1/E1 or POTS traffic from the ONUs to the OC-3/STM-1 facility. This card also supports the TDM synchronization, diagnostics, and performance monitoring functionality for the system.

Features

- 8 x OC-3/STM-1 interfaces
- T1 or E1 payloads
- Full 3-1-0 cross connect functionality
- Full grooming for up to 16,128 (ANSI) or 15,120 (ETSI) DS0 cross connects
- T1-derived system timing

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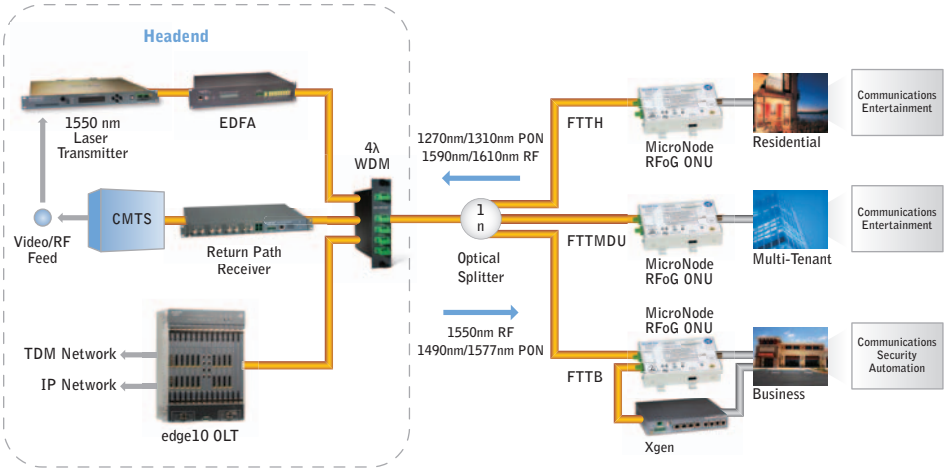
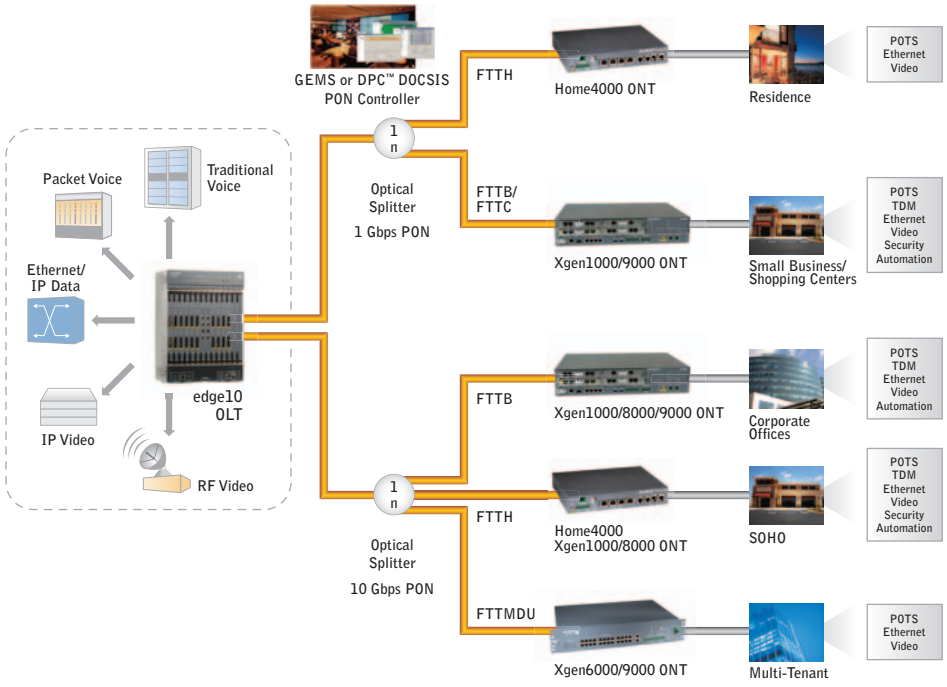
Hybrid RF PON



EPON Service Delivery



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