iPHOTONIX

Indoor GPON/AE ONT with Power over Ethernet (PoE)

Overview

iPhotonix GPON Optical Network Terminal (ONT) with Power over Ethernet incorporates a highly scalable integrated networking approach leveraging GPON's inherent reach and passive nature to deliver advanced network access solutions using the most simplified architecture. iPhotonix ONTs are Optical Line Terminal (OLT) agnostic and interoperable with OLT systems from several vendors making them the ONTs of choice when operators design their networks to deploy cost-effective FTTx solutions. iPhotonix ONTs are built using the latest 4th generation SoCs leveraging the latest advances technology, along with unrivaled hardware acceleration, QoS and efficient power management that meets the bandwidth demands of businesses and backhaul needs of wireless operators. iPhotonix ONTs are simply the best suited for Passive Optical LAN network and FTTH residential applications.

Highlights

Optical Interface

The iPhotonix iVolve ONTs terminate GPON or Active Ethernet fiber via a single SC/APC type optical connector and complies with GPON Standard ITU-T Rec. G984.2 Amendments. In GPON mode, the ONT receives data at 2.488 Gbps and sends upstream data at 1.244 Gbps over 1490 nm, 1310 nm wavelengths respectively. The following physical layer features are supported:

- Class B+ and optionally Class C optics.
- Class I laser Transceiver complies with FDA21 CFR
- 1040.10 and 1040.11.
- Received Optical Power monitoring

PoE

With POE functionality, the ONT connects to any powered device (PD) terminal devices such as IP-Phones, IP-Camera, and other equipment that can be powered from the Ethernet port. With a total of 60W-120W over the four or eight Ethernet ports, along with sophisticated power management between the ports allows a single port to reach 30W (4GE) or 60W (8GE) for type 2 PD equipment.

POTS (Plain Old Telephone System) Service

The iPhotonix Indoor GPON ONT supports plain old telephone voice services over two RJ-11 or IDC equipped connectors:

- VoIP Softswitch or CLASS 5 based high quality voice service through two POTS lines or VoIP access through four or eight Ethernet interfaces
- Support for all protocols in one software load (SIP, MGCP, H.248)

CATV

The iVolve Series ONTs supports CATV applications via a coaxial F-connector. The CATV interface contains a forward path video receiver (54 MHz to 870 MHz) with sensitivity up to -9 dB, supports multiple gain stages, AGC and status indications, video power on/off control and AGC gain control and is capable of handling a 1000 Amp fault current in the shield. The CATV interface also supports the upstream data channel from set-top boxes

IPTV

Packet based interactive IPTV services including multicast video and video-on-demand

Local Area Network (LAN) Interface

- Multiple high-speed LAN interface
- Provider configurable bandwidth and Class of service
- IGMP v2 and v3 proxy
- IEEE 802.1d transparent bridge (RFC-2684)
- PPPoE Client and DNS/DHCP Server functionality
- LAN functions including Bridging, Routing, Filtering, NATP translation
- MAC level ITU 802.1p QoS standards for Streaming IP video and IPTV content delivery

Services and Features:

Optical
- 2.5 Gbps downstream, 1.244 Gbps upstream
- Optical wavelengths: 1490 +/-10nm Rx, 1310 +/-20nm Tx
- Launch power: 0.5 to +5 dBm
- Receiver Sensitivity: -27 dBm
- Input power overload: -8 dBm
- Received optical power monitoring
- Configurable GPON/Active Ethernet
- CATV RF-Video Interface: 1550 to 1560nm

GPON
- Serial number discovery and Registration ID provisioning
- ITU-T G.984/G.988 compliance
- DBA support via mode-0 DBRu (piggy-back) reporting
- Dying Gasp
- Downstream Advanced Encryption Standard (AES) support
- Forward Error Correction (FEC)
- Upstream Traffic Management using Priority-based or Rate-controlled scheduling
- Support for up to 8 T-CONTS with multiple priority queues per T-CONT
- Multiple GEM ports with flexible mapping between TCONTs and Priority queues
- pBit based GEM port and upstream Priority queue selection
- IPTV traffic filtering (Multicast GEM port)

OAM and Management
- ITU-T G.984.4/G.988 management
- Remote firmware upgrade and automatic rollback
- Web server for local management
- SIP configuration from remote server
- ACS - CWMP (TR-069) configuration, performance monitoring, diagnostics and software download
- TR-101, TR-111, TR-124, TR-143

Enterprise LAN
- RJ-45 IEEE 802.1 10/100/1000 Base-T interfaces
- MDI/MDIX auto-sensing and auto-negotiation
- 802.1d Ethernet bridging and switching
- 802.1p marking/remarking, DSCP mapping
- 802.1Q including VLAN translation, filtering, tagging, stacking (QinQ)
- Up to 25 VLAN groups per port
- Automatic MAC address learning, aging and filtering
- Up to 1024 MAC address entries
- Up to 256 multicast groups
- IGMP v2/v3 Snooping with immediate leave
- Downstream pBit and flow-based LAN port queue selection
- Downstream Flow and port-based Rate Limiting
- WAN DHCP Client and LAN DHCP Server
- Network Address and Port Translation
- Firewall and WAN, LAN Security

CATV RF-Video Interface
- Single F-Type CATV connector
- RF Frequency range 54 MHz to 870 MHz
- RF Output level: 18dB
- RF Output Impedance: 75 Ohms
- Total RF Output Power: 36 dBmV

Voice
- RJ-11 connectors
- 5 REN per line, Loop start, Balanced and unbalanced ringing
- Country specific coefficients and tones
- Metallic loop testing (GR-909)
- SIP (RFC 3261), MGCP (RFC 3435), H.248 (RFC 3525)
- DTMF dialing and encoding by RELAY or IN-BAND method
- CLASS service support (Caller ID, Call Waiting, Call Forwarding, Call Transfer, etc.)G.711 (μ & a law), G.726-32, G.722, G.729
- Echo Cancellation
- T.38 and IN-BAND Fax
- Voice Activity Detection and Comfort Noise Generation
- Proven interoperability with major soft switch and voice gateway vendors
- DHCP Client or static IP configuration
- Official Metaswitch and BroadSoft Certifications

Features of GE Power Over Ethernet Ports
- Four or Eight Independent Power Sourcing Equipment (PSE) Gigabit Ethernet Ports
- Compliant with IEEE 802.3 at Type 1, 2, and 3 (8GE Port Variant only)
- 60W Total PoE power allocated to any combination of ports for 4GE port units
- 120W Total PoE power allocated to any combination of ports for 8GE port units
- Regulate port power up to 15.4W for Type 1 Power Device (PD), 30W for Type 2 PD, and 60W for Type 3 PD (8GE Port Variant only)
- Advanced Power Management – Fast Shutdown of Preselected Ports, Current/Voltage Monitoring
- Very High Reliability 4-Point PD Detection

PoE Features	4-Port PoE	8-Port PoE
IEEE 802.3af/at	√	√
IEEE 802.3bt		√
Type 1 - 15.4 W Max Power to Port	√	√
Type 2 - 30W Max Power to Port	√	√
Type 3 - 60W Max Power to Port		√
Total Power Available to all Ports	60W	120W

	GbE	POTs	RF Video
7290-2xx	4		
7291-2xx	4	2	
7293-2xx	4	2	✔
7294-2xx	4		✔
7298-2xx	8		

LED Indicators

o Power
o Battery
o Fail
o LAN Data
o Management
o Network
o POTS

Dimensions (H x W x D) and Weight

■ Size: 8.66 x 6.30 x 1.18 inches (220 x 160 x 30 mm)
■ Weight: 2 lbs (.9 kg)

Environmental

■ -5 °C to +50 °C (23 °F to 122 °F) ambient
■ Humidity: 5% to 90%

Regulatory Compliance

■ Safety: UL/CSA 60950, IEC 60950, ETSI
■ FDA – FCC 47 CFR Part 15, Class B and FDR 21 CFR
■ 1040.10 and 1040.11 Class 1
■ EMC: FCC PART 15, SUBPART B, CLASS B
■ EN 55022, EN 55024, EN 300 386, CLASS B
■ CE: Compliant
■ RoHS6: Compliant
■ WEEE: Compliant