intel

Next-Generation 10G PON Solution Enhances Multimode ONU Design

Total Solution to Support FTTx Evolution to Multi-10G Service

Intel® 10G PON Chipset

Today's service providers face escalating demands ranging from greater speed to lower latency to increased bandwidth. Responding means navigating a fragmented broadband-access network environment and pursuing fiber-to-the-home (FTTH) strategies. The right solutions will be scalable and cost-effective as we seek to enable a next-generation network that future-proofs for tomorrow while establishing a clear path from gigabit passive optical networks (GPONs) to 10G versions (e.g., 10G Ethernet PON, XG-PON1, and XGS-PON).

In the face of these opportunities, operators are increasingly considering technologies that can support multiple wavelengths (e.g., NG-PON2), empowering them to consolidate backhaul networks for consumer, business, and mobile services. At the same time, multifunctional PON technologies are being brought to small-scale deployments, enabling incremental deployment of next-generation PON service on top of existing fiber networks.
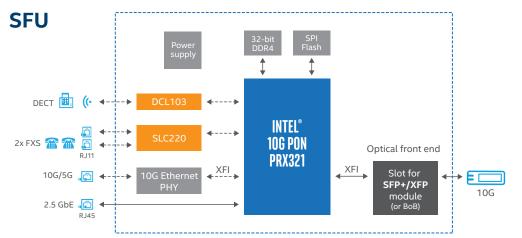
Multimode for any service

The newest high-speed, multimode PON technology chipset, Intel® 10G PON, supports today's fiber network upgrades and can be used for ITU or IEEE PON environments, such as EPON, 10G-EPON, GPON, XG-PON1, XGS-PON, NG-PON2, and active optical Ethernet. The new chipset provides a wide range of solutions, including Single Family Units (SFU), Small Form-factor Pluggable (SFP+) ONUs, FTTdp/MDU and Mobile Base Station Applications.

Highest integration with power and performance efficiency

The Intel 10G PON Chipset is a cost-effective, low-power, and highly integrated design. It is optimized to meet all kinds of service delivery demands, including residential and business applications. It integrates a 10G PON MAC, SerDes, XFI, integrated 2.5G Ethernet PHY, two PCIe* v3.0s, and a DDR3/4 controller.
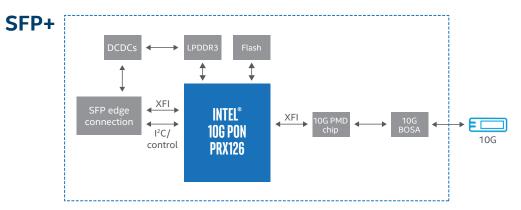
The Intel 10G PON Chipset also offers unrivaled quality of service (QoS) and power management, carrier-grade features, timing synchronization, and hardware OAM acceleration. Featuring a dual-core, multithread processor and dedicated packet processing, this processor delivers unmatched service application flexibility with benchmark performance. Also, the supported Network timing synchronization protocals, such as IEEE 1588v2, synchronous Ethernet, or time of day (ToD) ensures clock accuracy for 5G/LTE mobile base stations.

Multimode 10G PON ONU solutions

SFU

Power supply
32-bit DDR4
SPI Flash

DECT
DCL103
INTEL® 10G PON PRX321

2x FXS — RJ11
SLC220

10G/5G
10G Ethernet PHY — XFI

2.5 GbE — RJ45

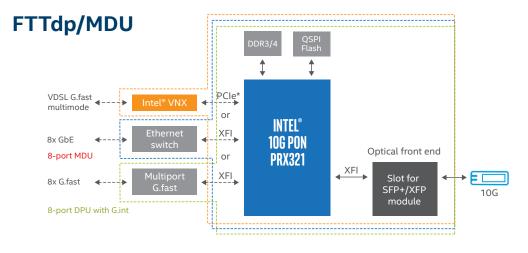Optical front end
XFI
Slot for **SFP+/XFP** module (or BoB)
10G

Single Family Unit

- Integrated 2.5G Ethernet PHY
- Industrial temperature range (-40°C to 85°C, 5% to 95% relative humidity)
- IEEE 1588v2 and synchronous Ethernet support
- Hardware OAM support (including Y.1731)
- Additional second UNI of XFI through external Ethernet PHY
- Low-power mode support and eligible for BOSA-on-Board (BoB) design

SFP+

DCDCs
LPDDR3
Flash

SFP edge connection — XFI — INTEL® 10G PON PRX126 — XFI — 10G PMD chip — 10G BOSA — 10G

I²C/ control

Small Form Factor Enhanced

- IEEE 1588v2 and synchronous Ethernet support
- Industrial temperature range (-40°C to 85°C, 5% to 95% relative humidity)
- XFI interface to connect to host network processor

FTTdp/MDU

DDR3/4
QSPI Flash

VDSL G.fast multimode
Intel® VNX — PCIe*
or

8x GbE
8-port MDU
Ethernet switch — XFI
or
INTEL® 10G PON PRX321

8x G.fast
8-port DPU with G.int
Multiport G.fast — XFI

Optical front end
XFI
Slot for SFP+/XFP module
10G

Fiber to the Distribution Point/Multidwelling Unit

- Optimized power mode management to allow reversed power
- G.int and fragmentation/ defragmentation up to 8-port DPU without NPU
- Delivery of GbE service over copper wires with MACSEC on each client port

Learn more

For more information on Intel® products for the connected home, visit intel.com/connectedhome.