

Single-Port PON OLT MAC Device

With Support for GPON and Fiber-to-the-Room (FTTR)

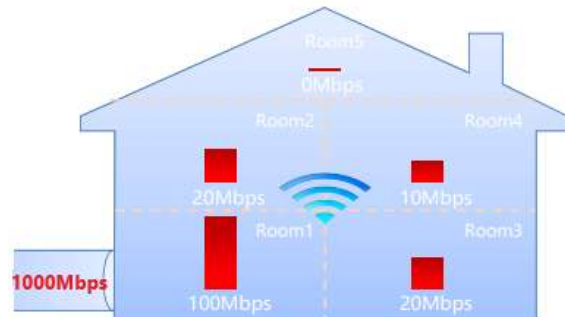
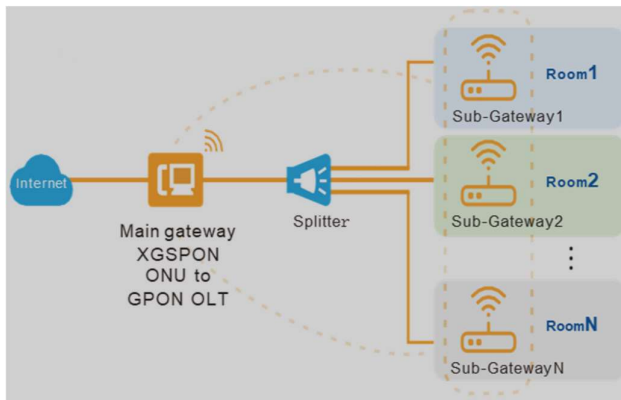
Ethernity’s PON OLT MAC solution is a low-cost, compact Optical Line Terminal (OLT) design integrated on an FPGA solution that is compliant with the ITU standard specifications necessary for FTTR applications, and which exploits the benefits of GPON to the maximum.

The solution can support 1 x OLT GPON on a small FPGA to simplify the device and reduce its overall cost. Ethernity’s implementation of an FTTR OLT MAC enables a shared optical communication link between up to 16 endpoint ONUs via Passive Optical Network (PON) and supports 2.5Gbps upstream and 1.25Gbps in the downstream direction. With its simple design and reduced cost, this OLT was designed specifically with FTTR solutions in mind.

This OLT MAC supports several ALLOC-IDs and GEM-PORTs (see table below). Simple Dynamic Bandwidth Allocation (DBA) allows control of upstream traffic from ONUs, while Burst-mode Clock Data Recovery (BM-CDR) is implemented on the FPGA to compensate for phase variation between different ONUs.

Product Highlights

- 1 x GPON
- Low cost
- Integrated Burst-Mode Clock Data Recovery (BM-CDR)
- 128 virtual ports (GEM-Port IDs) per PON Channel
- 64 Alloc-IDs (4 per ONU)
- Segmentation And Reassembly (SAR) at line rate
- Support for 2K bytes



Specifications

DBA

- Full Status Reporting: all Alloc-IDs are probed for DBRu every DBA cycle
- Fully HW-Based DBA engine
- Up to 64 Alloc-IDs
- Minimum-Guaranteed per AllocID + a configurable share in Best-Effort, including setting a maximum limit on Best-Effort share

Interfaces

- 1 x GPON interface
- 1 x 1.25G HS-SGMII transceiver
- 1x JTAG for debug + R&D
- 1 PPS for precision time stamping

Ethernet

- Frame support for up to 2K bytes
- Segmentation (DS) and reassembly (US)
- RMON
- VID to GEM Port ID function
- MAC+VID to GEM Port ID function

SW KIT

- GPON API software is available with the DLL library for integration with a higher-level software stack

Customization

- OLT GPON MAC design can be ported to any FPGA to support SFP or higher end port capacity on a larger FPGA device

FTTR GPON OLT MAC Solution Ordering Options

Product Name	Product Description*
ENET-P001F	1 x GPON with 1 x 2.5GE interfaces
ENET-P001FE	1 x GPON with 1 x 2.5GE interfaces with external DDR3

*Additional options with different port densities are available upon request.