

Altera's 100G OTN IP Solution

Altera's flexible 100G OTN IP solution reduces time to market and costs associated with FPGA intellectual property (IP) development. Based on our 100G optical transport network (OTN) IP cores, our solution gives you a jump start in the rapidly evolving optical transport market.

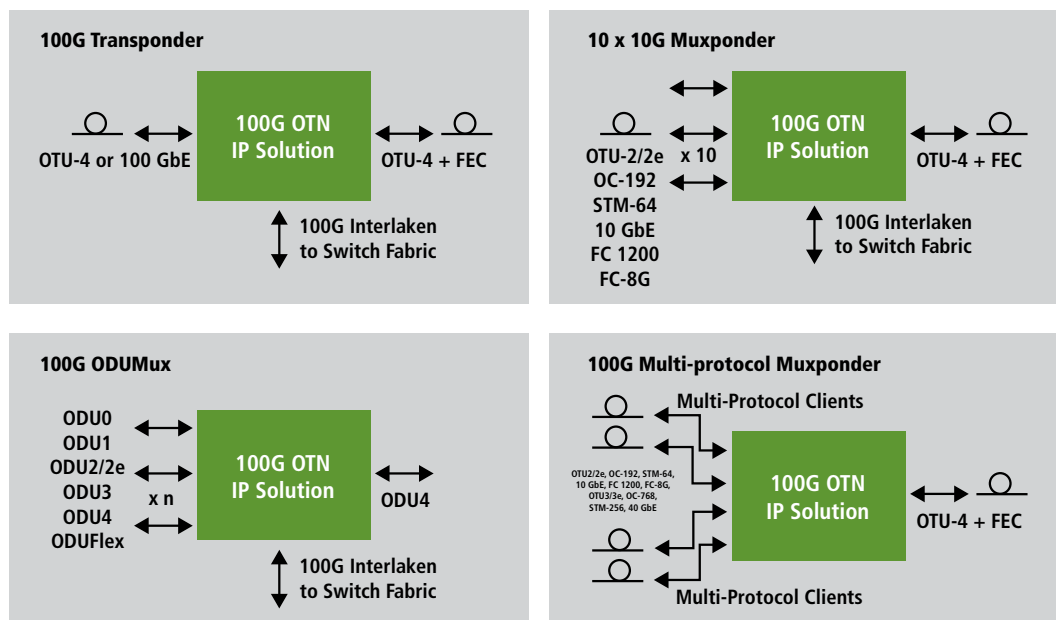
General Features

- 112G throughput
- A variety of client signals mapping into OTU-4
- CAUI, MLD, or SFI-S interface to 100G optical transceivers
- Optional G.709 forward error correction (FEC) or Enhanced FEC (EFEC)
- ODUflex support
- Full OTU-4/ODU-4/OPU-4 OH processing
- Extensive packet and OTU-4 statistics
- GFP-F segmentation and reassembly (GSAR)
- ITU-T G.709 and ITU-T G.798 recommendation compliance
- Generic CPU interface for control and monitoring

Key Features

- Complete 100G OTN solution for a flexible FPGA implementation
- Ideal for 100G transponder, multiplexing transponder, and packet-optical transport applications
- Faster time to market
- Low risk
- Design flexibility

Application Diagrams



OTN Standards Support

Framing

- Frame alignment signal (FAS) used to frame up and to identify out-of-frame (OOF) and loss-of-frame (LOF) conditions
- Multi-frame alignment signal (MFAS) byte
- OTL4.10 – Lane alignment signal byte in the FAS

OTUk section overhead monitoring (k=1..4)

- Trail trace identifier (TTI) monitoring
- BIP-8
- Backward error indication (BEI)/backward incoming alignment error (BIAE) monitoring
- Backward defect indicator (BDI) monitoring

ODUk path overhead monitoring (k=0..4, flex)

- TTI, BIP-8, BDH, BDI, and BEI monitoring
- Tandem connection monitoring (TCM)
- Delay measurement insertion/monitoring

OPUk path overhead monitoring (k=0..4)

- Payload structure identifier (PSI)
- Payload type (PT)
- Justification control (JC)

Ethernet LAN PHY Support

Our 100G OTN IP solution supports Ethernet physical coding sublayer (PCS) and media access controller (MAC) statistics monitoring and status per IEEE802.3.

Segmentation and Reassembly (GSAR)

Segmentation and reassembly with GFP-F (GSAR) functionality enables the packet handling of ODU traffic. At the ingress, ODU traffic is segmented into packets and handed off to the Interlaken interface towards the backplane/switch fabric. At the egress, the packetized traffic received from the Interlaken interface is reassembled into ODUs for mapping and multiplexing as required. Frame-mapped Ethernet packets are GFP-F encapsulated/decapsulated in the GSAR for ODU mapping.

SDH/SONET

Our solution supports standard SONET/SDH section path and line overhead monitoring.

GFP Mapping

In compliance with ITU-T G.7041 and ITU-T G.Supplement 43 recommendations, our 100G OTN IP solution supports Ethernet LAN standard GFP mapping into OTU-4, GFP mapping per G.sup-43, and GFP LAN transparent mapping into OTU-4 overlocked with and without fixed stuffed bytes (OPU1e and OPU2e).

ODUMux

The ODUMux provides n-stage multiplexing capability for mapping/demapping low-order (LO) ODUs into high order (HO) ODUs for direction towards the optical modules or towards the switch fabric interface through the GSAR block and Interlaken interface. Altera's 100G OTN IP solution accommodates both AMP mapping of ODTUk into ODUk (k = 1-3), as well as GMP mapping of ODTU.ts into LO ODUk (k = 0-4) and ODUflex.

Want to Dig Deeper?

For more information about our 100G OTN IP solution, please contact your Altera® sales representative or FAE, or visit www.altera.com.

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