

OTN Family | ODU Multiplexers for ODU Cross-Connect | TPOC244/TPOC314

Altera's OTN SoftSilicon® Family provides a complete family of optical network processors for metro/core OTN and packet networks covering applications from network interfaces over transponders and muxponders to large OTN cross connect or Packet-Optical Transport Systems (P-OTS).

The Altera SoftSilicon® solution provides maximum performance while optimizing customers' time-to-market, flexibility, risk profile, and cost-over-lifetime.

Family Key Features

- All OTN networking applications covered
- Latest OTN/packet standards supported
- Maximum flexibility provided
- Low risk for system vendors and end users
- Low development cost and total cost of ownership
- 2.5 Gbps – 100 Gbps bandwidth
- G.709 OTN mapping, multiplexing, cross-connection, framing and FEC
- Client ports configurable to any rate and any protocol
- Support of ODU0 and ODUflex
- Built-in ODU cross connect for efficient sub-wavelength networking
- Stand-alone and switch-fabric applications
- Maximum flexibility and low risk for system vendors and end users
- Advanced and easy-to-use software API

All Applications

Altera provides standard solutions for all applications in the packet optical space, ranging from simple, but efficient, framer/mapper interface components over stand-alone transponder and muxponder systems to 100G capacity, high density line cards on ODU cross connect and P-OTS.

Fastest time-to-market

The Altera SoftSilicon® model with standard devices with a well-defined set of features, pin-out and software API validated on reference hardware guarantees shortest time to market.

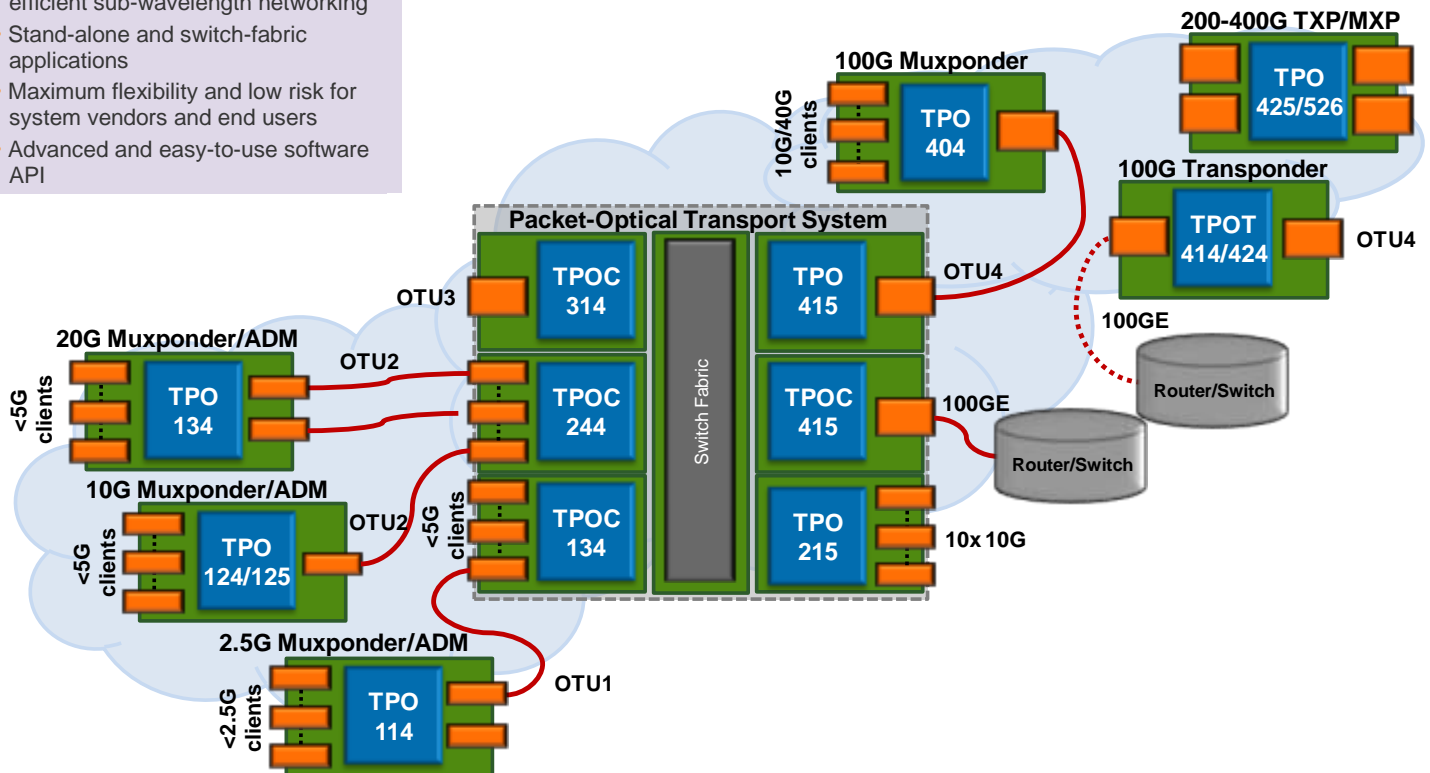
Lowest Risk

Because SoftSilicon® devices have been built and validated on reference platforms that closely resemble the target application they minimize the

development risk for system providers. The FPGA platform mitigates the risk from new or changing requirements from end-customers or standardization bodies.

Low Development and Maintenance Cost

Altera provides an easy-to-use unified software API for the various solutions even when chip sets are used. This makes it efficient for software teams to integrate their solutions into the system software and makes software maintenance much easier, particularly if hardware solutions are migrated to more integrated implementations and new process nodes over time.



TPOC244/TPOC314 | ODU Multiplexers for ODU Cross-Connect

Specifications

Interfaces

- TPOC244: 4 x OTU2/2e over 4 x SFI-4.2
- TPOC314: OTU3 over SFI-5.1
- Interlaken, 8 lane @ 6.25 Gbps

OTN Multiplexing

- Single, two and three stage (de) multiplexing of ODU2 and ODU3 to ODU0/ ODU1/ODU2/ODUflex
- Support for transport of higher order ODU2/ODU2e/ODU3

OTN Overhead

- OTN overhead processing at TCM (1- 6) and PM levels for ODU0/ODU1/ ODU2/ODU3/ODUflex

SAR Function

- 40G ODUk capacity
- Compatible with variable size / fixed scheduling protocols

Driver Software

- High level API software provided for easy integration with application layer software

Applications

The figure below shows the application of TPOC244 and TPOC314 in an ODU cross-connect system based on a cell switch fabric.

TPOC244 and TPOC314 can terminate and demultiplex four OTU2 signals or an OTU3 signal and send the demultiplexed components to the switch fabric for cross-connection and vice versa.

Functions

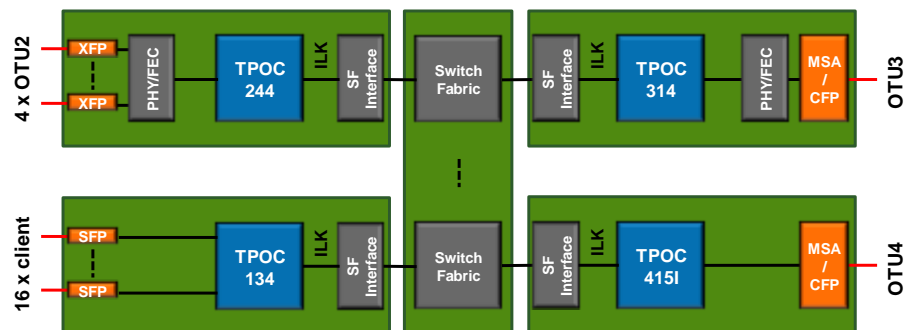
Looking at the block diagram at the bottom of the page and coming from the right side TPOC244 can terminate four OTU2 signals and demultiplex the ODU2s to ODU0/1/flex either directly or in two stages (ODU2 – ODU1 - ODU0), and TPOC314 can terminate an OTU3 signal and demultiplex the ODU3 to ODU0/1/2/ flex either directly or in two or three stages (e.g. ODU3-ODU2-ODU1-ODU0). In doing so there is full support of OTN overhead handling.

The lower order ODUk signals are handed over to the Segmentation And Reassembly function (SAR). The higher order ODU2/2e/ODU3 may also be taken directly (w/o demultiplexing) to the SAR function.

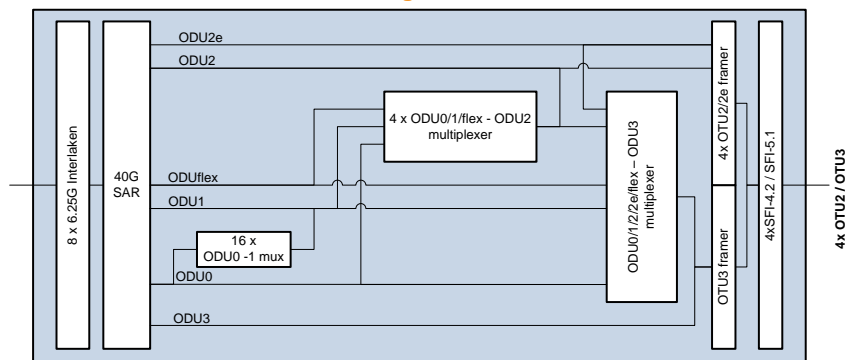
The SAR function will segment the ODUk signals into cells with a payload size below 256 bytes and with header information on e.g. timing, packet length, sequence number and client status. The ODUk signals are then transported over logical channels of the Interlaken interface.

Coming from the Interlaken interface the ODUk signals are reconstructed from the cell payload information and multiplexed into higher order ODUk signals. Justification is performed to conform with the timing of the outgoing higher order ODU. A digital low-pass filter performs jitter attenuation. When ODU2/2e/ODU3 signals are passed directly through the ODU crossconnect (without demux-mux) the TPOC244/TPOC314 will derive the original ingress clock and control the transmit oscillator.

TPOC244 and TPOC314 Application in OTN Cross-Connect



TPOC244 and TPOC314 Block Diagram



Altera Corporation
101 Innovation Drive
San Jose, CA 95134
USA
www.altera.com

Altera European Headquarters
Holmers Farm Way
High Wycombe
Buckinghamshire
HP12 4XF
United Kingdom
Telephone: (44) 1494 602000

Altera Japan Ltd.
Shinjuku i-Land Tower 32F
6-5-1, Nishi-Shinjuku
Shinjuku-ku, Tokyo 163-1332
Japan
Telephone: (81) 3 3340 9480
www.altera.co.jp

Altera International Ltd.
Unit 11-18, 9/F
Millennium City 1, Tower 1
388 Kwun Tong Road
Kwun Tong
Kowloon
Hong Kong
Telephone: (852) 2945 7000
www.altera.com.cn

