

## OTN Family | 100G Transponder | TPOT414 / 424

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.

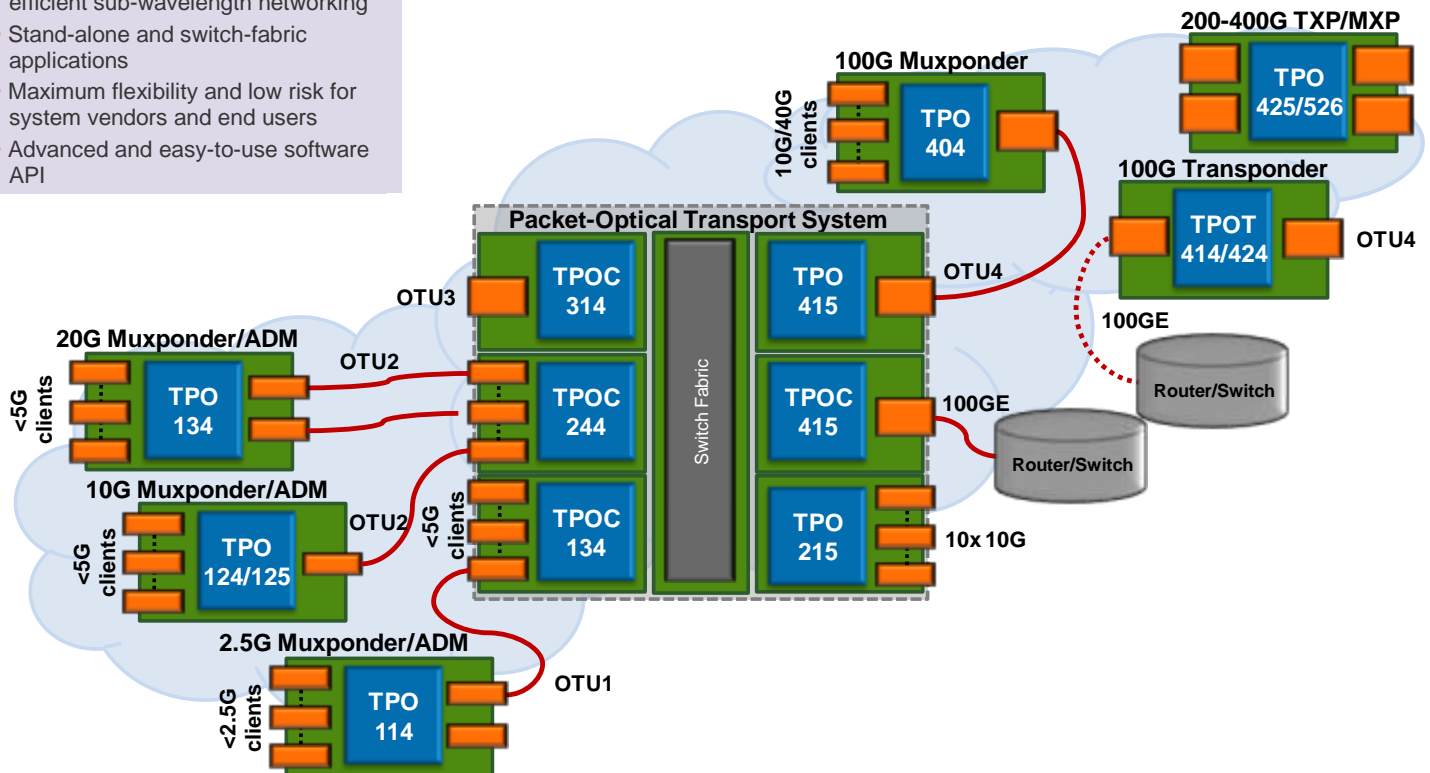
### Lowest Risk

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.



# TPOT414 / TPOT424 | 100G Transponder

## Specifications

### Line Interface

- OTL4.10 OTU4

### Client Interface

- CAUI 100GE (TPOT414)
- OTL4.10 OTU4 (TPOT424)

### Client Mapping Function

- 100GE into OPU/ODU/OTU4 (TPOT414)
- OTU4 to ODU4 to OTU4 (TPOT424)

### OH Processing

- Full OTU4/ODU4/OPU4 overhead processing
- 100GE statistics (TPOT414)

### OTU4 FEC

- 6dB/7% G.709 RS

### CPU Interface

- PCI-E or parallel

## Applications

TPOT414 and TPOT424 are two operating modes of the same physical SoftSilicon device. TPOT414 is a 100GE - OTU4 transponder and TPOT424 is an OTU4 - OTU4 transponder.

TPOT414 and TPOT424 interface directly to CFP or MSA-168 type optical modules and may be used stand-alone for transponder applications or as a mapper + framer function on 100G switch/router interfaces.

### TPOT414 Function

For TPOT414 client data is transmitted / received from the 100GE CAUI client port to the left on the block diagram. Client data is mapped transparently into the OPU4 payload area in accordance with G.709. The resulting OPU4 is mapped into OTU4/ODU4 in the line side framer for final transmission / reception on the OTU4 OTL4.10 interface to the right. G.709 FEC is provided.

In the direction from line to client side TPOT414 will derive the original 100GE line clock for transmission on the CAUI interface.

### TPOT424 Function

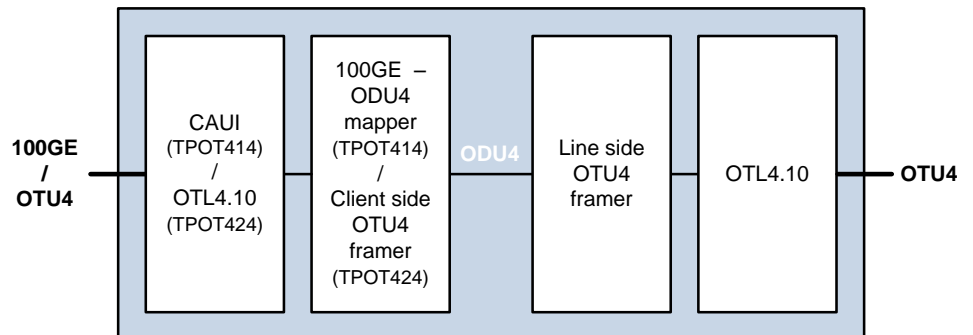
For the TPOT424 client data is transmitted/received from the OTU4 OTL4.10 client port to the left on the block diagram. The client OTU4 frame (including G.709 FEC) is terminated. The resulting ODU4 is mapped into a new OTU4 frame with G.709 FEC. The line side interface is OTL4.10.

TPOT424 performs through-timing in both directions, that is, the clock for the out-going OTU4 signal is locked to the clock of the incoming OTU4 on the other side by means of a PLL with jitter attenuation.

### Driver Software

Driver API software is provided for easy integration with and maintenance of application layer software. The software can be compiled to any OS.

TPOT414 / 424 Block Diagram



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