# OTN Family | 400G Transponder / Muxponder | TPO516

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 Gbit/s – 400 Gbit/s 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 and 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.
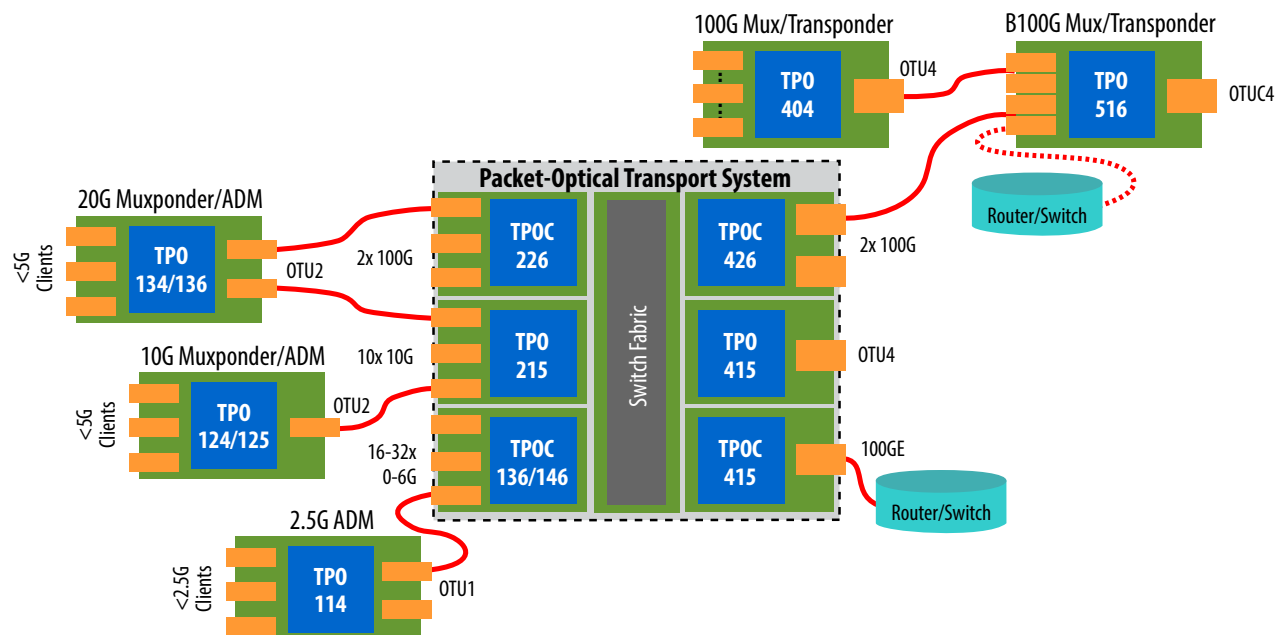
## Specifications

**Client Interfaces**
- 4 x client SoftPorts with configurable support for:
  - 4 x 100GE
  - 4 x OTU4
  - 1 x 400GE

**OTN Interfaces**
- Up to 4 x line ports with configurable support for:
  - 4 x OTU4
  - 2 x OTUC2 (200G)
  - 1 x OTUC4 (400G)

**Mappings as per G.709**
- 100GE client into ODU4

**OTN Overhead**
- OTN overhead processing at SM level for OTU4/OTUCn (n=2, 4)
- OTN overhead processing at TCM (1 - 6) and PM levels for ODU4
- ODUCn/OPUCn overhead termination in line with multiplexing configuration

**Forward Error Correction (FEC)**
- Optional Client/Line FEC

**Driver Software**
- Driver API software provided for easy integration with application layer software

## Want to Know More

For more information contact us at:
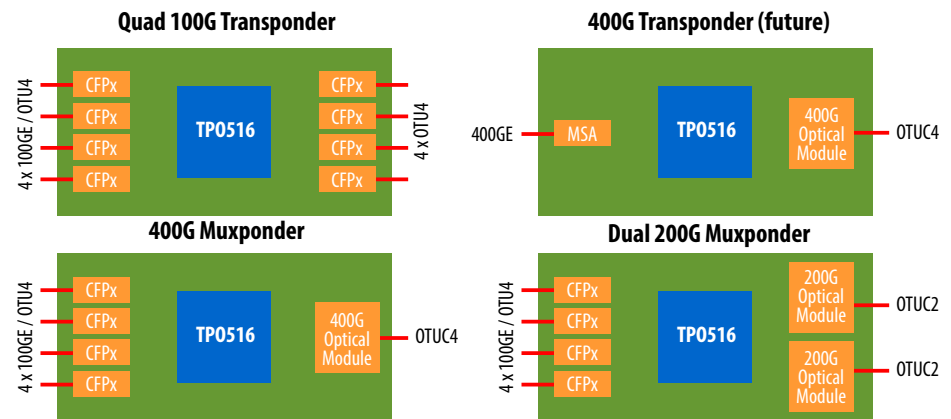otn_info@altera.com

## TPO516 Functions

The TPO516 is a single chip 400G muxponder / transponder. The application diagrams below highlight the applications that the TPO516 supports.

When configured to operate as a muxponder the TPO516 maps up to 4 100G client signals into ODU4 containers and performs the multiplexing of lower order ODU4 containers to/from higher order OTUCn (n=2, 4) for line side transmission at either 200G or 400G.

The TPO516 can also be configured in transponder mode, supporting a quad-100G Transponder configuration today and a single 400G Transponder per the evolving IEEE 400GE standards.

## Driver Software

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

### Quad 100G Transponder

### 400G Transponder (future)

### 400G Muxponder

### Dual 200G Muxponder