10 Gigabit/s Transceiver with XAUI Interface



The TenGiPHY™-L is a single chip transceiver IC for 10 Gbit/s Ethernet and Fibre Channel connectivity. It offers a serial, full duplex 10 Gbit/s, XFI compliant interface to optical components or to a serial fiber-optic module (XFP). The integrated CDR and CMU operate at a data rate of 10.3125 or 10.51875 Gbit/s. The TenGiPHY-L provides the XGXS, PCS and PMA sublayers of the 10 Gbit/s Ethernet and Fibre Channel standards.

At the system side, a quad serial XAUI interface connects the TenGiPHY-L to the upper layers.

The networking system can control the chip via a narrow-width MDIO interface by writing and reading its control and status registers.

UPF 01012

Applications

- Fiber optic modules according to the XENPAK multi-source agreement
- 10 Gbit/s Ethernet line cards
- 10 Gbit/s Fibre Channel line and NIC cards
- Terabit Routers

Features

- Complete 10 Gbit/s Ethernet and Fibre Channel PHY device supporting LAN applications
- Complies with IEEE 802.3ae
- Complies with ANSI 1413-D
- Compliant to XENPAK multi-source agreement
- Embedded µController allows for control and tuning of the PMDs via analog interfaces
- Clock & data recovery and clock multiplying unit without external loop filter components
- Supports various clocking modes based on external reference clocks, loop- and external timing
- Integrated bit error rate tester (BERT) usable for multiple at-speed diagnostic scenarios
- Includes the XGXS, PCS, and PMA sublayers of the OSI protocol stack
- Synchronization and de-skewing of XAUI lanes
- Performs 8B/10B (de-)coding required for the XGXS sublayer
- Various loop back modes for system debugging
- Provides access to E²PROM via I²C interface according to XENPAK requirements; automatic E²PROM download on power-up
- Power-efficient design: <1.3W @ 1.3V

Interfaces

- Full duplex, XFI compliant serial CML line interface for data rates between 10.3 and 10.5 Gbit/s
- Quad serial Gbit/s XAUI interface with data rates between 3.1 and 3.2 Gbit/s
- MDIO interface
- I²C interface
- XENPAK diagnostic interface providing eight 12-bit ADCs and four 10-bit DACs
- IEEE 1149.1 JTAG boundary scan interface

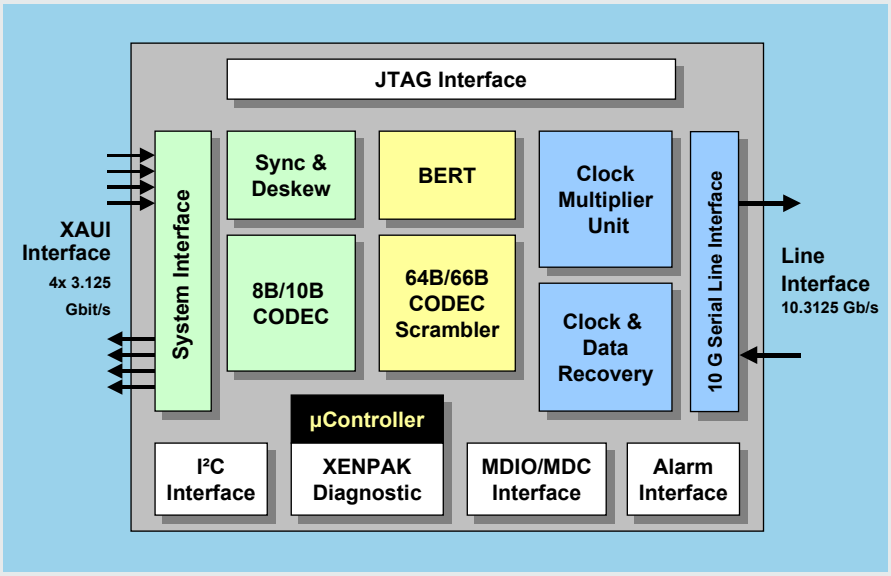
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TenGiPHY™-L

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Never stop thinking.

Block Diagram

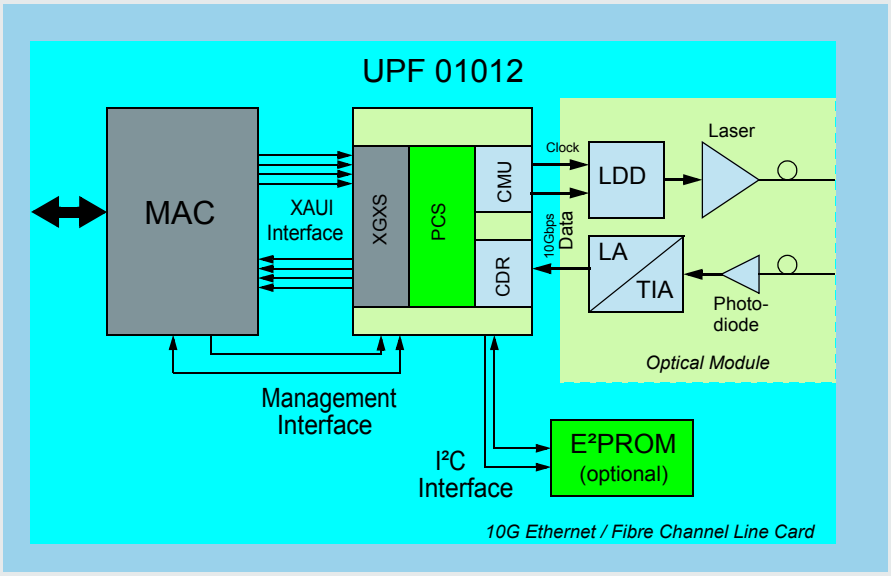


Documentation and Support Package

- Data Sheet
- **Hardware Evaluation System** includes mother- and transponder board
- **WINEASY** Software for MS Windows with graphical user interface
- **Application Assistant:** Configuration Software for MS Windows for device initialization

Type	Sales Code	Package
TenGiPHY-L	UPF 01012	P-FCHBGA-177-1

Application Example



How to reach us:
http://www.infineon.com

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