

Product Bulletin

TLK10021—10 Gbps PHY Transceiver for LAN/MAN/SAN Applications

The Texas Instruments (TI) TLK10021 device is a single channel monolithic CMOS physical layer (PHY) transceiver designed for use in 10 Gbps applications. Its XFI-compliant serial interconnect supports interfacing with XFP modules at 10 Gigabit Ethernet or 10 Gigabit Fibre Channel data rates. Its flexible system side interconnect supports interfacing with MACs and ASICs using a XAUI interface.

The TLK10021 device makes use of CMOS technology to offer an advanced combination of high-performance (10 Gbps) and low-

power consumption (800 mW). Full PCS, PMA and XGXS sublayer functionality is provided through the consolidation of the receiver and transmitter PHY functions on a single chip, along with the integration of encode/decode/alignment logic, FIFOs, integrated clock drivers, multiple loopback features and PRBS generation, and verification for both the line side and the system side. This combination reduces the number of components and enables 10 Gbps Ethernet and Fibre Channel systems to dissipate much less power.

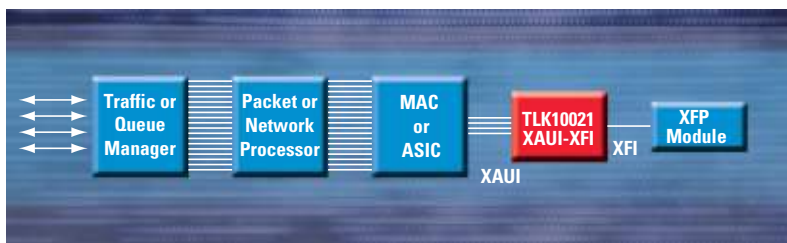


Figure 1: XFP-based Line Card

TLK 10021

Device	Line Side (Gbps)	System Side (Gbps)	Standard
10 Gigabit Ethernet	10.3125	4 x 3.125	IEEE802.3ae
10 Gigabit Fibre Channel	10.51875	4 x 3.1875	INCITS 10GFC

TLK10021

Key Features

- Minimal power consumption (800 mW)
- 1.2 V and 2.5 V power supplies
- On-chip clock generation and data recovery
- High-speed adaptive receive equalization
- Multiple external reference clock frequencies
- Optional 10 GHz / divide-by-64 output clock
- Fast lock time – 30 ns
- Programmable XAUI and XFI polarity
- Programmable XAUI lane ordering
- Adjustable XAUI transmit equalization
- Multiple loopback modes
- PRBS generator and checker
- MDIO and SDA/SCL management interfaces
- JTAG support
- 13 x 13 mm PBGA package with 1.0 mm ball pitch uses less board space
- 0.13 mm CMOS process

Benefits

- Enables increased port density
- Dissipates very low power
- Simplifies system clocking
- Supports XFI-compliance
- Supports different clocking rates
- Helps meet clocking requirements
- Handles bursty data
- Eases board layout
- Enhances data eye
- Enhances testability
- Uses standard control interface
- Supports standard testing access
- Lowers power consumption

Applications

The high-performance features of the TLK10021 device make it the optimal choice for 10 Gbps SerDes

PHY designs targeted at 10 Gigabit Ethernet LAN and MAN systems, 10 Gigabit Fibre Channel systems and all

other applications requiring a device to bridge an XFP module's 10 Gbps serial XFI link to a XAUI system side interface.

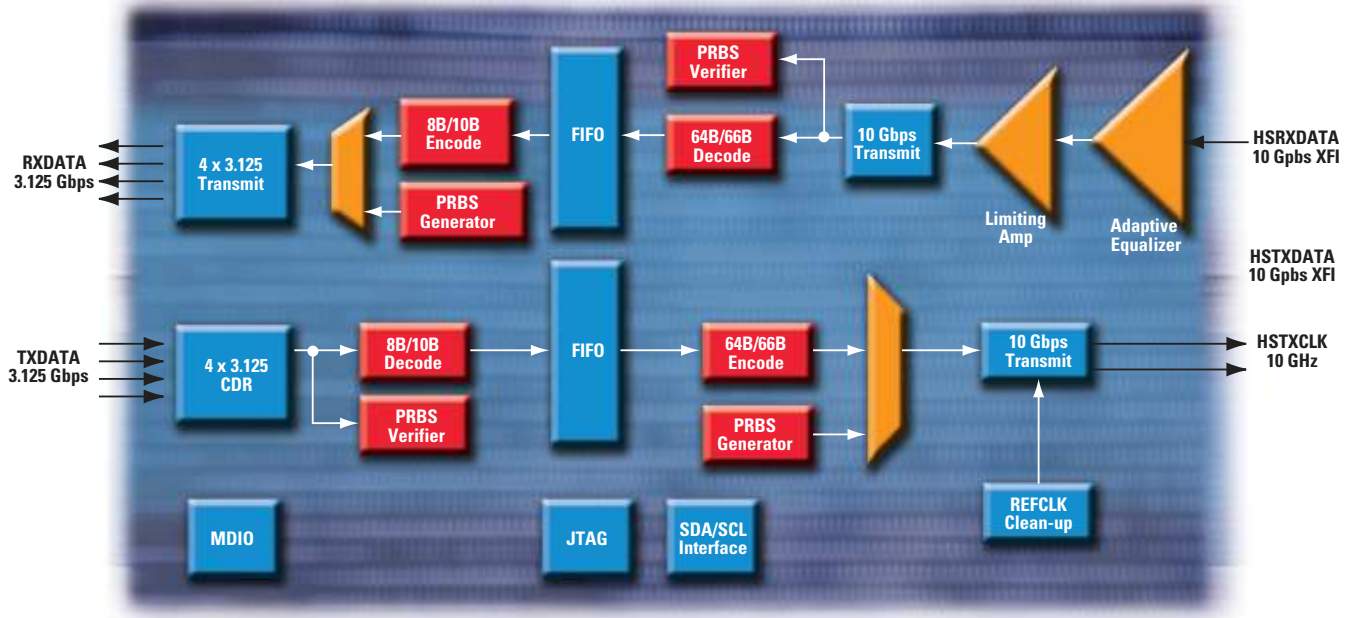


Figure 2: TLK10021 Block Diagram

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page
support.ti.com

TI Semiconductor KnowledgeBase Home Page
support.ti.com/sc/knowledgebase

Product Information Centers

Americas

Phone +1(972) 644-5580
Fax +1(972) 927-6377
Internet/Email support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone
Belgium (English) +32 (0) 27 45 55 32
Finland (English) +358 (0) 9 25173948
France +33 (0) 1 30 70 11 64
Germany +49 (0) 8161 80 33 11
Israel (English) 1800 949 0107
Italy 800 79 11 37
Netherlands (English) +31 (0) 546 87 95 45
Spain +34 902 35 40 28
Sweden (English) +46 (0) 8587 555 22
United Kingdom +44 (0) 1604 66 33 99
Fax +(49) (0) 8161 80 2045
Internet support.ti.com/sc/pic/euro.htm

Japan

Fax International +81-3-3344-5317
Domestic 0120-81-0036
Internet/Email International support.ti.com/sc/pic/japan.htm
Domestic www.tij.co.jp/pic

Asia

Phone International +886-2-23786800
Domestic Toll-Free Number
Australia 1-800-999-084
China 800-820-8682
Hong Kong 800-96-5941
Indonesia 001-803-8861-1006
Korea 080-551-2804
Malaysia 1-800-80-3973
New Zealand 0800-446-934
Philippines 1-800-765-7404
Singapore 800-886-1028
Taiwan 0800-006800
Thailand 001-800-886-0010
Fax 886-2-2378-6808
Email tiasia@ti.com
ti-china@ti.com
Internet support.ti.com/sc/pic/asia.htm

Important Notice: The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

Real World Signal Processing and the black/red banner are trademarks of Texas Instruments.

All other trademarks are the property of their respective owners.

B111103