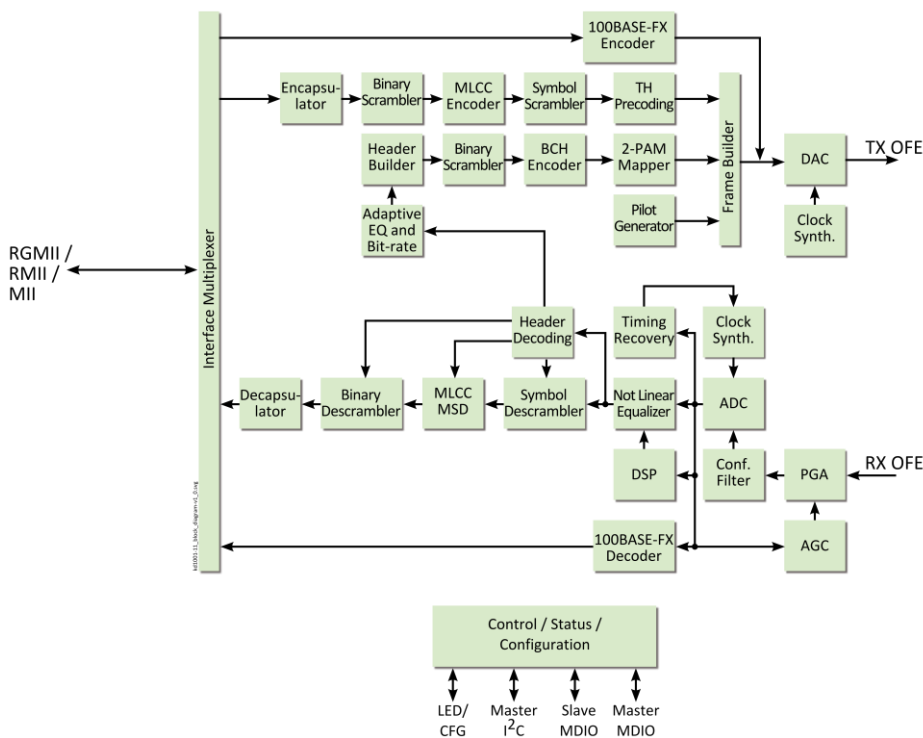


KD1011

Industrial Gigabit/Fast Ethernet POF Transceiver



OVERVIEW

The KD1011 fully integrated Gigabit/Fast Plastic Optical Fiber (POF) Ethernet transceiver is optimized for industrial applications. This new low-power transceiver with a small footprint implements the physical layer of the ETSI TS 105 175-1-2 to transmit data on standard SI-POF, MC-POF, or PCS (Plastic Clad Silica). Manufactured using a 65 nm CMOS low-power process, the KD1011 transceiver offers the best performance, lowest cost, and lowest power for Gigabit POF industrial solutions.

The KD1011 transceiver leverages KDPOF's leading-edge digital communication technology, which is based on the company's reliable and short time-to-market ASIC architecture.

The KD1011 device is well suited for industrial market requirements. Under industrial power budget requirements, KDPOF technology extends the reach of Industrial Ethernet from the actual limits to more than 150 meters at 100 Mbps. Suitable for integration in industrial media converters, switches or routers, the KD1011 device also ensures smooth backward compatibility with current requirements and systems.

This device is designed to be used with current off-the-shelf photonics, including RCLED, LED, and PIN PD which are currently used in 100 Mbps products with an updated analog optoelectronics / interface.

The KD1011 transceiver supports 100BASE-FX for backward compatibility, and a standard RGMII/RMII/MII interface that simplifies system and board-level designs. This transceiver also is capable of reversing the xMII to work like an Ethernet MAC or PHY, including MDC/MDIO support for both MAC and PHY modes.

FEATURES

GENERAL

- Fully integrated Gigabit/Fast Ethernet POF transceiver for industrial applications
- Long-reach (100 Mbps @ 150 m) or Gigabit operation (1 Gbps @ 50 m)

STANDARDS

- ETSI TS 105 175-1-2 (1 Gbit/s and long-reach 100Mbit/s) compliant, fully compatible with optional Annexes C & D providing Adaptive Bit Rate
- IEEE 802.3 100BASE-X PCS extension for backward compatibility
- Compliant with IEEE 802.3x for full-duplex operation
- Flow control support based on IEEE 802.3x Annex 31B (when ABR is enabled)
- Tested according to IETF RFC 2544

DIGITAL DATA INTERFACE (xMII)

- RGMII v2.0, RMII and MII interfaces working as PHY or MAC
- Hardware-configurable RGMII clock delay in TX & RX
- Supports 2.5V & 3.3V LVTTTL I/O standard on the xMII interface
- Jumbo packets up to 16 KB

DIGITAL CONTROL INTERFACE

- I2C master interface for reading optional boot memory
- Two MDC/MDIO interfaces: one slave for configuration and monitoring, and one master for link management in MAC operation

INTEGRATION

- Supports multiple FOT vendors
- Low-cost BOM
- Link/activity monitoring and speed LED outputs
- Hardware configuration pins (most are multi-function)
- Five loopback modes and four PMD test modes
- Integrated Power On Reset (POR) and Analog to Digital Converter (ADC) for received optical power

ASIC

- Industrial temperature range (-40 to 85 °C)
- 65 nm CMOS process
- Low power, less than 500 mW
- 88-pin QFN package (10 x 10 mm)