PX6514
4 x 10 Gb/s VCSEL Driver
Product Brief

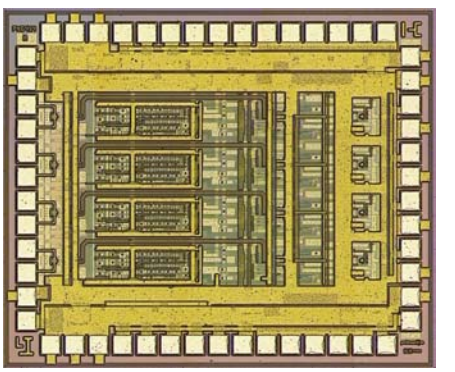
April 2006

Features

- Single +3.3 V supply dissipating 140 mW per channel
- 4-channel VCSEL driver operates from DC to 10.7 Gb/s
- Serial digital interface for global and individual channel control
- Individual channel control for enable, modulation current, bias current, and VCSEL fault control
- Adjustable temperature compensation for VCSEL bias and modulation current
- VCSEL fault detection with autonomous fault handling and interrupt
- Adjustable VCSEL peaking control
- 250-micron channel pitch matches optical ribbon fiber and VCSEL arrays
- Differential CML compatible inputs with on-chip termination

Applications

- 4-lane 10GbE, 10GFC, 8GFC, 4GFC, and OC-192 VSR parallel optical modules
- Proprietary OC-768 parallel optics and CWDM
- Proprietary 4-lane intra-system parallel optics



Description

The growing use of the Internet has created increasingly higher demand for multi-Gb/s I/O performance. The demand for 100 Gb/s+ WAN bandwidth fuels the growth of short-reach 40 Gb/s infrastructures within high-end telco and datacom routers, switches, servers and other proprietary chassis-to-chassis links.

The Zarlink PX6514 4x10 Gb/s VCSEL Driver is a four-channel VCSEL driver designed for various 4x10 Gb/s parallel optics and CWDM PMD applications. It consists of a DC-coupled amplifier with selectable modulation and bias currents optimized for driving commercially available, common cathode VCSELs from a single +3.3 V supply.

Individual channel settings are used to control the modulation and bias current and their temperature coefficients, allowing the optical output power and extinction ratio to be optimized. Data controlling the Primarion PX6514 VCSEL driver settings is loaded by a simple four-wire CMOS compatible serial interface that features read/write and daisy chain capabilities.

Figure 1: 10 Gb/s PRBS31 optical data pattern

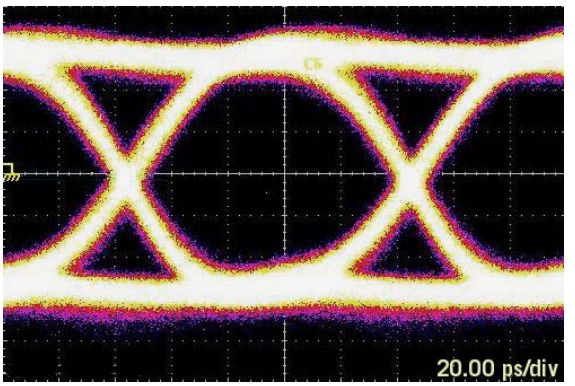
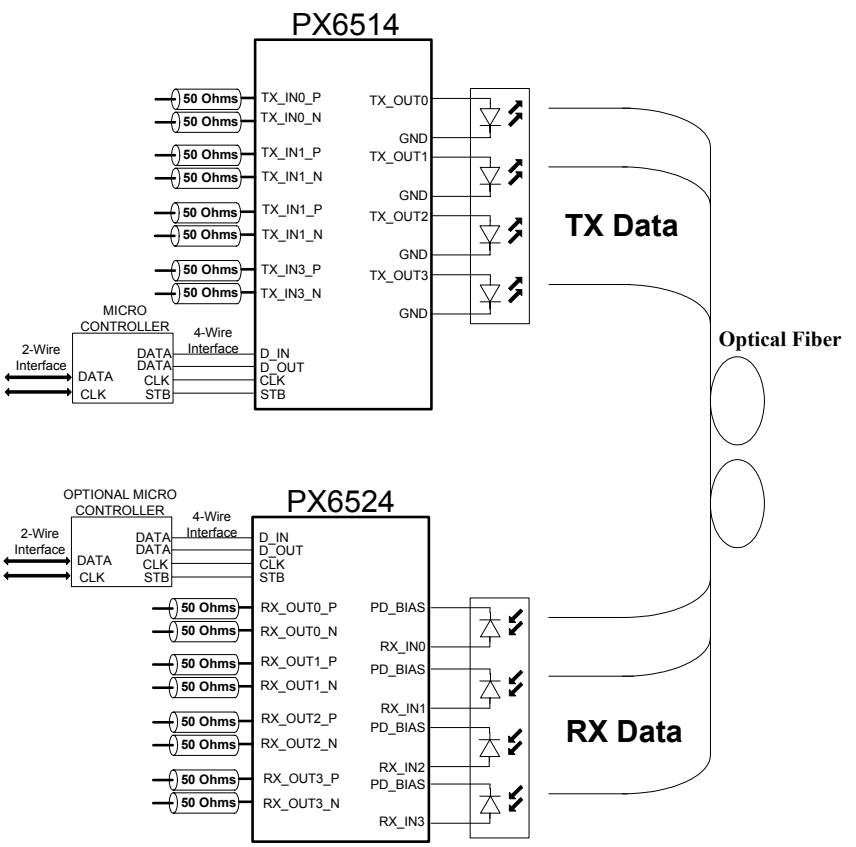


Figure 2: Application block diagram utilizing the PX6514 VCSEL driver and the PX6524 optical receiver.



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