1.8V, 3.3V 10/100BASE-TX/FX Physical Layer Transceiver

Description

The KS8001 is a 10BASE-T, 100BASE-TX, and 100BASE-FX Physical Layer Transceiver, which provides MII/RMII/SMII interfaces to MACs and switches. Utilizing a unique mixed-signal design that extends signaling distance while reducing power consumption, the KS8001 represents Micrel's fifth generation single-port Fast Ethernet PHY.
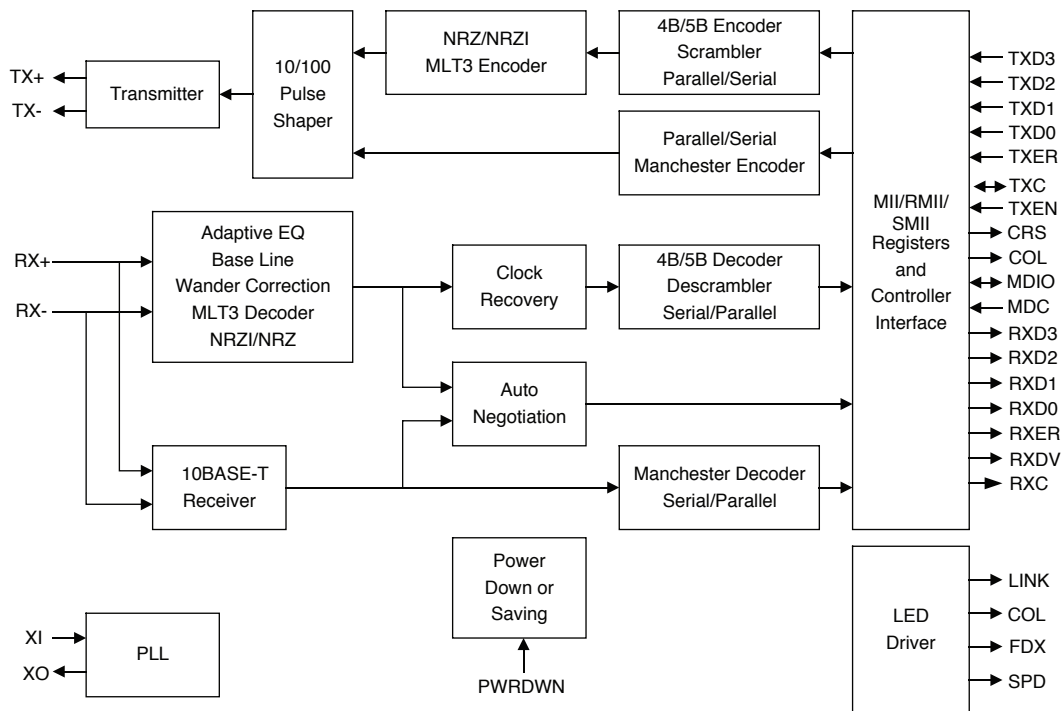
Micrel's architecture, when run at a core voltage of 1.8V, allows the KS8001 to dissipate an ultra-low 250mW in power. This translates to increased reliability while enabling deployment in today's power-sensitive applications. Multiple power-down modes, accessed via configuration pins or registers, allow further levels of power saving through manual selection or automatic detection of cable energy.

LinkMD™ cable diagnostics, an industry first for single-port Fast Ethernet PHYs, detects common cabling plant problems such as open and short circuits. Diagnosis and elimination of cabling faults can lead to reduced user frustration and fewer equipment returns, both in enterprise and consumer electronics applications. Combined with HP Auto-MDIX, deployment is dramatically simplified by providing the most robust solution for automatically adjusting to crossover and straight-through cables.

The KS8001 represents a new level of features and performance, and is an ideal choice of physical layer transceiver for 10BASE-T, 100BASE-TX, and 100BASE-FX applications.

For additional information, contact your local Micrel Field Application Engineer or salesperson.

Block Diagram

KS8001 BLOCK DIAGRAM

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Micrel Semiconductor   TEL: **1.408.944.0800**   FAX: **1.408.474.1000**   HTTP:// **www.micrel.com**

Features

Single chip 10BASE-T/100BASE-TX/100BASE-FX Physical Interface

Fully compliant to IEEE802.3u standards

Low-power CMOS design, power consumption < 250mW

Supports Media Independent Interface (MII), Reduced MII (RMII), and Serial MII (SMII)

Robust operation (130 meters+)

LinkMD cable diagnostics

HP Auto MDI/MDI-X

Power-down and power-saving modes

Footprint compatible with Micrel KS8721

Configurable through MII serial management ports or via external control pins

Four programmable LED outputs

Available in lead-free and industrial temperature versions

Benefits

Supports back-to-back operation for copper to fiber media converter applications.

Design margin for operating with link partners at all speeds.

Increased reliability, greater range of power-sensitive applications.

Flexible switch/MAC interfacing options. Optimized pin count interfaces lower cost through reduced trace/simplified routing.

Operation over the widest variety of cabling plants.

Diagnose faulty cables including distance to fault.

Automatic detection and correction for straight-through or crossover cables.

Automatically shuts down upon cable removal extending battery life for mobile applications.

Easy migration to feature-filled KS8001 from existing designs.

Programmable in environments with and without CPU.

Report complete link status.

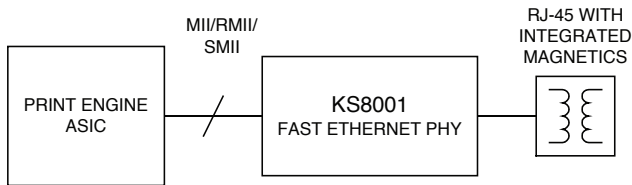Environmentally friendly and rugged.
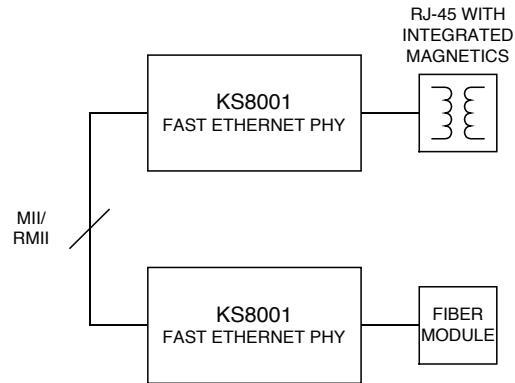
Applications

LAN on Motherboard
Media Converter
Set Top Box
Cable/DSL Modem
Network Printer
Game Console

Block Diagram: Network Printer Application

Block Diagram: Media Converter Application

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