Product Brief

Marvell® Alaska® 88E1514

Integrated 10/100/1000 Mbps Energy-Efficient Ethernet Transceiver

Overview

Marvell® Alaska® 88E1514 Gigabit Ethernet Transceiver is a physical layer device containing a single Gigabit Ethernet transceiver. The transceiver implements the Ethernet physical layer portion of the 1000BASE-T, 100BASE-TX, and 10BASE-T standards. The device supports SGMII/Fiber to Copper.

In addition to supporting Energy Efficient Ethernet (EEE) on the new generation of enabled MACs, this products is also capable of implementing EEE with legacy or non-EEE devices by incorporating EEE buffering.

The device also integrates MDI interface termination resistors into the PHY. This resistor integration simplifies board layout and reduces board cost by reducing the number of external components. This new Marvell calibrated resistor scheme will achieve and exceed the accuracy requirements of the IEEE 802.3 return loss specifications.

The 88E1514 device has an integrated switching voltage regulator to generate all required voltages and can run off a single 3.3V supply; the device supports 1.8V, 2.5V, and 3.3V LVCMOS I/O Standards. This device uses advanced mixed-signal processing to perform equalization, echo and crosstalk cancellation, data recovery, and error correction at a Gigabit per second data rate. The 88E1514 achieves robust performance in noisy environments with very low power dissipation.

The Alaska family of transceiver products provides the ideal solution for rapid development and deployment of Gigabit standalone and switching systems for the Enterprise, embedded, consumer, and Metro/service provider market segments.

Block Diagram

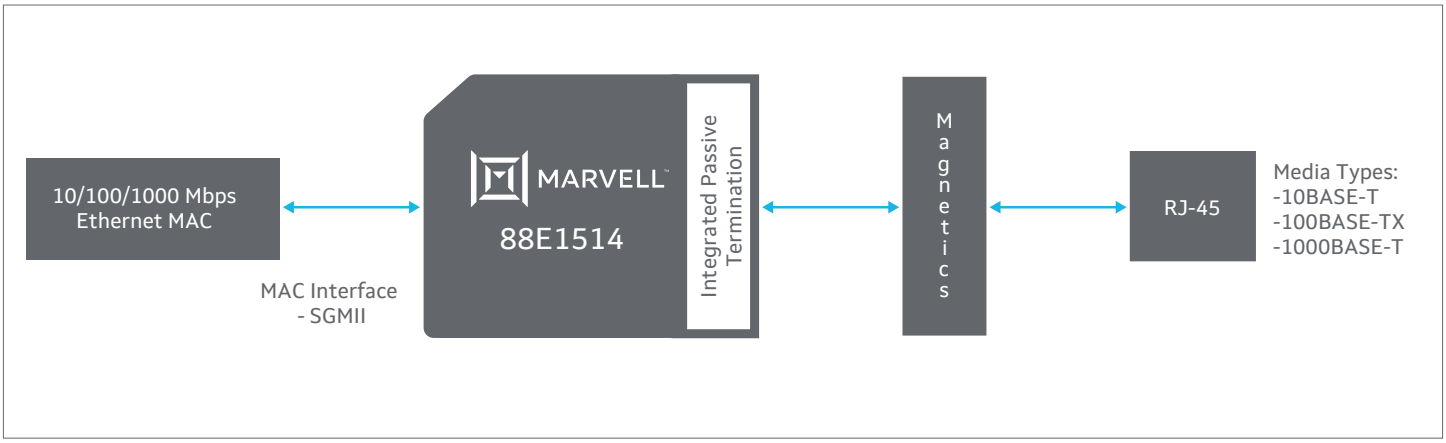

Figure 1. Marvell Alaska 88E1514 Gigabit Ethernet Transceiver SGMII to Copper Device Application

Features

Features	Benefits
• Support EEE (IEEE 802.3az) - Including EEE buffering for legacy MAC devices	• Extended energy savings through incorporation of IEEE 802.3az standard - Additional support added to allow EEE enablement on non-EEE MACs
• IEEE 1588 v1 Time Stamping and Synchronous Ethernet (SyncE) Clock Recovery	• Enables frequency and/or clock synchronization for time sensitive applications and environments
• Wake on Lan (WoL)	• Provides programmable lower power (S5) event/ pattern and link change detection
• Advanced Virtual Cable Tester® (VCT)	• Detects and reports potential cabling issues to within one meter of the distance to the fault
• 56-pin QFN 8mm x 8mm Green package	• Environmentally friendly, small form factor for minimal real estate requirements

Target Applications

The Alaska 88E1514 Transceiver delivers optimal physical layer interfacing and features for a broad range of applications within the Enterprise, embedded, consumer, and Metro/service provider market segments.

The Alaska 88E1514 family provides complete GbE transceiver solutions with complete software compatibility. To shorten system manufacturers' design cycles and accelerate time to market, Marvell provides complete Alaska reference designs and supporting documentation with schematics, layout files and other documentation.

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To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

Marvell_88E1514_PB Revised: 12/20