Marvell Alaska 88E1510/88E1518
Integrated 10/100/1000 Mbps Energy Efficient Ethernet Transceivers

PRODUCT OVERVIEW

Marvell® Alaska® 88E1510 and 88E1518 Gigabit Ethernet (GbE) transceiver are physical layer devices each containing a single Gigabit Ethernet transceiver. The transceivers implement the Ethernet physical layer portion of the 1000BASE-T, 100BASE-TX, and 10BASE-T standards.

In addition to supporting Energy Efficient Ethernet (EEE) on the new generation of enabled MACs, these products are also capable of implementing EEE with legacy or non-EEE devices by incorporating EEE buffering. The devices also integrate MDI interface termination resistors into the PHY. This resistor integration simplifies board layout and reduces board cost by reducing the number of external components. The new Marvell calibrated resistor scheme will achieve and exceed the accuracy requirements of the IEEE 802.3 return loss specifications.

The 88E1510 and 88E1518 devices have an integrated switching voltage regulator to generate all required voltages and can run off a single 3.3V supply with the 88E1510 supporting 2.5V/3.3V LVCMOS I/O Standards and the 88E1518 supporting only 1.8V LVCMOS I/O Standard. This devices use advanced mixed-signal processing to perform equalization, echo and crosstalk cancellation, data recovery, and error correction at a gigabit per second data rate. The devices achieve 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.
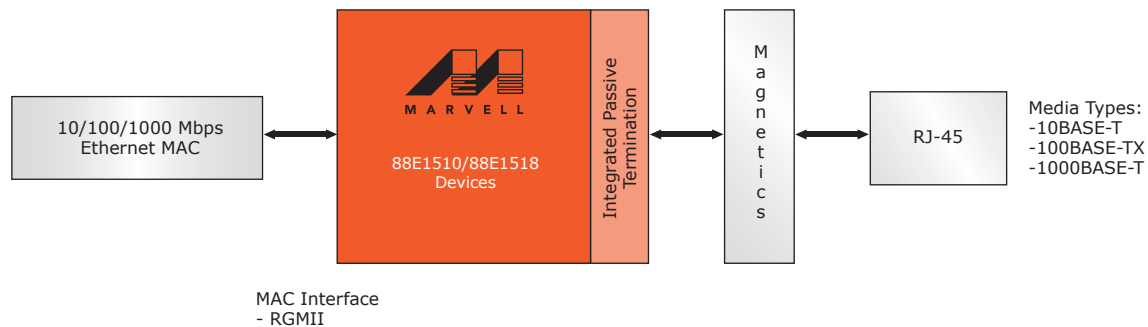
APPLICATION BLOCK DIAGRAM

Fig 1. Alaska 88E1510/88E1518 Application

KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
• Four RGMII timing modes including integrated delays	• This eliminates the need for adding additional trace delays on the PCB

• Supports EEE (IEEE 802.3az)
  - Implements EEE with legacy or non-EEE MAC
	• Extended energy savings through incorporation of the IEEE 802.3az standard
	  - Additional support added to allow EEE enablement on non-EEE MACs

• Synchronous Ethernet	• Accurate and low-cost clock recovery for Time-aware applications
• IEEE 1588v2 support	• Enables highly accurate Precision Timing Protocol applications including wireless backhaul
• Wake on LAN (WoL)	• Provides programmable lower power (S5) event/pattern and link change detection
• Integrated Switching Voltage Regulator	• Allows devices to run off single 3.3V supply
• Advanced Virtual Cable Tester® (VCT™)	• Detects and reports potential cabling issues to within one meter of the distance to the fault
• 48-pin QFN 7 mm x 7 mm Green package	• Environmentally friendly, small form factor for minimal real estate requirements

▶ APPLICATIONS

The Alaska 88E1510 and 88E1518 transceivers deliver 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 88E1510 and 88E1518 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 docs with schematics, layout files and other documentation.

THE MARVELL ADVANTAGE: Marvell products come with complete reference designs which include board layout designs, software, manufacturing diagnostic tools, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field application engineers collaborate closely with end customers to develop and deliver new leading-edge products for quick time-to-market. Marvell utilizes world leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost total solutions.

ABOUT MARVELL: Marvell is a leader in storage, communications and consumer silicon solutions. Marvell's diverse product portfolio includes switching, transceiver, communications controller, processors, wireless, power management and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our website at www.marvell.com.