Alaska® Ultra
Gigabit Ethernet Transceivers
88E1011/88E1011S

ALASKA®

PRODUCT OVERVIEW

The Marvell® Alaska® family of Gigabit Ethernet (GbE) over copper transceivers are the industry's lowest power, smallest form factor, highest performance, and highest port density solutions in volume production. The Alaska Ultra single-channel GbE transceivers, consisting of the 88E1011 and 88E1011S devices, are the industry's first GbE PHYs optimized for the mobile computing market. These devices perform all of the physical layer functions for 100BASE-TX and 1000BASE-T full or half duplex Ethernet on category 5 (CAT 5) twisted pair cable, and 10BASE-T full or half duplex Ethernet on CAT 3, 4 and 5 cable. The Alaska Ultra+ device (88E1011S) offers additional support of 1000BASE-X through an integrated 1.25 GHz Serializer/Deserializer (SERDES).

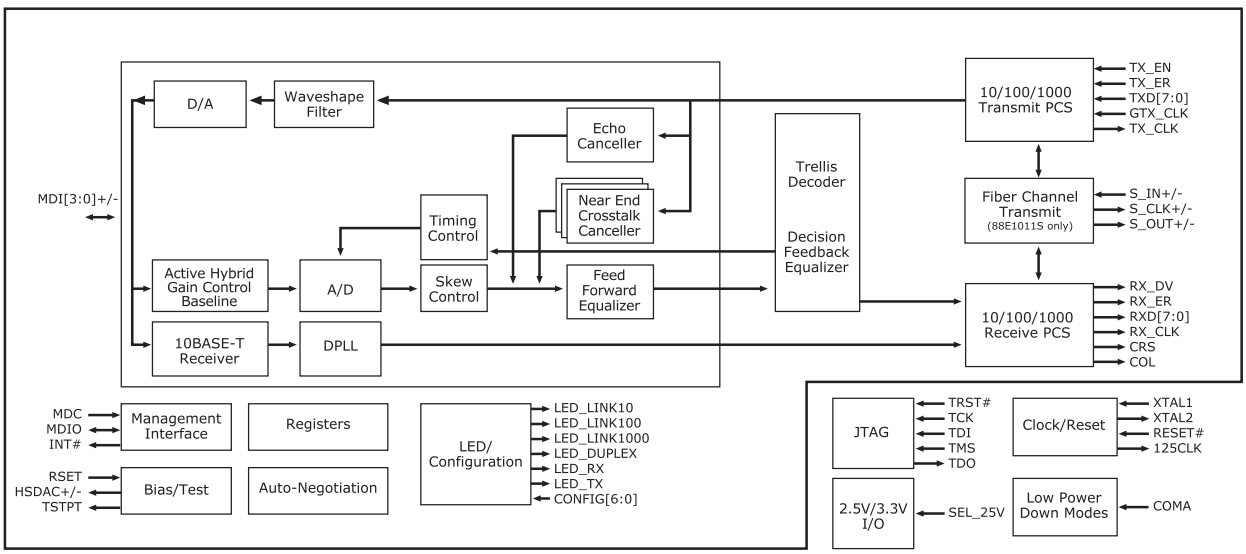

Fig 1. Alaska Ultra GbE Transceiver Block Diagram

FEATURES	BENEFITS
• Low power dissipation, just over 1W	• Enables higher integration and reduced cost
• IEEE 802.3 compliant 1000BASE-T, 100BASE-TX and 10BASE-T transceivers	• True plug-and-play with 10/100/1000BASE-T tri-speed functionality
• GMII, TBI, RTBI, RGMII, SGMII interfaces	• Provide a seamless Ethernet solution
• Integrated 1.25 GHz SERDES (88E1011S)	• Supports 1000BASE-X fiber applications
• Media Detect feature automatically detects and configures to either copper or fiber media	• Complete media flexibility
• Four power management modes	• Extend battery life; reduce power consumption
• Auto-MDI/MDIX crossover at all three speeds	• End-to-end wiring tolerance and correction
• IEEE 1149.1 (JTAG) boundary scan support	• Increased reliability for board level testing and manufacturability
• Advanced mixed-signal and DSP techniques	• Advanced DSP design
• Advanced baseline wander correction	• Provides robust performance over a wide range of operating conditions

MARVELL®

Alaska® Ultra Gigabit Ethernet Transceivers

MOVING FORWARD FASTER®

FEATURES

BENEFITS

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• Fully integrated digital adaptive equalizers, echo and crosstalk cancellers	• Optimized cable performance
• On-chip transmit wave-shaping to reduce EMI	• Better FCC performance
• Advice internal hybrids for 1000BASE-T	• Lower cost magnetic
• Three package options: 128-pin PQFP, 117-pin TFBGA and 96-pin BCC	• Small package outline, 9mm x 9mm (BCC)
• 0.15-micron standard digital CMOS process	• Advanced process for reduced power and cost to achieve the highest port density

APPLICATIONS

The Marvell Alaska Ultra GbE transceiver supports advanced power management modes, including Wake-on-LAN, which are critical to client applications such as Gigabit-connected laptop computers. The device also provides complete flexibility in media selection — either copper or fiber media. The Alaska Ultra PHY's Media Detect feature automatically senses whether the end-user has inserted a CAT 5 copper or fiber-optic cable, performs Auto-Negotiation and provides seamless plug-and-play configuration.

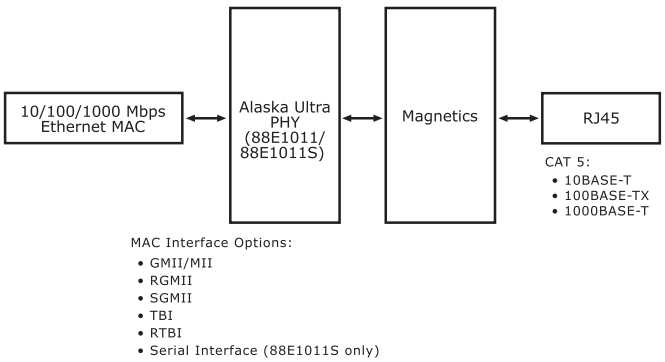

Fig 2. Alaska Ultra GbE Transceiver CAT 5 Application Diagram

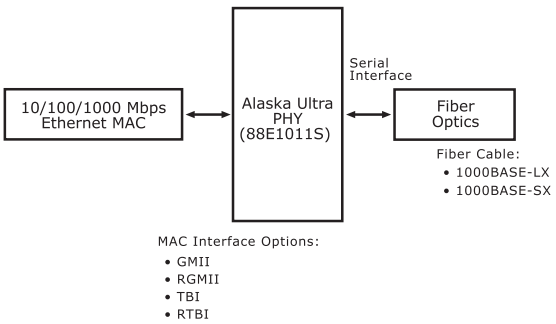

Fig 3. Alaska Ultra GbE Transceiver (88E1011S only) Fiber-Optics Application Diagram

THE MARVELL ADVANTAGE: The Marvell Alaska Ultra GbE transceivers come with a complete set of hardware and software development tools to assist network hardware engineers with product evaluation. Marvell's worldwide field applications engineers collaborate closely with network equipment vendors to develop and deliver new competitive products to market on time. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low cost total solutions.

For more information, visit our website at www.marvell.com.

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