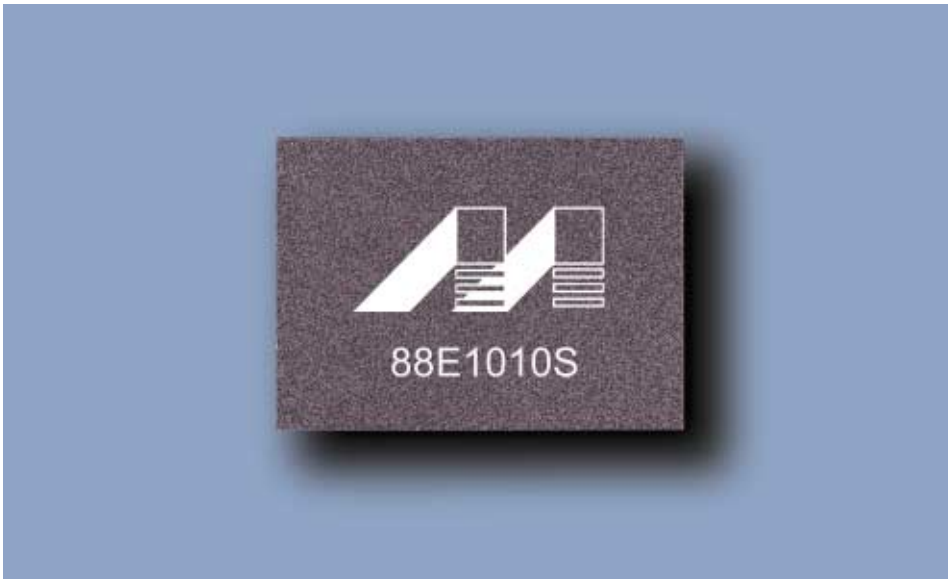
ALASKA™

88E1010/88E1010S 117-pin Gigabit Ethernet Transceivers

Marvell Accelerates Deployment of Gigabit Ethernet to the Desktop

Gigabit Ethernet Performance

The latest additions to the Marvell Alaska™ family of Gigabit Ethernet over copper transceivers, the Alaska (88E1010) and Alaska+ (88E1010S) PHYs are now available in the world's smallest package-- 117-pin Thin Fine Ball Grid Array (TFBGA). The devices now feature physical dimensions of only 10x14mm (140mm^2 PC board [PCB] real estate), significantly reducing space on the PCB-- by as much as 80%-- as compared to existing devices on the market today. The small outline package is less than the width of an RJ45 connector, making it the smallest package Gigabit Ethernet transceiver currently available. This allows for even higher port count Gigabit Ethernet over copper switches whereby the RJ45 connectors can be positioned directly adjacent to one another.



The 117-pin Alaska+ PHY is the first to bridge fiber-optic and copper networks by offering an integrated 1.25 GHz serializer/deserializer (SERDES) function. With a built-in 1.25 GHz SERDES, the PHY interfaces directly to standard Gigabit fiber-optic modules-- 850nm wavelength optics for the 1000BASE-SX standard or 1300nm wavelength optics for the 1000BASE-LX standard. The Alaska+ PHY offers a significant cost reduction for the Gigabit media converter market, as the device implements this function in a single chip, as opposed to the 2 to 3 chips currently required.

The Alaska+ PHY also enables a brand new application area for Gigabit Ethernet-- a 1000BASE-T Gigabit Interface Converter (GBIC). The GBIC is a hot-swappable, "plug and play," single-port module used in today's 1000BASE-SX and 1000BASE-LX Gigabit over fiber applications. The advantage of the GBIC is that it offers the user and/or systems manufacturer flexibility in the selection of media type (short or long wavelength optics). The Gigabit Ethernet over copper GBIC requires three critical features of the 1000BASE-T PHY-- low power dissipation, small package outline and a 4-pin 1.25 GHz SERDES interface. Marvell's new Alaska+ device meets these requirements, thus enabling the availability of 1000BASE-T GBIC modules.

The Alaska Gigabit transceivers, fabricated using advanced 0.18 micron CMOS technology, use advanced mixed-signal/digital signal processing and power management techniques for ultra low power dissipation of 1.8 Watts. The Alaska PHYs operate at all three data rates currently defined by the IEEE 802.3 Ethernet standard-- 1000 Mbps, 100 Mbps and 10 Mbps. The devices implement the IEEE 802.3u compliant Auto-Negotiation function, offering a true "plug and play" system, and enable backward compatibility to the installed base of 100 Mbps Fast Ethernet and 10 Mbps Ethernet networks.

The 117-pin Alaska devices support GMII/MII and TBI (10-bit), and the Alaska+ PHY includes a serial SERDES interface. The Alaska family also incorporates the Auto-MDI/MDIX function at all three speeds offering the benefit of end-to-end wiring tolerance and correction without the need for external crossover cable.

The Alaska Gigabit Ethernet transceivers leverage technology developed through four generations of PRML read channels designed for the data storage market. The Alaska devices are the ideal solutions for high-performance networking systems where high performance and lower power dissipation are absolutely necessary. Marvell's Gigabit PHY solutions are an ideal choice for higher level integration strategies.

The Marvell Advantage

As with all Marvell products, the Alaska Gigabit Ethernet transceivers come with a complete set of hardware and software 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.

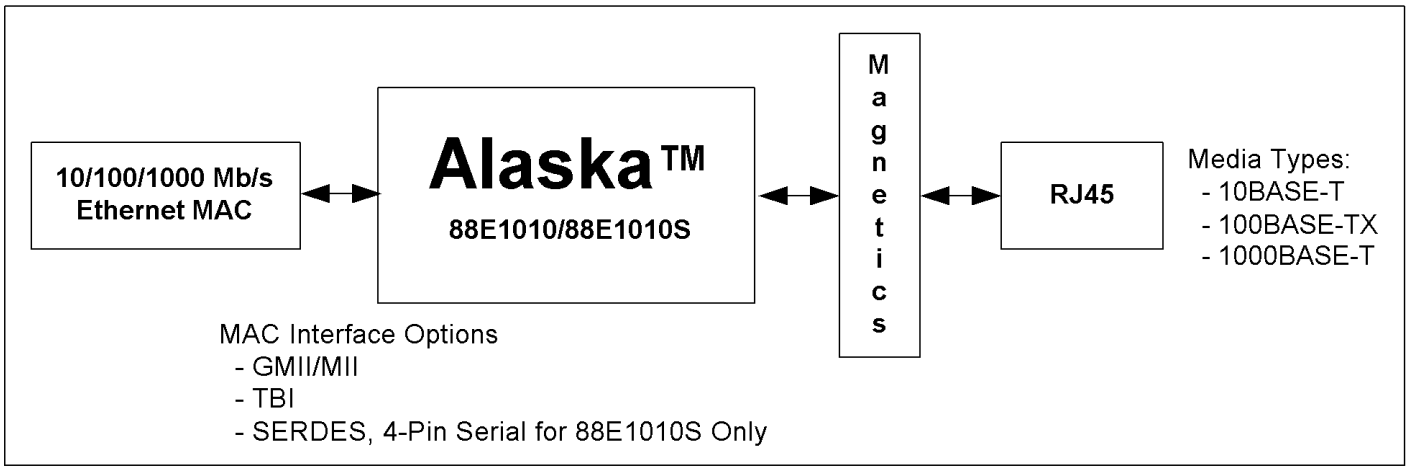
Marvell utilizes recognized world-leading semiconductor foundry and package services to reliably deliver high-volume, low-cost solutions.

MARVELL™

MOVING FORWARD FASTER™

ALASKA™

88E1010/88E1010S
117-pin Gigabit
Ethernet Transceivers



Features:

- IEEE 802.3 compliant 1000BASE-T, 100BASE-TX and 10BASE-T transceiver
- Low power dissipation (1.8 Watts)
- Small package outline, 117-pin TFBGA
- GMII and MII interfaces supported
- Ten-bit interface (TBI) supported
- 1.25 GHz SERDES interface option (88E1010S only)
- Auto-MDI/MDIX crossover at all three speeds
- IEEE802.3u Auto-Negotiation with next page support for auto speed and duplex selection
- Programmable interrupt to minimize polling
- IEEE 1149.1 (JTAG) boundary scan support
- Six direct drive LEDs
- Automatic polarity correction
- Advanced mixed-signal and DSP techniques
- Advanced baseline wander correction
- All digital clock recovery and generator circuits
- On-chip transmit wave-shaping to reduce EMI
- Advice internal hybrids for 1000BASE-T
- 3.3V single supply with built-in internal regulators
- 0.18 micron standard digital CMOS process

Benefits:

- True “plug and play” with 10/100/1000BASE-T tri-speed functionality
- Enables high port density Gigabit Switches
- Provides a seamless Ethernet solution from standard GMII, MII and TBI interfaces to magnetics
- SERDES interface reduces I/O pin count, increasing port density and lowering cost
- Supports 1000BASE-T GBIC and media converter markets
- End-to-end wiring tolerance and correction
- Increased reliability for board level testing and manufacturability
- Advanced DSP design
- Provides robust performance over a wide range of operating conditions
- Better FCC performance
- Lower cost magnetics
- Simplifies design and reduces cost

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