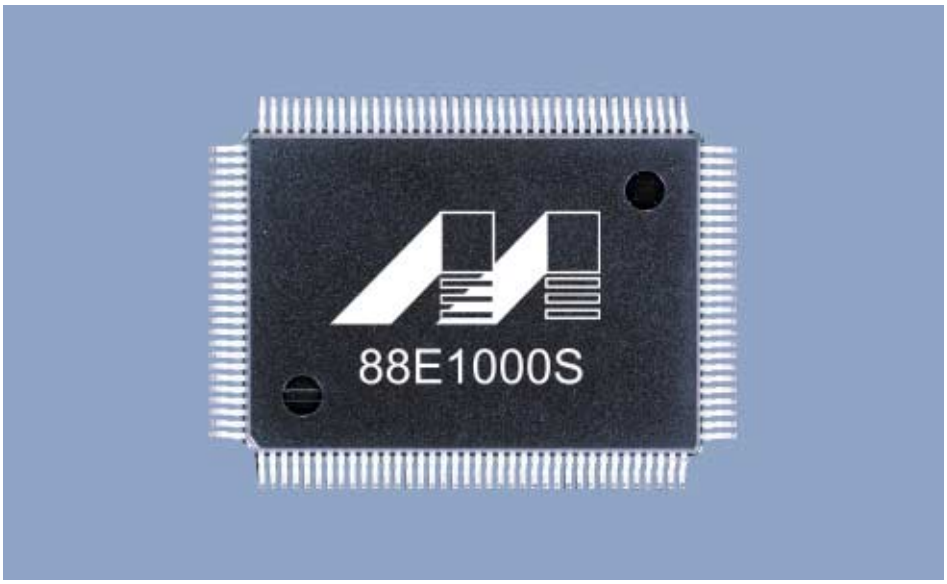
ALASKA™ 88E1000S Gigabit Ethernet Transceiver

Marvell Accelerates Deployment of Gigabit Ethernet to the Desktop

Gigabit Ethernet Performance

Offering all the features of the Alaska™ family of Gigabit Ethernet over copper transceivers, the Alaska+ PHY, the 88E1000S, adds an integrated 1.25 GHz serializer/deserializer (SERDES) function to the Alaska family of Gigabit devices. As an alternative interface between the PHY and the Switch/MAC, the SERDES interface reduces the I/O (Input/Output) pin count from today's implementations requiring as many as 24 pins per port, to only 4 pins per port. By reducing the I/O requirement between the PHY and MAC, the Alaska+ PHY will allow manufacturers to develop even higher performance and higher port count networking solutions. The device also offers a single-chip solution for media conversion and GBIC (Gigabit Interface Converter) applications.



The Alaska+ PHY 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. Marvell's Alaska+ device meets these requirements, enabling the availability of 1000BASE-T GBIC modules.

Marvell's Alaska+ PHY additionally provides a single-chip solution for fiber optic Gigabit Ethernet media conversion by offering bi-directional conversion between Gigabit fiber and Gigabit copper networks. With the built-in 1.25 GHz SERDES, the device 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 the function in a single chip, as opposed to the 2 to 3 chips currently required.

The Alaska family of Gigabit Ethernet transceivers utilizes Marvell's state-of-the-art DSP architecture, advanced mixed-signal processing and digital design technology to implement digital adaptive equalization, echo cancellation, cross-talk cancellation, digital timing recovery, line driver support, encoders, and decoders.

The Alaska+ PHY leverages technology developed through four generations of PRML read channels designed for the data storage market. It is the ideal solution for high-performance networking and high-level integration strategies.

The Marvell Advantage

As with all Marvell products, Marvell's Alaska Gigabit Ethernet transceiver comes 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.

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MOVING FORWARD FASTER™

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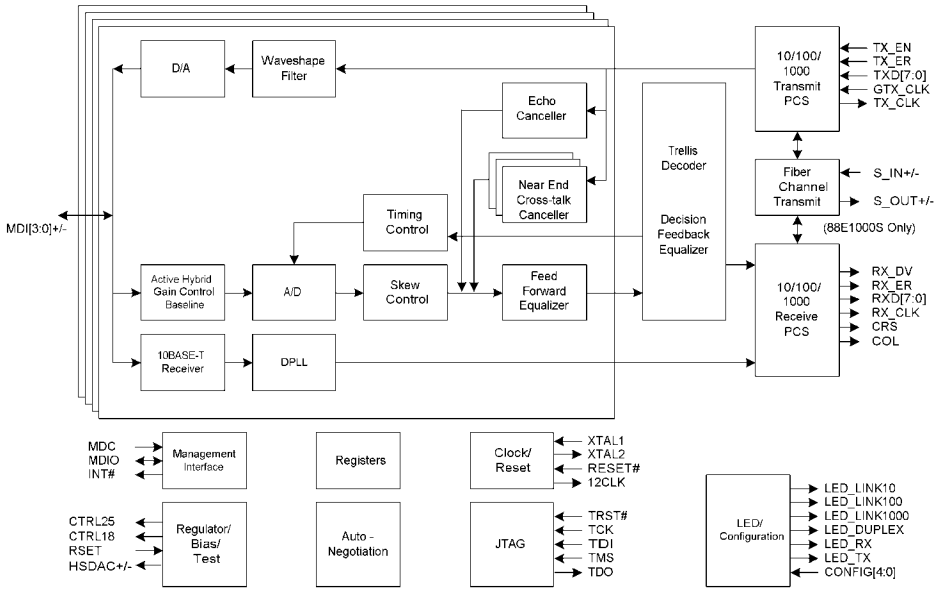

Features:

- IEEE 802.3 compliant 1000BASE-T, 100BASE-TX and 10BASE-T transceiver
- GMII and MII interfaces supported
- Ten-bit interface (TBI) supported
- 1.25 GHz SERDES interface option
- Small package outline, 128-pin PQFP
- Auto-MDI/MDIX crossover at all three speeds
- IEEE 802.3u 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
- On-chip transmit wave-shaping to reduce EMI
- Active internal hybrids for 1000BASE-T
- All digital clock recovery and generator circuits
- 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 interfaces reduces I/O pin count, increasing port density and lowering cost
- Increased reliability for board level testing and manufacturability
- End-to-end wiring tolerance and correction
- Operation over all existing Category 5 UTP cabling infrastructures
- Advanced DSP design
- Provides robust performance over a wide range of operating conditions
- Lower cost magnetics
- Efficient power consumption control
- Eliminates expensive fans and heat sinks

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