ALASKA™ 88E1000 Gigabit Ethernet Transceiver

Marvell Accelerates Deployment of Gigabit Ethernet to the Desktop

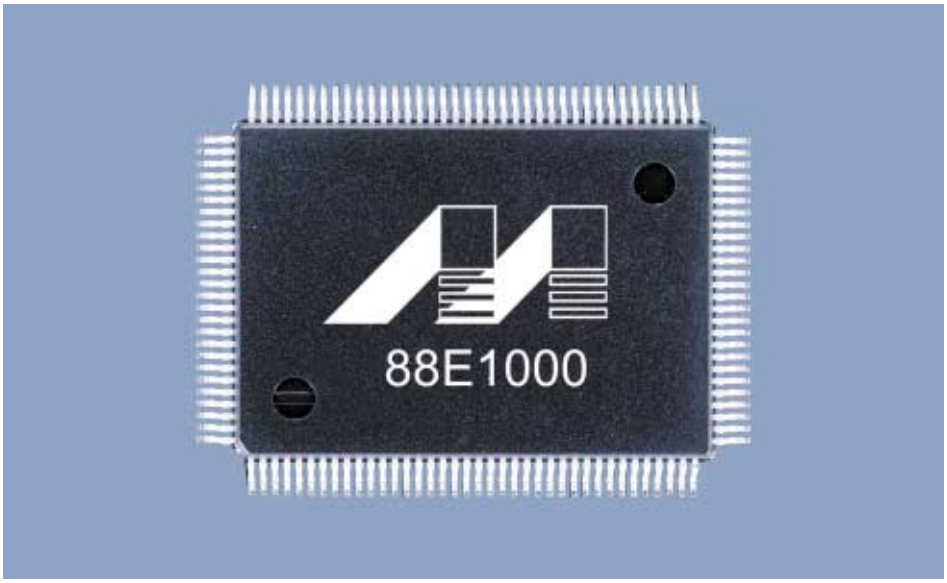
Gigabit Ethernet Performance

The Marvell Alaska™ Gigabit Ethernet over copper transceiver, the 88E1000, advances Marvell's leadership in providing high-performance, cost-effective solutions for demanding network applications.

The Alaska Gigabit Ethernet transceiver is a highly integrated physical layer device combining all of the circuitry required for an integrated 10/100/1000BASE-T Ethernet solution on Category 5 UTP cable. It provides IEEE 802.3 compliant GMII, MII and TBI interfaces allowing direct connection to a MAC/Switch port. Marvell's 88E1000 provides a seamless Ethernet solution from GMII, MII and TBI interfaces to magnetics.

The Alaska chip is the first integrated Gigabit Ethernet transceiver to incorporate Auto-MDI/MDIX in all three speeds. True "plug and play" operation can be achieved regardless of speed and half/full duplex. Marvell's IEEE compliant Auto-Negotiation also automatically detects and corrects a crossed cable offering our customers the benefit of end-to-end wiring tolerance and correction without the need for an external crossover cable.

The Alaska Gigabit Ethernet transceiver uses 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 chip exhibits robust performance in noisy environments with the added feature of low power dissipation. Nominal power dissipation for the 88E1000 is estimated at 1.8W.



Marvell's patented architectures and field-proven design techniques result in high differential/integral linearity, high power supply noise rejection and lower error rates. Transmitting and receiving data simultaneously on all four pairs of cable, the Alaska chip can achieve 2 gigabits per second throughput in full duplex mode.

The Alaska Gigabit Ethernet transceiver leverages technology developed through four generations of PRML read channels designed for the data storage market. The 88E1000 is the ideal solution for high-performance networking systems where high performance and lower power dissipation are absolutely necessary. Marvell's Gigabit PHY solution is an ideal choice for higher 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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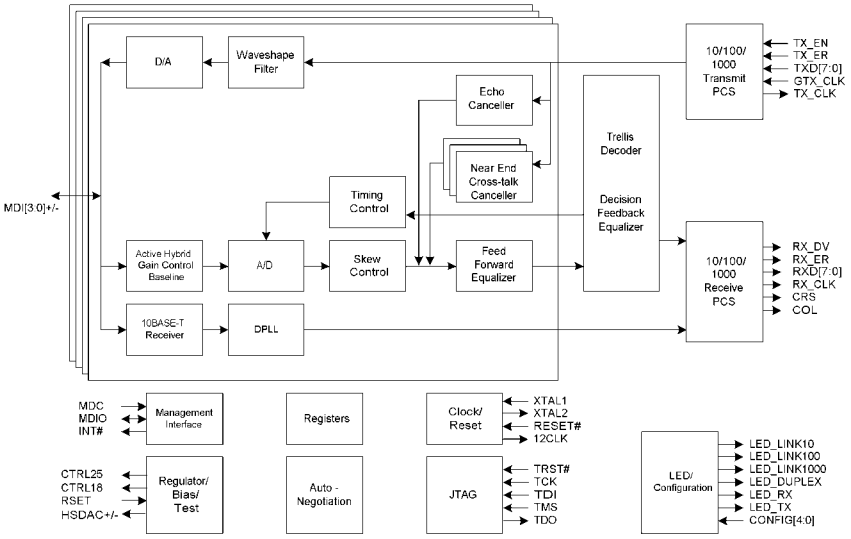

Features:

- 1000BASE-T, 100BASE-TX and 10BASE-T transceiver IEEE 802.3 compliant
- GMII and MII interfaces
- Ten-bit interface (TBI) in 1000BASE-T mode
- Programmable interrupt to minimize polling
- Automatic polarity correction
- IEEE 1149.1 (JTAG) boundary scan support
- Six direct drive LEDs
- IEEE 802.3u Auto-Negotiation with next page support for auto speed and duplex selection
- Auto-MDI/MDIX crossover for all three speeds

- 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
- 0.18 micron standard digital CMOS process
- Low power dissipation P_{NOM} = 1.8W
- 3.3V single supply with built-in internal regulators
- Standard 128-pin PQFP

Benefits:

- True "plug and play" with 10/100/1000BASE-T modem integrated into one package
- Suitable for highest performance applications
- Provides a seamless Ethernet solution from standard GMII, MII and TBI interfaces to magnetics

- 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
- Lower cost crystal
- Eliminates expensive fans and heat sinks
- Increased number of ports per rack to reduce backbone expenditures

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