



## 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 Octal (88E1180) transceiver is the industry's first and only 8-port GbE transceiver and offers the lowest power dissipation at only 0.75 W/port. Each transceiver performs 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 Octal device offers additional support of 1000BASE-X through an integrated 1.25 GHz Serializer/Deserializer (SERDES).

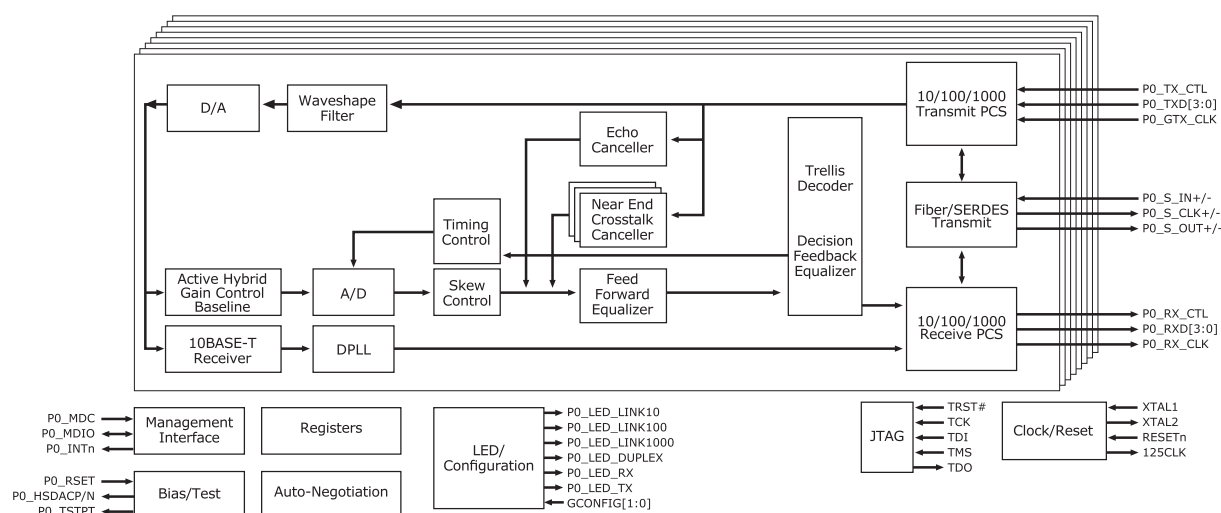


Fig 1. Alaska Octal GbE Transceiver Block Diagram

## FEATURES

- Highly integrated 8-port device
- Ultra low power, 0.75 W/port
- 10/100/1000BASE-T IEEE 802.3 compliant
- Supports RGMII/SGMII/RTBI interfaces
- Virtual Cable Tester™ feature
- Integrated 1.25 GHz SERDES
- Media Detect feature automatically detects and configures to either copper or fiber media
- Automatic support for 2-pair CAT 5 cable (100 Mbps)
- Power management modes
- Four RGMII timing modes
- Operation up to 180 meters CAT 5 cable
- Auto-MDI/MDIX crossover for all modes of operation
- Support IEEE 1149.1 (JTAG) and NAND-tree ICT
- Advanced mixed-signal and DSP techniques

## BENEFITS

- Enables highly integrated Gigabit switches
- Enables higher integration and reduced system cost
- Compatibility with existing installed base of compliant devices
- Reduces cost and simplifies PCB layout
- Identification and isolation of cable faults
- Supports 1000BASE-X fiber applications
- Complete media flexibility
- Operates over installed 2-pair cable
- Reduced system power
- Eliminates the need for on-board delay lines
- Functions over a wider base of cabling infrastructures
- Eases installation and reduces cost
- Simplifies board level testing/debugging
- Advanced DSP design



## FEATURES

- IEEE 802.3u compliant Auto-Negotiation
- Active internal hybrids for 1000BASE-T
- Direct drive LED support
- Software configurable LED support
- User programmable PHY address
- Loopback mode

## BENEFITS

- Automatically configures to 10, 100 or 1000 Mbps
- Lower cost magnetics
- Eliminates cost of external LED latches and drivers
- User-defined LED configuration
- Works with all existing Gigabit switch designs
- Assists testing and diagnostics

## APPLICATIONS

The Marvell Alaska Octal GbE transceiver enables higher port count Gigabit switches, up to 48 ports and beyond, offering the industry's highest integration and lowest power dissipation. Through integrated SERDES technology, the device also offers optional support for 1000BASE-SX/LX Gigabit fiber standards, on a per port basis, enabling mixed-media Gigabit switches. The device supports the RGMII, SGMII and RTBI PHY/MAC interface options.

The Alaska Octal transceiver combined with the Marvell Prestera™ Gigabit Ethernet switches provide systems manufacturers with a complete networking solution from the PHY to the switch fabric, and allow for the development of high port count Gigabit Ethernet switches with the fewest number of devices possible. For example, a 24-port Gigabit Ethernet switch can now be comprised of just five Marvell chips (three Alaska Octal PHYs and two Prestera-EX switches)—less than half the number of components previously required.

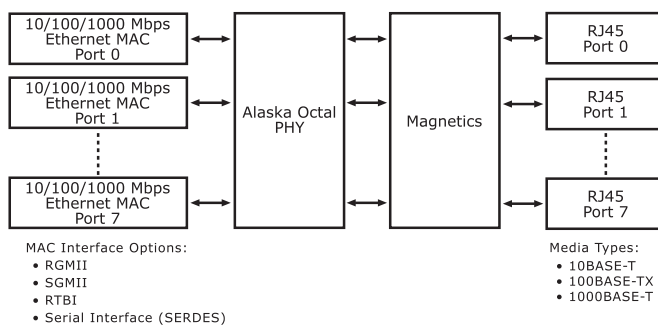


Fig 2. Alaska Octal GbE Transceiver Copper Application Diagram

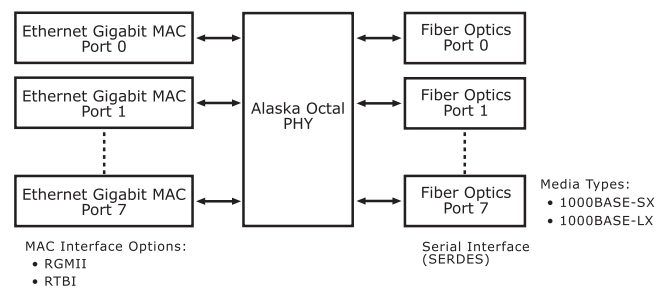


Fig 3. Alaska Octal GbE Transceiver Fiber Application Diagram

**THE MARVELL ADVANTAGE:** The Marvell Alaska Octal GbE transceiver comes 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](http://www.marvell.com).



Marvell Semiconductor, Inc.

700 First Avenue  
Sunnyvale, CA 94089

Phone 408.222.2500

[www.marvell.com](http://www.marvell.com)

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