



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 single-port 88E1111 transceiver leads the industry with the lowest power consumption (only 0.75W), as well as the smallest package footprint option — only 9 mm x 9 mm. The Alaska single-port 88E1111 product performs all of the physical layer (PHY) functions for half- and full-duplex 10BASE-T Ethernet on CAT 3, 4 and 5 cable, and half- and full-duplex 100BASE-TX and 1000BASE-T Ethernet on CAT 5 twisted pair cable. Additionally, the 88E1111 device offers additional support of 1000BASE-X through an integrated 1.25 GHz Serializer/Deserializer (SERDES).

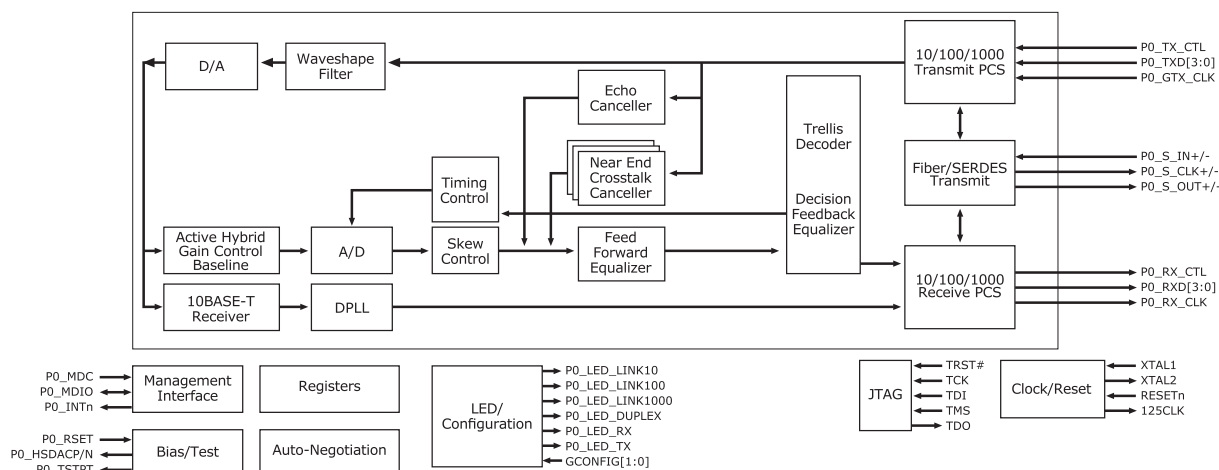


Fig 1. Alaska Single-Port GbE Transceiver (88E1111) Block Diagram

FEATURES

- Ultra low power, only 0.75W
- 10/100/1000BASE-T IEEE 802.3 compliant
- Supports GMII/RGMII/SGMII/TBI/RTBI interfaces
- Virtual Cable Tester™ (VCT) feature
- Integrated 1.25 GHz SERDES
- Media Detect feature automatically detects and configures to either copper or fiber media
- GBIC/SFP mode
- 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 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
- Supports plug-and-play GBIC and SFP modules
- Operates over installed 2-pair cable
- Reduced system power
- Eliminate 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 single-port 88E1111 transceiver is the first in the industry to enable a copper 1000BASE-T Gigabit Small Form Factor Pluggable (SFP) module, which is a hot-swappable, plug-and-play device used in Gigabit applications. The device features physical dimensions of only 9 mm x 9 mm (96-pin BCC option), making it the only device small enough to physically fit into the SFP module. In addition, the 88E1111 device is the only transceiver to meet the stringent power requirements of the SFP Multi-Source Agreement (MSA). Using the Alaska single-port 88E1111 product, systems manufacturers can now offer copper versions, enabling systems to support both copper and fiber media interchangeably.

The Alaska single-port 88E1111 transceiver offers the most advanced feature set including VCT technology used to diagnose the attached cable plant and isolate and report cable faults with one-meter accuracy. Additionally, the devices feature "2-pair downshift" capability for plug-and-play operation in 2-pair cable environments, as well the Media Detect feature which supports both copper and fiber media simultaneously. The 88E1111 product supports the GMII, RGMII, SGMII, TBI, and RTBI PHY/MAC interface options.

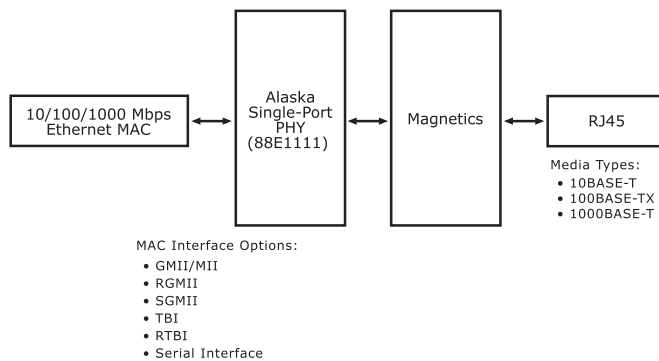


Fig 2. Alaska Single-Port GbE Transceiver (88E1111) Copper Applications Diagram

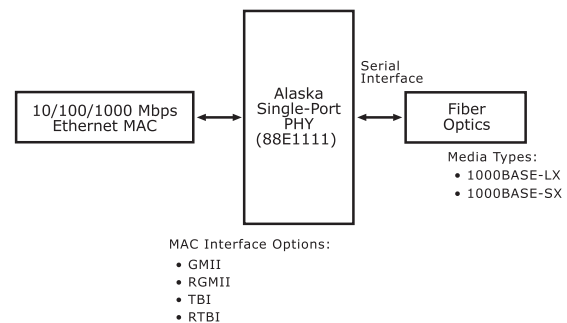


Fig 3. Alaska Single-Port GbE Transceiver (88E1111) Fiber Applications Diagram

THE MARVELL ADVANTAGE: The Marvell Alaska single-port 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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