Marvell Alaska 88E1111

Single-Port Gigabit Ethernet Transceiver

PRODUCT OVERVIEW

The Marvell® Alaska® 88E1111 is a physical layer device containing a single Gigabit Ethernet (GbE) transceiver. The transceiver implements the Ethernet physical layer portion of the 1000BASE-T, 100BASE-TX, and 10BASE-T standards. The device is manufactured using 0.13 micron standard digital CMOS process and contains all the active circuitry required to implement the physical layer functions to transmit and receive data on standard CAT 5 unshielded twisted pair.

Of Marvell's single-port GbE transceivers, the 88E1111 offers the most flexible Media Access Controller (MAC) interface options. The 88E1111 supports the Gigabit Media Independent Interface (GMII), the Reduced GMII (RGMII), the Serial GMII (SGMII), the Ten-Bit Interface (TBI), and the Reduced TBI (RTBI) for a direct connection to a MAC/switch port.

The 88E1111 incorporates an optional 1.25 GHz SERDES (Serializer/Deserializer). The serial interface may be connected directly to a fiber-optic transceiver for 1000BASE-T/1000BASE-X media conversion applications. By using the 88E1111, system manufacturers can enable their systems to interchangeably support both copper and fiber media. Additionally, the 88E1111 may be used to implement 1000BASE-T Gigabit Interface Converter (GBIC) or Small Form-Factor Pluggable (SFP) modules.

The 88E1111 offers the most advanced switching feature set including the Marvell Virtual Cable Tester® (VCT™) technology, used to diagnose the attached cable plant and isolate and report cable faults within one meter of accuracy.

The 88E1111 has a low power dissipation and is offered in three different package options including a 117-pin TFBGA, a 128-pin PQFP, and a 96-pin BCC featuring a body size of only 9mm×9mm. RoHS 6/6 compliant packages are available as well as industrial and commercial grades.

BLOCK DIAGRAM

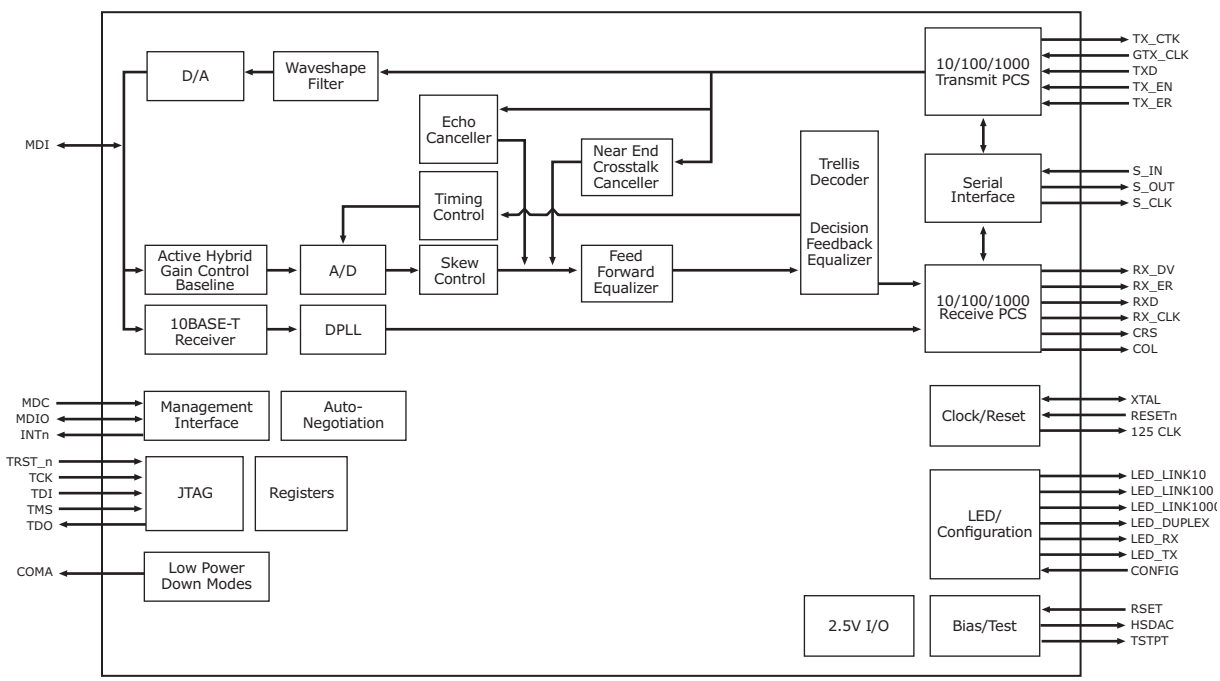

Fig 1. Alaska Single-Port GbE Transceiver (88E1111) Block Diagram

FEATURES

FEATURES	BENEFITS
• Low power	• Enables higher integration and reduces system cost
• 10/100/1000BASE-T IEEE 802.3 compliant	• Provides compatibility with existing installed base of compliant devices
• Supports GMII, RGMII, SGMII, TBI, and RTBI	• Compatible with any MAC/switch device
• Virtual Cable Tester feature	• Identifies and isolates cable faults
• Integrated 1.25 GHz SERDES	• Supports 1000BASE-X fiber applications
• Media Detect feature	• Automatically detects and configures to either copper or fiber media for complete media flexibility
• Power management modes	• Reduces system power
• Four RGMII timing modes	• Eliminates the need for on-board delay lines
• Operation up to 180 meters on CAT 5 cable	• Functions over a wider base of cabling infrastructures
• Auto-MDI/MDIX crossover for all modes of operation	• Eases installation and reduces cost
• Support IEEE 1149.1 (JTAG) and NAND-tree ICT	• Simplifies board level testing and debugging
• IEEE 802.3u compliant Auto-Negotiation	• Automatically configures to 10, 100, or 1000 Mbps
• Active internal hybrids for 1000BASE-T	• Allows for lower cost magnetics
• Direct drive LED support	• Eliminates cost of external LED latches and drivers
• Software configurable LED support	• Enables user-defined LED configuration
• User programmable PHY address	• Works with all existing GbE switch designs
• Loopback mode	• Assists testing and diagnostics

APPLICATIONS

Ideal applications for the 88E1111 include SFP modules, GE-PON, GPON, cable modems, gaming devices, and network switches and routers. The multiple package options allow for increased design flexibility and the advanced diagnostic features, including Marvell VCT, allow for seamless deployment of end-user applications over standard CAT 5 cabling.

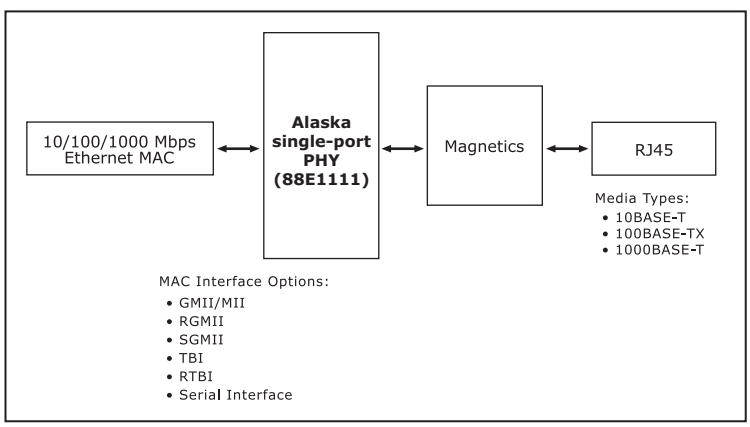

Fig 2. Alaska Single-Port GbE Transceiver (88E1111) Copper Applications Diagram

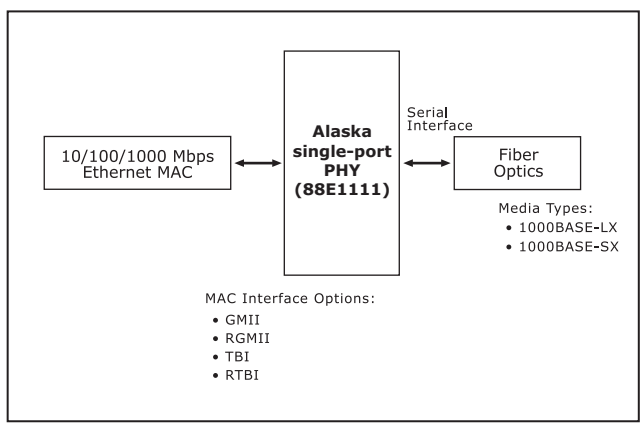

Fig 3. Alaska Single-Port Transceiver (88E1111) Fiber Applications Diagram

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