

Marvell® Alaska® 88E3015/88E3016/88E3018

Single-Port Fast Ethernet Transceivers

Overview

The Marvell® Alaska® 88E3015, 88E3016, and 88E3018 are Marvell's fourth-generation DSP-based physical layer (PHY) transceivers for Fast Ethernet (FE) applications. The devices contain all the active circuitry required to convert data streams to and from a Media Access Controller (MAC) and to and from the physical media. The 88E3015, 88E3016, and 88E3018 devices incorporate IEEE 802.3u auto-negotiation, supporting both 100BASE-TX and 10BASE-T networks over twisted-pair cable in full-duplex or half-duplex mode.

The 88E3015, 88E3016, and 88E3018 all support the Reduced Gigabit Media Independent Interface (RGMII), with the 88E3015 and 88E3018 also supporting the Media Independent Interface (MII). They all feature a mode of operation supporting IEEE-compliant 100BASE-FX fiber-optic networks. Additionally, the devices implement Far-End-Fault-Indication (FEFI) in order to provide a mechanism for transferring information from the local station to the link partner that indicates that a remote fault has occurred in 100BASE-FX mode.

The Alaska 88E3015, 88E3016, and 88E3018 feature the Marvell Virtual Cable Tester® (VCT™) technology, which enables IT managers and networking equipment manufacturers to remotely analyze the quality and characteristics of the attached cable plant. Additionally, the devices use advanced mixed-signal processing and power-management techniques for extremely low power dissipation and high port count system integration.

The 88E3015, 88E3016, and 88E3018 devices can operate from a single 2.5v or 3.3v supply. They are offered in low-pin count QFN packages which reduce board space and are ideal for small form-factor applications. In addition, the 88E3016 and 88E3018 are the only single-port FE PHYs available in the industry which are pin-upgradeable to Gigabit Ethernet.

Block Diagram

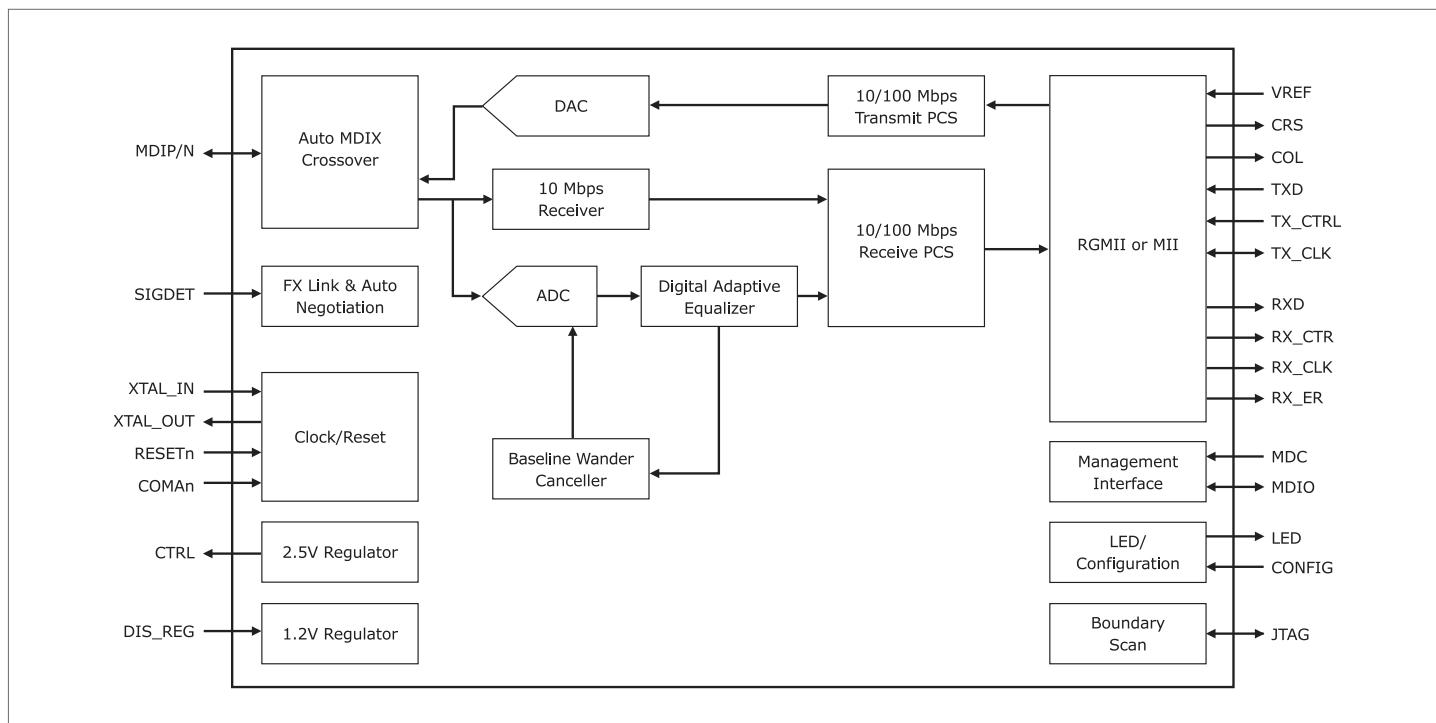


Figure 1. 88E3018 Functional Block Diagram

Key Features

Features	Benefits
• Supports RGMII interface (MII also supported in the 88E3015 and 88E3018)	• Reduces pin count and offers Gigabit Ethernet upgrade
• Automatic MDI/MDIX crossover at all speeds of operation	• Eases installation and reduces costs by working with both straight and cross-over cables
• PECL interface supporting 100BASE-FX applications	• Supports FE over fiber applications
• IEEE 802.3u compliant auto-negotiation	• Automatically configures to 10 or 100Mbps
• MDC/MDIO management interface	• Provides flexible management options
• Virtual Cable Tester (VCT)	• Identifies and isolates cable faults
• Coma mode support and energy detect feature	• Provides flexible power-management functionality
• Supports 802.3ah unidirectional enable	• Enables the PHY transmit path even if no link is established
• Supports three LEDs per port	• Allows for user configuration of programmable LEDs
• 88E3016/88E3018: Pin-upgradeable to Marvell Gigabit Ethernet PHY	• Provides for future upgrade to Gigabit Ethernet with increased design flexibility
• 88E3016/88E3018: Supports IEEE 1149.1 JTAG	• Simplifies board level testing/debugging

Applications

Despite the existence of advanced Gigabit Ethernet, 10/100 Ethernet maintains a strong presence in corporate networks, in small home networks and in various media devices. The Marvell Alaska single-port FE PHY transceivers provide connectivity solutions for a variety of applications including DVRs, game consoles, media vaults, video cameras, printers, and notebook or desktop PCs. The Alaska 88E3015, 88E3016, and 88E3018 offer low-power dissipation, enabling system manufacturers to decrease their system costs by reducing power supply requirements.

Package	88E3015	88E3016	88E3018
	56-Pin QFN	64-Pin QFN	64-Pin QFN
Pin-Upgradeable to GbE	NO	YES	YES
MII	Yes	NO	YES
RGMII	Yes	YES	YES
Virtual Cable Tester®	Yes	YES	YES
Fiber Support	Yes	YES	YES
Parallel LEDs	Yes	YES	YES
Power Management	Yes	YES	YES
JTAG Support	NO	YES	YES

Figure 2. Device Feature Comparison



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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