Product Brief

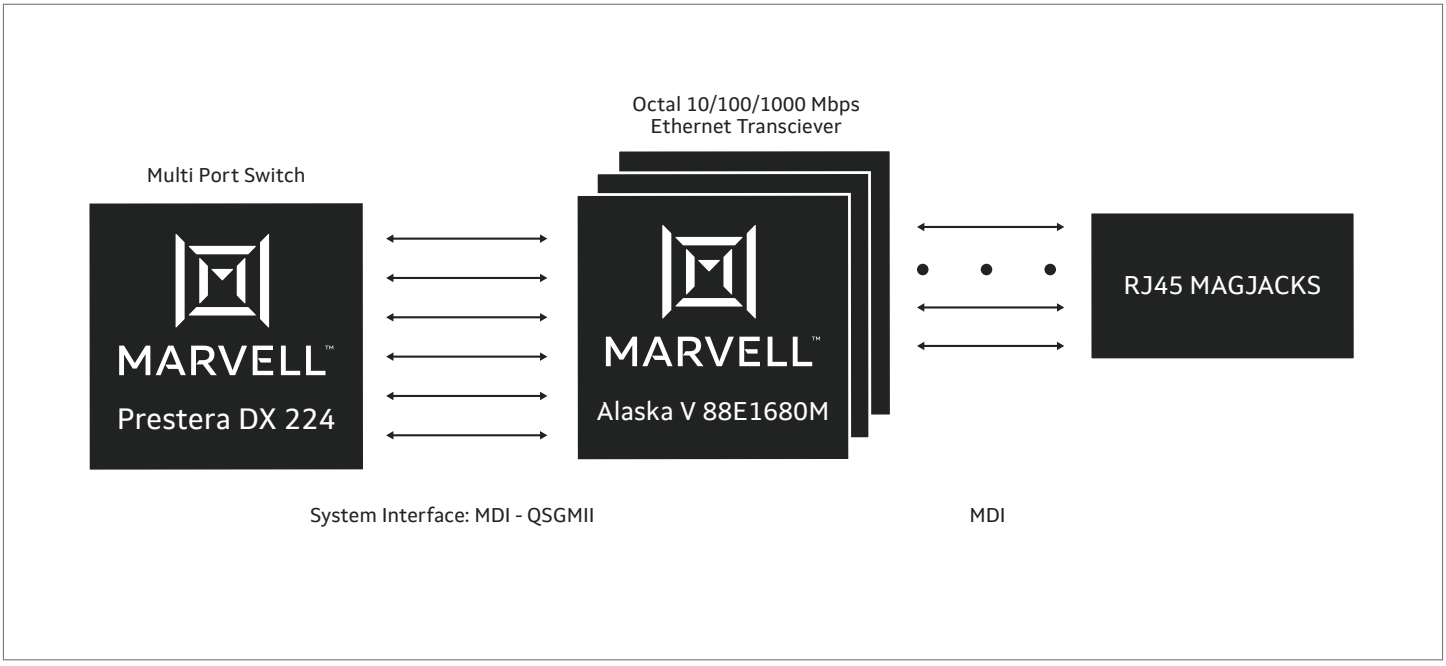
Marvell® ALASKA® V 88E1680M

Eight port 10/100/1000Mbps Energy Efficient Ethernet (EEE) Transceiver

Overview

The Marvell® Alaska® V 88E1680M is a highly integrated, ultra-low power eight-port 10/100/1000Mbps transceiver that supports Energy Efficient Ethernet (EEE) compliant to IEEE 802.3az. Alaska V 88E1680M is a new class of gigabit Ethernet transceivers that incorporate innovative mixed-signal design to offer industry's highest performance, lowest power in a thermally efficient and space-saving package. The 88E1680M supports the Marvell LinkCrypt feature, which is based on and implements the IEEE 802.1ae MACSec protocol. In addition to supporting EEE with the new generation of MACs, 88E1680M is capable of implementing EEE with legacy or non-EEE MAC devices. This accelerates time-to-market for customers offering EEE complaint networking solutions to leverage existing hardware and software while saving development costs. In addition, 88E1680M offers unprecedented cable length performance allowing customers to deploy across a wide base of cabling infrastructure. The Alaska V 88E1680M supports QSGMII (Quad-SGMII) MAC interface running at 5Gbps data-rate thus lowering pin-count, package costs, and reducing overall power consumption. This greatly complements Marvell's Prestera® DX family of high-density switches offering a highly efficient and cost-effective EEE compliant solutions.

Block Diagram



Marvell Alaska V 88E1680M Transceiver

Key Features

Features	Benefits
Ultra-low power	• 280mW/port at 1000Mbps with full traffic • Significant power savings on high port counts • Enables fan-less and/or heat sink-less designs
EEE (IEEE 802.3az) support	• Implements EEE with legacy or non-EEE MAC • Over 75% energy savings during idle periods • Seamless migration to EEE-based solutions with existing MACs
Integrated LinkCrypt Technology	• Implements IEEE 802.1ae MACSec protocol for secure, encrypted layer 2 transmission including encryption, decryption, authentication, and MACSec tag insertion and removal • Collects complete IEEE MAC and MACSec statistics on all ports
QSGMII MAC interface support	• Lower-pin count, lower power, simplified board layout
Synchronous Ethernet	• Accurate and low-cost clock recovery for Time-aware applications
IEEE 1588v2 support	• Enables highly accurate Precision Timing Protocol applications including wireless backhaul
Extra long cable-length performance	• Supports up to 170m Cat5/5e cables • Fully IEEE 802.3 compliant • Superior cable-length performance translates to improved margins across a wider base of cabling plants • Enables use of low-cost magnetics lowering BOM cost
Advanced Virtual Cable Tester® (VCT)	• Qualitative cable-plant diagnosis • Lowers Opex
Advanced Virtual Cable Tester® (VCT)	• Enables small-form factor designs • Enables fan-less or heatsink-less designs • Reduces PCB layer counts

Target Applications

The Alaska V 88E1680M enables a wide range of applications in spanning SMB to enterprise, metro Ethernet, and wireless backhaul. The 88E1680M is a key component of Marvell's cloud-infrastructure solutions enabling deployment of EEE-compliant public and private cloud systems. The time-aware features offered in 88E1680M — synchronous Ethernet and IEEE 1588v2 — are essential in metro Ethernet, industrial Ethernet and wireless backhaul.

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