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Product Brief

Marvell® Alaska® X 88X3240P Quad 10GBASE-T/10GBASE-R Ethernet Transceiver

with Linkcrypt and IEEE 1588v2 PTP Support

Features

- 4-port Quad-speed PHY
- Industry-leading, lowest power consumption across all cable lengths
- Lower power and latency mode for short data center cables
- IEEE 1588v2 timestamping and SyncE support
- MACsec function- full 802.1ae compliance supporting default cipher suite GCM-AES-128
- Integral FIFOs to absorb MACsec processing overhead; can operate in both cut-through and store forward modes
- Integral MACs ensure IEEE compliant statistics collection and timely response to pause frames
- Complete IEEE MAC and MACsec statistics collected for all ports
- Energy Efficient Ethernet (EEE) IEEE 802.3az for all supported data rates
- Auto-media detect for copper or fiber media plug-and-play
- Allows dense multi-port 10Gb applications
- XFI or RXAUI Host-side interface
- BER better than 10-15
- Second SERDES Lane can be used for redundant XFI Link to the host or as an optical interface to the line side
- Supports Category 6- (screened or unscreened), Category 6a- (Augmented) and Category
- Integrated Marvell Virtual Cable Tester® (VCT®) technology
- MDC/MDIO management interface
- Per-port in-band Frame to Register Access
- Failover mode with XFI host redundancy
- Small 23mmx23mm BGA package

Marvell Alaska X 88X3240P Overview

The Marvell® Alaska® X 88X3240P is a new Ethernet transceiver that is fully IEEE 10GBASE-T standard compliant. Manufactured with 28 nanometer (nm) lithography, the Marvell Alaska X 88X3240P enables a lower cost, low-power dissipation 10Gbps Ethernet design, eliminating the need for exotic optical modules in mainstream applications. The IEEE 10GBASE-T standard uses Digital Signal Processing (DSP) technology to enable the repurposing of low-cost Ethernet cables for 10 Gigabits-per-second (Gbps) data transmission, supplanting the use of optical technology for applications such as data center switches, storage units incorporating Fibre Channel over Ethernet (FCoE) connectivity, servers with 4x10GE ports and enterprise switching platforms.

Key Benefits

- Marvell Alaska X 88X3240P Ethernet Transceiver is a IEEE-standard compliant 10GBASE-T PHY capable of 10Gbps data rates over Unshielded Twisted Pair (UTP) cable.
- Marvell's first 28nm process technology Ethernet transceiver is a lower cost alternative to optical modules and can bring 10Gbps data rates to mainstream applications.
- Enables low-power dissipation and lower cost design; backward compatible and interoperable with legacy Ethernet standards.

Product Description

The Marvell Alaska X 88X3240P is a fully IEEE 802.3an 10GBASE-T-compliant 4-port physical layer (PHY) device that supports IEEE 802.3az Energy Efficient Ethernet (EEE). The latest addition to the Marvell portfolio of 10Gbps Marvell Alaska X transceivers, the Marvell Alaska X 88X3240P supports the host-side XFI and RXAUI interface, with SGMII support for full backward compatibility with lower speed legacy Ethernet rates including: 1Gbps, 100 Mbps and 10 Mbps.

The Marvell Alaska X 88X3240P is a complete single-chip solution for all Ethernet rates and achieves industry-leading low-power consumption. The flexibility of the Marvell Alaska X 88X3240P device enables extremely low power across all structured wiring cable lengths, enabling dense 10Gbps applications. The Marvell Alaska X 88X3240P supports Category 6- (screened or unscreened), Category 6a- (Augmented) and Category 7-type cables at full IEEE 802.3an range. The Marvell Alaska X 88X3240P enables both copper and fiber applications with its unique auto-media-detect mode. With this media plug-and-play feature the Marvell Alaska X 88X3240P can automatically detect whether there is a SFP+ fiber link, or if there is an active copper link partner connected to the RJ-45 (10 Gbps/1000 Mbps/100 Mbps/10 Mbps copper applications.) Depending on the preferred media type, the Marvell Alaska X 88X3240P will automatically switch to the fiber or copper line-side interface without any involvement from the user.

The Marvell Alaska X 88X3240P also incorporates the Marvell advanced Virtual Cable Tester (VCT) technology for cable fault detection and proactive cable performance monitoring. With advanced digital signal processing (DSP) the Marvell Alaska X 88X3240P can proactively monitor the performance of a cable and determine cable length and type. It can detect opens and shorts and can report the location of a fault.

The Marvell Alaska X 88X3240P supports the Marvell LinkCrypt® feature, which is based on the IEEE802.1ae MACsec protocol. The Marvell Alaska X 88X3240P device also supports features above those specified by the IEEE802.1ae MACsec protocol. These include the ability to select and filter uncontrolled port traffic, support of packet redirection by addition of a new MAC DA, SA and Ethertype, support of latency minimization for flow control packets and support for diagnostics, MACsec header retention and additional statistics counters.

The Marvell Alaska X 88X3240P has integrated 1-step PTP functionality in compliance with IEEE 1588 v2. PTP time-stamp processing is architected to contend with MACsec-encrypted PTP frames which cannot be parsed.

Block Diagram

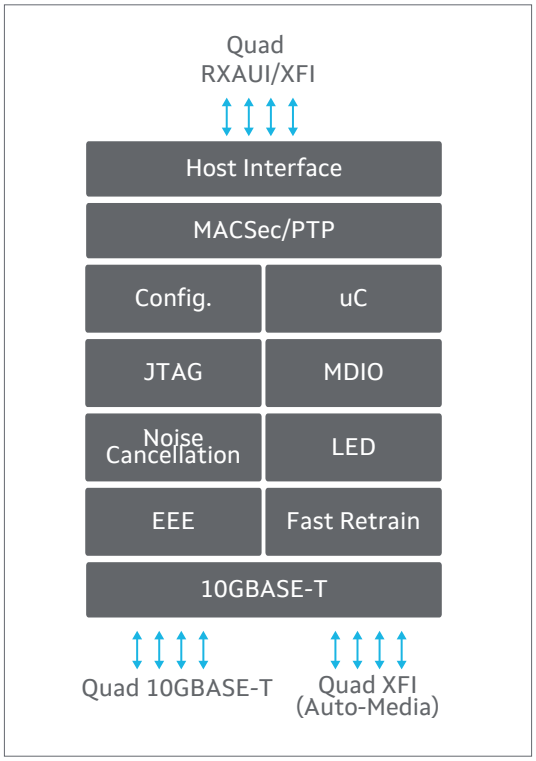

Fig 1. Marvell Alaska X 88X3240P

Features and Benefits

Features	Benefits
· Common Mode Sense EMI mitigation	· Allows for superior and faster EMI mitigation without the use of expensive 5th Channel magnetics.
· Lower power and latency for short data center cables	· Allows for lower operating expenses in data center environments
· Industry leading, lowest power consumption	· Permits higher density designs with less expensive thermal management techniques
· MACsec function- full 802.1ae compliance – Supporting default cipher suite GCM-AES-128	· Protects Ethernet links from unwanted intrusion and masquerading

Target Applications

- Data Center Switches
- Storage units incorporating FCoE connectivity
- Servers with 4X10GE ports
- Enterprise Switching Platforms

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Marvell first revolutionized the digital storage industry by moving information at speeds never thought possible. Today, that same breakthrough innovation remains at the heart of the company's storage, networking and connectivity solutions. With leading intellectual property and deep system-level knowledge, Marvell semiconductor solutions continue to transform the enterprise, cloud, automotive, industrial, and consumer markets. For more information, visit www.marvell.com.

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