PRODUCT OVERVIEW

The Marvell® Alaska® X transceiver (88X2040) is a CMOS 10 Gigabit XAUI Quad 3.125/3.1875 Gbps Serializer/ Deserializer (SERDES) device. The transceiver performs all the necessary XAUI to XGMII functions for 10 Gigabit Ethernet (GbE) and 10 Gigabit Fiber Channel applications, while achieving very low power dissipation of 1.3W. The Alaska X device includes an IEEE 802.3ae 10 Gigabit Media Independent Interface (XGMII) and 10 Gigabit Attachment Unit Interface (XAUI). The Alaska X 10 Gigabit transceiver incorporates four lanes operating up to 3.125/3.1875 Gbps, each with a selectable 8B/10B encoder/decoder. The four lanes can operate independently from 1.0 to 3.1875 Gbps to support a variety of backplane applications or can be configured as a single 10 Gigabit XAUI channel. The device allows the use of either 62.5, 125 or 156.25/159.375 MHz reference inputs to provide flexible clocking.
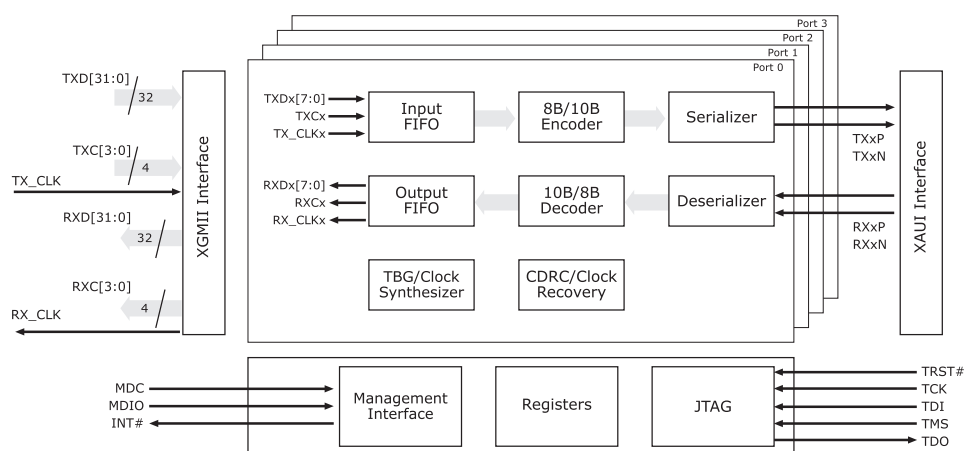

Fig 1. Alaska X 10 Gigabit Transceiver Block Diagram

FEATURES	BENEFITS
IEEE 802.3ae XGMII parallel interface	IEEE compliance
IEEE 802.3ae XAUI serial interface	IEEE compliance
Selectable 1.0 to 3.125/3.1875 Gbps data rates	Backward compatibility for backplane applications
Selectable 62.5/125/156.25/159.375 MHz reference frequencies	Timing flexibility
Selectable 8B/10B encoder/decoder	Enables proprietary coding
Independent clock generator and CDR per channel	Robust performance
Programmable pre-emphasis and amplitude	Enables longer PCB traces
On-chip serial terminations (50 ohms)	Fewer external components
Power dissipation: 1.3W	Low overall system power
1.5V or 1.8V XGMII HSTL I/O	Interface flexibility
IEEE 802.3ae MDIO interface	Easy programmability
IEEE 1149.1 JTAG test interface	Superior manufacturability
Low cost 256-pin TFBGA package (17mm x 17mm)	Less board space
0.15-micron digital CMOS process	State-of-the-art production process

MARVELL®

APPLICATIONS

The Marvell Alaska X transceiver operates as the XAUI to XGMII converter between optical modules and switch devices in 10 GbE and 10 Gigabit Fiber Channel applications. The device connects to the optical modules such as XENPAK MSA using the XAUI interface, and to the switch devices using the XGMII interface.

The Alaska X transceiver features powerful amplitude and pre-emphasis controls, which allow the device to be used as a highly robust backplane SERDES. The device can operate over 60 inches of generic backplane PCB traces with multiple connectors making it ideal for chassis-based switching systems.

The Alaska X transceiver is also well-suited for 10 Gigabit copper connections such as interconnect links between stackable switching systems, uplink connections and chassis-to-chassis connections. The device enables 10 Gigabit operation over standard copper cables such as 15 meters of standard InfiniBand™ 8-pair cable with 24 gauge copper wires.
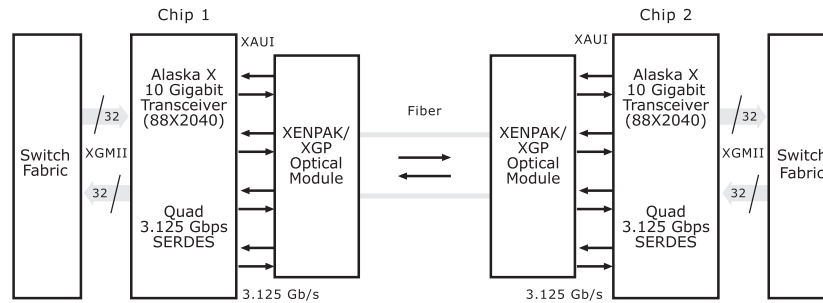

Fig 2. Alaska X 10 Gigabit Transceiver Application Diagram

THE MARVELL ADVANTAGE: The Marvell Alaska X 10 Gigabit XAUI to XGMII transceiver comes 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.