Product Brief

Marvell® ALASKA® C 88X5113

Integrated 40GbE to 25GbE Gearbox, Quad 25G Ethernet Transceiver with Copper Cable and Backplane Drive Capability

Overview

The Marvell® Alaska® C 88X5113 is a fully integrated Ethernet transceiver that performs the Gearbox functionality required to translate from 40G Ethernet to 25G Ethernet. The device supports 25GbE full duplex transmission, over a variety of media including optics, passive copper cables and backplanes.

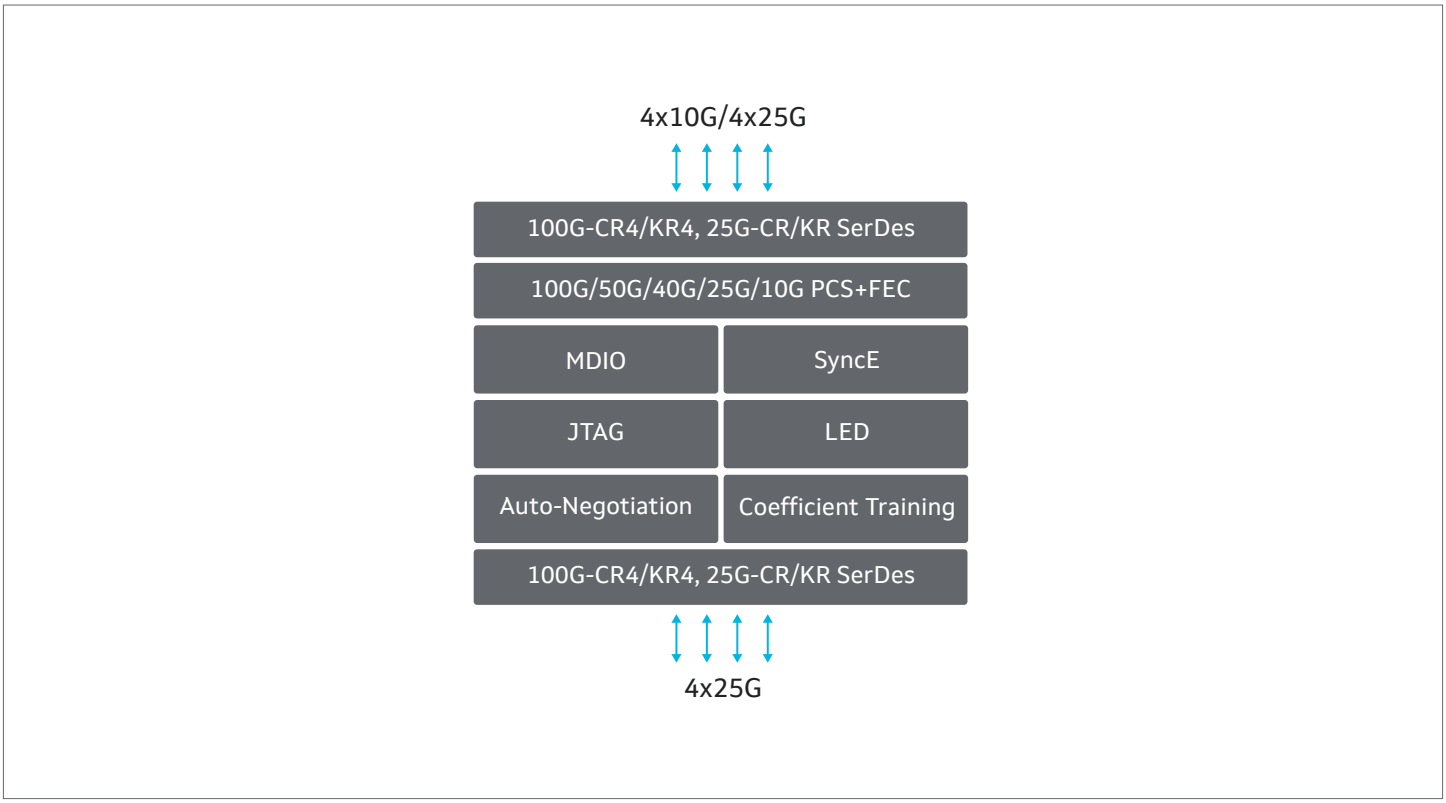
Manufactured with 28 nanometer (nm) lithography, in a small 14mm x 14mm 169 pin FCBGA package footprint, the Alaska C 88X5113 enables low-power dissipation, 25GbE server NIC and line card designs.

The device also operates as a Quad port 25G Ethernet/ Single port 100G Ethernet PHY. The 88X5113 supports a protocol agnostic transparent retimer mode for a low latency applications, and for non-Ethernet applications such as Fibre Channel and CPRI.

The line interface and host interfaces of the 88X5113 are fully compliant to the IEEE 802.3bj and IEEE 802.3by standards 100Gb and 25Gb Ethernet operation. The device supports all the FEC configurations specified by IEEE 802.3bj, and 802.3by standards as well as the 25/50G Ethernet consortium. The device also supports auto-negotiation and coefficient training protocol required by the IEEE 802.3 specifications, for twinaxial cable and backplane applications. The device has a fully symmetric architecture with Long Reach SerDes and FEC capabilities on both the line and host interfaces, to enable flexible system design.

The device includes internal PRBS generators and packet generators, as well as loopbacks to assist with test and debug. In addition, non-destructive eye monitoring is supported on all high speed I/Os.

Block Diagram



Key Features

Features	Benefits
40GbE to 25GbE Gearbox functionality	• Enables support of 25GbE on existing 40GbE NIC/Switch devices
Fully compliant to IEEE 802.3by standard for 100GbE	• Enables designs fully complaint to IEEE 25GbE specifications
Fully compliant to IEEE 802.3j standard for 100GbE	• Enables IEEE compliant 100GbE designs
Support for 25G/Consortium mode of operation	• Seamless interoperability with 25G consortium compliant legacy systems
Long Reach Host and Line SerDes	• Can compensate for an Insertion Loss of up to 30dB without FEC
Integrated IEEE Auto-negotiation and Training protocol	• Seamless interoperability with IEEE compliant devices from other vendors
Integrated 100G/25G FEC, and Auto-negotiation and Coefficient Training functionality on both host and line interfaces	• Fully symmetric architecture to enable flexible system designs
Low latency retimer mode	• For low latency retiming applications, and non-Ethernet applications such as Fibre Channel and CPRI
Non-destructive eye monitoring capability on all high speed lanes	• Allows for link quality monitoring during mission mode

Target Applications

- 25GbE Server NIC Cards
- 25GbE/100GbE Line Cards
- 100G-KR4/25G-KR backplanes

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