Product Brief

Marvell® Alaska® M Multi-Gigabit Ethernet Transceivers

88E2180/88E2110
5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX/10BASE-Te Ethernet PHYs

Product Overview

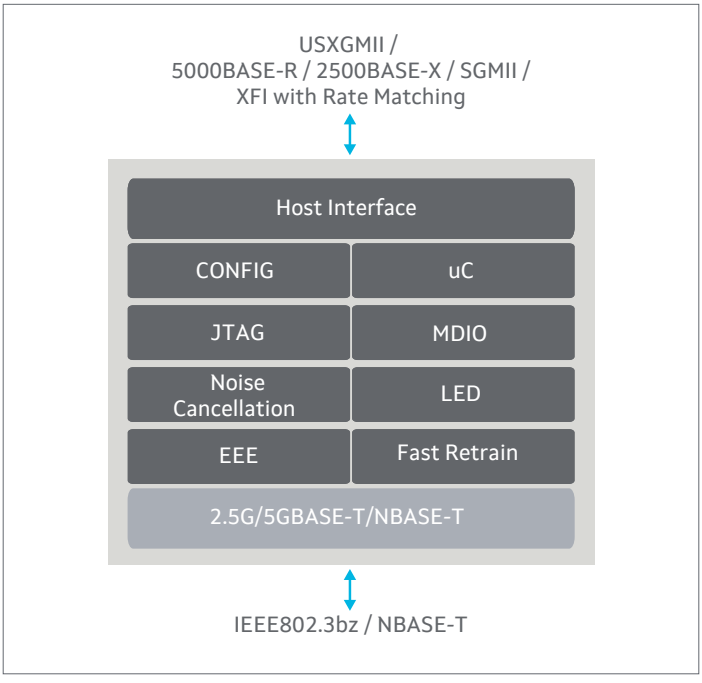
The Marvell® Alaska® M 88E2180 is the world's first octal Multi-Gigabit Ethernet transceiver that is compatible with both IEEE 802.3bz standard and NBASE-T Alliance specification for 2.5 and 5 Gbps operation over CAT5e cables. The 88E2180 device supports multiple network ports over a single SERDES for Multi-Gigabit technology at 5G/2.5G/1G/100M/10M data rate through USXGMII-M interface.

Part of the 88E21xx device family, this transceiver enables a lower cost, low-power dissipation 5GBASE-T / 2.5GBASE-T / 1000BASE-T / 100BASE-TX / 10BASE-Te Ethernet designs. Using Digital Signal Processing (DSP) technology to enable the repurposing of low-cost Ethernet CAT5e cables for data rates as high as 5Gbp/s, the 88E21xx device family supports higher speed connectivity for applications such as workstations, high-end PCs, NICs, as well as the high-bandwidth 802.11ax and 802.11ac Wave 2 Access Point backhaul which exceeds the speed capabilities of existing 1GbE connections. The 8-port 88E2180 device enables high-density enterprise switch applications.

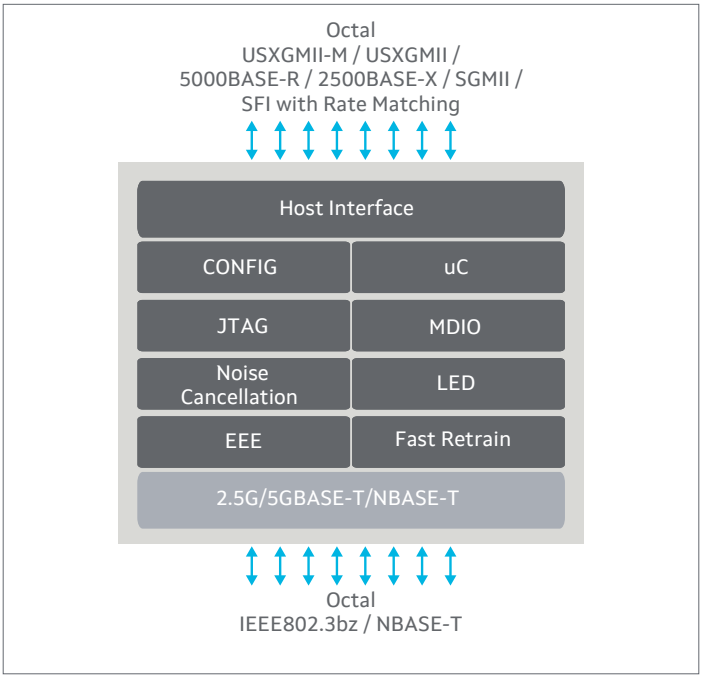
The Marvell Alaska M 88E21xx family supports IEEE 802.3az Energy Efficient Ethernet (EEE). It also incorporates the Marvell advanced Virtual Cable Tester (VCT) technology for cable fault detection and proactive cable performance monitoring. With advanced digital signal processing (DSP) the transceiver can proactively monitor the performance of a cable and determine cable length and type. It also detects opens and shorts and can report the location of a fault.

The device family supports a wide variety of host-side interfaces including USXGMII, XFI with Rate Matching, 5000BASE-R, 2500BASE-X, and SGMII to support full backward compatibility with lower speed legacy Ethernet rates. The octal E2180 also supports USXGMII-M interface.

Block Diagram



Marvell Alaska 88E2110



Marvell Alaska 88E2110

Key Features and Benefits

Features	Benefits
· 2.5G and 5G data rates over CAT5e cable	· Allows for backhauling 802.11ax and 802.11ac Wave 2 Access Point data over installed base Enterprise wiring
· CAT5e cable long reach	· Capable of 2.5 and 5 Gbps data rates over 100m of CAT5e cable
· Industry leading, lowest power consumption	· Permits higher density designs with less expensive thermal management techniques
· Common Mode Sense EMI mitigation	· Allows for superior and faster EMI mitigation without the use of expensive 5th Channel magnetics
· Virtual Cable Tester (VCT)– On-chip cable diagnostics	· Cable fault detection, cable performance monitoring and determine cable length and type
· Multi-Port USXGMII host interface	· Transmit multiple MAC data streams to a multi-port PHY device through only a single serial link to enable one 10G SERDES to support 4-port 2.5G or 2-port 5G connections
· Package	· The 88E2110 is a single port device in a small 7x11 mm FCBGA package optimized for Access Points and SFP+ Modules · The 88E2180 is an eight-port device in a compact 19x19 mm FCBGA package optimizing for efficient high-density switch designs

Target Applications

- 802.11ax and 802.11ac Wave 2 Access Point backhaul
- Workstation, high end PC and NIC card
- Industrial camera
- Airborne media
- Enterprise switch and router
- SFP+ Media Convertor

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