

Marvell® Brightlane™ 88EA1517 10/100Mbps PHY for OBD

Integrated 10/100 Mbs EEE Transceivers for Automotive Applications

Overview

Marvell® Brightlane™ 88EA1517 100 Mbs Ethernet Transceivers are physical layer devices containing a single Gigabit Ethernet transceiver. The transceiver implements the Ethernet physical layer portion of the 100BASE-TX, and 10BASE-T standards.

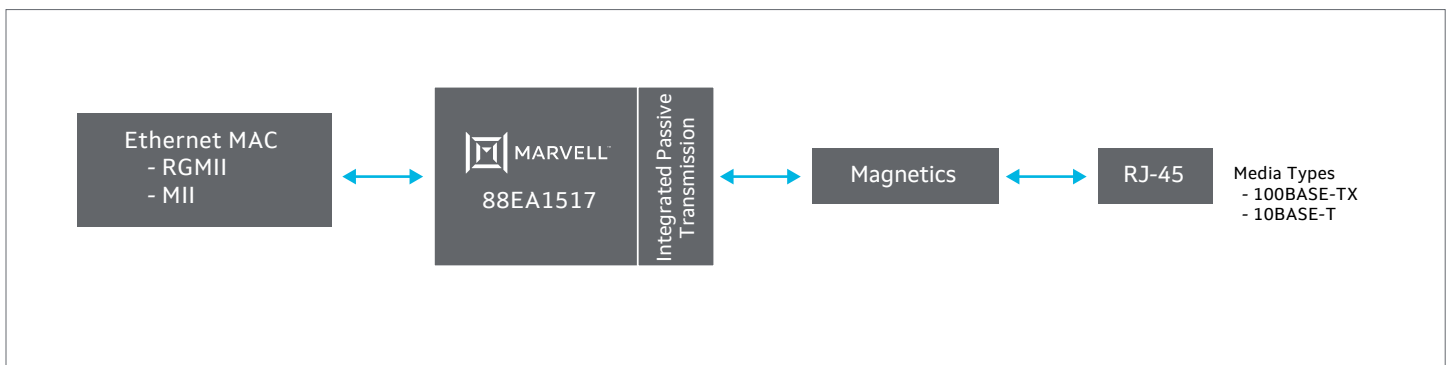
The transceiver is qualified for automotive applications and is fully AECQ100 qualified. The part supports a wide range of automotive applications when RGMII (Reduced pin count GMII for direct connection) to Copper or MII to Copper connection is required.

The device also integrates MDI interface termination resistors into the PHY. This resistor integration simplifies board layout and reduces board cost by reducing the number of external

components. The new Marvell calibrated resistor scheme will achieve and exceed the accuracy requirements of the IEEE 802.3 return loss specifications.

The 88EA1517 device has an integrated switching voltage regulator to generate all required voltages and can run off a single 3.3V supply; the device supports 1.8V, 2.5V, and 3.3V LVCMOS I/O Standards. This device uses advanced mixed-signal processing to perform equalization, echo and crosstalk cancellation, data recovery, and error correction at a gigabit per second data rate. The 88EA1517 achieves robust performance in noisy environments with very low power dissipation.

Block Diagram



The Marvell Brightlane™ 88EA1517 Transceivers for OBD

Key Features

Features	Benefits
Automotive Qualified	<ul style="list-style-type: none">• AEC-Q100• Automotive Grade 2 (-40 °C to +105 °C)
Package Characteristics	<ul style="list-style-type: none">• 40-pin QFN package, 0.5 mm pitch, 6mmx6mm
Modes of Operation	<ul style="list-style-type: none">• MII to Copper (10/100BASE-T/TX)• RGMII to Copper (10/100BASE-T/TX)
Low Latency	<ul style="list-style-type: none">• Reduces the PHY latency (transmit and receive) by up to 40 percent compared to non-optimized designs• Total (RX+TX) latency < 400 ns (for both 100BASE-TX and 1000BASE-T modes with 1518 byte frames)
EEE Support (IEEE 802.3az)	<ul style="list-style-type: none">• Extended energy savings through incorporation of the IEEE 802.3az standard
IEEE 1588v2 support with hardware acceleration	<ul style="list-style-type: none">• Enables applications such as industrial automation and wireless backhaul with highly accurate Precision Time Protocol• Supports hardware accelerated 2-Step PTP and 1-Step PTP
Integrated Switching Voltage Regulator	<ul style="list-style-type: none">• Allows devices to run off single 3.3V supply
Wake on LAN (WoL)	<ul style="list-style-type: none">• Power savings through programmable lower power event/ pattern and link change detection
Advanced Virtual Cable Tester® (VCT™)	<ul style="list-style-type: none">• Detects and reports potential cabling issues to within one meter of the distance to the fault
Expanded PHY addresses	<ul style="list-style-type: none">• Offers 16 PHY addresses for easier programming

Target Applications

88EA1517 is an ideal 10/100Mbps PHY Transceiver for automotive OBD applications using MII/RGMII interface



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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