PRODUCT BRIEF

BRIGHTLANE™ 88EA1512 10/100/1000 Mbs PHY media convertor

Integrated 10/100/1000 Mbs EEE transceivers for automotive applications

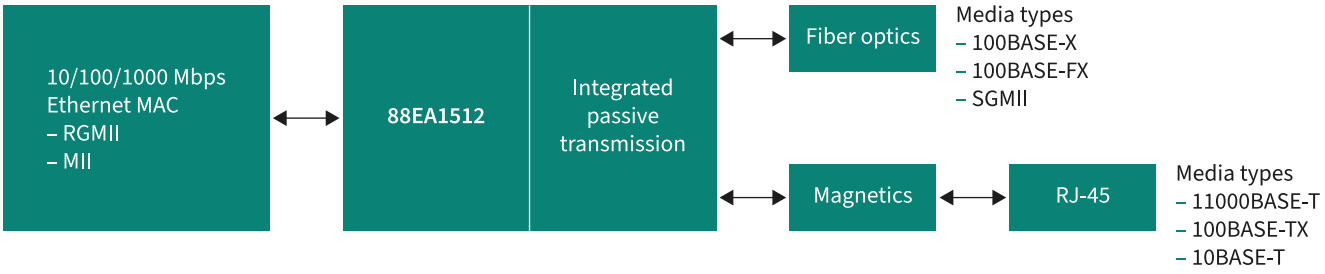
The BRIGHTLANE ™ 88EA1512 Gigabit Ethernet transceivers are physical layer devices containing a single Gigabit Ethernet transceiver. The transceiver implements the Ethernet physical layer portion of the 1000BASE-T, 100BASE-TX, and 10BASE-T standards.

The transceiver is qualified for automotive applications and is fully AEC-Q100 qualified. The part supports a wide range of automotive applications, including when RGMII (Reduced pin count GMII for direct connection) to copper/fiber/SGMII with Auto-Media Detect, RGMII to copper, RGMII to SGMII/fiber, and SGMII 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 Infineon calibrated resistor scheme will achieve and exceed the accuracy requirements of the IEEE 802.3 return loss specifications.

The 88EA1512 device has an integrated switching voltage regulator to generate all required voltages and can run off a single 3.3 V supply; the device supports 1.8 V, 2.5 V, and 3.3 V 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 88EA1512 achieves robust performance in noisy environments with very low power dissipation.

The BRIGHTLANE™ 88EA1512 transceivers and media convertor



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Key features

Features	Benefits
Automotive qualified	– AEC-Q100 – Automotive grade 2 (-40 to +105°C)
Package characteristics	– 56-pin QFN package, 0.5 mm pitch, 8 x 8 mm
Modes of operation	– MII to copper (10/100BASE-T/TX) – RGMII to copper (10/100/1000BASE-T/TX/T) – SGMII to copper (10/100/1000BASE-T/TX/T) – RGMII to fiber (1000BASE-X) – RGMII to SGMII – RGMII to copper/fiber/SGMII (Auto-Media Detect)
Low latency	– 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)	– Extended energy savings through incorporation of the IEEE 802.3az standard
IEEE 1588v2 support with hardware acceleration	– 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	– Allows devices to run off single 3.3 V supply
Wake on LAN (WoL)	– Power savings through programmable lower power event/ pattern and link change detection
Advanced Virtual Cable Tester® (VCT™)	– Detects and reports potential cabling issues to within one meter of the distance to the fault
Expanded PHY addresses	– Offers 16 PHY addresses for easier programming

Target applications

88EA1512 is an ideal media converter from SGMII to RGMII and vice versa, and has can be deployed in various domain the car, including:

– Automotive infotainment systems
– Advanced driver assist systems
– Automotive diagnostics
– Body electronics

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