

# Broadcom BCM89610 Automotive Physical Layer Technology

Connecting everything®



## SINGLE-PORT 10BASE-T/100BASE-TX/1000BASE-T AUTOMOTIVE GIGABIT ETHERNET TRANSCEIVER

### Overview

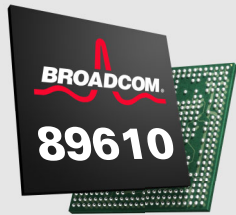
The BCM89610 is a triple-speed 10/100/1000Base-T Gigabit Ethernet (GbE) transceiver integrated into a single monolithic CMOS chip. The device performs all of the physical layer (PHY) functions for 1000Base-T, 100Base-TX, and 10Base-T Ethernet packets over copper wire, such as FlexRay™. The 10Base-T Ethernet can also run on standard categories 3, 4, and 5 UTP. The BCM89610 is designed to exceed automotive specifications for noise cancellation and transmission jitter, providing consistent and reliable operation over the broadest range of existing cable plants.

### Architectural Features

- Single-chip integrated triple-speed Ethernet transceiver. Support for the following copper line interfaces:
  - 1000Base-T IEEE 802.3ab
  - 100Base-TX IEEE 802.3u
  - 10Base-T IEEE 802.3
- Supports Ethernet@Wirespeed(TM)
- Fully integrated twisted-pair termination resistors
- Trace-matched output impedance

### Product Family Features

- Specific architectural and design enhancements are utilized to increase design for test, reliability, and quality to surpass AEC-Q100 and EMC requirements.
- Designed to support IEEE 1588 timing function.
- Small size footprint support with 48-pin MLP package.
- Automotive cable diagnostics feature can detect pair open/short and distance.

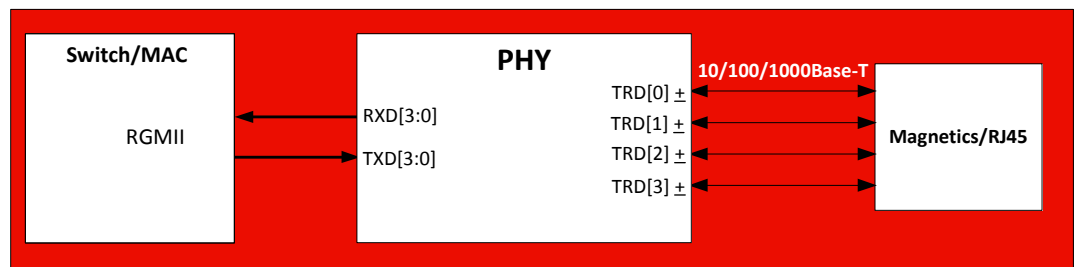


### Highlights

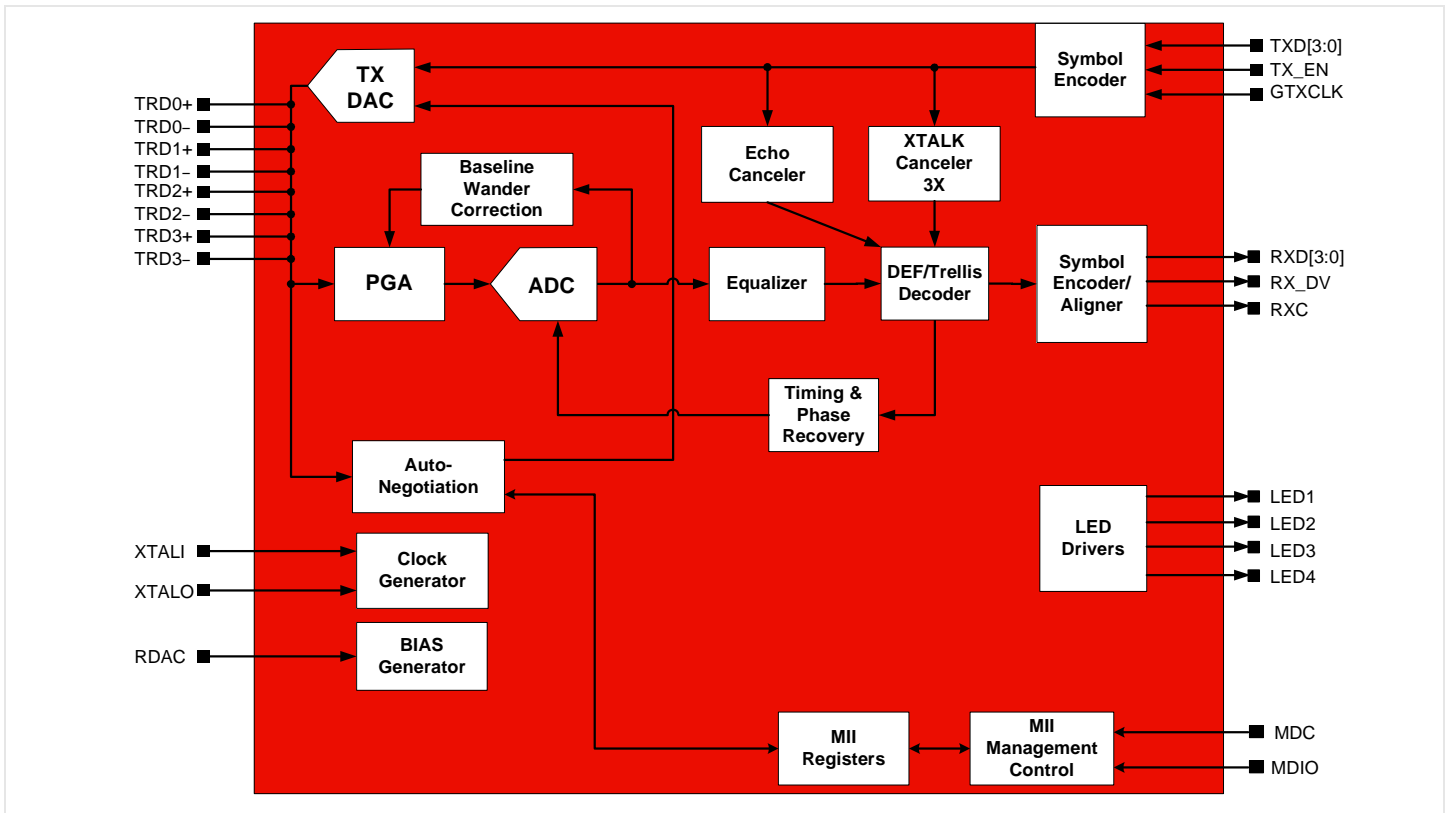
- Widely deployed triple-speed 10/100/1000Base-T Gigabit Ethernet (GbE) physical layer transceiver.
- Advanced power savings with Green technology.
- Highly optimized for multiple in-car endpoint applications.
- Enhanced design to meet stringent automotive production requirements.
- Supports various interface options for connectivity to external devices, making it the perfect solution for in-car applications such as onboard diagnostics.

BCM89610	
Automotive	●
Industrial Automation	●
Broadband Access	●

● Supported ● Best Choice



BCM89610 System Diagram



BCM89610 Block Diagram

The BCM89610 is based on Broadcom's proven digital-signal processor technology, combining digital adaptive equalizers, ADCs, phase-locked loops, line drivers, encoders, decoders, echo cancelers, and all other required support circuitry. The BCM89610 is designed to be fully compliant with RGMII and MII interface specifications, allowing compatibility

with industry-standard Ethernet media access controllers (MACs) and switch controllers.

Designed for reliable operation over worst-case Category 5 cable plants, the BCM89610 automatically negotiates with its link partner to determine the highest possible operating speed. The device detects and corrects most common wir-

ing problems. The device detects and corrects polarity automatically.

The BCM89610 delivers the most comprehensive automotive technology solution required by OEM and Tier 1 suppliers, meeting or exceeding CISPR 25 component-level, ISO 11452-5 Stripline, ISO 11452-4, IEC 61000-4-2, AEC-Q100, and Grade 1 temperature range.

## Ordering Information

48-pin MLP (RoHS-compliant package)

## Part Number

BCM89610A2AMLG

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These solutions support our core mission: Connecting everything®.

Broadcom, one of the world's largest fabless communications semiconductor companies, with 2010 revenue of \$6.82 billion, holds more than 4,800 U.S. and 2,000 foreign patents, and has more than 7,800 additional pending patent applications, and one of the broadest intellectual property portfolios addressing both wired and wireless transmission of voice, video, data and multimedia.

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