

# Broadcom BCM84836 Dual 10GBASE-T Transceiver

Connecting everything®



## DUAL-PORT 10GBASE-T TRANSCEIVER



### Highlights

- The BCM84836 is a new member of the Broadcom 40 nm 10GBASE-T family.
- The small 21 mm package size reduces the footprint for 10GBASE-T, ideal for servers and networking uplink modules.
- EEE provides significant power reduction with AutogrEEEn delivering EEE for legacy MACs.
- IEEE 1588 Precision Time Protocol (PTP) provides precise and accurate synchronization of nodes in the network.
- Line-side XFI interface supports dual-media applications, when both RJ45 and SFP+ require support from a single XFI MAC interface.

### Overview

The Broadcom® BCM84836 is a complete dual 100BASE-TX, 1000BASE-T, and 10GBASE-T solution operating at 100m over CAT6a UTP cable. It is based on highly advanced digital signal processor-based architecture to allow robust operation over worst case UTP cables. The BCM84836 is a highly integrated solution combining enhanced analog front ends with digital adaptive equalizers, ADCs, phase-locked loops, line drivers, LDPC encoders and decoders, echo cancellers, crosstalk cancellers, and all required support circuitry.

### Summary of Benefits

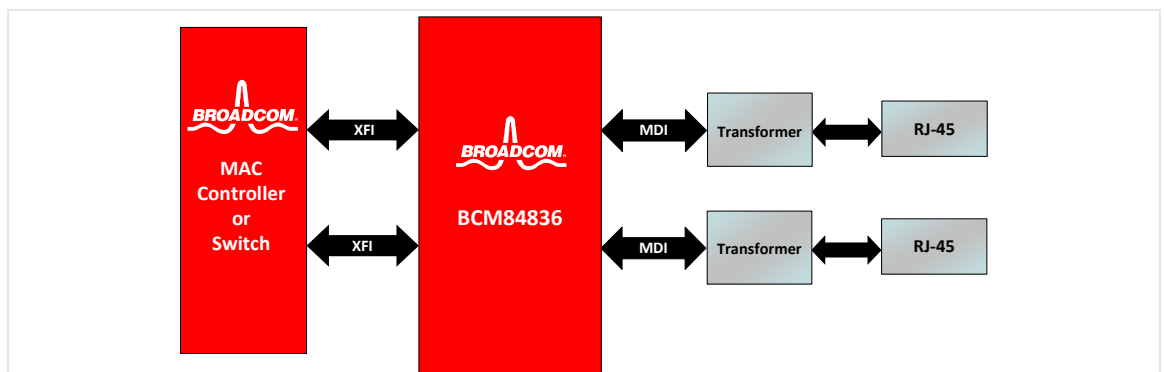
- Robust operation over 100m Cat6a cables with industry-standard four-pair magnetics
- Simplifies system and board design:
  - Reduces PCB space
  - Lowers system bill of materials (BOM)
- IEEE standard device interoperability: 100 Mbps, 1000 Mbps, and 10 Gbps.
- Cuts design constraints to meet EMI standards.
- Cable diagnostics identifies cable plant condition to immediately trace cabling issues.
- IEEE 1588v2 with one-step timestamp insertion provides high-accuracy timing

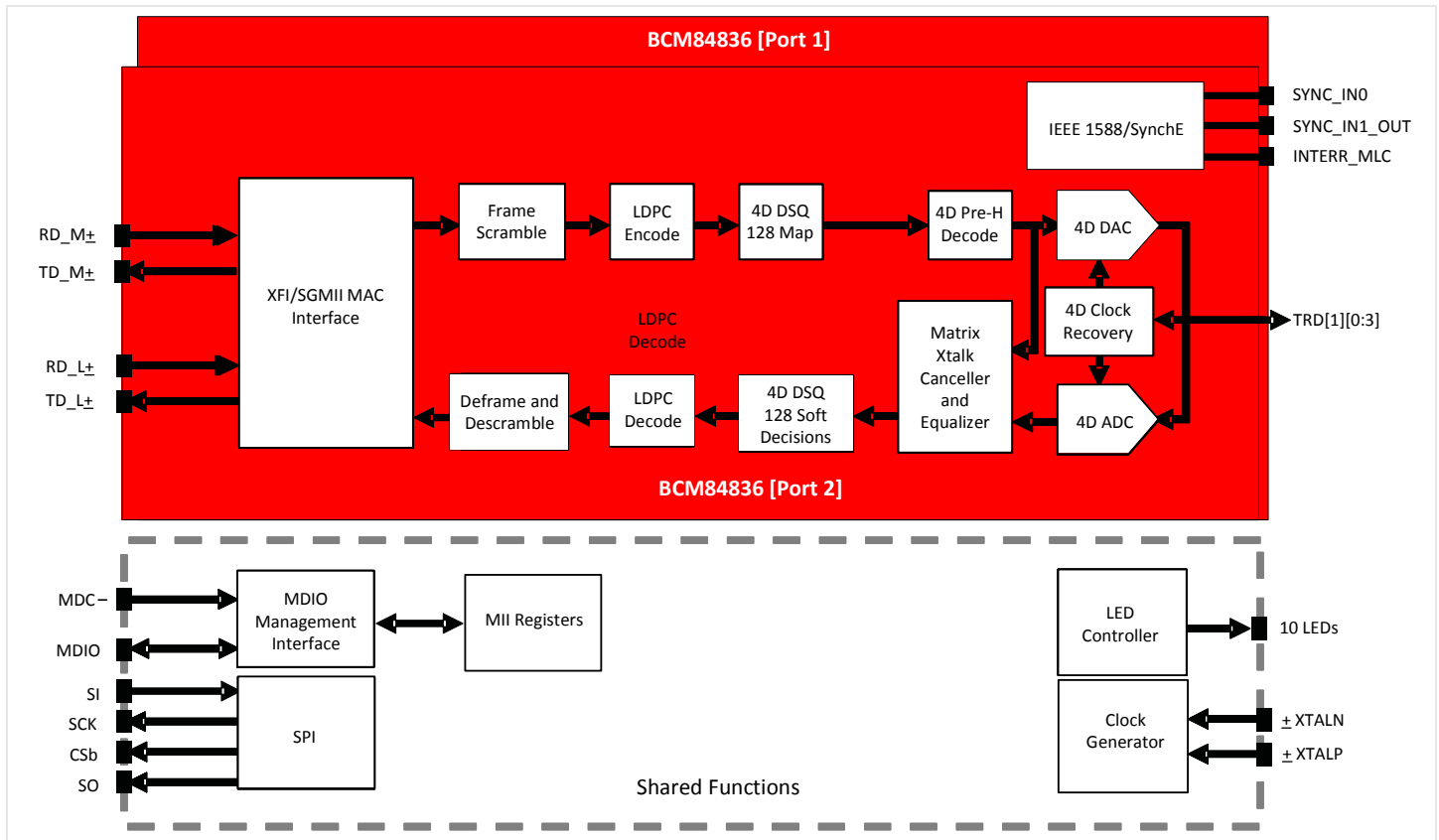
### Features

- Highly integrated two-port 10GBASE-T Ethernet transceiver.
- Supports multiple speeds: 10GBASE-T, 1000BASE-T, and 100BASE-TX.
- XFI and SGMII MAC interface.
- Compliant with IEEE 802.3™, IEEE 802.3an, IEEE 802.3ab, IEEE 802.3u, and IEEE 802.3az standards.
- AutogrEEEn® permits legacy MACs to enjoy the power savings of Energy Efficient Ethernet™ (EEE) in periods of reduced link utilization.
- Reduced number of supplies, standard voltages: 1.0V and 2.5V.
- BCM84836S version provides single-port operation at optimized power.
- Synchronous Ethernet support.
- Line-side XFI enables dual-media applications.
- Cable plant diagnostics.
- IEEE standard 1588-2008 (version 2) support.
- Detection and correction of pair swaps (MDI crossover), pair skew, and pair polarity.
- Support for jumbo packets up to 18 KB.
- Super-Isolate mode to completely disable selected port.
- 10m mode offers reduced latency and power.
- Extensive selection of both line and network side loopbacks.
- 400-pin FBGA 21 mm x 21 mm package.

	BCM84836
Service Provider	●
OTN/PTN	●
Data Centers	●
Enterprise	●

● Supported ● Best Choice





**BCM84836 Block Diagram for Each Port**

Each BCM84836 port contains an XFI interface to connect to the MAC side as well as an XFI interface on the line side to connect to an external SFP+ cage (typically through an external XFI to SFI+ converter device such as the BCM8752). This dual-port PHY enables customers to design dual-port PCIe™ NICs and full-featured dual-media 10GBASE-T modules in switching applications.

The 40 nm process offers the best performance, lowest cost, and lowest power for 10-Gigabit copper applications and enables a highly integrated solution.

The BCM84836 incorporates various advanced features. Support for Energy Efficient Ethernet is provided both through LPI commands over the XFI interface as well as via Broadcom's

AutogrEEEn feature. Support for 1588v2 in the BCM84836 is part of Broadcom's broad offering of PTP devices.

The BCM84836\_EVAL is available, and it provides a reference design platform suitable for evaluation of the device. Other support information includes a design guide. Contact your Broadcom sales representative for more information.

**Ordering Information**

**Part Number**

400-pin FBGA (RoHS-compliant)	BCM84836B1KFEBG
400-pin FBGA (RoHS-compliant) single-port	BCM84836SB1KFEBG

**About Broadcom**

Broadcom Corporation is a major technology innovator and global leader in semiconductors for wired and wireless communications. Broadcom® products enable the delivery of voice, video, data and multimedia to and throughout the home, the office and the mobile environment. We provide the industry's broadest portfolio of state-of-the-art system-on-a-chip and software solutions to manufacturers of computing and networking equipment, digital entertainment and broadband access products, and mobile devices.

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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