

Broadcom BCM84846 Dual 10GBASE-T Transceiver

Connecting
everything®



DUAL-PORT 10GBASE-T TRANSCEIVER

Highlights

- The BCM84846 offers low power in this second-generation 40 nm 10GBASE-T device.
- The small 21 mm package size reduces the footprint for 10GBASE-T, ideal for servers and networking uplink modules.
- Energy Efficient Ethernet™ (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 RJ-45 and SFP+ require support from a single XFI MAC interface.
- 802.1ae MACsec Security.

	BCM84846
Service Provider	●
OTN/PTN	●
Data Centers	●
Enterprise	●

● Supported ● Best Choice

Overview

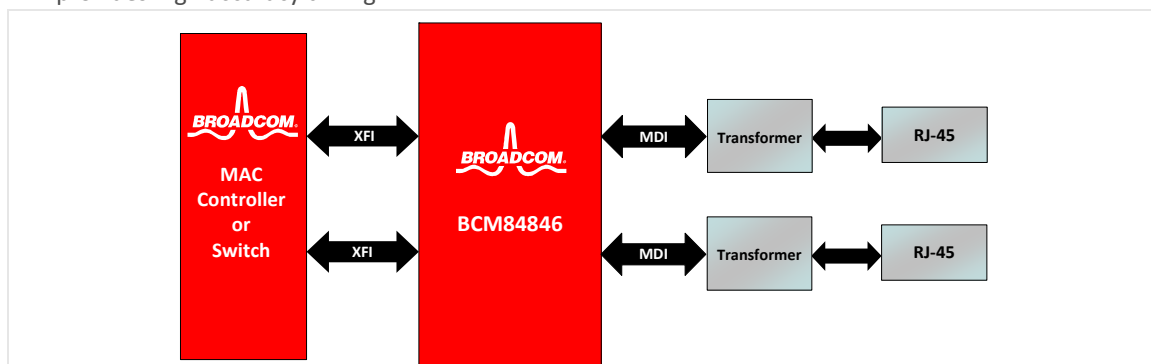
The Broadcom® BCM84846 is a complete dual 100BASE-TX, 1000BASE-T, and 10GBASE-T solution operating at 100m over CAT6a UTP cable. The BCM84846 is pin-compatible with the earlier BCM84836, offering lower power while adding Energy Efficient Ethernet (EEE) for 1000BASE-T and 100BASE-TX in addition to 10GBASE-T. Optional Adaptive Voltage Scaling (AVS) delivers a low power solution while enabling a low cost implementation. The BCM84846 has a highly advanced digital signal processor based architecture to allow robust operation over worst-case channels.

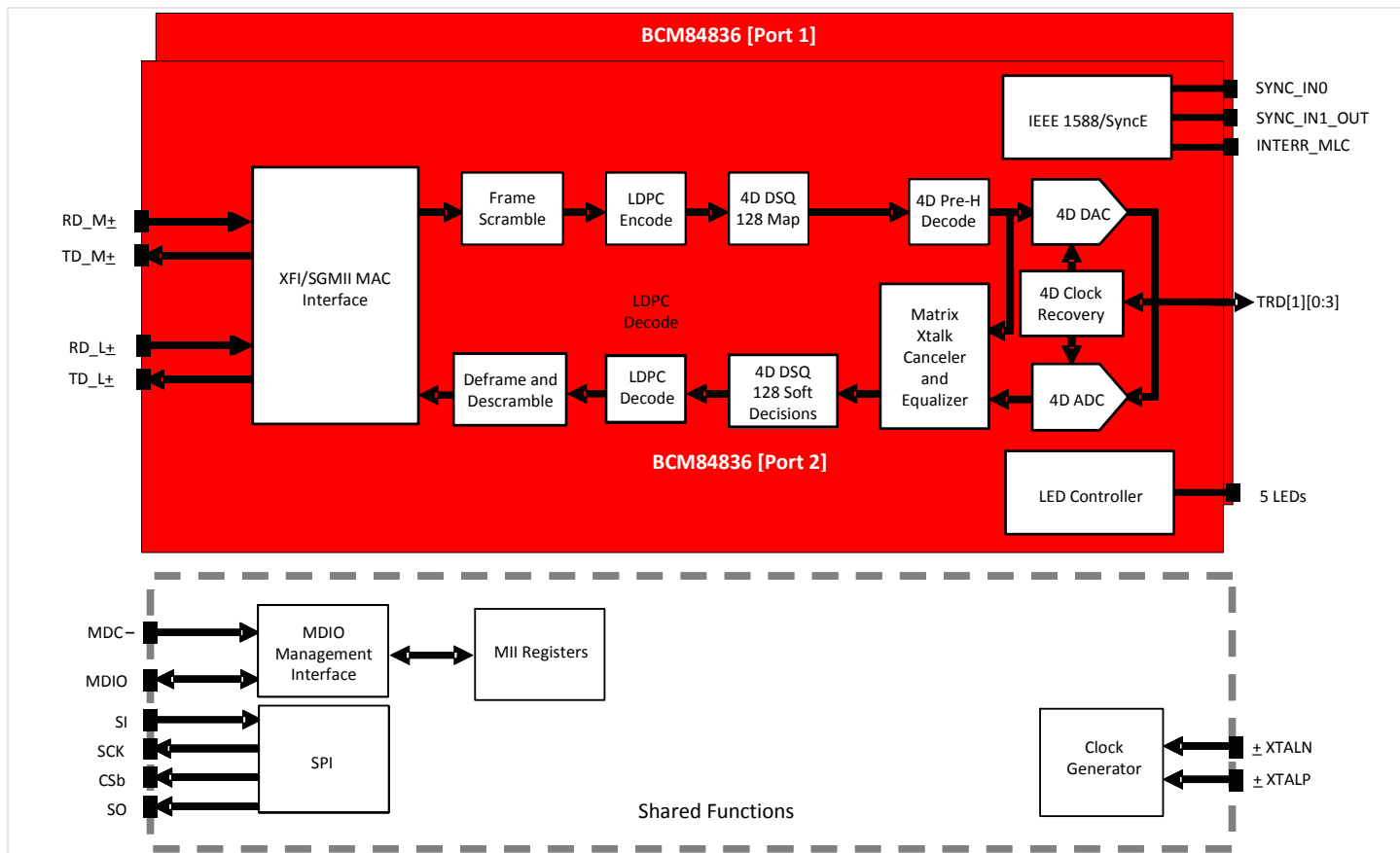
Summary of Benefits

- 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)
- AVS enables lower power with ability to lower implementation cost
- EEE on GbE delivers lower power for legacy interconnections.
- 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.
- 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 technology permits legacy MACs to enjoy the power savings of EEE in periods of reduced link utilization.
- Reduced number of supplies, standard voltages: 1.0V and 2.5V.
- BCM84846S version provides single-port operation at optimized power.
- Synchronous Ethernet (SyncE) 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.





BCM84846 Block Diagram for Each Port

The BCM84846 dual-port PHY enables customers to design dual-port PCIe™ adapters and full-featured dual-media 10GBASE-T modules in switching applications. The BCM84846 is a second-generation 40 nm device that adds important features such as EEE on 1000BASE-T and AVS, which can drive down implementation cost and power.

The MAC interface for the BCM84846 is a high-performance XFI I/O. Support for

Energy Efficient Ethernet is provided both through LPI commands over the XFI interface as well as via Broadcom's AutogrEEEn feature. EEE is supported for all three speeds: 10GBASE-T, 1000BASE-T, and 100BASE-TX. Support for 1588v2 in the BCM84846 is part of Broadcom's broad offering of PTP devices. Similarly, the IEEE 802.1ae MACsec implementation is part of Broadcom's broad offering of security devices. Each port also offers a second XFI line-side interface suitable for

dual-media applications, driving an external SFP+ cage (typically through an external XFI to SFI+ converter device such as the BCM84752).

The BCM984846_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 information.

Ordering Information

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

Part Number

BCM84846A0KFSBG
BCM84846SA0KFSBG

About Broadcom

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office, and mobile environments. With the industry's broadest portfolio of state-of-the-art system-on-a-chip and embedded software solutions, Broadcom is changing the world by Connecting everything®. For more information, go to www.broadcom.com.

