

# Broadcom BCM84844 Quad 10GBASE-T Transceiver

Connecting everything®



## FOUR-PORT 10GBASE-T TRANSCEIVER



### Highlights

- The BCM84844 offers low power in a second-generation 40 nm 10GBASE-T device which is pin compatible with the earlier BCM84834 device.
- Energy Efficient Ethernet™ (EEE) is now delivered on all network speeds: 10GBASE-T, 1000BASE-T, and 100BASE-TX. EEE provides significant power reduction, and AutogrEEEn® enables EEE with legacy MACs.
- Quad 10GBASE-T PHYs are ideal for 48-port, top of rack (ToR) switches, and 4x 10GbE adapters.
- Simplified system design with only two power supplies and no external MDI components.
- Broadcom-enhanced cable diagnostics estimates cable length and detects cable or termination anomalies.
- 1588 Precision Time Protocol (PTP) provides precise and accurate synchronization of nodes in the network.

### 802.1ae MACsec Security

	BCM84844
Service Provider	●
OTN/PTN	●
Data Centers	●
Enterprise	●

● Supported ● Best Choice

### Overview

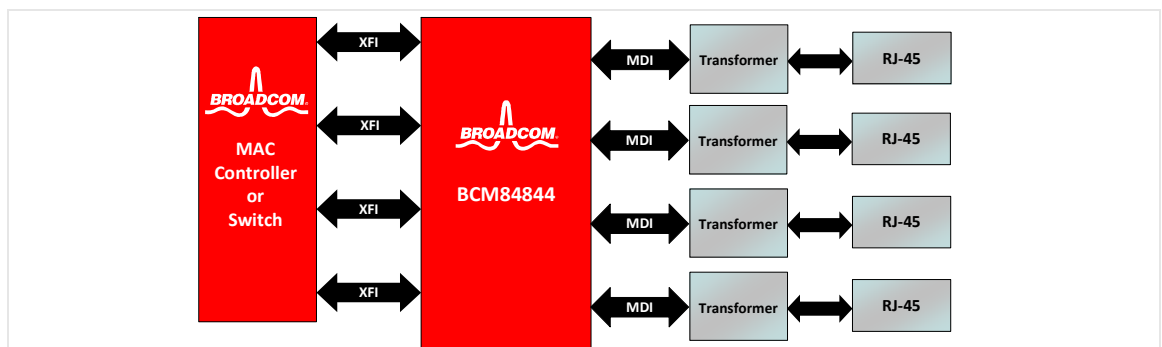
The Broadcom® BCM84844 is a complete quad 100BASE-TX, 1000BASE-T and 10GBASE-T solution operating at 100m over CAT6a UTP cable. The BCM84844 is pin-compatible with the earlier BCM84834 device, offering lower power while adding Energy Efficient Ethernet (EEE) for 1000BASE-T and 100BASE-TX, in addition to 10GBASE-T. Optional Adaptive Voltage Scaling (AVS) delivers a low power solution while enabling a low cost implementation. The BCM84844 is based on a highly advanced digital signal processor architecture to enable robust operations over worst case UTP cables.

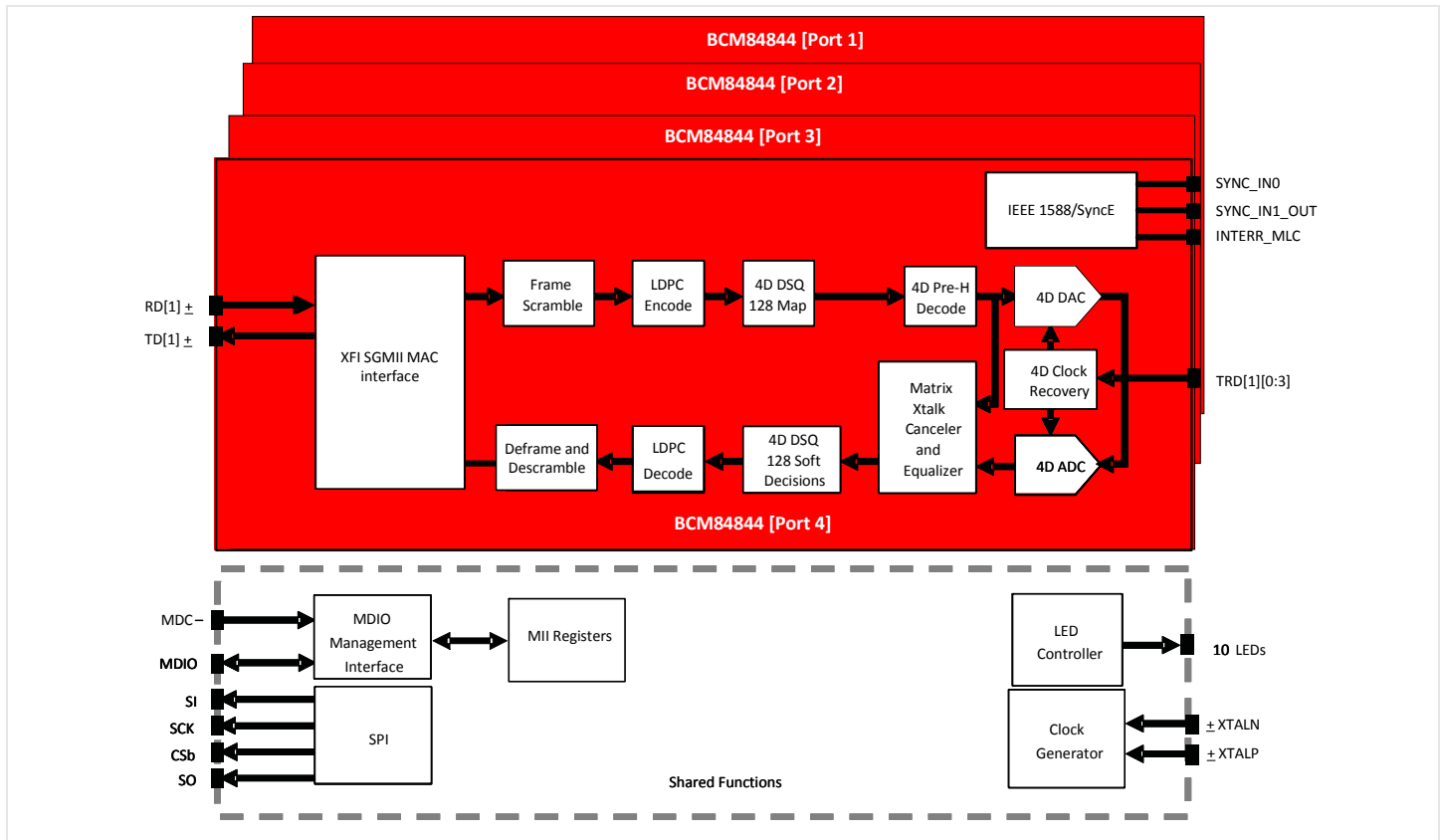
### Summary of Benefits

- Robust operation over 100m Cat6a cables with industry-standard 4-pair magnetics.
- Auto-negotiation lowers system administration 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.
- 802.1ae MACsec provides link layer security.

### Features

- Highly integrated four-port 10GBASE-T Ethernet transceiver.
- Supports multiple speeds: 10GBASE-T as well as 100BASE-TX and 1000BASE-T.
- XFI and SGMII MAC interface options.
- 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 receive the power savings of EEE in periods of reduced link utilization.
- Reduced number of power supplies with standard voltages: 1.0V and 2.5V.
- AVS for the creation of a local DVdd supply from a 2.5V or 3.3V global supply.
- Synchronous Ethernet (SyncE) support.
- 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 a selected port.
- IEEE 1149.1 (JTAG) boundary scan.
- Extensive selection of both line and network side loopbacks.
- 676-pin FBGA 27 mm x 27 mm package.





**BCM84844 Block Diagram for Each Port**

The BCM84844 quad-port PHY enables customers to design high-density ToR switches, modular line cards, and 4x 10GbE server adapters. The BCM84844 is a second-generation 40 nm device that adds important features such as EEE, on 1000BASE-T and AVS, which can reduce implementation cost and power.

The MAC interface for the BCM84844 is a high-performance XFI I/O, which is able

to support virtually all switch/PHY connections for ToR switches. Support for EEE is provided both through LPI commands over the XFI interface and via Broadcom's AutogrEEEn feature. EEE is supported for all three speeds: 10GBASE-T, 1000BASE-T, and 100BASE-TX. Support for 1588v2 in the BCM84844 is part of Broadcom's broad offering of PTP devices. The IEEE 802.1ae MACsec

implementation is part of Broadcom's broad offering of security devices.

The BCM984844\_EVAL is available and provides a reference design platform suitable for evaluation of the device. A design guide is provided as part of the device support information. Contact your Broadcom sales representative for information.

### Ordering Information

676-pin FBGA (RoHS-compliant)

### Part Number

BCM84844A0KKFSBG

### About Broadcom

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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](http://www.broadcom.com).

