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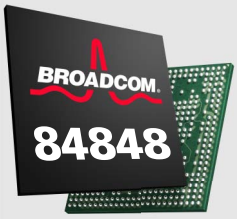
FOUR-PORT 10GBASE-T TRANSCEIVER



Highlights

- The BCM84848 delivers a second-generation 40 nm 10GBASE-T PHY in a small 23 x 23 mm BGA package.
- Standard 1RU switching platforms can implement a single-row PHY design with this 23 x 23 mm package
- 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.
- 1588 Precision Time Protocol (PTP) provides precise and accurate synchronization of nodes in the network.
- 802.1ae MACsec Security.

	BCM84848
Service Provider	◐
OTN/PTN	◐
Data Centers	●
Enterprise	●

◐ Supported ● Best Choice

Overview

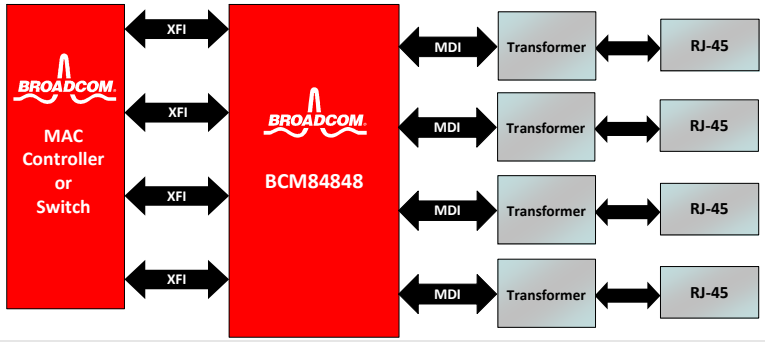
The Broadcom® BCM84848 is a complete quad 100BASE-TX, 1000BASE-T and 10GBASE-T solution operating at 100m over CAT6a UTP cable. Its 23 x 23 mm BGA package permits 48-port 1RU switches to be implemented with the PHYs in a single row, with room remaining for 6 QSFP uplinks. The BCM84848 offers lower power than our first-generation 40 nm 10GBASE-T PHYs 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 BCM84848 is based on a highly advanced digital signal processor architecture to enable robust operations over worst case UTP cables.

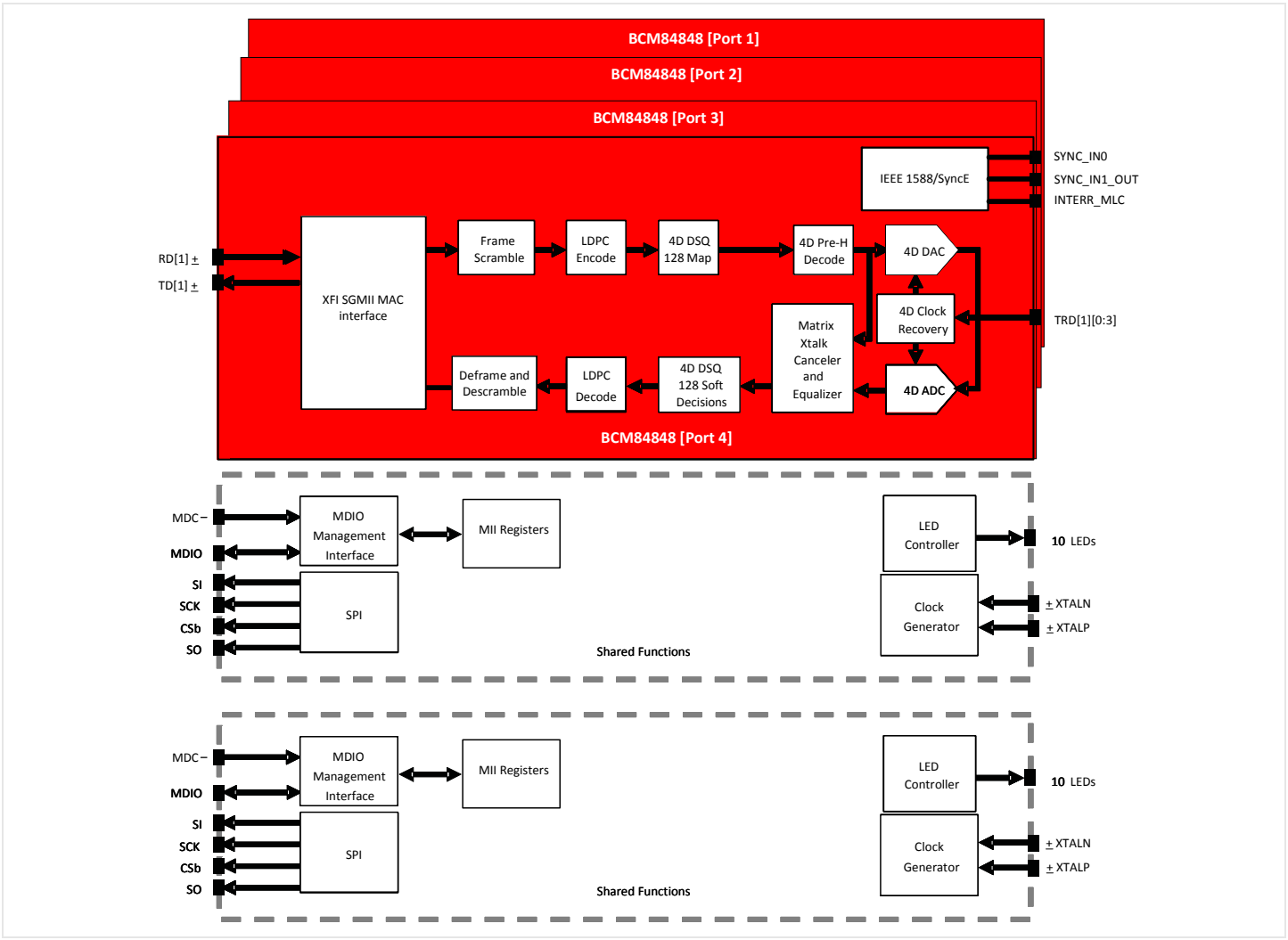
Summary of Benefits

- Small 23 x 23 mm package enables single-row PHY design for 48-port switches while offering forward compatible footprint
- 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 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.





BCM84848 Block Diagram for Each Port

The BCM84848 quad-port PHY enables customers to design high-density ToR switches, modular line cards, and 4x 10GbE server adapters. The BCM84848 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 BCM84848 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 BCM84848 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 BCM984848_16PORT 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

	Part Number
484-pin FBGA (RoHS-compliant)	BCM84848A1KFSBG

About Broadcom

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