



DUAL-PORT 10GBASE-T TRANSCEIVER

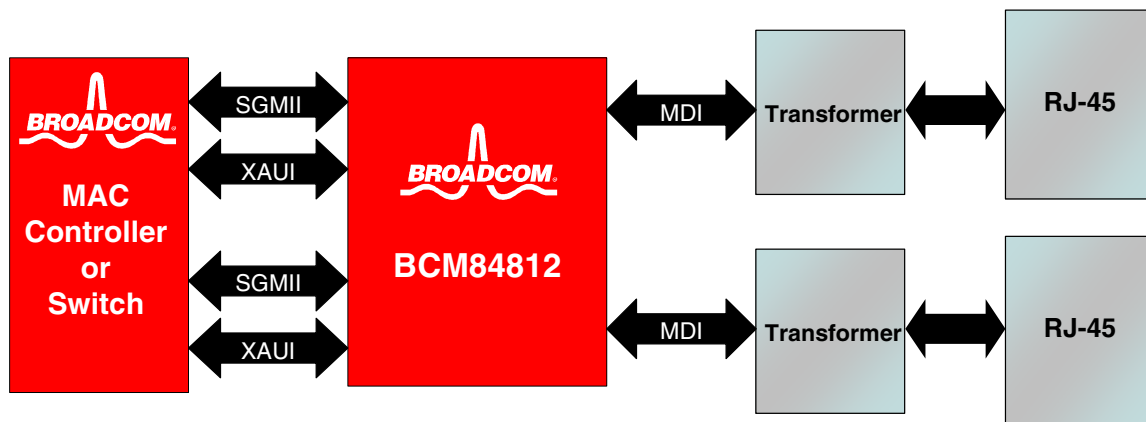
FEATURES

- Fully integrated dual-port 10GBASE-T Ethernet transceiver
- Supports lower speeds: 10BASE-T, 100BASE-TX, 1000BASE-T
- XAUI™ and SGMII MAC interface options
- Compliant with IEEE 802.3™, 802.3an, 802.3ab, and 802.3u standards
- Support for 100m operation with a 30m low-power mode
- On-chip low-voltage regulators
- Line-side loopback mode
- Low electromagnetic interference (EMI) emissions
- Cable plant diagnostics
- Detection and correction of pair-swaps (MDI crossover), pair skew, and pair polarity
- Support for jumbo packets up to 18 KB
- IEEE 1149.1 (JTAG) boundary scan
- 672-pin FBGA 27 mm x 27 mm package

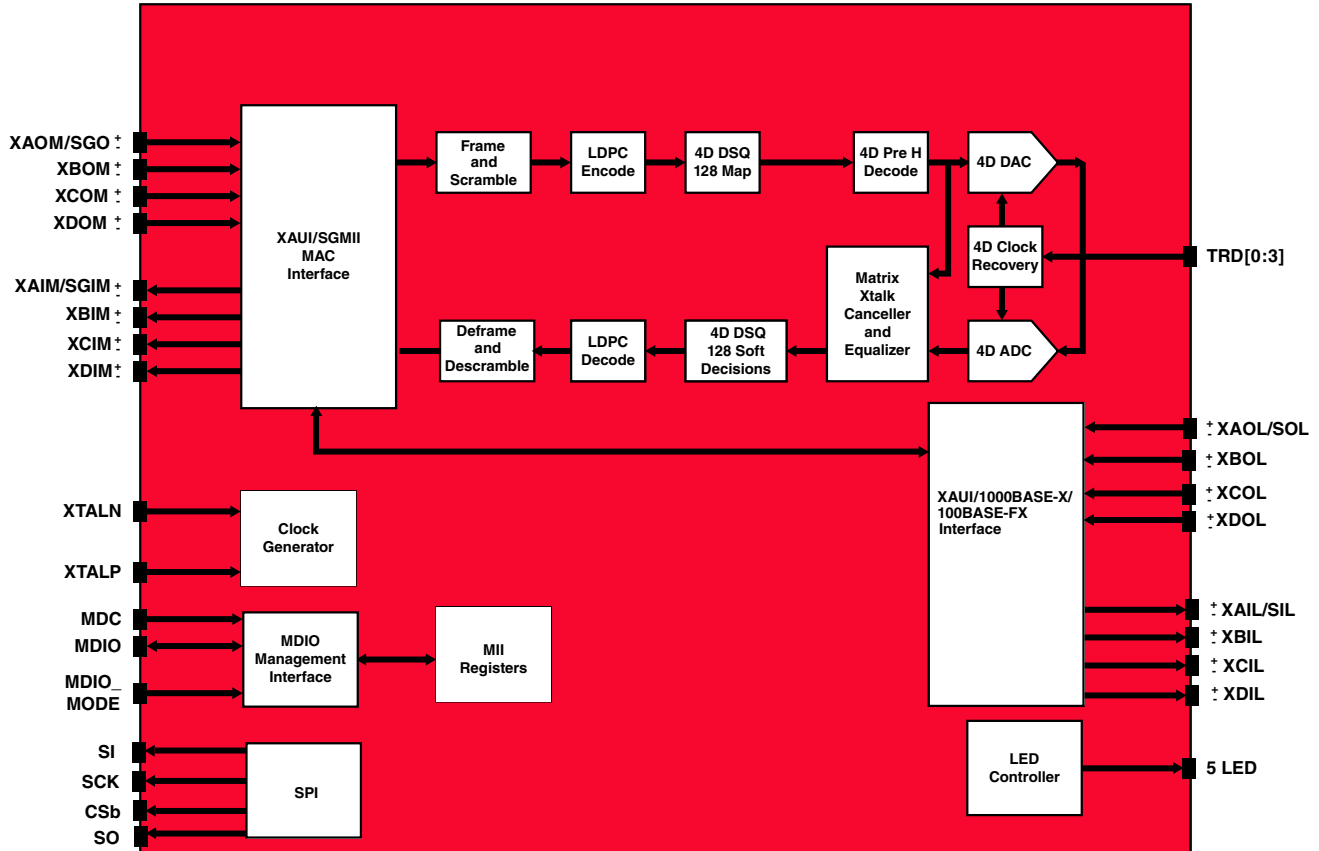
SUMMARY OF BENEFITS

- Simplifies system and board design
 - Reduces PCB space
 - Lowers system bill of materials (BOM)
- Provides interoperability with IEEE standard devices operating at 10 Mbps, 100 Mbps, 1000 Mbps, and 10 Gbps
- Compatibility with industry standard Ethernet MACs
- Flexibility for copper or fiber applications
- Reduces system design constraints to meet EMI emissions standards
- Cable diagnostic function characterizes cable plant condition and immediately indicates cabling issues.
- Operates with larger packets for wider range of packet protocol support and improved efficiency
- Ease of manufacturing with JTAG support and simplified power supply

General 10-Gigabit Ethernet Connectivity



OVERVIEW



BCM84812 Block Diagram for Each Port

The BCM84812 is a complete dual-port 10/100/1000/10GBASE-T solution operating at 100m over CAT6a or CAT7 unshielded twisted pair (UTP) cable. It is based on highly advanced digital signal processor-based architecture to allow robust operation over UTP wiring. It 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.

The BCM84812 is optimized to enable switch, controller, and other general 10-Gigabit Ethernet (GbE) connectivity applications. It supports two four-lane 3.125 Gbps XAUI interfaces to allow connectivity to 10-GbE MACs. One of the four lanes on each XAUI interface is reserved to support the SGMII interface, which offers lower speed 10/100/1000BASE-T operation. This dual port enables customers to design high-density Top of the Rack (ToR) switches and server NIC controllers for data center applications.

The BCM84812 is another member of the Broadcom® 65 nm 10GBASE-T PHY family, joining the BCM8481 to offer a single-port or dual-port option for various applications. The 65 nm process offers the best performance, lowest cost, and lowest power for 10-Gigabit copper solutions. Additionally, devices based on the 65 nm process offer an excellent long-term cost curve, enabling better cost reduction over time compared to older technologies, without having to redesign or requalify a new part.

The BCM84812 incorporates various advanced features. A link quality indicator LED provides instant notification of any problems with the wiring plant operating at the desired speed. These problems include physical wiring defects that the BCM84812 cannot automatically correct and channel conditions such as excessive cable length and return loss, crosstalk, echo, and noise. Broadcom cable analyzer software can be used with the device to provide remote management of the cable and a first level of diagnostics and fault isolation.

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