

SGMII TO SGMII/SERDES/100BASE-FX TRANSCEIVER

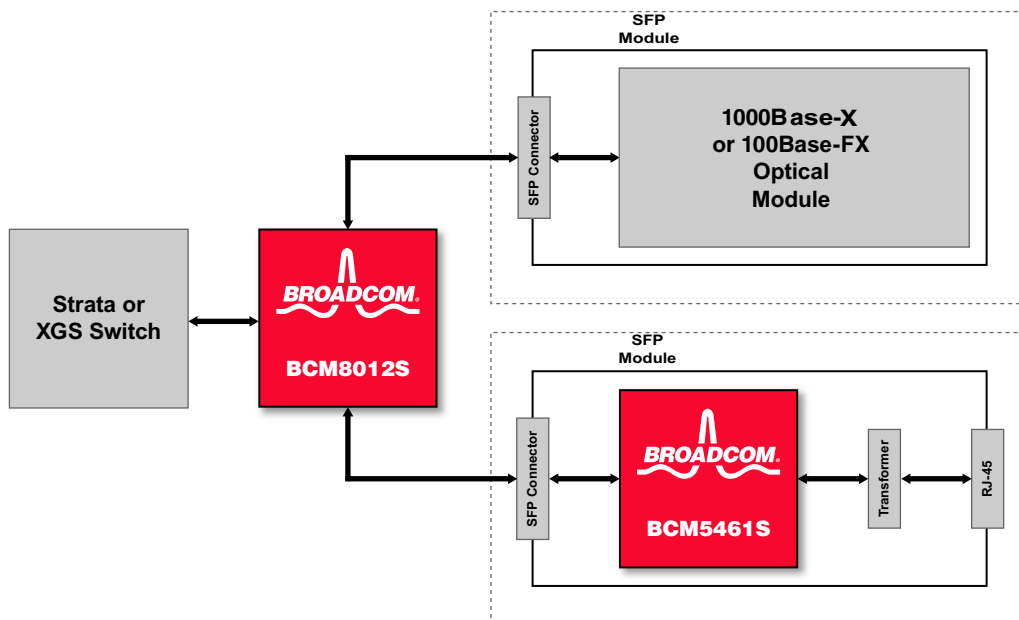
FEATURES

- Fully-integrated 1000BASE-X/100BASE-FX Ethernet transceiver
- SGMII and SerDes MAC interface options
- SGMII-to-SGMII support for SFP modules
- On-chip low-voltage regulators
- Fully compliant with IEEE 802.3z standards
- 0.13 μ CMOS—low power and cost
- Low power—less than 383 mW per port
- Line-side loopback
- Low EMI emissions
- Support for jumbo packets up to 10 KB
- IEEE 1149.1 (JTAG) boundary scan
- 100-pin FBGA packages

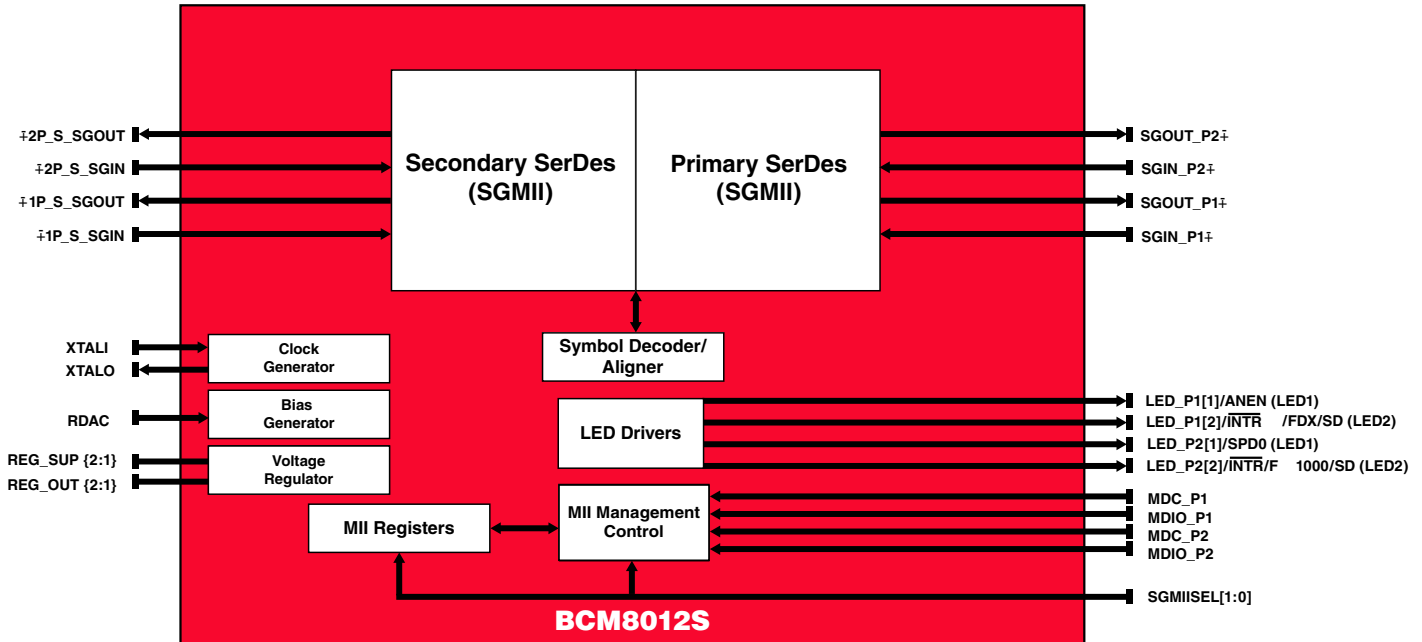
SUMMARY OF BENEFITS

- Ideal solution for interfacing to any type of SFP module.
- 10/100/1000BASE-T, 1000BASE-X, or 100BASE-FX.
- Requires no airflow or heatsink.
- Provides compliance with PCI 2.2 and PC99/PC2000.
- Eases system level debug.
- Reduces system design constraints to meet EMI emissions standards.
- Operates with larger packets for wider range of packet protocol support and improved efficiency.
- Ease of manufacturing with JTAG support.

BCM8012S Block Diagram



OVERVIEW



BCM8012S Block Diagram

In most switch designs, a few ports are targeted as uplink ports to connect to servers, switches, or remote links. These connections can be via fiber as 1000Base-SX, 1000Base-LX, or 100Base-FX, or via copper. In order to accommodate these various interfaces, one or more SFP slots can be designed into the switch and the user can plug an SFP module into the slot that meets their specific requirement. This user configured solution enables the switch manufacturer to make one box that addresses multiple needs.

The BCM8012S addresses the specific problem of supporting multi-speed SFP uplinks in Gigabit and Fast Ethernet designs. 1000Base-SX and 1000Base-LX SFP modules require a SerDes interface to the SFP module. 100Base-FX and 10/100/1000Base-T require an SGMII

interface in order to rate adapt to the lower speeds (less than 1 gigabit). The BCM8012S can switch between any of these interfaces, depending on the SFP module installed.

On the Switch/MAC side, the BCM8012S supports the SGMII interface. In addition, the BCM8012S incorporates a number of functions that ease the design process including internal regulators, low EMI emissions, MAC-side and line-side loopback, and JTAG. Advanced features like Super Isolate, which allows the start of auto-negotiation to be under software control, and jumbo packet support to 10 KB, are also included.

The BCM8012S is rated for industrial temperature applications and is available in both a 100-FBGA standard and lead-free package.

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