

10/100/1000BASE-T Gigabit Ethernet Transceiver

GENERAL DESCRIPTION

The Broadcom® B50610 is a triple-speed 1000BASE-T/100BASE-TX/10BASE-T Gigabit Ethernet (GbE) transceiver integrated into a single monolithic CMOS chip. The device performs all physical-layer functions for 1000BASE-T, 100BASE-TX, and 10BASE-T Ethernet on standard category 5 UTP cable. 10BASE-T can also run on standard category 3, 4, and 5 UTP. The B50610 is a highly integrated solution combining digital adaptive equalizers, ADCs, phase-locked loops, line drivers, encoders, decoders, echo cancellers, crosstalk cancellers, and all required support circuitry. Based on Broadcom's proven Digital Signal Processor technology, the B50610 is designed to be fully compliant with RGMII, allowing compatibility with industry-standard Ethernet MACs and switch controllers.

Designed for reliable operation over worst-case category 5 cable, the B50610 automatically negotiates with its link partner to determine the highest possible operating speed. The device detects and corrects most common wiring problems. The B50610 features CableChecker™ diagnostics, which detects common cable problems including shorts, opens, and cable length.

APPLICATIONS

- GbE switches and uplinks

FEATURES

- Single-chip integrated triple-speed Ethernet transceiver
- 1000BASE-T IEEE 802.3ab
- 100BASE-TX IEEE 802.3u
- 10BASE-T IEEE 802.3™
- Supports only RGMII MAC interface
- Supports SOFT-RESET
- Ethernet@Wirespeed™
- Integrated voltage regulator
- Trace matched output impedance
- Lineside loopback
- Low EMI emissions
- Cable plant diagnostics
- Robust CESD tolerance
- Support for jumbo packets up to 10 KB
- Detection and correction of pair swaps (MDI crossover), pair skew, and pair polarity
- Advanced power management
- IEEE 1149.1 (JTAG) boundary scan
- Super isolate mode
- 100-pin FBGA and 48-pin MLP packages

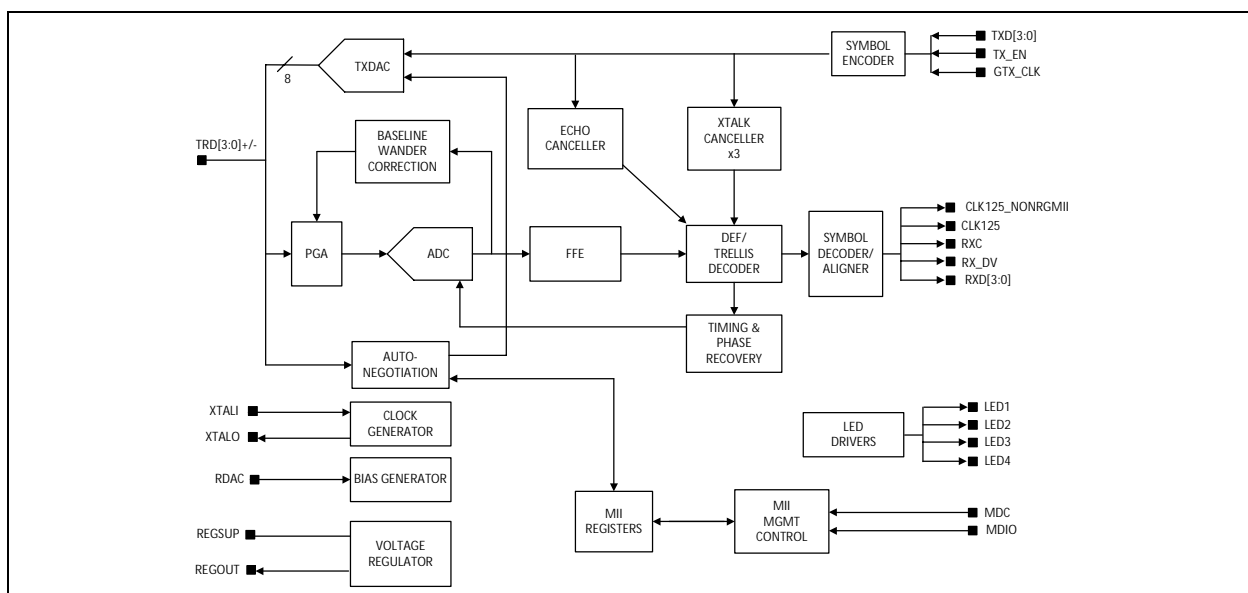


Figure 1: Functional Block Diagram

