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BCM54216E

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Single Port RGMII Gigabit Ethernet Transceiver

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Overview

Overview



The Broadcom® BCM54216E 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 BCM54216E 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 BCM54216E is designed to be fully compliant with MII, GMII and RGMII, allowing compatibility with industry-standard Ethernet MACs and switch controllers. Designed for reliable operation over worst-case category5 cable, the BCM54216E automatically negotiates with its link partner to determine the highest possible operating speed. The device detects and corrects most common wiring problems. The BCM54216E features CableChecker™ diagnostics, which detects common cable problems including shorts, opens, and cable length.

Features

- Single-chip integrated triple-speed Ethernet transceiver
- 1000BASE-T IEEE 802.3ab
- 100BASE-TX IEEE 802.3u
- 10BASE-T IEEE 802.3
- 100BASE-EFX
- Supports RGMII MAC interfaces
- Supports GMII/MII MAC interfaces
- Synchronous Ethernet support
- 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

Applications

- GbE switches and uplinks
- Management Port
- Industrial Automation
- Customer Premise Equipment (CPE)
- Video Surveillance
- LED Controller

- (MDI crossover), pair skew, and pair polarity
- Advanced power management
- IEEE 1149.1 (JTAG) boundary scan
- IEEE 802.3az-compliant support – Support for native EEE MACs – Support for legacy non-EEE MAC using AutogrEEEn® mode – AutogrEEEn+
- Super-isolate mode
- Supports Passive Signal Detector
- Supports Wake-on-LAN (WOL)
- 68-pin QFN packages

Lifecycle Status

Active

Specifications


Specification	Value
Lifecycle	Active
Distrib. Inventory	Yes

Documentation

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10/100/1000BASE-T Gigabit Ethernet Transceiver



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Single Port RGMII Gigabit Ethernet Transceiver