BCM54220

Contact Sales Request Info

Dual-Copper Gigabit Ethernet Transceiver

Overview Specifications Optional Products

The Broadcom® BCM54220 is a fully integrated dual-copper Gigabit Ethernet transceiver with support for Energy Efficient Ethernet (EEE), Synchronous Ethernet (SyncE), and IEEE 1588v2 standards. The PHY performs all of the physical layer functions for 10BASE-T, 100BASE-TX 1000BASE-T, on standard Category 5e UTP cable. The BCM54220 supports both the SGMII and RGMII industry standards.

The BCM54220 is based on the proven digital-signal processor technology of Broadcom, combining digital adaptive equalizers, ADCs, phase locked loops, line drivers, encoders, decoders, echo cancelers, crosstalk cancelers, and all other required support circuitry integrated into a single, monolithic CMOS chip. Designed for reliable operation over worst-case Category 5e cable plants, the BCM54220 automatically negotiates with any transceiver on the opposite end of the wire to agree on an operating speed. The PHY can also evaluate the condition of the twisted-pair wiring to ensure that the wiring can support operation at Gigabit speeds, and detect and correct most common wiring problems.

Features

• SGMII or RGMII interfaces
• RGMII: 1.8V HSTL, 2.5V CMOS, or 3.3V CMOS
• Support for two power supplies (3.3V and 1.0V) or one 3.3V power supply using internal voltage regulator
• Support for IEEE 802.3-compliant copper line interfaces: – 1000BASE-T – 100BASE-TX – 10BASE-T
• IEEE 802.3az Compliant (Energy Efficient Ethernet) – Support for native EEE MACs – Support for legacy non-EEE MACs using AutogrEEEn® mode
• IEEE 1588v2-compliant – One-step or Two-step clock – On-chip time-stamping
• ITU-T Y.1731 delay measurement support – On-chip time-stamping – One-way and Two-way in both directions
• SyncE support – Recovered clock and clock lock outputs
• IEEE 802.3bf latency data
• Support for jumbo packets up to 18 KB
• Low-cost 25 MHz crystal option
• Ethernet@Wirespeed™
• Cable plant diagnostics that detect cable plant impairments
• Wake-on-LAN
• Voltage and Temperature Monitors
• Programmable LEDs
• Robust Cable ESD (CESD) tolerance
• Low EMI emissions
• IEEE 1149.1 and IEEE 1149.6 (ACJTAG) boundary scan
• Packages: 128-pin eLQFP and 144-pin FBGA

Applications

Ethernet switches and routers for:

- Carrier
- Enterprise
- Small and medium business (SMB)
- Industrial automation
- Smart grid markets

Lifecycle Status

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