



OCTAL-PORT 10/100/1000BASE-T GIGABIT ETHERNET TRANSCEIVER

FEATURES

- Eight fully integrated 10BASE-T/100BASE-TX/1000BASE-T Gigabit Ethernet transceivers
- RGMII, SGMII, and SerDes MAC interface options
- 1-Gbps lineside SerDes with RGMII MAC interface option
- Fully compliant with IEEE 802.3, IEEE 802.3u, and IEEE 802.3ab standards
- 0.13-micron CMOS—low power and cost
- Supports copper or fiber in RGMII mode
- Low power
 - <625 mW per port
 - Advanced power management
- Trace-matched output impedance
- Lineside loopback
- Low EMI emissions
- CableChecker™ diagnostics
 - CableChecker detection of cable plant impairments
 - Link quality indication LED
 - Automatic detection and correction of wiring pair swaps, pair skew, and pair polarity
 - Automatic MDI/MDIX crossover at all speeds
- Robust cable-sourced electrostatic discharge (CESD) tolerance
- Support for jumbo packets up to 10 KB
- IEEE 1149.1 (JTAG) boundary scan
- Package: 484-pin PBGA

SUMMARY OF BENEFITS

- Low-power, octal-port integration enables single-row, high-port density switches
 - Lowers system costs by eliminating PCB layers required for routing high-density solutions
 - Reduced I/O pin requirements with RGMII (over 50%), SGMII (over 75%), and SerDes (over 80%)
 - Clock timing can be adjusted to eliminate board trace delays required by the RGMII specification
 - Lowers MAC/switch costs by reducing the number of pins required to interface with the PHY
- Provides compatibility with IEEE standard devices operating at 10, 100, and 1000 Mbps at half-duplex and full-duplex
- Lowers system BOM cost and simplifies system design
- Eases system level debug
- Enables use of low-cost magnetics, even in high-density (48+) designs
- CableChecker characterizes cable plant condition and immediately indicates cabling issues
 - Prevents erroneous equipment return due to bad cable plants
 - Prevents manufacturing fallout due to bad cable plants
- Over 3 kV of CESD tolerance prevents equipment damage and return
- Operates with larger packets for wider range of packet protocol support and improved efficiency
- Ease of manufacturing with JTAG support, simplified power supply, and multiple MAC interfaces

BCM5488 System Diagram



