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BCM5488
PRODUCT Brief

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

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