



## BCM5404 QUAD-PORT 10/100/1000BASE-T GIGABIT COPPER TRANSCEIVER

### BCM5404 FEATURES

- Four fully integrated 10BASE-T/100BASE-TX/1000BASE-T Gigabit Ethernet transceivers on a single monolithic CMOS chip
- Fully compliant with IEEE 802.3, 802.3u, and 802.3ab standards
- 0.13um CMOS — low power and cost
- Low power
  - 1W per port
  - Advanced power management
- Low EMI emissions
- Ethernet@WireSpeed™ logic automatically selects the maximum speed based on channel conditions
- Cable plant diagnostic
  - Cable plant analyzer function detects 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 CESD tolerance
- Support for jumbo packets up to 9 KB
- IEEE 1149.1 (JTAG) boundary scan
- MII, GMII, TBI, RGMII, and RTBI interface options

### SUMMARY OF BENEFITS

- Low power quad-port integration enables single row, high port density switches.
- Provides compatibility with IEEE standard devices operation at 10, 100, and 1000 Mbps at half- and full-duplex.
- Requires no airflow or heatsink.
- Reduces design constraints in high-density applications that have higher EMI emissions.
- Automatically configures the link to support the highest possible speed based on link partner capability and characteristics of the channel.
- Cable diagnostic function characterizes cable plant condition and immediately indicates cabling issues.
  - Prevents erroneous equipment return due to bad cable plants.
  - Prevents manufacturing fall-out due to bad cable plants.
- High 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.
- High-density package options:
  - Lowers system costs.
  - Simplifies system and board design.
  - RGMII/RTBI reduces I/O pin requirement over GMII and TBI by more than 50%.

### BCM5404 System Diagram

