



## BCM5402 DUAL-PORT 10/100/1000BASE-T GIGABIT COPPER TRANSCEIVER

### BCM5402 FEATURES

- Two 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
- Low power
  - Less than 2W per port
  - Advanced power management
  - Wake On LAN mode—less than 600 mW per port
- MII, GMII, TBI, RGMII, and RTBI interface options
- Ethernet@WireSpeed™ 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
- Internal 125-MHz low-jitter clock generation
- Support for jumbo packets up to 9 KB
- IEEE 1149.1 (JTAG) boundary scan
- 256-pin TBGA and 260FPBGA

### SUMMARY OF BENEFITS

- Low power dual-port integration enables high port density switches and dual-port adapter cards.
- Compatible with IEEE standard devices operating at 10, 100, and 1000 Mbps at half- and full-duplex.
- No airflow or heatsink required.
- Wake on LAN mode for low power PC'99 compliant adapters (less than 600 mW per-port).
- RGMII/RTBI reduces I/O pin requirement over GMII and TBI by more than 50%.
- 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.
- 125-MHz clock eliminates costly external clocking circuitry for the MAC/ASIC.
- Operates with larger packets for wider range of packet protocol support and improved efficiency.
- High density package options without heatsink requirement provides improved testability.

**BCM5402 System Diagram**

