



4-PORT GIGABIT COPPER TRANSCEIVER WITH SGMII & SERDES MAC INTERFACE

BCM5434 FEATURES

- Four fully integrated 10BASE-T/100BASE-TX/1000BASE-T Gigabit Ethernet transceivers
- SGMII and SerDes MAC Interface options
- Fully compliant with IEEE 802.3, 802.3u, and 802.3ab standards
- 0.13 um 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

SUMMARY OF BENEFITS

- Low power quad-port integration enables single-row, high port density switches.
 - Lowers system costs by eliminating PCB layers required for routing high density solutions
 - SGMII interface reduces I/O pin requirement over RGMII by more than 50%.
 - Lowers MAC/switch costs by reducing the number of pins required to interface to the PHY.
- Provides compatibility with IEEE standard devices operating 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.

BCM5434 System Diagram

