



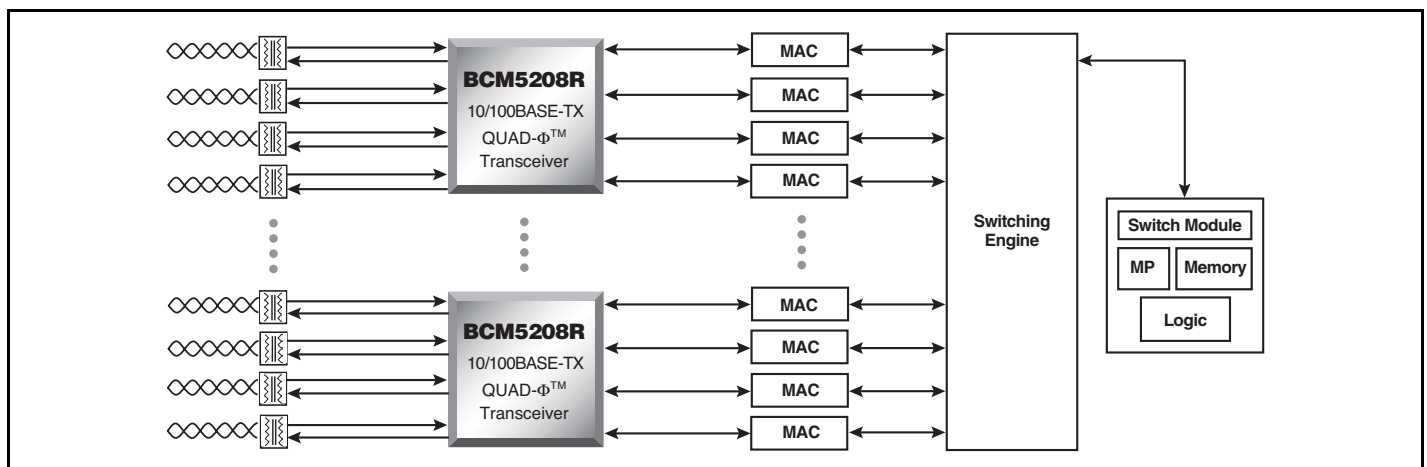
## BCM5208R 10/100BASE-TX QUAD-F™ TRANSCEIVER

### FEATURES

- 10BASE-T/100BASE-TX IEEE 802.3u-compliant
- Full-duplex support in all modes
- IEEE 802.3u-compliant auto-negotiation
- Media Independent Interface (MII) for each port
- Shared MII serial management interface
- Fully integrated digital adaptive equalizers
- 125-MHz clock generator and timing recovery
- Integrated multimode transmit wave shaping
- Integrated baseline wander correction
- LED status pins
- Loopback mode for diagnostics
- IEEE 1149.1 (JTAG) support
- 3.3V power supply
- 208-pin PQFP package

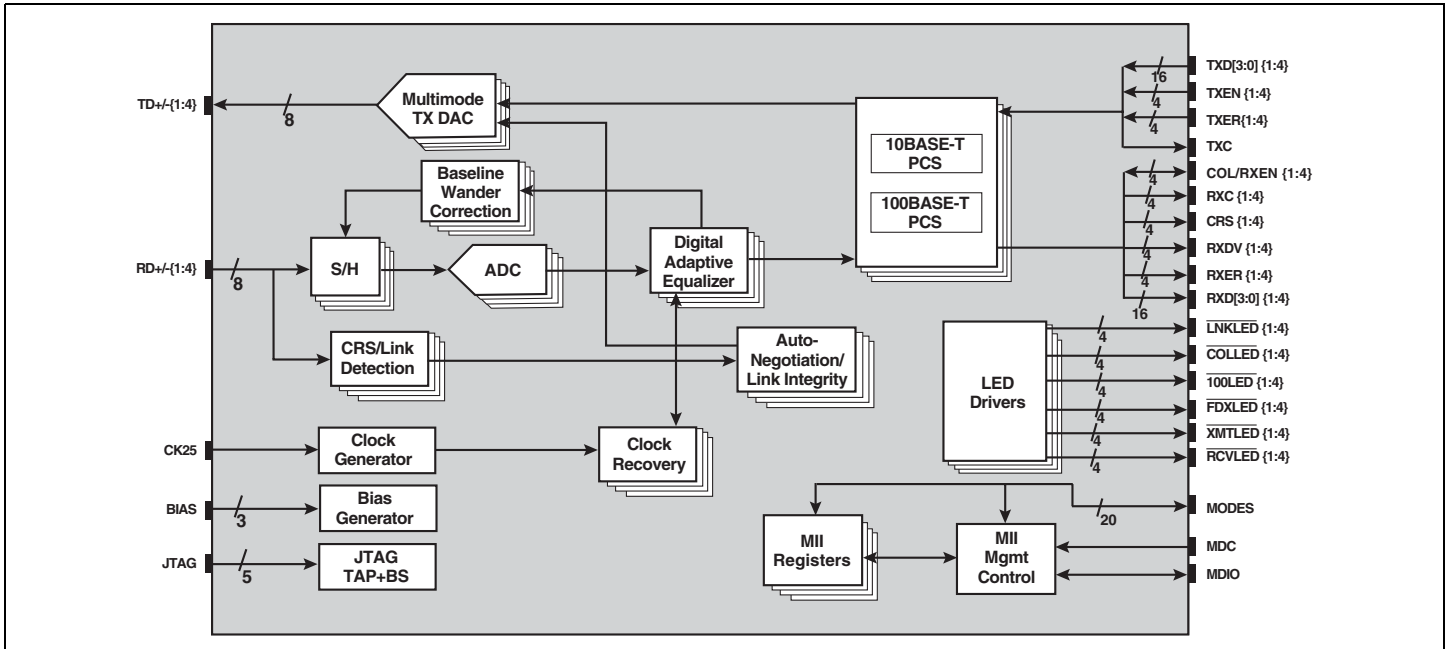
### SUMMARY OF BENEFITS

- **Fully integrated TX quad PHY transceiver (MII to TX magnetics optics)**
  - Decreases system cost per port
  - Simplifies system and board design
  - Reduces power consumption
- **On-chip multimode transmit wave shaping**
  - Eliminates need for external filters
  - Minimizes EMI
- **Flexible Ethernet PHY solution**
  - 10BASE-T, 100BASE-TX full-duplex
  - Suited for Ethernet switch products
- **Digital adaptive equalization and clock recovery**
  - Increases SNR by 3 dB over ideal analog equalizers
  - Robust performance in harsh noise environments and over substandard cable
  - Immune to on-chip noise and crosstalk
  - Insensitive to variations in process, temperature, and voltage
- **Cost reduction for BCM5208 designs**



**24-Port 10/100BASE-T Ethernet Switch Example**

# OVERVIEW



The BCM5208R is a monolithic CMOS integrated circuit containing 4 transceivers that each perform all of the physical layer interface functions for 10BASE-T Ethernet on Category 3, 4, 5 unshielded twisted-pair (UTP) cable and 100BASE-TX Ethernet on Category 5 UTP cable.

The BCM5208R employs the use of digital signal processing and full custom circuit design techniques to create a highly integrated and robust physical layer solution for Fast Ethernet switches. It complies fully with the IEEE 802.3u physical layer Media Independent Interface (MII) and auto-negotiation subsections, providing compatibility with all industry-standard Fast Ethernet MAC chips.

The BCM5208R chip performs all the 4B5B, MLT3, NRZI, and Manchester encoding and decoding; clock and data recovery; stream cipher scrambling/descrambling; digital adaptive equalization; line transmission; carrier sense; and link management functions. The BCM5208R can be connected to a MAC through the MII on one side, and directly to the network media on the other side (through isolation transformers for UTP mode).

The BCM5208R is an easy cost-reduction path for 10/100 systems originally designed with the BCM5208. The BCM5208R is a lower power, lower cost alternative that can drop into most BCM5208 designs without any hardware change.

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