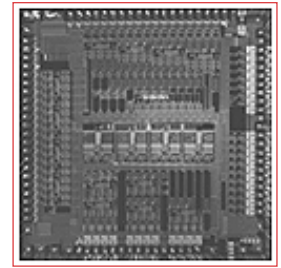




BCM5208

# PRODUCT Brief



## BCM5208 10/100BASE-TX QUAD- $\Phi$ <sup>TM</sup> TRANSCEIVER

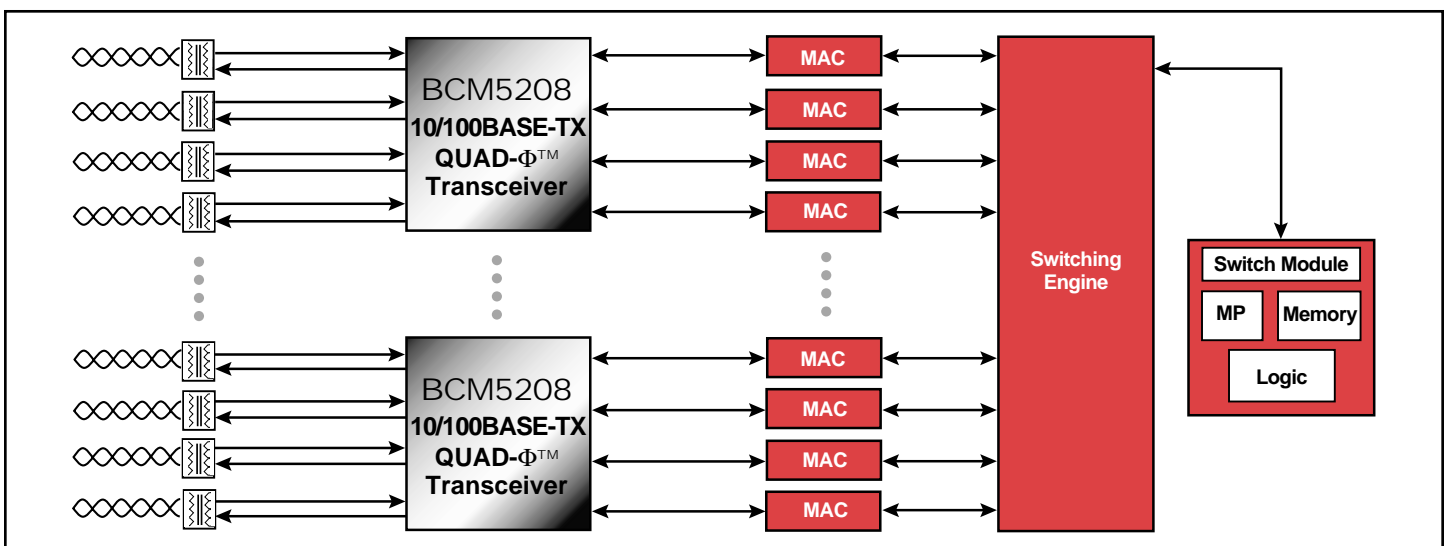
### BCM5208 FEATURES

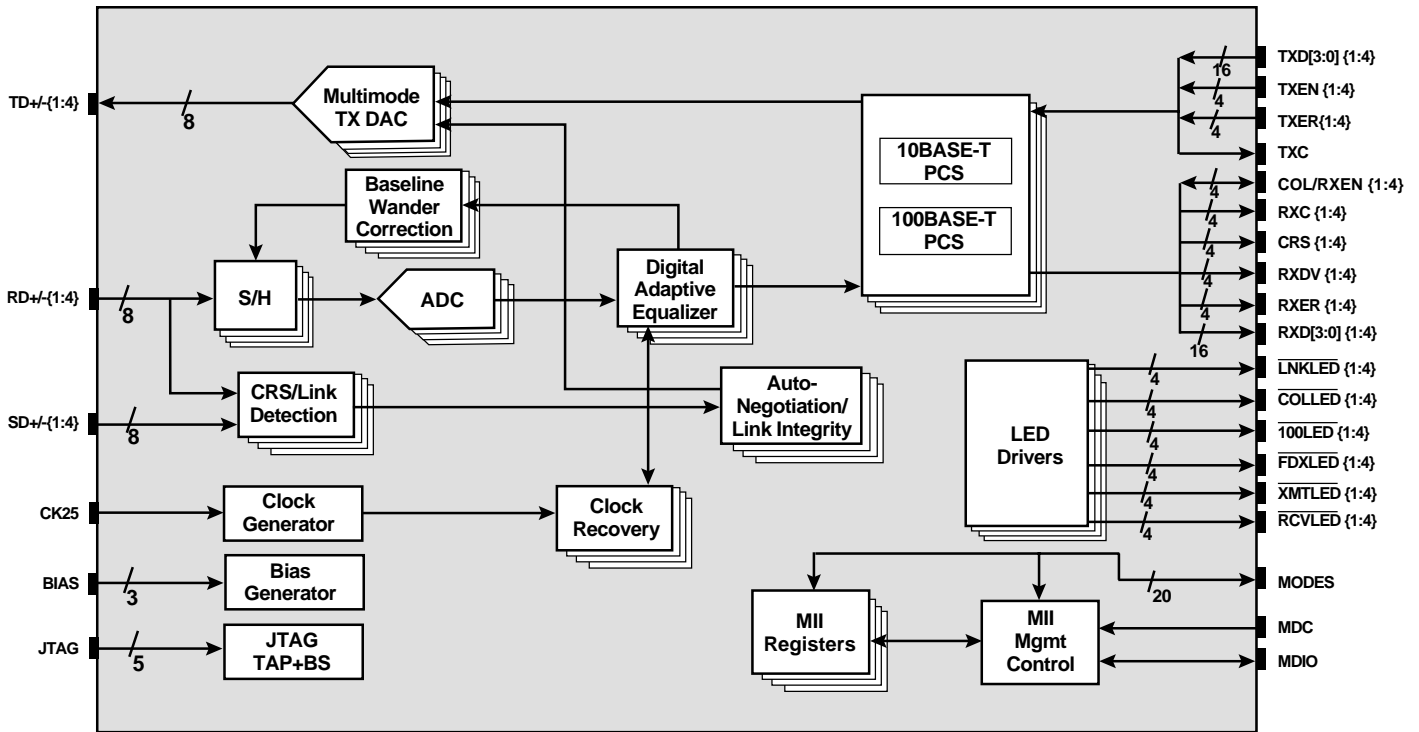
- The Broadcom<sup>®</sup> BCM5208 is a Quad- $\Phi$  10/100BASE-T Transceiver that contains four 10BASE-T/100BASE-TX transceivers
- 10BASE-T/100BASE-TX/FX IEEE 802.3u-compliant
- Full-duplex Support in All Modes
- IEEE 802.3u-compliant Auto-Negotiation
- Media Independent Interface (MII) for Each Port
- 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
- Carrier Integrity Monitor on Each Port
- Port Switching for Multisegment Repeaters
- MII Repeater Mode Support in All Modes
- LED Status Pins
- Loop-back Mode for Diagnostics
- IEEE 1149.1 (JTAG) Support
- 3.3V Power Supply
- 208-Pin PQFP Package

### SUMMARY OF BENEFITS

- **Fully-integrated TX/FX Quad PHY Transceiver (MII to TX Magnetics/FX Optics)**
  - Increases system port density
  - 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 or 100BASE-FX full-duplex
  - Suited for both Ethernet switch and repeater products
- **Digital Adaptive Equalization and Clock Recovery**
  - Increases SNR by 3dB over ideal analog equalizers
  - Robust performance in harsh noise environments and over sub-standard cable
  - Immune to on-chip noise and crosstalk
  - Insensitive to variations in process, temperature and voltage

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





The **BCM5208** is a monolithic CMOS integrated circuit containing four transceivers that each perform all the physical layer interface functions for 10BASE-T Ethernet on CAT 3, 4, 5 unshielded twisted pair (UTP) cable, 100BASE-TX Ethernet on CAT5 UTP cable, and 100BASE-FX Ethernet on 62.5/125- $\mu$ m multimode fiber optic cable.

The **BCM5208** 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 and multisegment repeaters. 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 and repeater chips.

The **BCM5208** 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 **BCM5208** may be connected to a MAC or repeater controller through the MII on one side, and connects directly to the network media on the other side (through isolation transformers for UTP mode or fiber optic transmitter/receiver components for FX modes).

In repeater mode, the MII ports may be bussed with other **BCM5208** devices. Port multiplexing logic also allows the **BCM5208** to be optimized for multisegment repeater configurations.

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