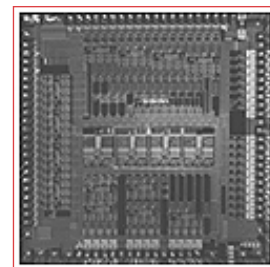




# BCM5201/5202 PRODUCT Brief



## BCM5201/5202 10/100BASE-TX MINI- $\Phi$ ™ TRANSCEIVER

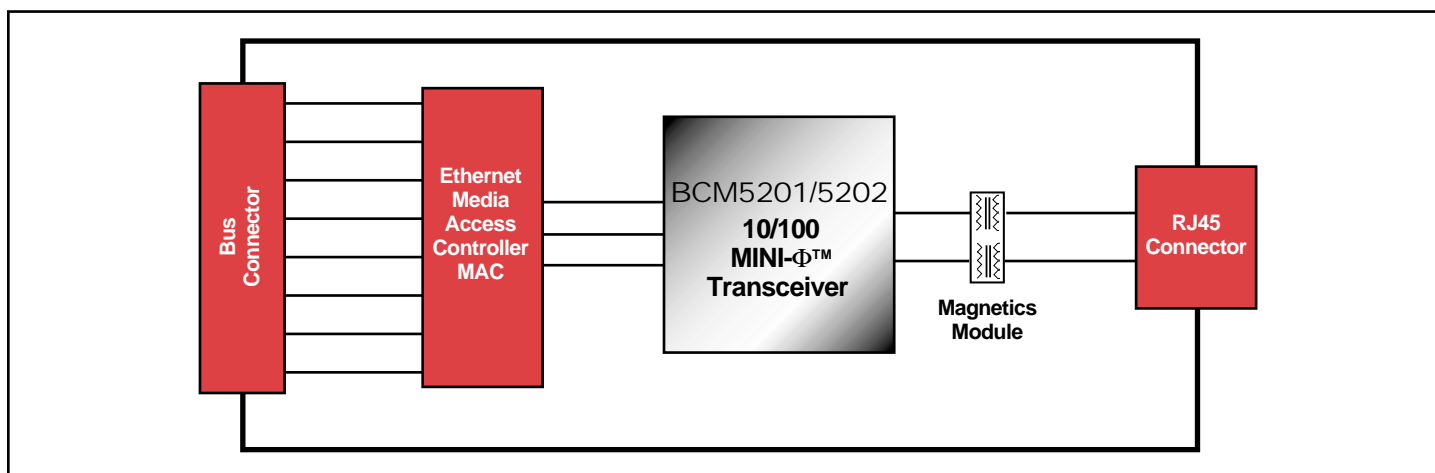
### BCM5201/5202 FEATURES

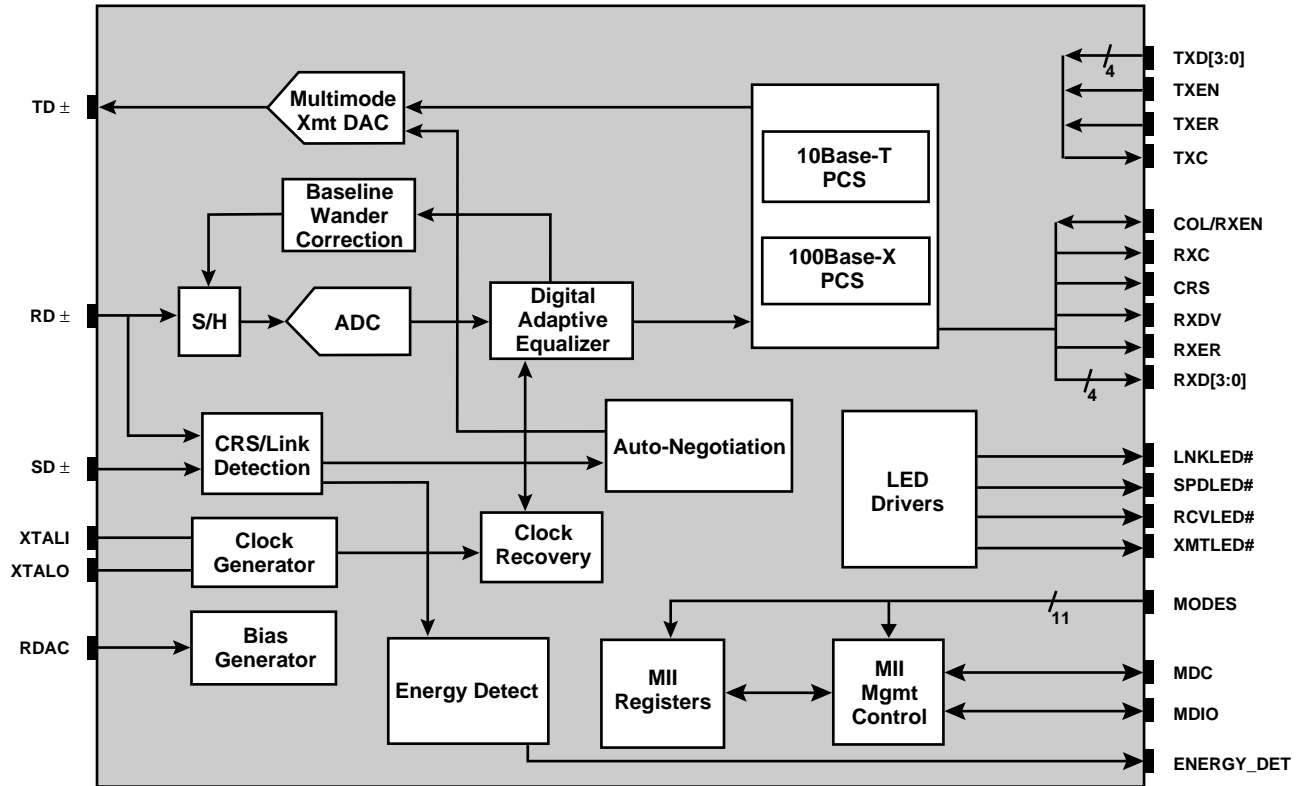
- The Broadcom® BCM5201/5202 are Fast-Ethernet, single-channel, Mini- $\Phi$ ™ transceivers for Category 5 twisted pair cabling
- 10BASE-T/100BASE-TX/FX IEEE 802.3u-compliant
- Single-chip Physical Interface - MII to Magnetics
- 3.3 Volt (BCM5201) or 5 Volt (BCM5202)
- Unique Energy Detection Circuit Enables Intelligent Power Management
- Full-duplex Support in All Modes
- IEEE 802.3u-compliant Auto-Negotiation
- Media Independent Interface (MII)
- MII Serial Management Interface
- Fully-integrated Digital Adaptive Equalizer
- 125 MHz Clock Generator and Timing Recovery
- Integrated Multimode Transmit Wave Shaping
- Integrated Baseline Wander Correction
- MII Repeater Mode Support in 100 Mbit Mode
- LED Status Pins
- Loop-back Mode for Diagnostics
- Uses Common 1:1 Magnetics
- 64-Pin TQFP Package

### SUMMARY OF BENEFITS

- **Fully-integrated TX/FX PHY Transceiver (MII to TX Magnetics or FX Optics)**
  - Decreases system cost
  - Simplifies system and board design
- **Unique Energy Detection Circuit Enables Intelligent Power Management**
  - Reduces power draw while in active standby
  - Low Power and Power-Down modes
- **Robust and Reliable Operation**
  - Digital architecture less sensitive to temperature, power noise and process variations
  - Baseline wander correction provides killer packet protection
  - Transmit jitter well below IEEE limit
- **Flexible Ethernet PHY Solution:**
  - 10BASE-T, 100BASE-TX or 100BASE-FX full-duplex
  - Ideal for Fast Ethernet switch, repeater, remote access and LAN adapter card applications
  - 3.3 Volt BCM5201 ideal for PCI/ACPI Card and CardBus cards
  - Low profile package for CardBus and PCMCIA

10/100BASE-T Network Interface Card Example





The **BCM5201/5202** is a monolithic CMOS integrated circuit containing a transceiver that performs all the physical layer interface functions for 10BASE-T Ethernet on CAT 3, 4 or 5 unshielded twisted pair (UTP) cable, 100BASE-TX Ethernet on CAT5 UTP cable. 100BASE-FX is supported with an external fiber transceiver. The **BCM5201** operates at 3.3 volts while the **BCM5202** operates at 5 volts.

The **BCM5201/5202** 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, multisegment repeaters and network interface cards. 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 **BCM5201/5202** 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 **BCM5201/5202** 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.

The **BCM5201** and **BCM5202** include a unique Intelligent Power-Management feature whereby the device will power down if energy is not detected on the cable, i.e. if the adapter card is unconnected. This feature is especially useful for power-sensitive applications such as laptop LAN card adapters, where the PCMCIA or CardBus adapter can remain plugged in and draw energy even if the client is no longer connected to the network. Because most laptop users do not remove their LAN PC card when working remotely, this feature can result in a substantial power saving to their laptop computer.

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