BROADCOM®

C o n n e c t i n g
e v e r y t h i n g ™

BCM5238
PRODUCT Brief

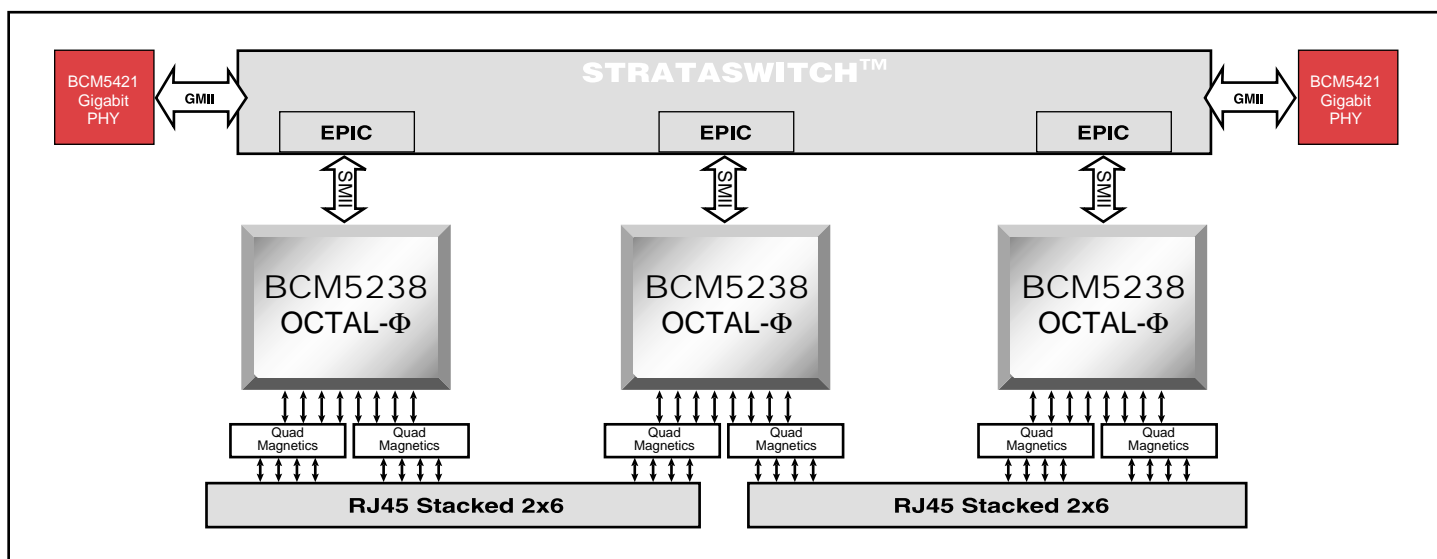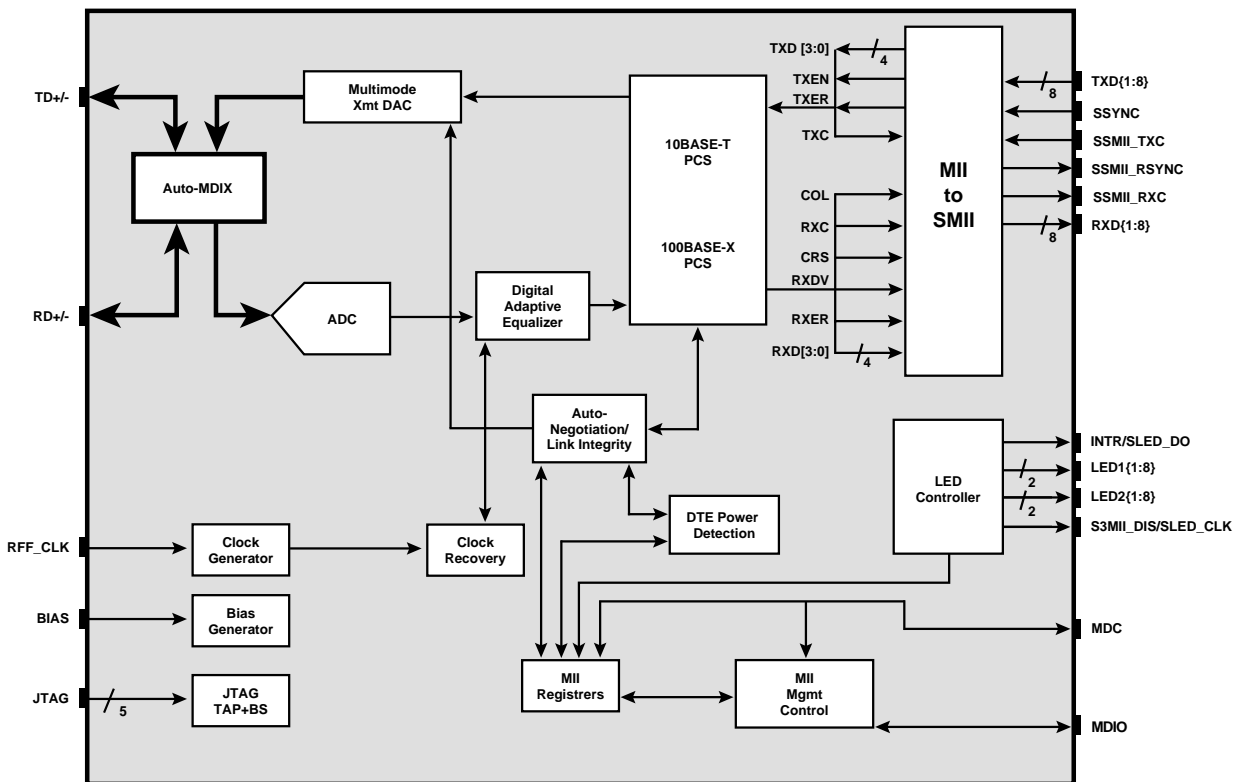# 10/100BASE-TX OCTAL-Φ™ TRANSCEIVER

BCM5238 FEATURES

- Single-chip, eight-port Fast Ethernet transceiver
- Low-power 1.8V CMOS technology
- Serial Media Independent Interface (SMII)
- Source Synchronous SMII (SSSMII)
- HP auto-MDIX automatic crossover
- Compatible with 2.5V I/O and 3.3V I/O
- Fully integrated digital adaptive equalization
- Up to 150 meters of error-free operation
- Full-duplex support
- Interrupt output capability
- Support for DTE power detection
- 128-pin PQFP or 256-ball BGA package
- Proven Broadcom proprietary all-DSP Digi-Φ™ architecture

SUMMARY OF BENEFITS

- Target usage: Fast Ethernet switches.
- Lowest per port power solution available: < 230 milliwatts per port.
- Smallest footprint per port available.
- Measures 14 mm × 20 mm for eight ports.
- Single-chip device contains eight independent Fast Ethernet transceivers.
- Performs all physical layer interface functions for 100BASE-TX full-duplex or half-duplex Ethernet on Category 5 unshielded twisted-pair (UTP) cable and 10BASE-T full or half-duplex Ethernet on Category 3, 4, or 5 UTP cable.
- Compliant with IEEE 802.3 standard.
- IEEE 1149.1 (JTAG) scan chain support.
- Two LED indicator pins per port.

24-Port 10/100 Switch

The Broadcom **BCM5238** is a single-chip device containing eight independent Fast Ethernet transceivers. Each performs all the physical layer functions for 100BASE-TX full- or half-duplex Ethernet on Category 5 UTP cable and 10BASE-T full- or half-duplex Ethernet on Category 3, 4 or 5 UTP cable. The **BCM5238** chip performs encoding and decoding, clock and data recovery, digital adaptive equalization, line transmission, carrier sense and link integrity monitoring, auto-negotiation and RMII/SMII management functions. The **BCM5238** is compliant with the IEEE 802.3 standard.

The **BCM5238** can be connected to a switch controller through the SMII or SSSMII on one side and to the network media on the other side through isolation transformers. The **BCM5238** operates from 1.8 and 2.5V/3.3V power supplies; the I/O operates at either 2.5V or 3.3V.

The **BCM5238** includes support for HP auto-MDIX, which enables the transceiver to automatically detect and correct miswired cable. With the HP auto-MDIX feature, all ports on a

switch can be connected to any other 10/100 port on any switch, hub, or network interface card, using crossover or straight-through cables interchangeably. This makes installation, debugging, and maintenance of the network simpler and less expensive to the end user.

The **BCM5238** incorporates Broadcom's DTE power detection feature, a mechanism for detecting whether the link partner's DTE requires a power supply. Emerging applications require the delivery of power with the data over unshielded twisted pair. A key requirement for such applications is to determine when to apply power to the DTE. Broadcom's DTE power detection feature allows manufacturers to develop switches to support this emerging class of Ethernet devices, which include IP telephones, web cameras and wireless LAN access points.

The **BCM5238** is offered in a 128-pin PQFP or 256-ball BGA package and supports two LED indicators per port.

Connecting
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