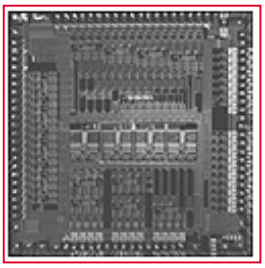
BROADCOM®

BCM5308 PRODUCT Brief



BCM5308 INTEGRATED 10/100BASE-T 9-PORT SWITCH

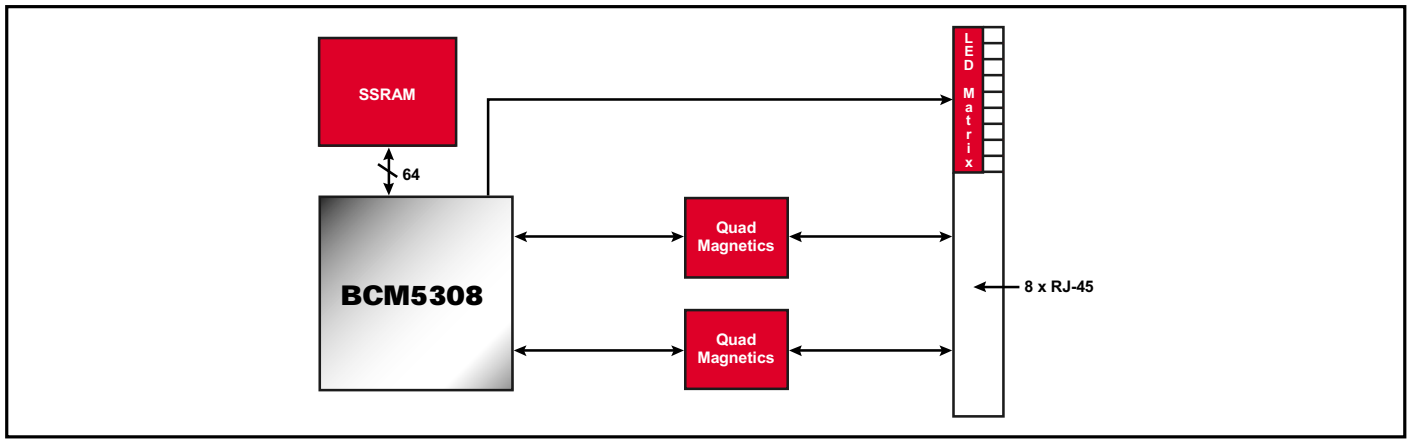
BCM5308 FEATURES

- **9-port 10/100 Switch Integrating the MACs, Switching Fabric and 8 transceivers into a single chip**
- **Supports full-wire speed, full-duplex traffic on every port simultaneously**
- **Cascadable up to 24 ports, non-blocking up to 16 ports**
- **Glueless interface to low-cost 512k bytes or 1M bytes SSRAM**
- **4.2 Gb/s memory bandwidth provided per device**
- **Automatic Layer 2 address learning**
- **Dual mode expansion port**
  - MII connection for external Phy
  - 2 Gb/s expansion port cascades up to 3 devices in a daisy chain configuration
- **Supports up to 16k unicast MAC addresses**
- **Flow control: full-duplex (802.3x) and half-duplex options**
- **Convertible port supports 100BASE-FX or TX connections**
- **Pin configurable options**
- **Direct LED interface provides status on each port**
- **Low-power 3.3V design**
- **352-pin TBGA package**

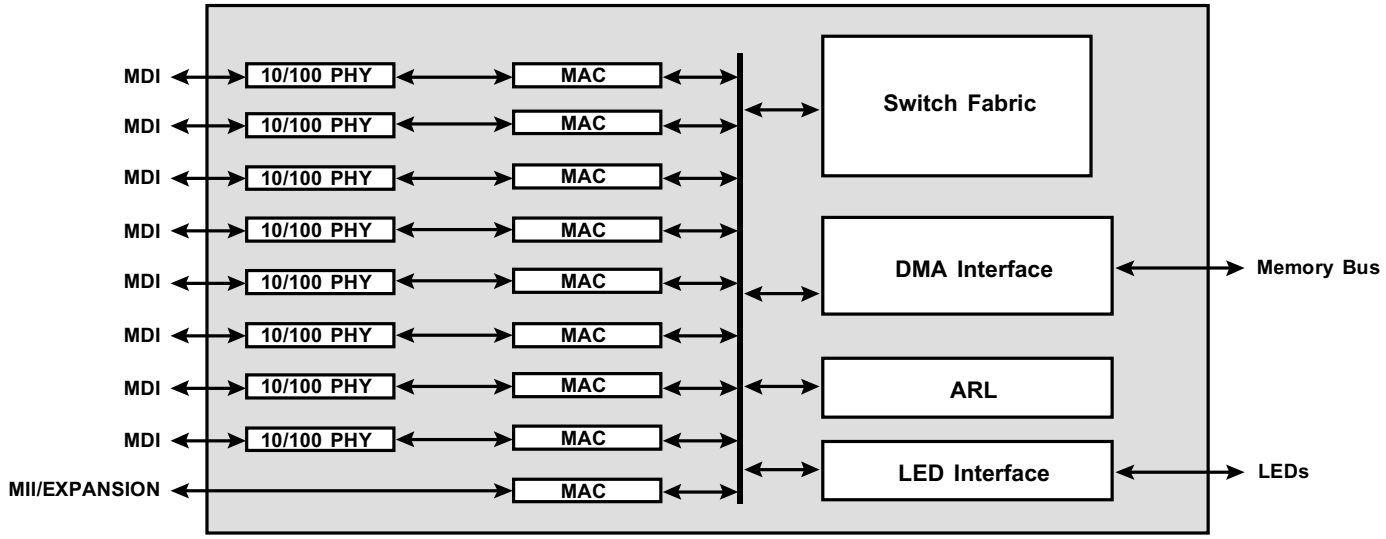
SUMMARY OF BENEFITS

- **World's most integrated 10/100 switch**
- **Lowest cost solution**
- **Smallest form factor (reduces board space by 50%)**
- **Lowest power per port**
- **Scalable architecture supports 8 to 24 port densities**
- **Ninth port supports any external Ethernet MII transceiver**
- **Plug and play solution**
- **No external CPU or EEPROM required**
- **Eliminates cost of external LED latches and drivers**
- **Robust and field-proven Digi-Φ™ based 10/100 transceivers**
- **Substantially simplifies board and system design**
  - Integrated transceivers eliminate pin-intensive Media Independent Interface (MII)
  - Internal PLL generates all system clocks from a single 25 MHz source

Complete 8-Port 10/100 Switch Functional Block Diagram



BCM5308 OVERVIEW



Broadcom's® **BCM5308** is a single chip 9-port 10/100BASE-T switch device. The device integrates eight 10/100 auto-negotiating transceivers, nine Media Access Controllers (MACs), an address management engine and a non-blocking switch controller. The ninth port of the device can be configured as an MII port, or as a high speed expansion bus for cascading up to three **BCM5308** devices together, allowing for higher port density solutions. The device interfaces directly to low cost SSRAM for packet and address table memory.

The integrated 10/100BASE-T Digi-Φ™ transceivers perform all the physical layer interface functions for 100BASE-TX full-duplex or half-duplex Ethernet on Cat. 5 twisted pair cable and 10BASE-T full or half-duplex Ethernet on Cat. 3, 4, or 5 cable.

The device includes nine internal Media Access Controllers. Each MAC is dual speed and capable of both half and full duplex operation. Flow control is provided in the half duplex mode with backpressure. In full duplex mode, 802.3x frame-based flow control is supported. Each MAC is 802.3 compliant and supports maximum frame sizes of either 1522 or 1536 bytes.

An integrated address management engine provides address learning and recognition functions at maximum frame rates. The address table provides capacity for up to 16k unicast addresses depending upon the memory size. Addresses are added to the table after receiving an error-free packet. Broadcast and multicast frames are forwarded to all ports except the port where it was received.

The ninth port of the device can be configured for either an MII interface or a high speed expansion port. In MII mode, the port interfaces to an external transceiver and functions identically to the other eight ports. The expansion mode provides over 2 Gbps of bandwidth to a second **BCM5308** providing a 16-port non-blocking switch solution. Alternatively, the expansion port can be daisy chained for higher port density solutions, up to a total of 24 ports.

For more information please contact us at:
Phone: 949-450-8700, FAX: 949-450-8710
Email: info@broadcom.com

Visit our web site at: www.broadcom.com

BCM5308.0PB3.16.99

BROADCOM CORPORATION
16215 Alton Parkway, P.O. Box 57013
Irvine, California 92619-7013