

## 5-PORT 10/100 SWITCH WITH ON-CHIP PACKET BUFFER

### BCM5315 FEATURES

- The highest level of silicon integration achieved for a 5-port 10/100 Ethernet switch device
- The world's first single-chip switch
- The BCM5315 integrates:
  - Five transceivers (802.3u compliant)
  - Six media access controllers (802.x compliant)
  - 256 KB packet buffer
  - Non-blocking switch fabric
- Non-blocking switch fabric through a 2.6-Gbps expansion port, cascading up to three devices
- MII interface supports an additional 100FX or 100TX connection enabling a sixth user port
- Supports up to 4K MAC addresses
- Flow control: full-duplex (802.3x) and half-duplex options supported
- Supports automatic address learning and aging
- Typical power consumption: < 2.2W
- 208-pin PQFP package
- Optional management features:
  - Low-cost MIB Autocast™ function
  - Hardware support for Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON) and Spanning Tree

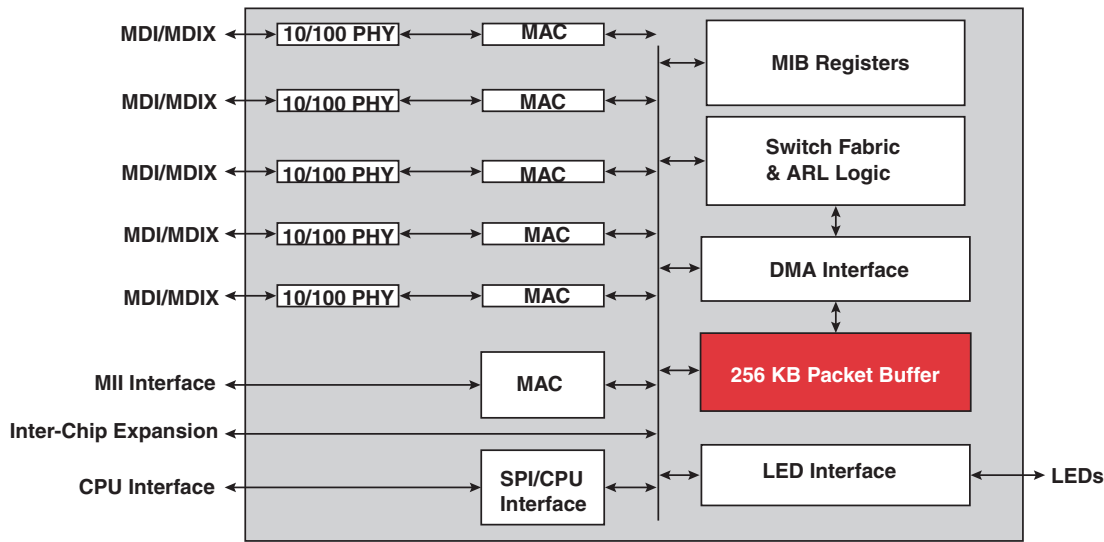
### SUMMARY OF BENEFITS

- Enables a new generation of lower cost 10/100 switches in much smaller form factors.
- Utilizes field-proven industry-standard 10BASE-T/100BASE-TX Fast Ethernet transceivers—lowering overall system interoperability and reliability risks.
- Flexible interfaces support a wider variety of application needs—fiber for long distances or an additional 100TX port.
- Sufficient address range handles all remote office, branch office and home office needs.
- Flexible architecture enables high engineering leverage when designing multiple platforms.
- CPUs are not required to initialize and run in cost-sensitive unmanaged applications—providing true Plug and Play connectivity.
- Very low power and small footprint enables more cost-effective system options.
- Ability to gather and support basic management statistics using a very low-cost microcontroller.
- Low-cost management using the on-chip MIB registers allows the collection and transmission of statistics for each port and allows an upward migration path for corporate users.
- On-chip HP auto-MDI/MDIX feature automatically detects and corrects for crossover cables and allows direct switch-to-switch connection.

### Lowest Cost 5-Port Unmanaged 10/100 Switch



# BCM5315 OVERVIEW



The Broadcom **BCM5315** device is a highly integrated solution. It combines all the functions of a high-speed switch system—including packet buffer, PHY transceivers, media access controllers, address management and a non-blocking switch fabric—into a single 0.22 $\mu$  CMOS device. It complies with the IEEE 802.3, 802.3 $\mu$  and 802.3x specifications, including the MAC control PAUSE frame and auto-negotiation subsections, providing compatibility with all industry-standard Ethernet and Fast Ethernet devices.

This device contains five full-duplex 10BASE-T/100BASE-TX Fast Ethernet transceivers, each of which performs all of the physical layer interface functions for 10BASE-T Ethernet on Category 3, 4, or 5 unshielded twisted pair (UTP) cable and 100BASE-TX Fast Ethernet on Category 5 UTP cable.

Even though this device is primarily targeted for the cost-sensitive unmanaged market, very low cost management can also be provided utilizing the proprietary MIB Autocast™ function. MIB Autocast encapsulates the on-chip MIB statistics

and sends them out automatically on a predefined port (or ports) at programmed intervals. This feature eliminates the need for a costly CPU and simplifies the management interface.

Using this mode, the **BCM5315** periodically transmits a legal Ethernet frame on a designated port. The frames can be intercepted by an external management probe or a dedicated network management application, resident on any node within the network. This function requires only a small, low-cost microcontroller to initialize and configure the device.

The **BCM5315** provides an on-chip MIB statistics register to collect, receive, and transmit statistics for each port. Additionally it provides direct hardware support for the EtherLike MIB, Bridge MIB, MIB II (interfaces) and the first four groups of the RMON MIB. All nine groups of RMON can be supported by using additional capabilities, such as port mirroring/snooping, together with an external microcontroller to process some MIB attributes. The MIB registers can be accessed through the serial management port by an external microcontroller.

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