



# BCM53101

## PRODUCT Brief



### SEVEN-PORT MANAGED 10/100 ROBOSWITCH™

#### FEATURES

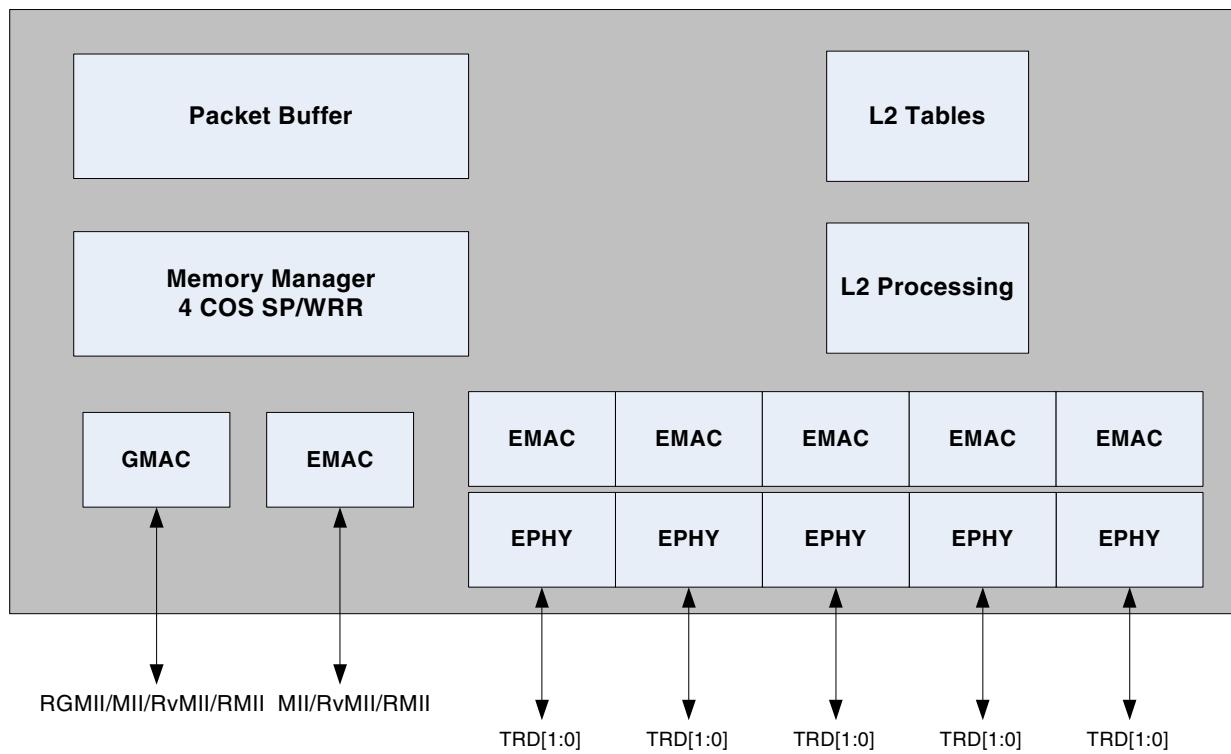
- Highly integrated, 65 nm process, seven-port 10/100 Switch integrating:
  - Five 10/100 MACs with five integrated 10/100 PHYs
  - One 10/100 MAC with MII/RvMII/RMII interface
  - One 10/100/1000 MAC with RGMII/MII/RvMII/RMII interface
- Performance
  - 2K MAC
  - 2 KB max frame size
- Virtual Local-Area Network (VLAN)
  - 4K-entry port-based and 802.1Q VLAN (full 4K range)
  - VLAN based rate limiting
- Quality of Service (QoS)
  - 4 CoS queues – Port, 802.1p, and DiffServ
- Security
  - IEEE 802.1x support for secure user authentication
- BroadSync™ HD
  - Supports IEEE 802.1 Audio Video Bridging (AVB) draft standard
- Traffic control and network resiliency
  - Ingress rate limiting and egress rate shaping
  - Spanning Tree Protocol/Rapid Spanning Tree Protocol/Multiple Spanning Tree Protocol
  - Port mirroring
  - Full MIB counter set supported
  - IPv4 IGMP/IPv6 MLD snooping
  - Redirect reserved multicast MAC addresses to CPU
- Low-Power Consumption
  - Less than 0.7W full power
  - Green features including auto power down, sleep, and deep sleep modes
- Technology and physical specifications
  - State-of-the-art 65 nm LP, 6-layer metal technology
  - 1.2V core and 2.5V/3.3V I/O

#### SUMMARY OF BENEFITS

- Enables next-generation six Fast Ethernet + one Gigabit Ethernet switches with enhanced L2+ features
- High level of integration provides for cost-effective designs
- Utilizes field-proven 10BASE-T/100BASE-TX Fast Ethernet transceivers, lowering overall system interoperability and reliability risks.
- VLAN feature insures proper layer-2 isolation and security
- Highly flexible 4K-entry VLAN implementation with support for full 4K range
- 802.1Q-based VLAN and flexible priority queues mapped to selectable protocols such as 802.1p, DiffServ, and COS enable the switch to be designed into a variety of applications for multimedia and data traffic.
- 802.1x port and MAC-based network security to keep the network running efficiently
- Enables multicast switching with IGMP and MLD snooping without expensive L3 multicast routing
- BroadSync™ HD enabled for guaranteed QoS and bandwidth, latency, and time-sync for audio/visual traffic between networked electronic devices
- WAN port allows for one of the ports to be specified for WAN connectivity
- Significant power savings with innovative green modes and 65 nm LP process technology

#### BCM53101 Applications





### BCM53101 Block Diagram

Optimized for L2 switching, the BCM53101 is a feature-enhanced seven-port switch to the industry-leading BCM5325E RoboSwitch™. This device combines all the functions of a high-speed switch system, including packet buffers, PHY transceivers, MACs, address management, and a non-blocking switch fabric, into a 65 nm LP process.

The BCM53101 contains five full-duplex 10BASE-T/100BASE-TX Fast Ethernet transceivers connected to the five on-chip 10/100 MACs. In addition, a sixth 10/100 MAC is available through the MII/RvMII interface. The BCM53101 also features a 10/100/1000 MAC, which can be used to connect to an external CPU via the RGMII/MII/RvMII interface.

The BCM53101 also integrates several gigabit-class features such as 4K-entry VLAN, 2K-entry MAC addresses, ingress rate limiting and egress rate shaping, port mirroring, IGMP/MLD snooping, and trap reserved MAC addresses to CPU, among others.

The BCM53101 is designed from the ground up for lower power consumption. The power-efficient on-chip PHYs help lower power consumption by over 50% compared to its predecessor, the BCM5325E. Fabricated using 65 nm LP process, the device consumes less than 0.7W. Additionally, the BCM53101 incorporates several green modes such as auto-power down, sleep mode, and a deep sleep mode (needs external CPU).

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