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BCM53101
PRODUCT Brief

SEVEN-PORT MANAGED 10/100 ROBOSWITCH™

F E A T U R E S

- **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

S U M M A R Y O F B E N E F I T S

- **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.**

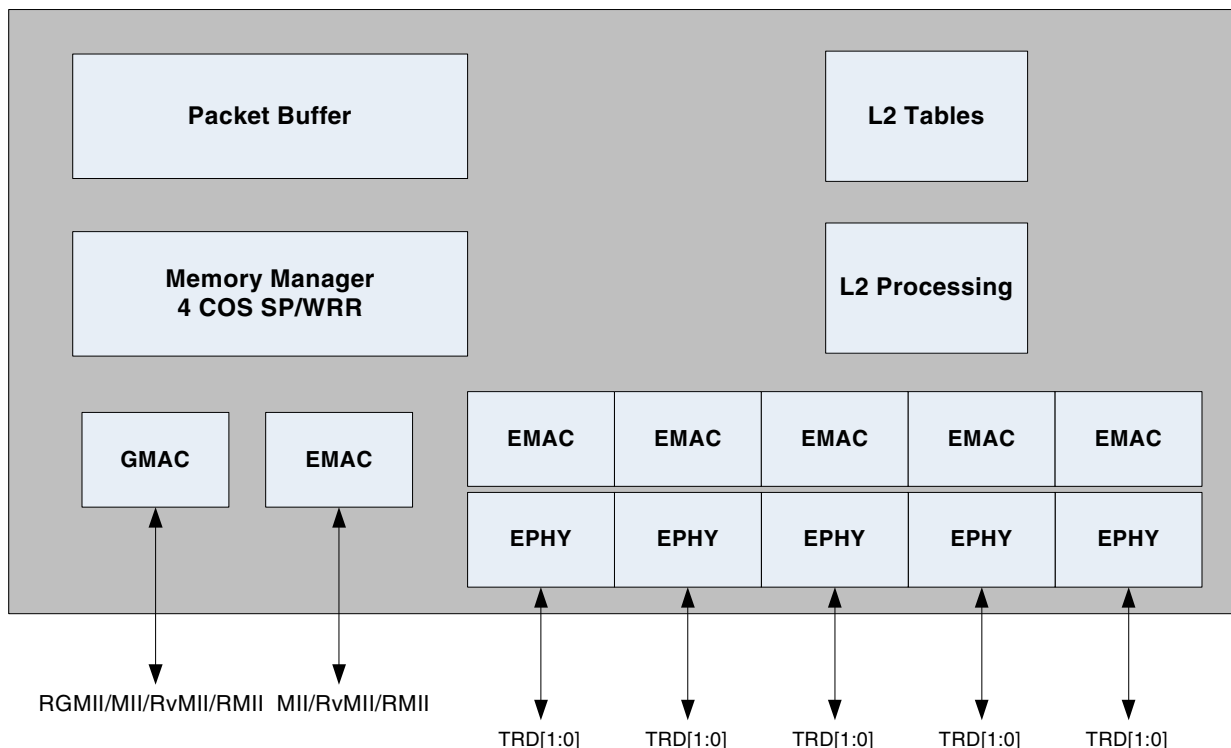- **802.1x port and MAC-based network security to keep the network running efficiently**

  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

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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).

Connecting
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