

MANAGED SWITCH WITH 16 FE PORTS + 2-GbE INTERFACE

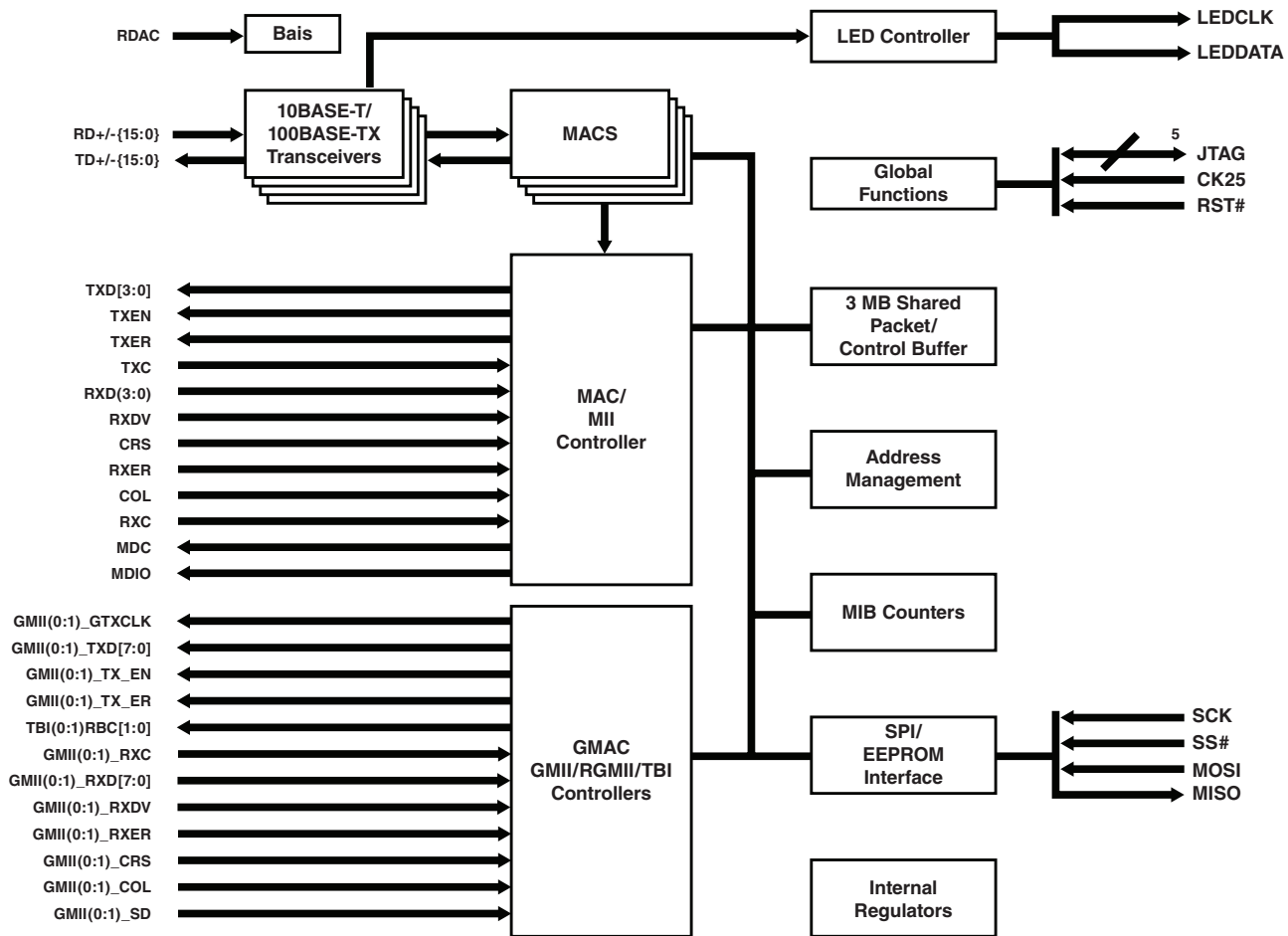
FEATURES

- **Ninth-generation L2+ Fast Ethernet switch with two GMII/RGMII/TBI interfaces**
 - Sixteen port 10/100 transceivers for TX/EFX
 - Advanced cable diagnostic support
 - Seventeen 10/100 MACs
 - Two Gigabit MACs
 - 3-Mbit (384 KB) packet buffer and control memory
 - Management port with RvMII/MII interface
- **Non-blocking switch fabric for 16 FE + 2 GbE ports**
- **Jumbo frame support up to 2048 bytes**
- **Flexible TCAM-based compact field processor for packet classification and filtering**
- **Packet remarking, VID replacement**
 - 802.1p PCP, DSCP remarking
- **802.1p, port, MAC, protocol, Customer_VID, and DiffServ (IPv4/IPv6) based QoS packet classification with four priority queues**
- **Port-based VLAN**
- **802.1Q-based VLAN with 4K entries**
- **MAC-based VLAN with 512 entries**
- **Protocol-based VLAN with 16 entries**
- **Double tagging**
 - UNI/NNI configuration per port for edge access application
 - QinQ packet transmission through NNI port
 - Programmable global SP_TPID
 - Programmable SP_VID through flexible mapping

FEATURES

- **Link aggregation support with automatic link fail-over**
- **Programmable per-port bandwidth/rate control**
- **Protected port security feature**
- **Port mirroring (ingress/egress) and MLD snooping**
- **Spanning tree support (802.1d/1s/1w)**
- **Supports 802.1x EAPOL higher layer protocol**
- **Programmable broadcast, multicast, and unknown unicast storm control. 8K MAC addresses with automatic learning and aging**
- **MDC/MDIO and SPI interfaces**
- **1K-entry Multicast address table**
- **Hardware supports SNMP, RMON**
- **Internal oscillator simplifies design and reduces cost.**
- **JTAG**
- **2.5V and 1.2V, typical power consumption—4.3W**
- **400-pin PBGA package**

OVERVIEW



BCM53212M Block Diagram

The BCM53212M is a ninth generation RoboSwitch™ design based on the field-proven BCM5320 device. This integrated 0.13μ-CMOS device combines all the functions of a high-speed switch system including packet buffers, PHY transceivers, Media Access Controllers (MACs), address management, and a non-blocking switch fabric. It is designed to be fully compliant with the IEEE 802.3 and IEEE 802.3x specifications, including the MAC control pause frame, auto-negotiation and with all industry standard Ethernet and Fast Ethernet devices.

The BCM53212M contains 16 full-duplex 10BASE-T/100BASE-TX Fast Ethernet transceivers with advanced cable diagnostics support. Each 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. In addition, the BCM53212M has two GMII/RGMII/TBI interfaces that provide flexible

10/100/1000BASE-TX/FX connectivity. An additional MAC is included for CPU connection via RvMII or MII interface.

The BCM53212M has a rich feature set suitable for streaming VoIP, video and data traffic for multimedia applications. The BCM53212M supports up to four QoS queues per port. Traffic QoS can be assigned based on Port-ID, MAC address, 802.1p or DiffServ. Together with 4K entries, 802.1Q VLAN, 802.1x EAPOL protocol filtering, MAC-based link aggregation with dynamic failover, per-port bandwidth/rate control, MAC address locking, and IGMP/MLD snooping at Layer 3 allow system vendors to build advanced L2+ switch systems for the Multi-Tenant/Multi-Dweller Unit (MTU/MDU) markets. The BCM53212M provides 70+ on-chip MIB counters to collect receive and transmit statistics for each port.

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