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BCM5324M PRODUCT Brief

SINGLE-CHIP L2+ MANAGED SWITCH WITH 24 10/100 PORTS + 2 GbE PORTS

FEATURES

- **Seventh-generation ROBO L2+ 24FE + 2GE switch with two GMII/RGMII/TBI interfaces**
- **Twenty-four fully integrated 10/100 PHYs with support of Advanced Cable Diagnostics in the Broadcom PHY technology**
- **QoS packet classification supports four priority queues**
- **Port-based VLAN and 802.1Q VLAN with 4k entries**
- **Supports traffic aggregation via double tagging**
- **Spanning Tree (IEEE 802.1D/1s/1w)**
- **MAC-based trunking with automatic link failover**
- **Port mirroring**
- **IGMP snooping Layer2/3**
- **Over 70 MIB counters for per port management statistics**
- **Up to 24 Static Secure MAC addresses per port**
- **Programmable Broadcast, Multicast, and Unknown Unicast storm control**
- **Per port bandwidth/rate control**
- **8K MAC addresses with automatic learning and aging**
- **Protected port**
- **Multicast address table for 256 entries**
- **25th FE port via MII or reversed MII mode for management**
- **MDC/MDIO and SPI interfaces**
- **Internal oscillator simplifies design and reduces cost**
- **JTAG**
- **Embedded 2.5V and 1.2V regulator, typical power consumption: 3.5W**
- **400-pin PBGA package**

SUMMARY OF BENEFITS

- **The BCM5324M includes:**
  - 24 10/100 transceivers for TX/FX
  - 24 media access controllers
  - Two Gigabit media access controllers
  - 3 Mb total of packet buffer and control memory
  - Non-blocking switch fabric supports up to 24 FE+2 GE ports
- **Advanced Cable Diagnostics minimize the need for expensive cable troubleshooting equipment.**
- **Enables a new generation of lower cost FE switches with the highest integration of enhanced L2+ features and maximum connectivity.**
- **Optimized for WebSmart™ managed switch design.**
- **802.1Q VLAN allows segmentation of network into smaller broadcast domains to preserve bandwidth and increase network security.**
- **Four flexible Class of Service (CoS) queues per port assures the lowest latency to high-priority traffic. This enables the switch to support a wide variety of delay sensitive video and audio multicast applications.**
- **IEEE 802.3ad link aggregation increases effective bandwidth and provides redundancy of a link.**
- **IEEE 802.1X Extensive Authentication Protocol over LAN (EAPOL) plus MAC address locking enhances network port security.**
- **Storm and bandwidth/rate control provide better traffic profile management.**
- **Access to all internal registers through SPI or MDC/MDIO interfaces.**
- **Hardware support for implementing SNMP and RMON.**
- **Low-power consumption and small package allow simple PCB design.**

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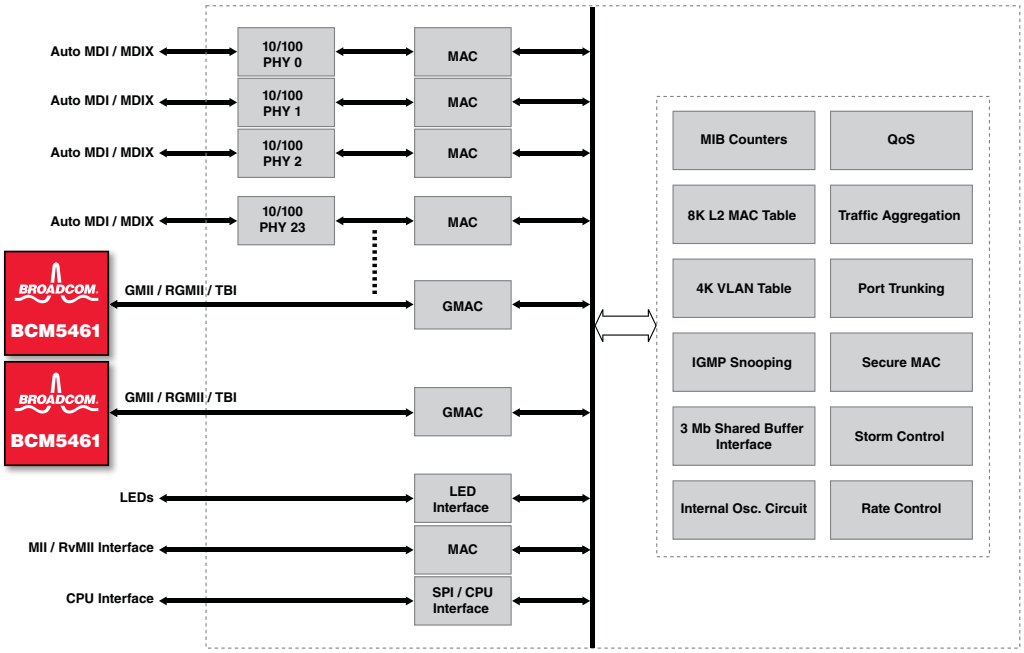
OVERVIEW



BCM5324M Block Diagram

BCM5324M is designed based on the field-proven industry leader ROBOSwitch™. This device combines all the functions of a high-speed switch system including packet buffers, PHY transceivers, media access controllers, address management, and a non-blocking switch fabric into a single 0.13 µm CMOS device. It complies with IEEE 802.3 specifications, including the MAC control PAUSE frame and auto-negotiation subsections, providing interoperability with all industry-standard Ethernet, Fast Ethernet and Gigabit Ethernet devices.

BCM5324M is the industry first Ethernet to integrate twenty-four full-duplex 10BASE-T/100BASE-TX/FX Fast Ethernet transceivers. Each transceiver incorporates the Broadcom PHY Advance Cable Diagnostic technology, which can detect cable shorts as well as open and measure the cable length. BCM5324M also supports two GMII/RGMII/TBI interfaces, providing flexible 10/100/1000BASE-TX and fiber connectivity.

BCM5324M supports 8K MAC addresses, 4K VLAN addresses and stores up to 256 multicast addresses including IP multicast. BCM5324M also supports 802.1d Spanning Tree, 802.1s Multiple STP, 802.1w Rapid STP, and flexible ingress and egress checking rules for VLAN processing.

BCM5324M supports up to four CoS queues per egress port, ideal for delay sensitive multimedia applications. Traffic can be assigned to these CoS queues based on the Port ID, the MAC address, the 802.1p priority field in layer 2, the TOS field in IPv4 or the DiffServ field in IPv6 headers. Together with other advanced features, such as 802.1x EAPOL protocol filtering, Port bandwidth/rate control, MAC address locking and IGMP snooping at Layer2 and Layer3 allow system vendors to build advanced L2+ switch systems for the multitenant/multidweller unit (MDU/MTU) markets.

The BCM5324M family of switches is optimized for WebSmart and L2 managed designs. The new level of integration brings L2 manageable to SMB switches at an affordable price. Single chip replaces the typical 3- or 4 chip solutions in the market today.

For Network Management, the BCM5324M includes 70+ on-chip MIB counters to collect receive and transmit statistics from each port for supporting the Etherlike MIB, Bridge MIB, MIB II (interfaces) and the RMON MIB (Groups 1, 2, 3, 9).

Product ordering information:

- BCM5324M (24FE+2G)
- BCM5322M (24FE+2MII)
- BCM5321M (16FE+2G)
- BCM5320M (8FE+2G)

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