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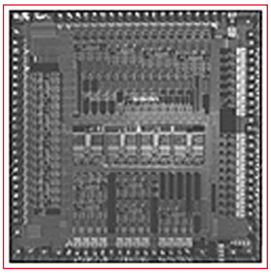
BCM5632 PRODUCT Brief



12 GIGABIT + 1 10-GIGABIT SWITCHING PROCESSOR

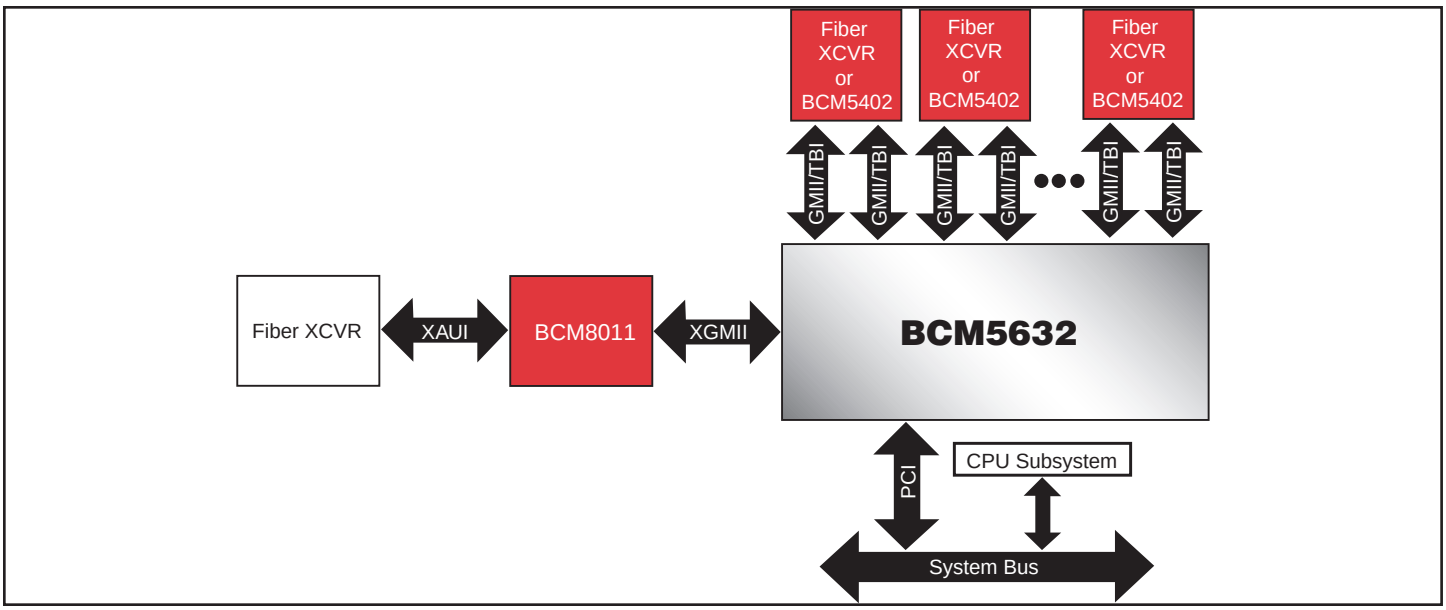
BCM5632 FEATURES

- Supports 12 Gigabit ports and one 10-Gigabit uplink in wirespeed operation
- Gigabit ports support TBI (1000BASE-X) or GMII (1000BASE-T) interfaces
- Uplink supports XGMII interface for 10-Gigabit
- L2 search table supports 32K MAC addresses
- Jumbo Frame support (9 KB)
- Supports 4K VLAN address and 802.1s Multiple Spanning Tree protocol
- Supports 802.1p and/or DiffServ with four priority queues
- Supports 802.3ad link aggregation control protocol (LACP) and marker protocol
- Supports selected MIB groups in RMON and SMON
- Supports up to 32K IP multicast groups with the option to cross VLAN boundaries
- Full-duplex and half-duplex operation with IEEE 802.3x flow control and backpressure
- Built in 32-bit, 33-MHz PCI bus interface
- Flexible multiplexer modes
- Packaged in 785-pin BGA

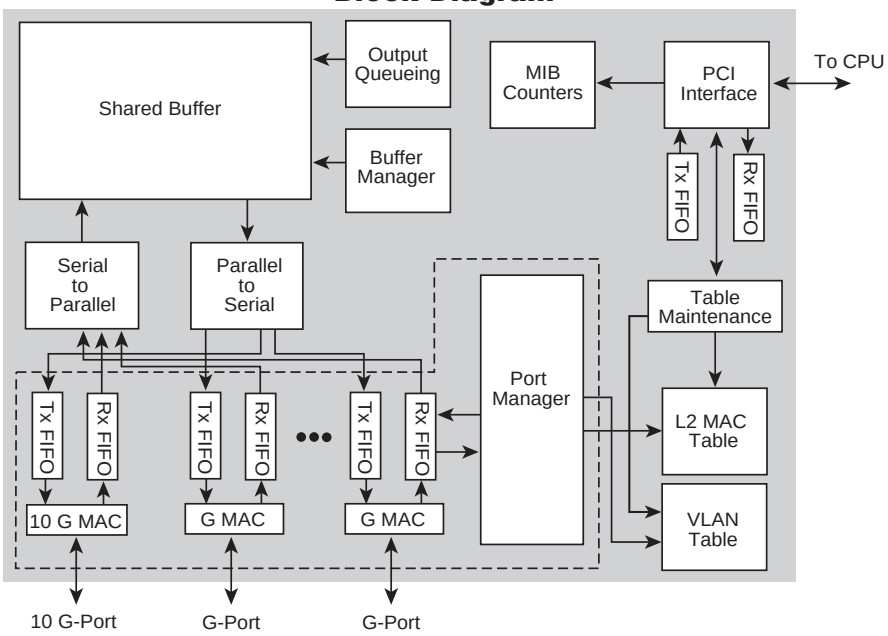
SUMMARY OF BENEFITS

- Complete switch on a chip integrates 12 10/100/1000 and one 10G Ethernet Media Access Controllers (MACs) supporting RMII, GMII, XGMII and TBI interfaces, including multi-layer forwarding and filtering logic and internal ARL tables and packet buffering.
- Supports 32K internal MAC addresses, which are shared by all ports. Multicast MAC addresses, including IP multicast, can also be stored and searched.
- Supports Quality of Service (QoS). Each output port has four priority queues and their assignment can be based on DiffServ TOS field or the 802.1p priority field.
- Filters and forwards traffic at full wire speed on all 13 ports at all layers of functionality. This equates to 44 Gbps of bandwidth.
- Provides a mechanism to bundle together up to 12 ports at the same speed to form a port bundle or a trunk group, establishing up to six trunk ports.

BCM5632 Switching Solution



Block Diagram



The **BCM5632** switching processor chip supports 12 Gigabit ports and one 10-Gigabit uplink with all ports in wirespeed operation. The **BCM5632** is ideal for applications such as multi-Gigabit port switches or aggregating multiple-Gigabit ports to a 10-Gigabit backplane.

For Gigabit ports, the **BCM5632** supports PCS (802.3z, 1000BASE-X) or GMII (802.3ab, 1000BASE-T) interfaces with full-duplex operation at Gigabit speed, and full- or half-duplex operation at 10/100 Mbps speed (using 1000BASE-T). For the uplink port, the **BCM5632** supports XGMII.

The **BCM5632** supports 802.1Q VLAN tagging as an option (Qon). The **BCM5632** supports 802.1v VLAN Classification by Protocol. There are four user-programmable protocols that can be set up per port by the VLAN Classification EtherType and the VLAN Priority/TAG registers.

The **BCM5632** supports both port-based and tagged (802.1q and 802.3ac) Virtual LAN (VLAN). The **BCM5632** also supports 4K VLAN addresses with the 802.1s Multiple Spanning Tree option, and flexible and programmable ingress and egress checking rules for VLAN processing.

The **BCM5632** supports Ethernet frames with lengths from 64 bytes to 9 KB. Runt or long frames are dropped at the input port. The minimum inter-packet gap (IPG) is assumed to be 64-bit IDLE plus 32-bit preamble. Packets with shorter than minimum IPG are not dropped, but wirespeed performance is not guaranteed.

The **BCM5632** also supports 802.3ad port aggregation. The 12-Gigabit ports can form up to six trunks, with a maximum of twelve ports in a trunk. The distribution algorithm is user-selectable. The Link Aggregation Control Protocol (LACP) frames are handled by the accompanying CPU and the marker protocol is handled in hardware.

The **BCM5632** can be initialized and configured by an EEPROM or a CPU, which is also responsible for search table updates and management functions. The CPU is a separate port to the device, containing its own Tx FIFO and Rx FIFO. The device implements a 32-bit, 33-MHz peripheral component interconnect (PCI) for flexible CPU selection and interface.

Other features include frame trapping and forwarding to the CPU, port monitoring, and broadcast storm control to reduce broadcast traffic through the switch. The **BCM5632** also offers a flexible Multiplexer mode in which the L2 switching functionality can be turned on and off.

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