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BCM5345 PRODUCT Brief



25 PORT GIGABIT ETHERNET SWITCHING PROCESSOR

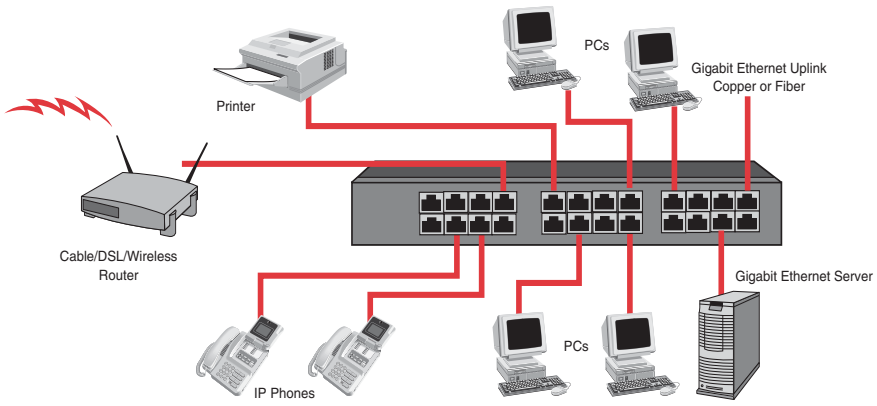
FEATURES

- Supports 25 Gigabit Ethernet ports in wirespeed operation
- Gigabit ports support RGMII interfaces to Standard GE transceivers
- Uplink port supports GMII interface
- On-chip L2 search table supports 8K MAC addresses
- Jumbo Frame support (9 Kbyte)
- Supports 4K VLAN address and 802.1s Multiple Spanning Tree protocol
- Supports 802.1w Rapid Spanning Tree
- Supports 802.1p and/or DiffServ with four priority queues
- Supports 802.3ad link aggregation
- Supports selected MIB groups in RMON
- Supports up to 256 IP multicast groups
- Full-duplex and half-duplex operation with IEEE 802.3x flow control and backpressure
- On-chip 512 Kbyte packet buffer memory with sophisticated buffer management
- Offers per-port rate control
- Supports 802.1x access control protocol
- Extremely low power consumption (4W)
- Packaged in 676-pin BGA

SUMMARY OF BENEFITS

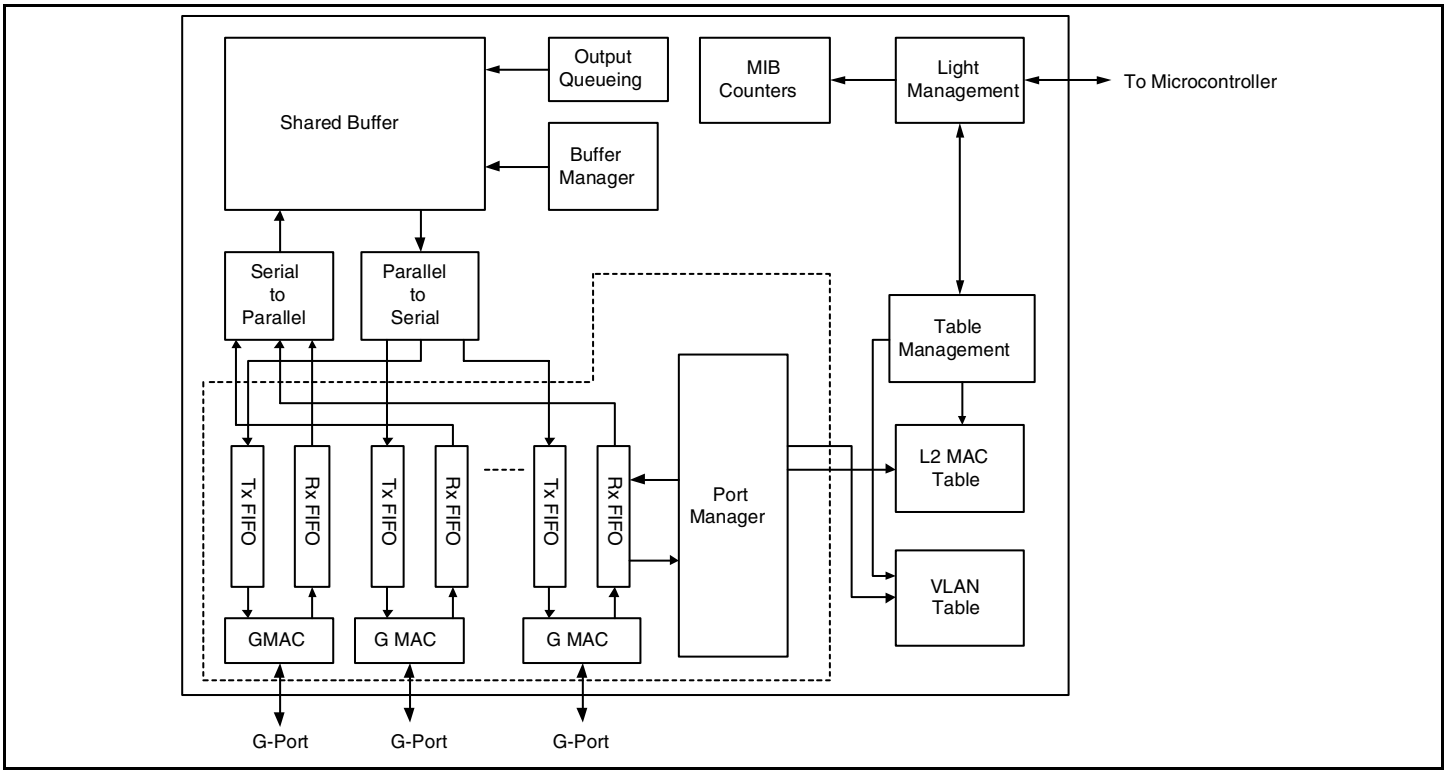
- Enables a new generation of lower-cost switches with Gigabit Ethernet connectivity and much smaller form factors.
- Complete switch on a chip integrates multilayer forwarding and filtering logic and internal ARL tables and packet buffering.
- Filters and forwards traffic at full wirespeed on all 25 ports at all layers of functionality. This equates to 50 Gbps of bandwidth.
- Provides the most cost-effective Gigabit Ethernet connectivity to the desktop for all remote and branch office as well as enterprise workgroup needs.
- Supports 8K internal MAC addresses, so even large, segmented networks can be supported.
- Supports Quality of Service (QoS) for prioritization of different traffic types.
- Full support of VLANs allows separation of user groups and minimizes superfluous traffic.
- Jumbo frame support allows the device to be connected to corporate server farms and networks while maintaining maximum TCP/IP performance.
- Supports the latest standards used in corporate networks for discovery, management, access control, and traffic control.
- On-chip MIB registers allow the collection and transmission of statistics for each port and allow an upward migration path for corporate users.

25 Gigabit Ethernet Ports for SOHO and Subnetwork Applications



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OVERVIEW



The Broadcom BCM5345 device is a highly integrated solution providing connectivity for 25 ports of Gigabit Ethernet. It combines all the functions of a high-speed switch system, including packet buffer, media access controllers, address management, and a nonblocking switch fabric as well as a Microcontroller interface into a single 0.13 µm CMOS device. It complies with IEEE 802.3, 802.3u, 802.3ab, and 802.3x specifications, including the MAC control, pause frame, and auto-negotiation subsections, providing compatibility with all industry-standard Ethernet, Fast Ethernet, and Gigabit Ethernet devices.

The BCM5345 is ideal for applications such as Gigabit Ethernet workgroup switches, desktop switches, and data center switches. While configurations of 24 Gigabit Ethernet ports can be achieved with only one switch device, configurations of up to 48 ports can be built using multiple BCM5345 devices with aggregated Gigabit Ethernet links between them.

The BCM5345 supports 25 Gigabit Ethernet ports in a single device with all ports in wirespeed operation. It offers 24 ports of RGMII (802.3ab, 1000BASE-T) interfaces with full-duplex operation at Gigabit speed and full-duplex or half-duplex operation at 10/100 Mbps speed (using 10BASE-T/100BASE-T). The BCM5345 also offers one uplink port with a GMII interface for light management or cascading purposes. It forwards Ethernet frames with lengths between 64 bytes and 9216 bytes based on L2 MAC address lookups in the 8k entry on-chip MAC address table with automatic learning and aging support. The device supports four levels of priority that can be either assigned from the 802.1p user priority bits or the TOS field for Differentiated Services. The device also supports MAC access control (802.1x) as well as port trunking (802.3ad). In addition, individual ports can be rate controlled in 16 steps down to 64 Kbps.

The BCM5345 device offers a Microcontroller interface to support lightly managed applications. All the required counters and frame-trapping mechanisms are incorporated into the device.

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