BROADCOM®
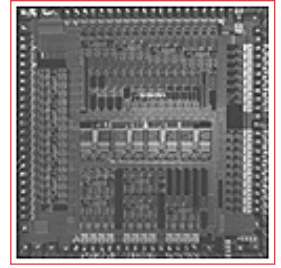
BCM5680 8-PORT GIGABIT SWITCH ON A CHIP

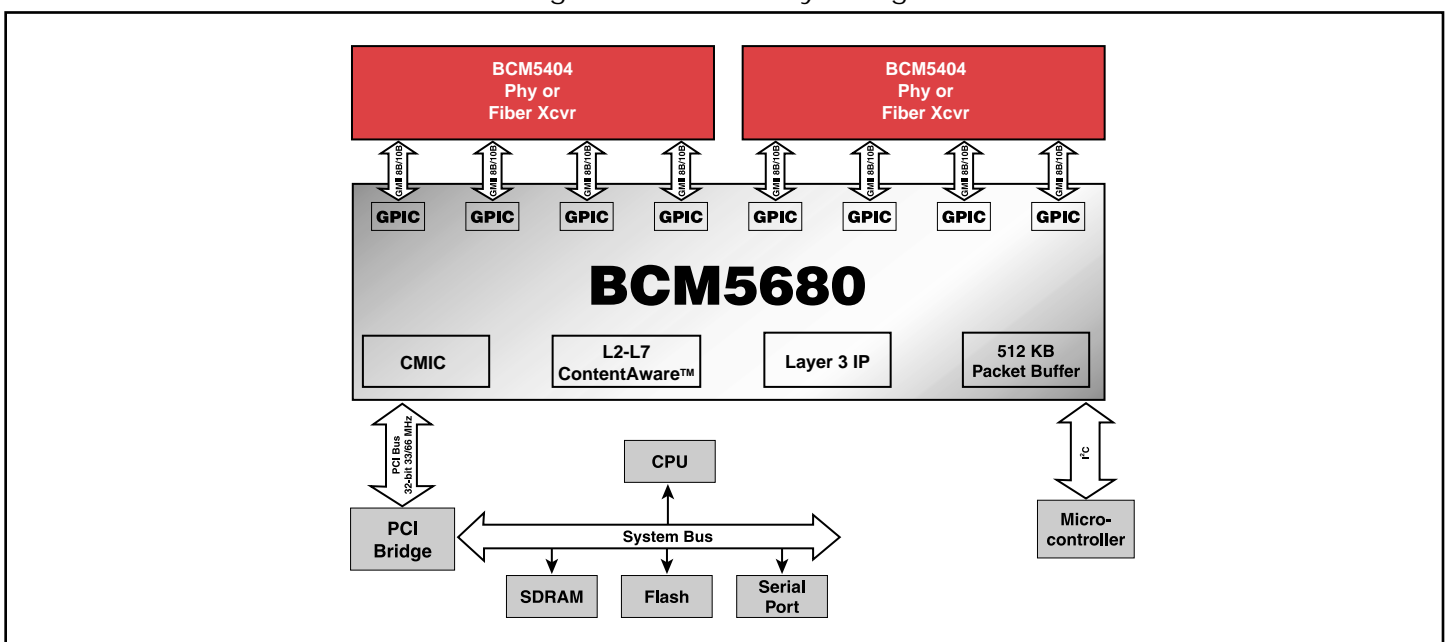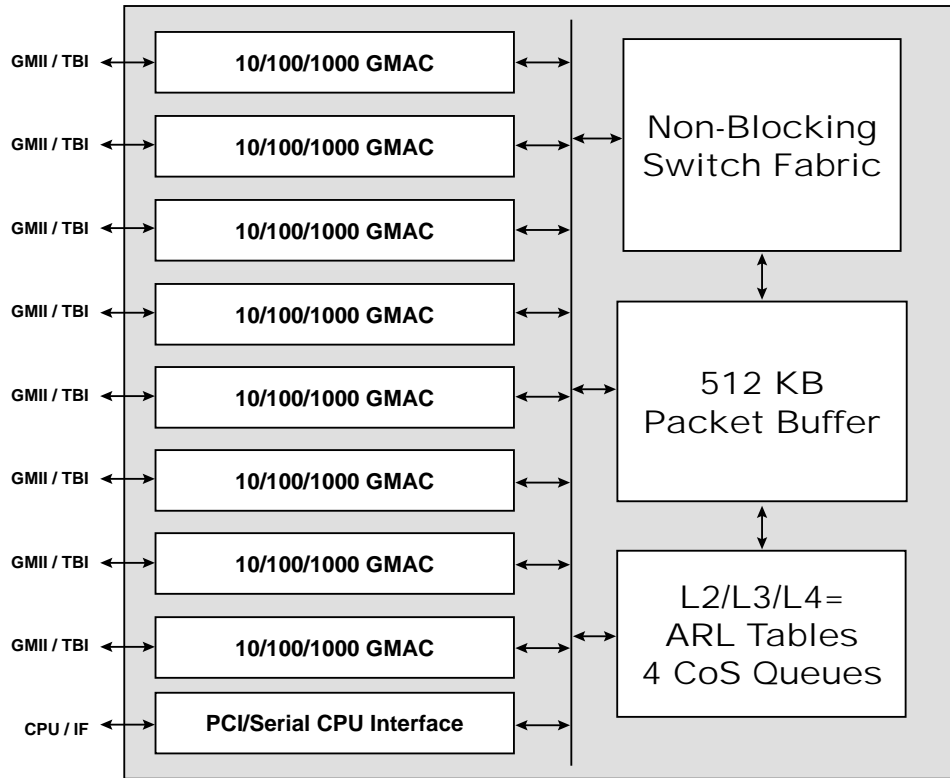## BCM5680 FEATURES

- **Switch fabric to deliver 12-Mpps switching performance, providing line rate throughput independent of protocol layer processed**
- **Layer 2 through 7 filtering and ContentAware™ packet classification, at full line rate on all ports**
- **Integrated buffer memory**
  - Configurable to be static, dynamically allocated, or both
  - Highly efficient data memory packing
- **Eight 10/100/1000 Ethernet MACs**
- **Gigabit stacking support for higher density system requirements**
- **IEEE 802.1 Support**
  - Q => Support for VLAN
  - D => Support for Spanning Tree
  - p => Support for traffic classification
- **8K MAC and 2K IP address tables on chip**
- **Flexible link aggregation on any port**
- **Port mirroring support**
- **Low-power 3.3/2.5V operation**
- **400-pin TBGA package**

SUMMARY OF BENEFITS

- **Represents the highest level of silicon integration achieved for a complete eight-port gigabit switch, integrating the switch fabric, MACs, address tables and packet buffering functions.**
- **The highly programmable filter engine (FFP) supports wire-speed pack-by-packet filtering and classification, making the BCM5680 the ideal choice for sophisticated switching applications.**
- **Supports a wide range of choices in user management costs, featuring both an I²C and a 33/66 MHz PCI interface.**
- **Supports four levels of CoS; maps to 802.1p priority levels.**
- **Provides advanced packet flow control with HOL prevention, backpressure support, and packet rate control (802.3x).**
- **At 3 μsec, the BCM5680 provides the world's lowest latency for an eight-port gigabit switch.**
- **The BCM5680 seamlessly integrates with the BCM5600 (24 Fast Ethernet plus 2 Gigabit Ethernet ports), the BCM5602 and other BCM5680s to provide high levels of flexibility in network system designs.**

Non-Blocking 8-Port Multi-Layer Gigabit Switch

GMII / TBI →	10/100/1000 GMAC
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CPU / IF →	PCI/Serial CPU Interface

Non-Blocking Switch Fabric

512 KB Packet Buffer

L2/L3/L4= ARL Tables 4 CoS Queues

The Broadcom **BCM5680** represents the highest level of cost-reduction and integration available for the Gigabit Ethernet market. A Broadcom-based eight-port gigabit switch reduces today's costs by as much as 50% over competing solutions.

The PCI interface provides a high-speed, flexible mechanism for network system management. Its ability to run either 33 MHz or 66 MHz gives users the flexibility to choose between bandwidth and cost when designing a managed solution. Integrated features such as Scatter/Gather DMA supports advanced management software requirements. Alternatively, an I^{2}C compatible interface is supported.

The 10/100/1000 megabit interface enables users to connect at any speed required on a given port. This triple-speed interface automatically negotiates to support legacy devices alongside newer, high-bandwidth devices, all in the same switch. The interface permits the use of a BCM8002 SerDes for fiber optics, a quad BCM5404 Gigabit PHY for 1000TX, or a standard 100TX PHY.

The integrated 512 KB data packet memory eliminates the need for external data packet storage. The memory organization and structure can be optimized to provide a minimum fixed allocation of buffer space per port and a dynamic pool size, to absorb any bursty traffic requirements.

The integrated L2, L3, and filtering tables deliver industry-leading switching performance. The **BCM5680** achieves full wirespeed layer 2 and layer 3 switching on all ports. Additionally, its innovative architecture supports wirespeed layer 2 through layer 7 filtering, utilizing a 35 Gbps internal high speed bus.

Higher density configurations are easily achieved through link-aggregating multiple ports or stacking ports from box to box. Stand-alone configurations can easily achieve 24-Gigabit ports using only five devices with no external memory required.

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