



## BCM5676 4-PORT, 96-GBPS SWITCH FABRIC

### FEATURES

- Four 10-Gbps and 12-Gbps (HiGig+™) configurable switch fabric ports
- Nonblocking, 96-Gbps wirespeed, backplane/switch fabric performance
- Forwarding rate of 72 million packets/second
- Multistage switch fabric scalable up to 750 Gbits
- Eight integrated high-speed XAUI interfaces
- Eight programmable priority queues per port
- Port trunking (up to 4 ports) and mirroring across multiple devices
- Hot-swap capable with AC coupling
- Supports redundancy on linecards for chassis-based applications
- Advanced diagnostic features including IEEE 1149.1 boundary scan, JTAG, and extensive BIST functionality
- Resilient link configuration through active multi-path forwarding
- PCI and I<sup>2</sup>C interface
- Broadcom switch API compatibility
- Advanced 0.13- $\mu$ m CMOS technology
- Small 600-pin EPGA package; pin-compatible with BCM5671
- Low power consumption

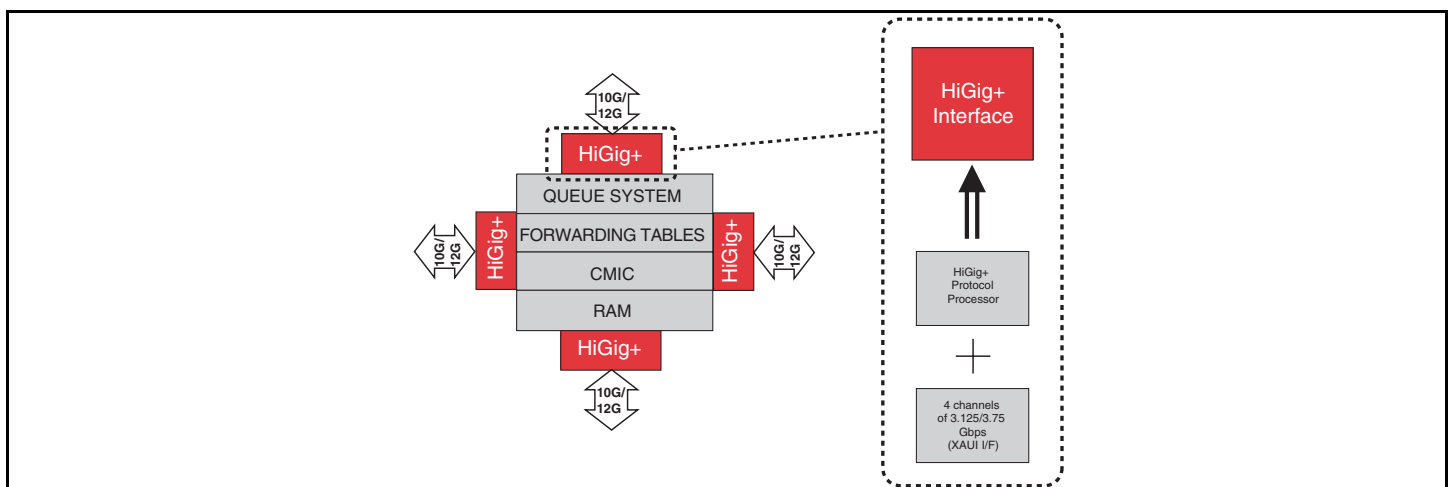
### SUMMARY OF BENEFITS

- System vendors can build high-performance, high-density Gigabit Ethernet LAN switches in several form factors
- Very low latency and advanced QoS enable seamless integration of voice, video, and data traffic
- Built-in high-speed XAUI interfaces with Broadcom-unique SerDes technology eases and accelerates system design, while reducing cost and conserving board space
- Large internal data buffer memory eliminates the need for expensive external memory
- Drives up to 10m of low-cost copper cables backplane and stacking support
- Broadcom switch API compatibility enables reuse of resources and fast time-to-market

### TARGET APPLICATIONS

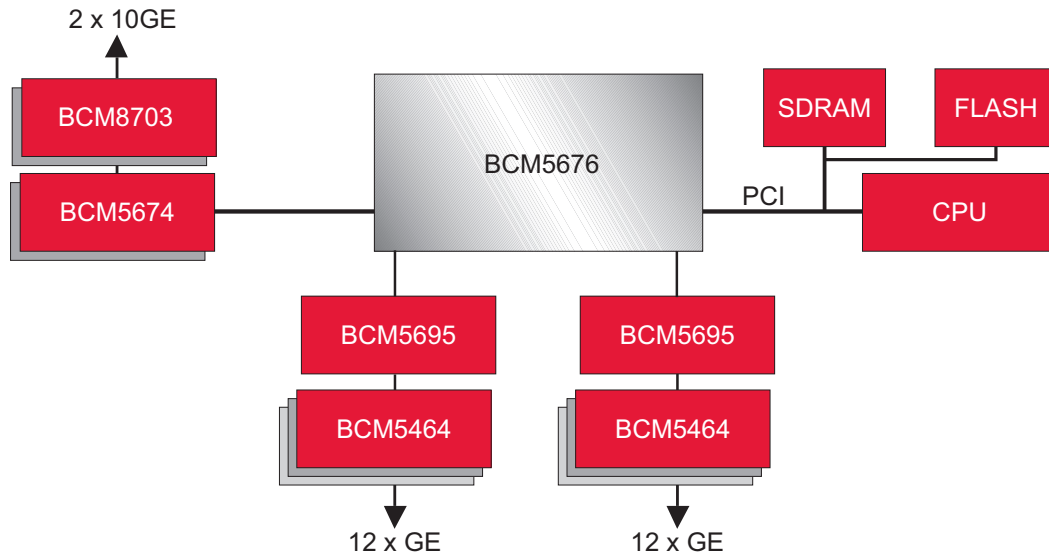
- Switch fabric in modular Gigabit Ethernet chassis
- Switch fabric in high-port-count stand-alone or stackable Gigabit Ethernet switches
- Switch fabric for in-server switch blade applications
- Packet-based switch fabric in telecom applications

### Non-blocking 4-port HiGig+ Switch Fabric



## OVERVIEW

### Functional Design of BMC5676-Based 24-Port GE Switch With 2 x 10 GE Ports



#### General Description

The Broadcom BCM5676 switch fabric is the central component of the modular and highly scalable StrataXGS™ Gigabit Ethernet switch architecture. StrataXGS components can be applied in a wide variety of configurations, enabling system designers to strategically balance cost, port density, and performance in the products they build.

#### Scalability

Switches based on the BCM5676 offer world-class scalability and performance when used in conjunction with other StrataXGS family components. A BCM5676-based switch fabric can scale up to as many as 768-GE ports or 64 10-GE ports in the same network. A multistage switch fabric using the StrataXGS family can have a bandwidth capacity of up to 750 Gbits.

#### Highly Integrated

The integration of Broadcom's robust XAUI-compatible serializer/deserializer (SerDes) interface on each BCM5676 port reduces board complexity. The XAUI interface can be used to route high-speed signals

across 44 inches of FR4, connectors, and backplanes. SerDes technology also enables the use of inexpensive cables for stacking applications.

#### Superior Performance

The BCM5676 delivers wirespeed switching performance across all of the ports simultaneously. The effective bandwidth of each HiGig+™ interface is 24 Gbps (12 Gbps, full-duplex). The BCM5676 switch fabric offers a backplane capacity of up to 96 Gbps and can interconnect with other StrataXGS components for switch fabric of up to 750 Gbits. It introduces very low switching latency, enabling the high-quality transmission of voice, video, and data traffic.

#### Flexible Management

The BCM5676 HiGig+ switch links to a host CPU through a PCI bus at speeds of up to 66 MHz. Bus mastering and advanced DMA are supported in hardware for the efficient exchange of packet data between CPU memory and the BCM5676 switch.

The BCM5676 switch can also work without host CPU support, using an I<sup>2</sup>C interface and external microcontroller to initialize chip registers and forwarding tables.

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