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BCM56800

PRODUCT Brief

20-PORT 10-GIGABIT ETHERNET MULTILAYER SWITCH

FEATURES

- **20 10-GbE/1-GbE ports**
- **Based on StrataXGS™ field-proven, robust architecture**
- **Integrated high-performance SerDes**
  - Integrated XAUI™ SerDes for all 20 10-GE ports
  - Uses single SerDes lane per port at GE speeds
- **200-Gbps switching capacity at line rate**
- **Support for eight classes of service (CoS) per port**
- **Support for Deficit Round Robin, Weighted Round Robin and Strict priority scheduling**
- **Support for a cut-through switching mode**
- **Port trunking and remote mirroring support**
- **Fully integrated data and address memory on a single chip**
- **Advanced packet flow control**
  - Head of line blocking prevention
  - Full-duplex flow control (802.3x)
- **ContentAware™ network processing per port**
  - Line rate multifield packet classification
  - Supports IEEE 802.1p, TOS/DiffServ, rate limiting, policing, priority tagging, and remapping
  - Extended security and ACL filtering
- **Full IPv6 routing support**
- **Enhanced security and management capabilities**
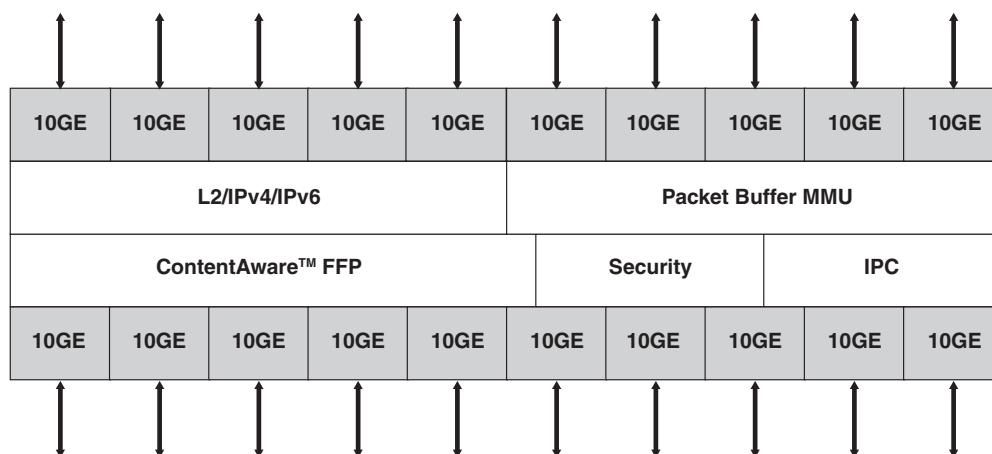- **Low power consumption**

SUMMARY OF BENEFITS

- **High level of integration and low power consumption enable system vendors to build high-performance, high-port-density 10-Gigabit Ethernet switches in the same form factor as existing GE solutions.**
- **Built-in, high-speed serial interfaces with integrated memory eases and accelerates system design, while reducing cost and conserving board space.**
- **Built-in Layer 3 routing support enables embedded switch to become an extension of the enterprise core network.**
- **Advanced load balancing and strong user isolation features facilitate the implementation of utility computing services.**
- **Integrated security features and enhanced management capabilities improve network reliability and lower cost of ownership for BCM56800-based solutions.**
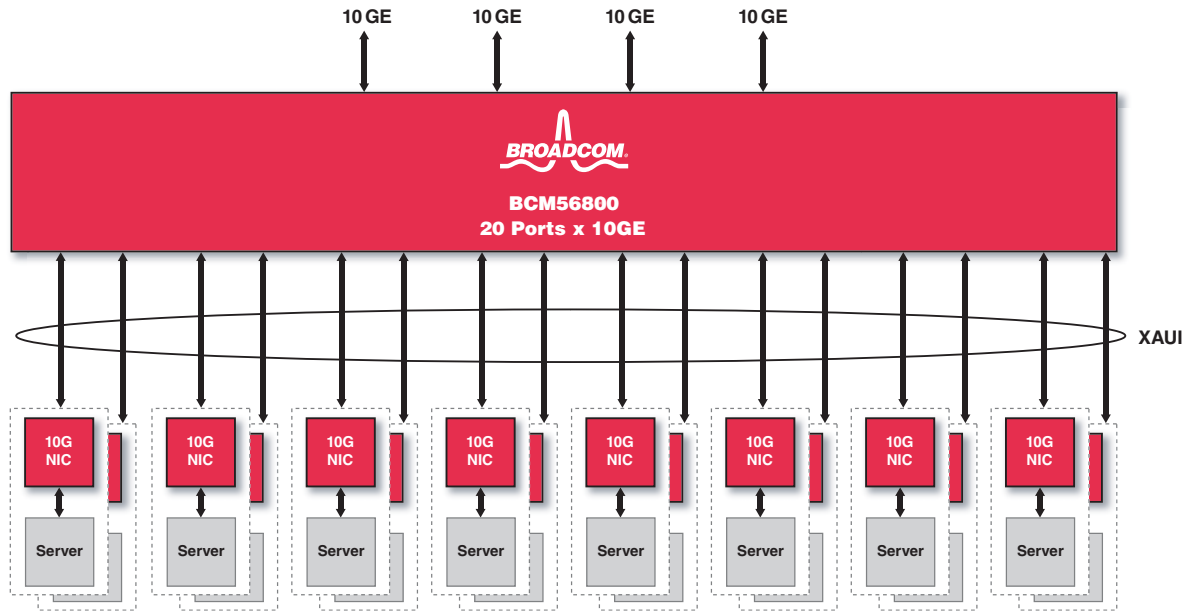- **Broadcom switch API compatibility enables software reuse and faster time to market.**

APPLICATIONS

- **Embedded switch in next-generation 10GE Blade Servers**
- **10-GE/1-GE switching engine in advanced TCA chassis platforms**
- **Multilayer switch in high-density 10-Gigabit Ethernet switches**

BCM56800 Block Diagram

10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE
L2/IPv4/IPv6					Packet Buffer MMU				
ContentAware™ FFP					Security		IPC		
10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE	10GE

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BCM56800 System Diagram

The BCM56800 network switch is a high-density, 10-Gigabit Ethernet switching chip solution with 20 ports. Each of these flexible ports supports 10-Gigabit Ethernet or 1-Gigabit Ethernet. Additionally, the BCM56800 integrates all the SerDes required to interface to applicable copper and fiber physical interfaces. The integrated SerDes functionality includes 10-Gbps XAUI interfaces and 1-Gbps SGMII PHY interfaces. The integrated SerDes complies with the CX-4 standard and PICMG3.1 standard, which ensures interoperability with Ethernet line cards in an Advanced TCA chassis.

With 200 Gbps of aggregate switching bandwidth, BCM56800 represents the highest level of Ethernet switching integration in the industry. This integration enables embedded switching vendors to provide next-generation products at 10GE speeds that fit into the current design form factors. This ability has many benefits, including reducing the vendor development cost and creating additional value in current generation systems through upgradability.

The BCM56800's low power dissipation simplifies board design and optimizes vendor board space.

The advanced ContentAware™ engine supports ToS/DiffServ, policy-based routing, priority tagging and remapping. The advanced packet filtering and classification functions of BCM56800 make it ideal for Utility computing applications where user segregation and network security is critical.

In addition, the BCM56800 provides advanced security features that improve network resiliency and reliability. Moreover, BCM56800 features advanced load balancing functionality that uses flow information to provide high-percentage link utilization.

The BCM56800 supports L2 switching with 4K VLANs, IPv4 and IPv6 full routing functionality, enabling it to become an direct extension of the Enterprise Network. This provides additional value to customers by eliminating the hardware and management cost of having intermediate routers.

As the latest member of the StrataXGS switch family, the BCM56800 Software Development Kit preserves software continuity with Gigabit Ethernet switches, reducing development cost and shortening the product time to market.

The BCM56800 implements congestion handling features such as Head-Of-Line blocking prevention and IEEE 802.3x flow control.

In addition to a 32-bit PCI interface used to communicate with a local CPU, the BCM56800 supports an I^2C controller for communicating with external devices such as serial EEPROM, flash memories, and parallel port devices.

The BCM56800 relies on Broadcom's modular switching architecture to provide intelligent packet processing, network security and enhanced managability at a low cost. The BCM56800 is an ideal solution for next-generation, high-speed, embedded switching applications, such as Blade Servers and advanced TCA chassis platforms.

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