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BCM56801 PRODUCT Brief



10-PORT 10-GIGABIT ETHERNET AND 8-PORT HIGIG2/10GBE MULTILAYER SWITCH

FEATURES

- **Ten 10-GbE/1-GbE ports and eight HiGig2™/HiGig™+/HiGig™/ 10-GbE/1-GbE ports**
- **Based on StrataXGS™ field-proven, robust architecture**
- **Integrated high-performance SerDes**
  - Integrated XAUI™ SerDes for all 18 ports
  - Uses single SerDes lane per port at GbE speeds
- **196 Gbps switching capacity at line rate**
- **Support for eight classes of service (CoS) plus two additional classes for Flow Control and system management 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**

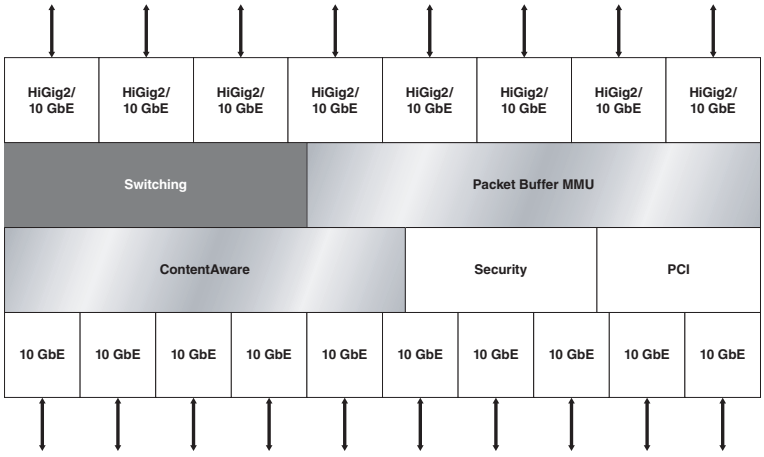
SUMMARY OF BENEFITS

- **High level of integration and low power consumption enables system vendors to build high-performance, high-port-density 10-Gigabit Ethernet switches in the same form factor as existing GbE 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 BCM56801-based solutions.**
- **Broadcom switch API compatibility enables software reuse and faster time-to-market.**

APPLICATIONS

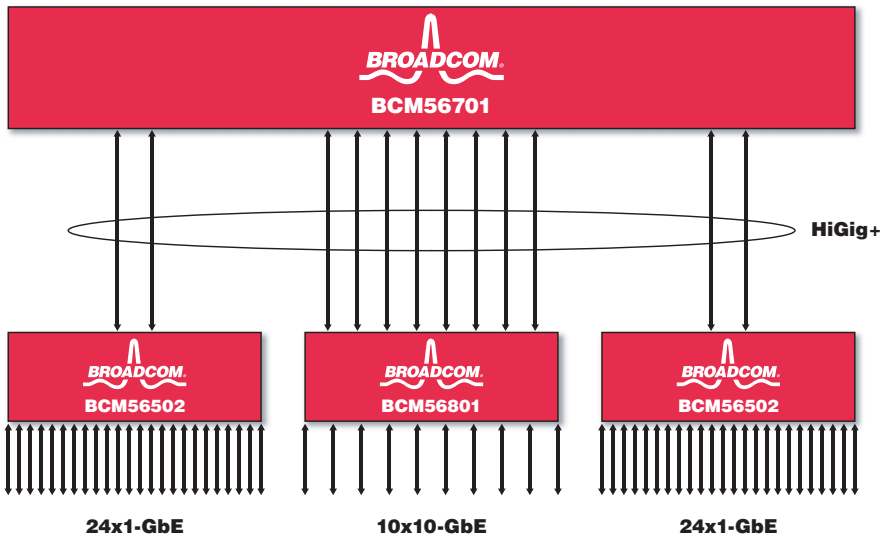
- **Embedded switch in next-generation 10 GbE Blade Servers**
- **10GbE/1GbE switching engine in Advanced TCA Chassis platforms**
- **Multilayer switch in high-density 10-Gigabit Ethernet switches**

BCM56801 Block Diagram



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OVERVIEW



48-Port GbE + 10-Port 10-GbE L2/L3 Switch with BCM56801, BCM56701, and BCM56502

The BCM56801 network switch is a high-density, 10-Gigabit Ethernet switching chip solution with 18 ports. Ten ports can support 10-GbE or 1-GbE. The other eight ports can flexibly support HiGig2/HiGig+/ HiGig/10-GbE/1-GbE. Additionally, the BCM56801 integrates all the SerDes required to interface to applicable copper and fiber physical interfaces.

The integrated SerDes functionality includes 10-Gbps XAUI 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 196 Gbps of aggregate switching bandwidth, the BCM56801 represents the highest level of Ethernet switching integration in the industry. This integration allows embedded switching vendors to provide next-generation products at 10-GbE speeds, as well as an ideal fit into current design form factors. This capability has many benefits, including reducing vendor development cost and creating additional value in current generation systems through upgradability.

The BCM56801'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 the BCM56801 make it a seamless fit utility for computing applications where user segregation and network security is critical.

In addition, the BCM56801 provides advanced security features that improve network resiliency and reliability. Moreover, the BCM56801 features advanced load balancing functionality that uses flow information to provide high-percentage link utilization.

The BCM56801 supports L2 switching with 4K VLANs, IPv4, and IPv6 full routing functionality, enabling it to become a direct extension of the enterprise network. This provides additional customer value by eliminating the hardware and management costs of maintaining intermediate routers.

As the latest member of the StrataXGS switch family, the BCM56801 Software Development kit preserves software continuity with Gigabit Ethernet switches, reducing development cost and shortening the product time-to-market.

The BCM56801 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 BCM56801 supports an I^2C controller for communicating with external devices such as serial EEPROM, flash memories, and parallel port devices.

The BCM56801 relies on Broadcom's modular switching architecture to provide intelligent packet processing, network security and enhanced manageability at a low cost. The BCM56801 is an ideal solution for next-generation, high-speed embedded switching applications, such as Blade Servers and Advanced TCA computer platforms.

Together with the BCM56700 as a centralized fabric, the BCM56801 can also be used to build cost-effective high-density 10-GbE switches.

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56801-PB01-R 03/24/06

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