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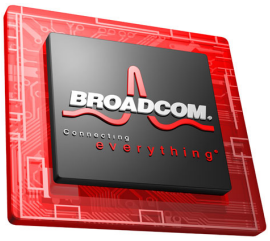
BCM56301 PRODUCT Brief



FOUR 10-GIGABIT ETHERNET/HIGIG+™ PORTS

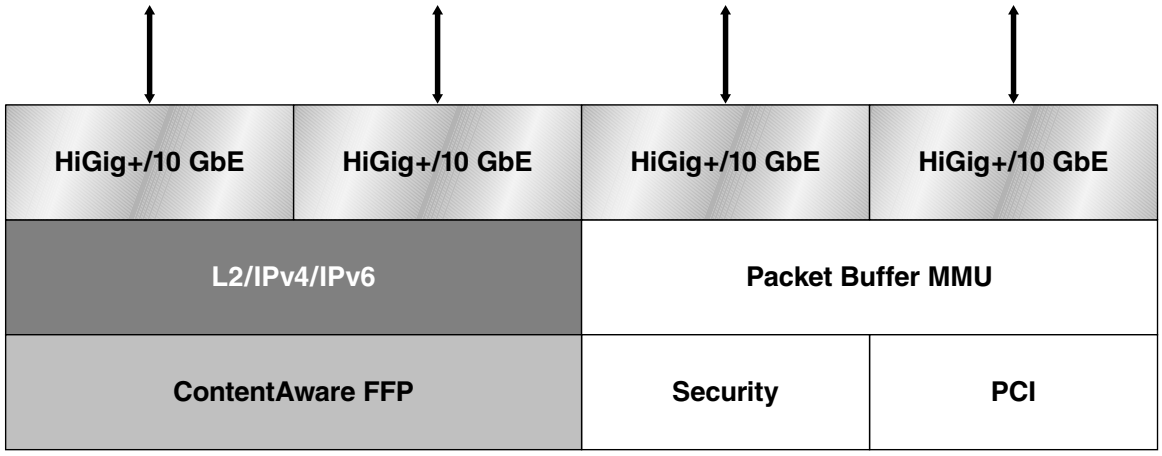
FEATURES

- Fifth generation of StrataSwitch® and StrataXGS® product line
- High value 10-Gigabit Ethernet (10-GbE) product line, pin-compatible to feature GbE BCM56501
- Four 12-Gbps or 10-Gbps HiGig+™ port uplink interfaces
- Four 10-GbE switching ports, CX4 support
- Line-rate switching for all packet sizes and conditions
- On-chip data packet memory and table memory
- IPv6 routing and tunneling
- Advanced Fast Filter Processor (FFP) ContentAware™ classification
- Advanced security features in hardware
- Port trunking and mirroring supported across stack
- Advanced packet flow control:
  - Head-of-line blocking prevention
  - Back pressure support
- Eight QoS queues per port with hierarchical minimum/maximum shaping per Classes of Service (CoS) per queue per port
- Standard compliant 802.1ad provider bridging

SUMMARY OF BENEFITS

- Highly-scalable architecture evolved from five generations of switching experience provides rich features, scalability, and future-proof solutions.
- Optimized for secure switching and convergence of applications and services in the networks.
- System vendors can build scalable high-performance, high-port density 10-GbE LAN switches in several form factors.
- Multiple CoS and low latency enable the support of VoIP and other voice, video, and data applications.
- Built-in high-speed serial interfaces with Broadcom-unique SerDes technology eases and accelerates system design, while reducing cost and conserving board space.
- Broadcom switch API compatibility enables software reuse and faster time-to-market.
- Small package and low power enables cost-effective and high-performance system design.

4-Port 10-Gigabit Ethernet Multilayer Switch



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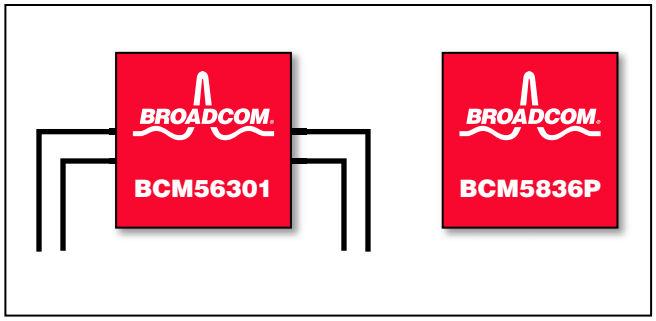
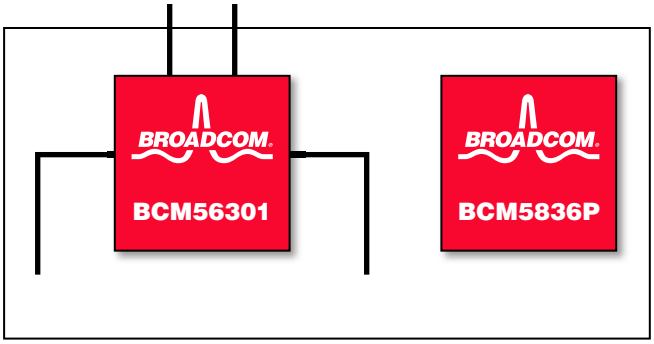
OVERVIEW



Four 10-GbE Standalone



Two 10-GbE + Two HiGig+ Stackable

The BCM56301 is the fifth generation of the highly-integrated and cost-effective Broadcom StrataSwitch and StrataXGS product line in a single-chip solution with four 10-GbE/HiGig+ uplink ports. The BCM56301 is a member of the value 10-GbE product line, with a corresponding pin-compatible member in the feature 10-GbE product line—BCM56501. The BCM56301 incorporates four 10-GbE/HiGig+ ports. The uplink ports can operate in two modes:

- 10-GbE switching mode
- HiGig+ uplink mode

The integrated 10-GbE switching ports are CX-4 compliant XAUI interfaces. The HiGig+ uplink interface is used to connect to other StrataXGS devices in a larger stacking system or to the BCM5675/BCM5676 Switch Fabric via a backplane in a multi-slot redundant chassis system.

With high-integration and high-port density, the BCM56301 family is ideal for Enterprise applications in standalone, stackable, and chassis configurations. The BCM56301 configurations are applicable in the edge, aggregation, and core areas of the Enterprise. The BCM56301 is also ideal for embedded switch applications like a Blade Server Switch, ATCA chassis, IPDSLAM, 3G Wireless Base Station, and others.

The BCM56301 integrates sophisticated advanced L3 switching features for cost-effective highly-manageable enterprise networks. The BCM56301 performs IPv6 routing and transition services in hardware, allowing IT managers to deploy L3 switches that are future-proof, highly manageable L3 networks, and enable cost-effective transition from IPv4 to IPv6.

The ContentAware classification feature of the StrataSwitch and StrataXGS has been further enhanced in the BCM56301 with unmatched flexibility and programability. The ContentAware engine could be used for applications such as policy-based routing, access control list, dynamic adaptation to changes in virus threats, and so on.

The BCM56301 has built-in security functions for highly secure Enterprise networks including BroadSAFE™. Utilizing hardware-based identity management and authentication coupled with key management software that directs and manages clients, BroadSAFE Security provides exceptionally strong network security without impacting network performance.

The BCM56301 integrates sophisticated metering, statistics, and traffic management features, optimizing the QoS in the Enterprise networks for voice, video, and data convergence. The BCM56301 also provides rate adjustable hardware based sFlow implementation and flexible multiple session remote port mirroring functionality for efficient network management.

The BCM56301 switch supports an I^2C controller for communicating with external devices such as serial EEPROM, flash PROM memories, and parallel port devices, and also supports a serial interface for the MII management of physical layer devices.

The BCM56301 switch interfaces to a host CPU via a 32-bit PCI bus running at up to 66 MHz. Bus mastering and advanced DMA is supported for efficient exchange of packet data between CPU memory and the BCM56301 switch.

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