BCM5666

PRODUCT Brief

StrataXGS™ INTEGRATED MULTI-LAYER SWITCH

FEATURES

- 48 x 10/100 Mbits, 4 x 10/100/1000 Mbps Ethernet ports
- 28 Mpps (line rate) aggregate L2 switching capacity
- Integrated L2 table (16K) with auto learning/aging
- Double 802.1Q (Q in Q) VLAN stacking
- MPLS tunnel/VC packet labeling for L2 VPN
- Scalable to hundreds of Fast/Gigabit Ethernet in a system
- Eight Classes of Service (COS) with WRED and WRR, DSCP/802.1p priority
- 256 spanning trees (802.1S and 802.1W)
- Up to 256 L2 multicast groups and hardware packet replication
- Flow control (802.3x) and HOL blocking prevention
- 128-bit DDR SDRAM with up to 64 MB of buffer memory
- ContentAware™ network processing per port
  - Line-rate, multi-field packet classification
  - Support for 802.1p, TOS/DiffServ, rate limiting, policing, and priority/VLAN (single or double) tagging and remapping
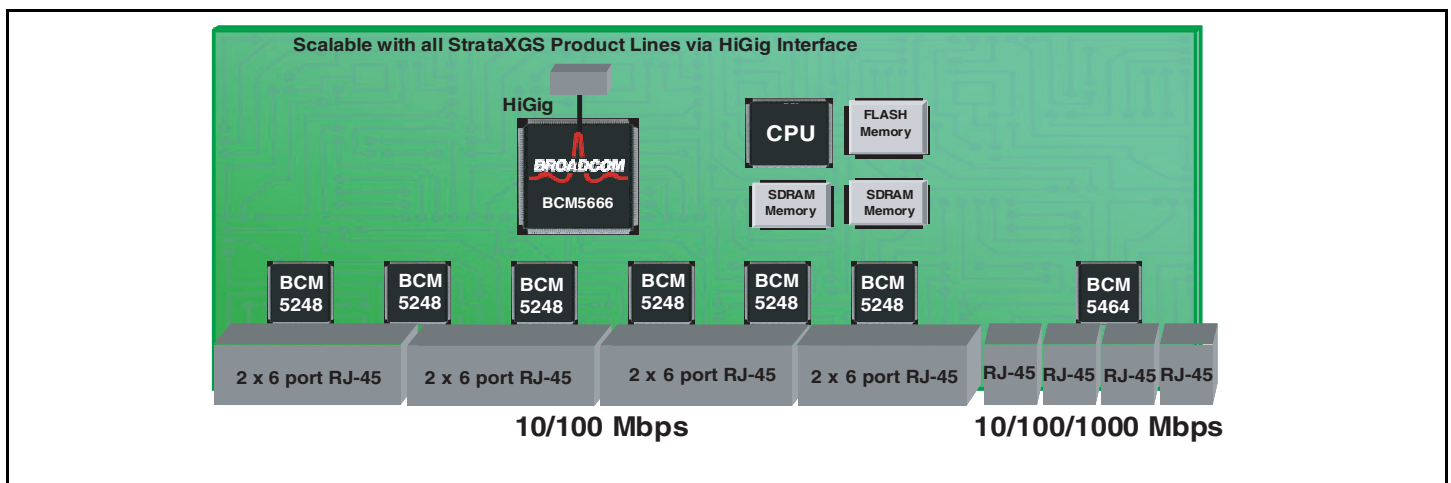
SUMMARY OF BENEFITS

- Ultra scalable high-density 10/100/1000 Mbps L2 Ethernet switches—standalone, modular, or stackable
- 28-Mpps, full-duplex, line-rate performance across all interfaces
- New service offerings for ISPs
  - Metro Ethernet-L2 VLAN (Q-in-Q) and MPLS VPN
  - Voice Over IP (VOIP)-guaranteed low latency prioritization
- Advanced traffic management-metering, shaping, and scheduling (SP, RR, WRR, WFQ), down to 64-Kbps flows
- ContentAware classification, tagging, and remapping provides maximum security and flexibility
- Broadcom switch API compatibility enables software reuse and faster time-to-market

APPLICATIONS

- High-density multi-layer scalable enterprise 10/100/1000 Mbps L2 Ethernet switches
- Multi-Tenant Unit (MTU) Metro Ethernet VPN multi-layer switches
- Service provider Metro Ethernet VPN edge switches

High Density Scalable 48 x 10/100 Mbps and 4 x 10/100/1000 Mbps Multi-Layer Switch Application

Block Diagram

HiGig		
CPU I/O	FFP	ARL
Advanced MMU		

DDR SDRAM interface for non-blocking performance
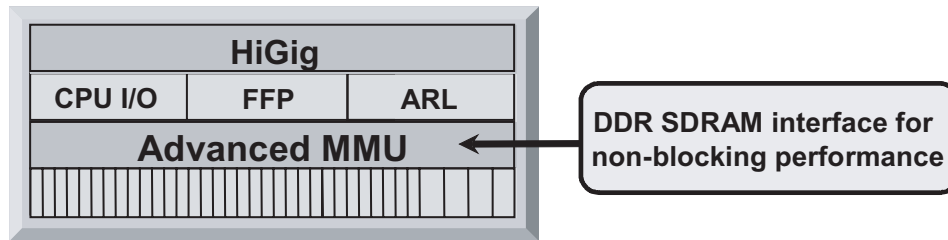
High-Density and Line Rate Performance

The **BCM5666** network switch is the most advanced multi-layer scalable, single-chip solution for high-density 48 x 10/100 Mbps ports and 4 x 10/100/1000 Mbps Ethernet uplinks at an aggregate line rate of 28 Mpps performance.

Ultra-Scalability

An integrated 10 Gbps XAUI HiGig port allows the **BCM5666** to scale with other StrataXGS™ family switches. Multiple units can be networked for stackable or modular switch configuration in a system providing up to 768 of Fast Ethernet, 384 Gigabit Ethernet ports, and 32 x 10 Gigabit Ethernet interfaces. The 10 Gbps HiGig Expansion port supports all key switch features, such as explicit priority, port trunking, mirroring, and VC label swap functions, transparently across switch elements.

Metro Ethernet L2 VPN Support

Supporting the latest Metro Ethernet L2 VPN applications, the **BCM5666** offers double 802.1Q VLAN stacking, also known as Q-in-Q. This allows enterprise and service provider networks to breakthrough the 4K VLAN tag limitation. Further, the **BCM5666** also provides MPLS tunnel/VC packet labeling for standards-based IETF L2 VPN via MPLS.

Advanced QoS

With eight CoS queues via SP, RR, WFQ, and WRR distribution, the **BCM5666** enables full range of service applications such as low latency VoIP and real-time video, as well as mission-critical data.

L2 Switching

Optimized for the most demanding network switching requirement, the **BCM5666** integrates a 16K entry auto-learning/aging MAC table. Advanced Ethernet features, such as multiple and rapid spanning tree (802.1s and 802.1w), flow control (802.3x), prioritization (802.1p), and and 9K jumbo frame switching are fully integrated. All L2 traffic is switched at line rate. For load balancing as well as redundancy purposes, link aggregation is incorporated. Up to 32 trunk groups (eight links per group) can be assigned for link aggregation (802.3ad).

Hardware-Based Traffic Management

Providing line rate packet filtering and classification, the advanced Fast Filter Processor (FFP) offers ContentAware network processing per port. The **BCM5666** supports TOS/DiffServ, rate limiting, policing, shaping, metering, scheduling, priority tagging, and remapping down to flows as small as 64 Kbps, making it ideal for committed bandwidth usage and firewall applications.

Layer 2 Multicast

Designed for increasing multicast applications, the **BCM5666** switches all L2 multicast packet sizes at line rate. For L2 multicast, up to 256 multicast addresses are supported. Multicast traffic can also be managed by three port filtering modes to control the distribution behavior.

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