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BCM5651 PRODUCT Brief



StrataXGS™ INTEGRATED MULTI-LAYER SWITCH

FEATURES

- 24 x 10/100 Mbits, 4 x 10/100/1000 Mbps Ethernet ports
- 9.5 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 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)
- 32 link aggregation trunk groups and mirroring
- Up to 256 L2 multicast groups and hardware packet replication
- Flow control (802.3x) and HOL blocking prevention
- 64 data bit DDR SDRAM with up to 32 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

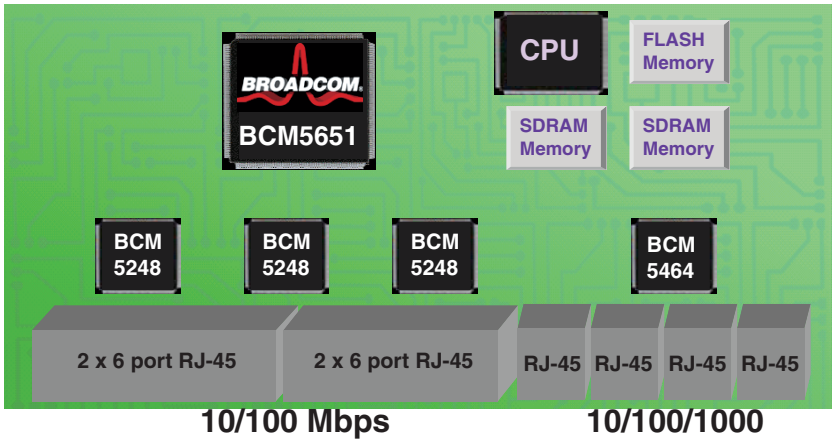
SUMMARY OF BENEFITS

- High-density 10/100/1000 Mbps L2 Ethernet switches
- 9.5-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

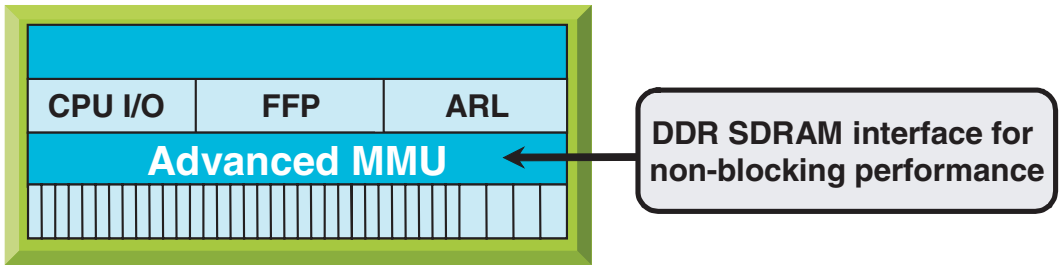
Application Diagram



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OVERVIEW

Block Diagram



The **BCM5651** network switch is the most advanced multi-layer, single-chip solution for high density 24 x 10/100 Mbps ports and 4 x 10/100/1000 Mbps Ethernet uplinks.

With an aggregate line rate of 9.5 Mpps, the **BCM5651** offers hardware switching on L2 traffic. Filtering, policing, and priority tagging can be performed in real time with no impact on forwarding performance.

Supporting the latest Metro Ethernet L2 VPN applications, the **BCM5651** 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, **BCM5651** also provides MPLS tunnel/VC packet labeling for standards-based IETF L2 VPN via MPLS.

With eight CoS queues via SP, RR, WFQ, and WRR distribution, the **BCM5651** enables full range of service applications such as low latency VoIP and real-time video, as well as mission critical data.

Optimized for the most demanding network switching requirements, the **BCM5651** integrates a 16K entry auto-learning/aging MAC. Advanced Ethernet features such as multiple and rapid spanning tree (802.1s and 802.1w), flow control (802.3x), prioritization (802.1p), 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).

Providing line-rate packet filtering and classification, the advanced Fast Filter Processor (FFP) offers ContentAware network processing per port. The **BCM5651** 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.

Designed for increasing multicast applications, the **BCM5651** 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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