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BCM53312S

PRODUCT Brief

8-Port GbE + 4-Port GbE Highly Integrated Multilayer Switch SoC
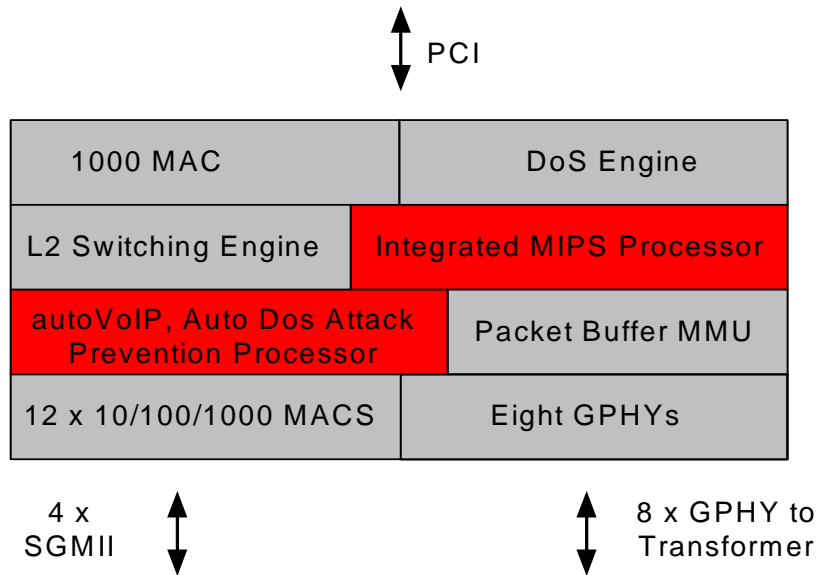
FEATURES

- Highest silicon integration level achieved for a 12-port, 10/100/1000 Mbps Ethernet switch device

- Integrated 8-Gigabit PHY (GPHY)

- Four optional 1-GbE uplink ports

- Integrated MACs (IEEE 802.x compliant) with support for 9600-byte jumbo frames

- Four integrated SGMII interfaces

- Non-blocking Gigabit Ethernet fully integrated switch fabric with 4-Mbit packet buffer memory. Option to share PCB with 24G platform.

- Integrated high-performance MIPS® processor for WebSmart™ applications

- Packet classification using four IEEE 802.1p quality of service (QoS) or DiffServ/ToS priority queues

- Supports autoVoIP and auto DoS attack prevention

- Supports 4K IEEE 802.1Q VLAN

- Supports up to 8K unicast MAC addresses

- Supports MAC-based port aggregation (trunking)

- Supports power-up cable diagnostics

- Full- (IEEE 802.3x) and half-duplex flow control

- Supports automatic address learning and aging

- Supports spanning tree and rapid spanning tree

- Supports IEEE 802.1x MAC security

- Port-based rate control with 1 Mbps granularity

- Low-power 65 nm CMOS core

- 676 PBGA package

SUMMARY OF BENEFITS

- Switch-on-a-Chip (SoC) optimized for the value driven small and medium-size business (SMB) market

- Bill of material (BOM) optimized with integrated CPU and integrated eight GPHY

- Wirespeed performance

- Four flexible class of service (CoS) queues per port assure the lowest latency to high-priority traffic. This supports a wide variety of delay-sensitive video and audio multicast applications.

- IEEE 802.3ad link aggregation increases effective bandwidth and provides link redundancy.

- Storm and bandwidth/rate control provide improved traffic profile management.

- Supports BroadSync™ HD

- Supports essential features for access applications

- Includes advanced security and ease-of-use features such as auto DoS and autoVoIP

- Option to share the same PCB between smart and un-managed platform

- Option to share the same PCB between 8G, 16G, and 24G platforms

- Supports automatic cable diagnostic during power-up cycle

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PCI

1000 MAC	DoS Engine
L2 Switching Engine	Integrated MIPS Processor
autoVoIP, Auto Dos Attack Prevention Processor	Packet Buffer MMU
12 x 10/100/1000 MACS	Eight GPHYs

4 x
SGMII

8 x GPHY to
Transformer

BCM53312S Multilayer Switch

The BCM53312S is a complete L2 SoC solution for easy and rapid development of gigabit switching applications. The BCM53312S integrates 12 10/100/1000 wire speed switching processors. From a GPHY interface perspective, it integrates eight GPHYs and four SGMII SerDes cores. From a host interface perspective, it can use either embedded MIPS processors or a PCI interface for external processor connections.

The BCM53312S is a highly integrated solution ideally suited for stand-alone gigabit Ethernet switches. It combines all the functions of a high-speed switch system, including packet buffers, SerDes, media access controllers, address management, a non-blocking switch fabric, and an integrated high-performance CPU into a single 65 nm CMOS device. The BCM53312S supports auto DoS attack prevention and SNMP, IEEE 802.1x, Spanning Tree, and Rapid Spanning Tree protocols.

The BCM53312S switch:

- Integrates internal memory in the common buffer pool (CBP) for packet buffering.
- Integrates eight GPHYs to reduce PCB area.
- Embeds an autoVoIP engine to enhance user VoIP experience.
- Embeds an auto DoS prevention capability to enhance user security protection.

- Provides additional 4 x 1 GbE uplink ports.
- Supports a Broadcom serial control (BSC) controller for communicating with external devices such as serial EEPROM, flash PROM memories, and parallel port devices.
- Supports an integrated MIPS processor for management functions with a DDR memory controller, a CMIC for switch access, parallel flash interface for booting, two serial UART interfaces, and eight GPIO pins.
- Contains memory required to host L2 switching tables.
- Supports VLAN double tagging via Gigabit ports.
- Supports advanced QoS shaping for service provider networks.
- Integrates sophisticated metering, statistics, and traffic management features, optimizing the QoS for voice, video, and data convergence.

Ordering information:

- BCM53312S (8-port GbE + 4-port GbE highly integrated multilayer SoC) for smart applications.

For additional ordering information, contact your Broadcom sales representative.

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