



## **16-Port GbE + 2-Port GbE Highly Integrated Multilayer Switch SoC**

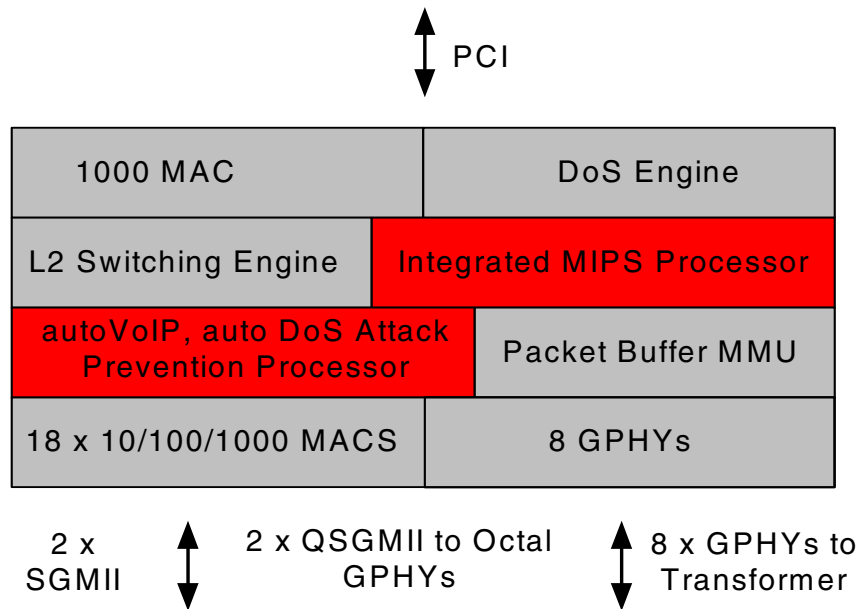
### **FEATURES**

- Highest silicon integration level achieved for an 18-port, 10/100/1000 Mbps Ethernet switch device
- Integrated eight Gigabit PHYs
- Two optional 1-GbE uplink ports
- Integrated MACs (IEEE 802.x compliant) with support for 9600-byte jumbo frames
- Two integrated QSGMII interfaces
- Non-blocking Gigabit Ethernet fully integrated switch fabric with 4-Mbit packet buffer memory. Option to share PCB between 16G/24G smart and 16G/24G unmanaged platforms
- Integrated high-performance MIPS<sup>®</sup> processor for Web Smart<sup>™</sup> applications
- Packet classification using four IEEE 802.1p quality of service (QoS) or DiffServ/TOS priority queues
- Supports auto VoIP 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 diagnostic
- 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 GPHYs
- 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<sup>™</sup> 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 unmanaged platform
- Option to share the same PCB between 16G and 24G platforms
- Supports automatic cable diagnostic during power-up cycle

# OVERVIEW



## BCM53313S/BCM53313U Multilayer Switch

The BCM53313S/BCM53313U is a complete L2 SoC solution for easy and rapid development of Gigabit switching applications. The BCM53313S/BCM53313U integrates 18 10/100/1000 wire speed switching processors. From a GPHY interface perspective, it integrates eight GPHYs, two QSGMII, and two SGMII SerDes cores. From a host interface perspective, it can use either embedded MIPS processors or a PCI interface for external processor connections.

The BCM53313S/BCM53313U series 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 integrated high-performance CPU into a single 65 nm CMOS device. The BCM53313S/BCM53313U supports auto DoS attack prevention and SNMP, IEEE 802.1x, Spanning Tree, and Rapid Spanning Tree protocols.

### The BCM53313S/BCM53313U 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 2 x 1-GbE uplink ports for the BCM53313S/BCM53313U
- 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:

- BCM53313S/BCM53313U (16-port GbE + 2-port GbE highly integrated multilayer SoC)

For additional ordering information, contact your Broadcom sales representative.

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