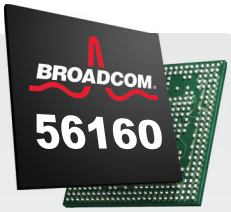
SWITCHING TECHNOLOGY

BCM56160

Enterprise Edge Switch with High Integration for 24/48 Port Systems



- Targeted to the Enterprise Edge with low implementation cost and power.
- Higher stack/uplink bandwidth enables nonblocking 48 port switch with 4x10GbE of uplinks plus 40GbE for stacking.
- IEEE 802.11ac Wave2 support with up to eight 2.5GbE ports; 16 ports when cascaded.
- Expanded L3 capabilities.
- Integration of 16 Gigabit copper PHYs.
- StrataXGS® architecture and SDK support.
- Serves as a port extender, enables centrally managed networks.
- HiGig stacking for seamlessly stacking with other StrataXGS switch families.

BCM56160	
✓	SME
✓	Enterprise
✓	Service Provider

OVERVIEW

The Broadcom® BCM56160 switch family offers industry-leading integration and low power in a small footprint. The device offers up to 24 GbE ports, four 10GE uplink ports, in addition to 50 Gb/s of stacking bandwidth in a 29 mm x 29 mm package. Offering the industry's highest level of integration, the BCM56160 has 16 embedded copper GPHYs as well as a powerful ARM A9 processor. The BCM56160 is ideal for cost sensitive edge applications, such as light L3-managed wiring closet switches for enterprise or MTU/MDU switch for service providers.

The BCM56160 family offers I/O configurations that address key segments of edge connectivity. A single device supports the popular 24x GbE switch with 4x 10GbE or 40GbE uplinks. Two devices can be cascaded to build nonblocking 48x GbE switch systems with 4x 10GbE uplinks and two HG[20] stacking ports, or two 40GbE uplinks.

IEEE 802.11ac Wave2 increases the data rate required by Access Points from GbE to 2.5GbE. The BCM56160 dedicates eight of the 24 ports to be multirate, enabling the development of cost effective platforms for the Enterprise that support both Gigabit connections for the desktop as well as 2.5GbE for access points.

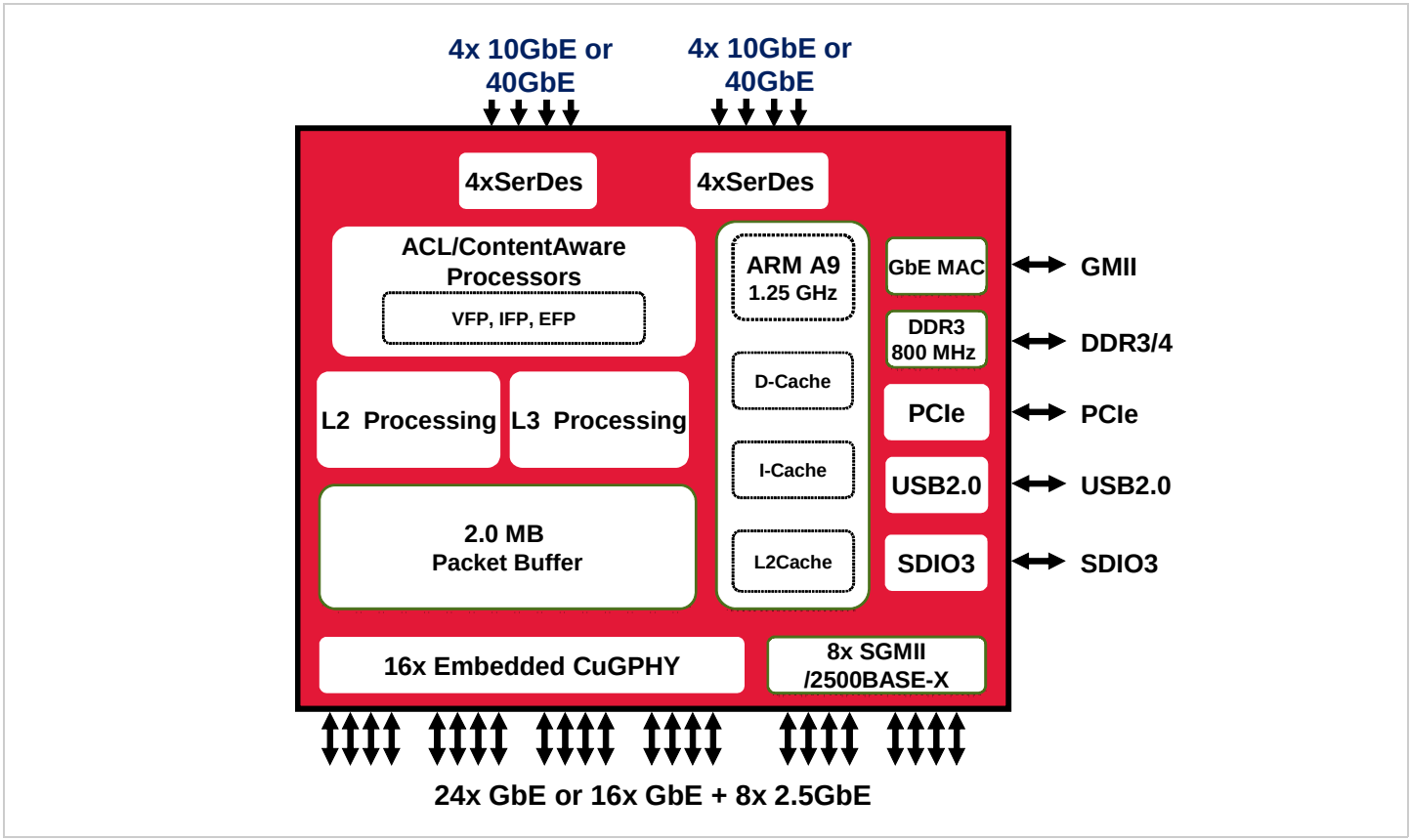
The BCM56160 device family builds on the successful BCM56150 and features EEE for low power, IEEE 802.1Q VLAN, VLAN translation, enhanced Denial of Service (DoS) protection, IPv4 and IPv6 support, advanced Content-Aware™ Engine, IEEE 802.1p Quality of Service (QoS), and HiGig stacking. New features in this generation include priority flow control, IEEE 802.1br port extender support, expanded tables, and new VLAN-based counters for traffic profiling including visibility into CAPWAP tunnels. Expanded L3 features include WRED, ECN, and uRPF.

BENEFITS

- Single-chip switch optimized for L2-managed and light L3 Ethernet connectivity applications.
- Supports Wave2 data rates of 2.5 Gbps on eight of the 24 ports.
- Optimized for entry-level edge access applications for enterprise and service provider.
- EEE lowers PHY power in periods of low traffic.
- Eight flexible Class of Service (CoS) queues per port assure the lowest latency to high-priority traffic. This capability supports a wide variety of delay sensitive video and audio multicast applications.
- Based on industry-leading and market-proven StrataXGS architecture and supports the HiGig2 protocol for connection to other StrataXGS devices.
- IPv6 support provides future-proofing.
- Flow-based classification, policing, marking, and queuing.
- IEEE 802.1br Port Extender works with Controlling Bridge.
- IEEE-1588 for Industrial Ethernet applications
- Synchronous Ethernet provides timing. accuracy for delay-sensitive applications such as voice and video.
- Low-power 28 nm CMOS technology.

FEATURES

- Highly integrated 24-port 10/100/1000 Mbps Ethernet switch with 16 integrated copper 10/100/1000 PHYs.
- Eight ports support either SGMII or 2500BASE-X, or two QSGMIIs for interfacing to an Octal GbE PHY.
- Eight 10GbE stacking or uplink ports, configured as XFI, HiGig[10], HGd[20], HGd[25], or 40GbE.
- HiGig-Duo™[25] ports for nonblocking 48-port stackable design.
- Fully integrated 2 MB packet buffer, provides 4 MB in the 48-port configuration.
- Intelligent Memory Management Unit (MMU) optimized for handling bursty data traffic.
- L2, IPv4/IPv6 L3 packet classification.
- Flow-based classification, metering, and marking of frames.
- Enhanced DoS attack statistics gathering.
- Industrial temperature support.
- Network-time synchronization.
- 1588 (1-Step TC) support.
- Integrated ARM A9 CPU.
- Advanced three-stage ContentAware Engine.
- Enhance security and visibility into tunnels
- Full IPv4 and IPv6 support.
- Low-power Energy Efficient Ethernet support.



BCM56160 Block Diagram

The Broadcom BCM56160 is an System-on-a-Chip (SoC) for a variety of enterprise switching applications. The BCM56160 integrates a 16 ports of copper GbE PHY, a high-performance 1.25 GHz ARM Cortex-A9 processor, and an Ethernet switch controller.

ORDERING INFORMATION	Package	Part Number
24 GbE + 4x 10GbE with 40GbE Stacking and integrated 16x 1000BASE-T PHYs	29 x 29 mm BGA	BCM56160
24 GbE + 4x 10GbE with 40GbE Stacking	29 x 29 mm BGA	BCM56161
24 GbE + 4x 1GbE with integrated 16x 1000BASE-T PHYs	29 x 29 mm BGA	BCM56162

For more information, visit:
www.broadcom.com

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