

Broadcom BCM56840 Switching Technology

Connecting everything®



HIGH-CAPACITY STRATAXGS® ETHERNET SWITCH FAMILY WITH INTEGRATED 10G SERIAL PHY

Overview

With the emergence of cloud computing and converged fabrics in data center architectures, data-center switches must provide other services in addition to high-density 10 Gigabit Ethernet (GbE) connectivity and line-rate-per-port performance. The BCM56840 family of switches provides Fibre Channel over Ethernet (FCoE) and storage virtualization services, allowing customers to consolidate storage and data traffic on a single/reliable Ethernet fabric. This consolidation reduces overall power consumption in the data center, simplifying server I/O and reducing overall management costs. Additionally, the BCM56840 provides Layer 2 multipathing and data center bridge congestion management capabilities. These capabilities allow customers to build scalable, high-performance Layer 2 fabrics, while network design is simplified by removing spanning tree and ensuring reliable end-to-end performance.

Summary of Benefits

- Single-chip solution for common top-of-rack and line-card applications.
- Single design meets needs of multiple markets including Enterprise, HPC, and cloud data centers as well as carrier-access applications.
- Enables spanning-tree-free and CLOS-style network topologies through TRLL.

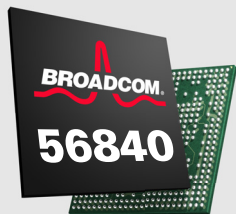
- Enables unification of Fibre Channel, iSCSI, and compute traffic on a single, Ethernet network.
- Virtual-machine-aware switching ensures seamless and secure interoperability with leading server and server virtualization vendors.
- Enables Green data centers through Energy Efficient Ethernet™ (EEE) technologies.
- Fastest time-to-market and reduced development complexity due to simplified hardware designs; common software API with StrataXGS® portfolio.
- Reduced latency operation with cut-through switching architecture and 10G SerDes integration.
- Enables the highest density backplane designs with integrated 10GBase-KR SerDes.

Features

- Fully integrated Ethernet switch-on-a-chip available at 320 Gbps, 480 Gbps, and 640 Gbps.
- Standards-compliant 10 GbE/40 GbE switch with support for up to 16 ports of 40 GbE or 64 ports of 10 GbE.
- Power-efficient, fully integrated switching architecture
- Line-rate forwarding for up to 960 million packets per second (MPPS)

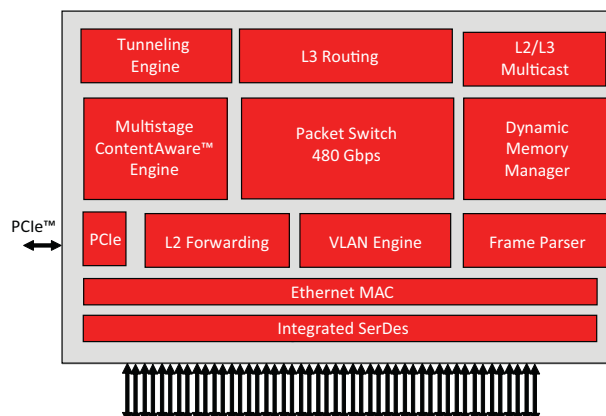
Highlights

- Highest 10 GbE and 40 GbE switch in the industry
- Comprehensive DCB features including PFC, ECN, and ETS for lossless Ethernet
- Standard TRILL implementation for multipath switching
- Dynamic load balancing for HiGig™ trunking
- DMVoQ to eliminate head-of-line blocking
- EEE support for energy savings
- Complete metro features including MPLS, VPLS, and PBB
- Port virtualization to support data center virtualized server implementation

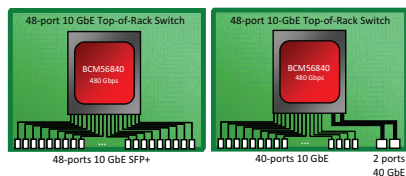


	BCM56840
Service Provider	●
Data Centers	●
Enterprise	●

○ Supported ● Best Choice



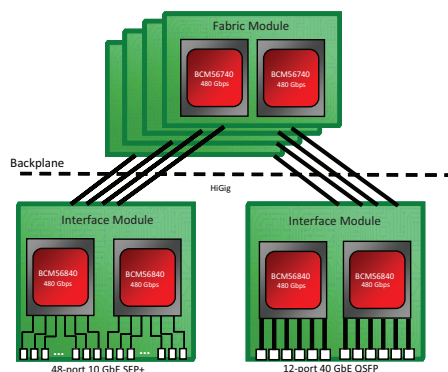
Data Center Top-of-Rack



Solution Characteristics

- Single-chip design
- Lowest power/highest density
- Line-rate performance on all ports
- FCoE support on all ports
- No external PHY needed for 10 GbE or 40 GbE

Data Center Modular Chassis



Solution Characteristics

- Line-rate performance on all ports
- Lowest power/highest density 40 GbE solution available
- FCoE support on all ports
- Support for 40 GbE flows

Deployment Scenarios

Features (Cont.)

- Integrated 10G SerDes with native support for 10GBase-KR for glueless backplane applications.
- Hardware-based TRILL enabling Layer 2 multipath and designs free of spanning tree.
- Data Center Bridging (DCB) support, including IEEE 802.1az enhanced transmission selection (ETS), IEEE 802.1Qbb Priority-based Flow Con-

trol (PFC), and IEEE 802.1Qau Congestion Notification (QCN).

- Integrated 9 MB smart buffer able to dynamically reallocate buffer based upon DCB priority group.
- Hardware-based FCoE support for converged data center fabric applications.
- Tagged and tagless virtual machine switching support leading server and server virtualization switching vendors.

- Hardware-based tunneling services including MPLS, VPLS, ISATAP, MAC-in-MAC, TRILL, and Q-in-Q.
- Energy Efficient Ethernet support including customizable low-power idle (LPI) control policies.
- RFC1588 Precision Time Protocol and IEEE 802.1AS for Timing and Synchronization for time-sensitive applications.

Ordering Information

	Part Number
32 x 10 GbE RoHS-compliant	BCM56841KFRBG
48 x 10 GbE RoHS-compliant	BCM56843KFRBG
64 x 10 GbE RoHS-compliant	BCM56846KFRBG

Note: Industrial temperature and/or leaded are available.

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These solutions support our core mission: Connecting everything®.

Broadcom, one of the world's largest fabless communications semiconductor companies, with 2010 revenue of \$6.82 billion, holds more than 4,800 U.S. and 2,000 foreign patents, and has more than 7,800 additional pending patent applications, and one of the broadest intellectual property portfolios addressing both wired and wireless transmission of voice, video, data and multimedia.

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