



Target Markets and Applications

The AMCC PRS family of packet routing switch products provides a highly-integrated, non-blocking, and scalable migration path for a wide range of switch applications: in the enterprise, with data center (web caching, load balancing, security), NAS/SAN and high-end LAN products; in the wireless infrastructure, with wireless aggregation and base station controller equipment; and in the Metro/WAN, with access, edge and transport switches.

The latest member of the PRS family, the PRS 64Gu is an excellent fit for applications requiring compact design, to address card real estate constraint or floor space restriction. The PRS 64Gu enables design of switch fabrics with up to 32 ports for support of GE/OC-48c interfaces, or eight ports for support of 10GE/OC-192c interfaces, or any intermediate combination.

High Throughput and Non-Disruptive Migration

The PRS 64Gu Packet Routing Switch provides a powerful engine for high-throughput switch applications and port speeds of up to 10-Gbps/OC-192c. The chip features

configurable fixed-size, fast packet switching and is capable of supporting either frame-based traffic (through segmentation and reassembly) or cell-based traffic. Protocol-independent, it enables non-blocking and scalable switch fabrics offering 64-Gbps or 128-Gbps core switch aggregate throughput.

Manufacturers using the PRS 64Gu can benefit from IBM's advanced silicon technology and the proven reliability, redundancy, and load sharing features of the AMCC packet routing switch technology. The PRS 64Gu Packet Routing Switch offers:

- 16 input ports and 16 output ports (one chip); or 32 input ports and 32 output ports (two chips)
- 40-Gbps (one chip) or 80-Gbps (two chips) aggregate user bandwidth
- Up to four GE or one OC-48c per port, or one 10GE or one OC-192c per group of four ports
- Quality of Service (QoS) with four levels of traffic priority and programmable flow control thresholds
- Packet lossless switchover capability and efficient multicast (replication at sending)
- Industry standard CSIX-L1 interface to Network Processors or Traffic Managers
- Embedded high-speed serial links at 2.5 Gbps for simpler wiring, compact switch board design, and common wiring rules across multiple PRS-based switches (PRS 64Gu, Q-64G, and so on)
- End-user evolution from/to other PRS switch cores, using the same line adapters (investment protection)

- Highlights -

Scalable, Highly-Compact, Protocol-Independent Switch Technology for Demanding 1-Gbps/10-Gbps Ethernet and OC-48c/OC-192c Applications

- Large-scale functionality in a high-integration chip for compact designs
- High availability through proven packet lossless maintenance switchover capability
- Same fabric interface chip (line adapter reuse) within family of PRS-based switches
- Comprehensive development support and tools to help reduce time to market

PRS C48 and PRS C192 Common Switch Interface

To expedite the design of chassis-based systems requiring a high-speed interconnect across a backplane or short cable distances, AMCC offers the new PRS C48 Common Switch Interface.

The PRS 64Gu, like the PRS Q-64G, uses 2.5-Gbps high-speed serial links for communication with line adapters equipped with the PRS C48 (connected to a 4G/OC-48c NPU or TM) or current PRS C192 Common Switch Interface chip (connected to a 10G/OC-192c NPU or TM).

High-speed serial (HSS) links simplify the wiring and enable highly compact 64/128-Gbps switch board designs, which can result in significant cost reductions (backplane and line adapters). The new PRS C48 provides a 32-bit wide CSIX-L1 compliant interface to a Network Processor or Traffic Manager and, like the PRS C192, enables a duplicated path with redundant PRS 64Gu-based switch planes.

Redundancy Support for High Availability

To increase availability and meet Service Providers and new high demanding applications (24x7), switch fabrics are often designed with two redundant planes. If an element in one plane fails, the other plane can take over; the PRS 64Gu supports this crucial capability. Each switch element has a built-in filtering mechanism for redundancy control.

On the line adapter, the PRS C48 or PRS C192 Common Switch Interface chip provides a redundant path with the switch planes, enabling traffic load sharing and switchover between the two switch planes, including maintenance switchover without packet loss.

Highly Efficient Multicast

Multicast with QoS is an increasingly valued capability in Internet applications. The PRS 64Gu, like the other members of the PRS family, provides a built-in efficient multicast function, easing the design of edge routers and other devices that provide these complex services. To enable multicasting and maximize product resources utilization, the switch executes a scheme of store once

and transmit multiple times (replication at sending). The multicast packet is placed in shared memory and the memory-location index is stored in the output queues corresponding to the target output ports and associated priorities.

Enablement Tools for an Expedited Time to Market

To help reduce development time and cost, AMCC offers a reference switch core design and software to operate the switch subsystem control layer. The reference design, a 128-Gbps, 16-layer, 286mm x 151mm compact switch board allowing six PCBs out of a standard 18"x 24" PCB panel, is well-suited for a redundant 32-port OC-48c multiservice switch or a layer-2 and above design that supports up to 128 Gigabit Ethernet ports.

Reference platforms allowing evaluation of PRS switch fabric plus network processor solutions, board design services, and board manufacturing capabilities complement the AMCC PRS offering.

Specifications

	PRS 64Gu
Supply voltage	1.8 V, 2.5 V
Power	13W to 19W @ 100% traffic
Maximum Junction Temperature	125°C
Package Size	32.5mm x 32.5mm 624-ball CBGA (1.27 mm balls pitch)

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