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BCM5696
PRODUCT
Brief

MULTILAYER 12-PORT GIGABIT ETHERNET SWITCH

FEATURES

- **12 10/100/1000-Mbps Ethernet ports with copper or fibre connectivity**
- **All address tables and buffer memory fully integrated on-chip**
- **Support for jumbo frames of up to 9 KB in size**
- **Advanced full-duplex end-to-end flow and congestion control with head-of-line blocking prevention**
- **ContentAware™ packet filtering and classification per-port**
  - Wirespeed operation
  - Support for 802.1p, TOS/DiffServ, policing, shaping, marking, and remarking
  - Rate control of broadcast, unknown multicast and unicast packets
  - Eight queues per port
- **Support for double 802.1q VLAN tagging and VLAN translation**
- **Hardware-based IP multicast routing and forwarding**
  - Support for replication
- **Equal and weighted cost multipath routing for load balancing**
- **Advanced diagnostic features including JTAG boundary scan and BIST functionality**
- **Low power consumption of 4.65W in a 480-pin PBGA package**
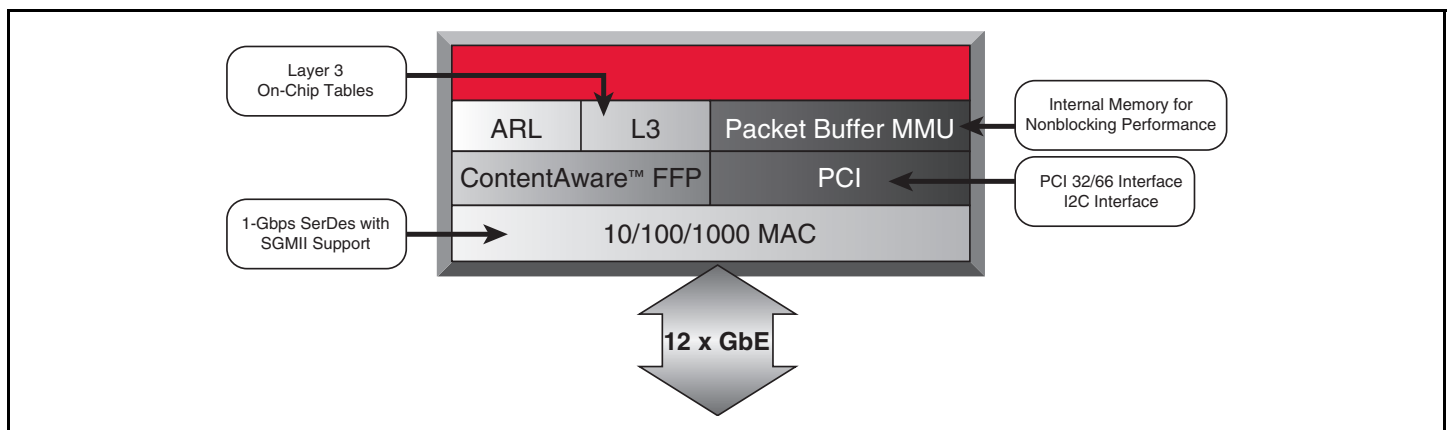- **Pin-to-pin compatible with the BCM5691**

SUMMARY OF BENEFITS

- **Enables modular, high-performance GbE switch designs**
- **Facilitates seamless integration of voice, video, and data traffic through low-latency and advanced QoS**
- **Enables lower system design cost and board space utilization through superior integration and compact form factor**
- **Offers quicker time-to-market and software reuse through backward compatibility with Broadcom switch software API**
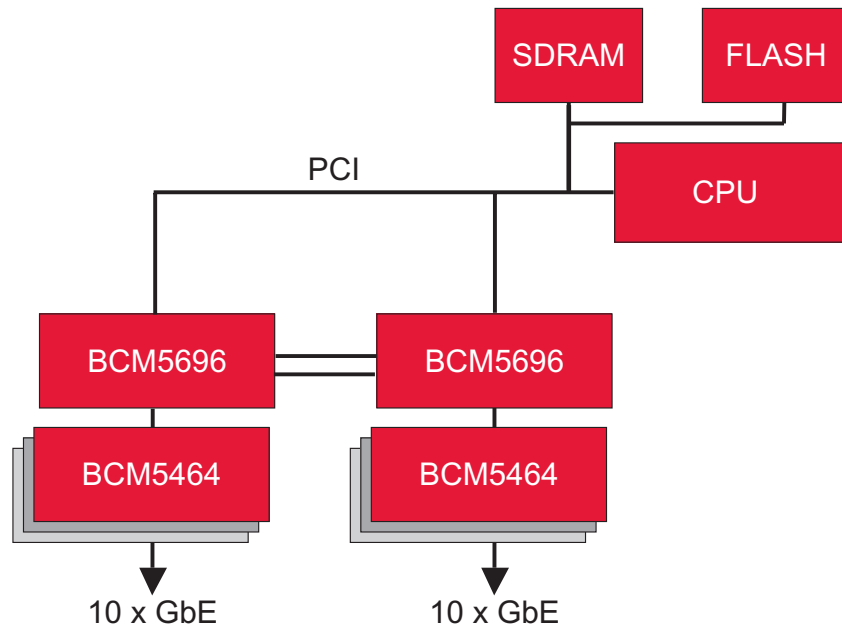
TARGET APPLICATIONS

- **High-performance standalone GbE switch solutions for distribution and wiring closet of enterprise networks and remote branches**
- **Embedded GbE switch solutions for blade server applications within space-constrained data centers**
- **Highly reliable GbE switch solutions for telecom applications in central offices**

12-port Multilayer Gigabit Ethernet Switch

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Functional Design of BCM5696-Based 20-Port GbE Switch

```
                          ┌────────┐  ┌────────┐
                          │ SDRAM  │  │ FLASH  │
                          └────────┘  └────────┘
              PCI                   ┌──────────┐
                                    │   CPU    │
                                    └──────────┘
          ┌──────────┐      ┌──────────┐
          │ BCM5696  │══════│ BCM5696  │
          └──────────┘      └──────────┘
          ┌──────────┐      ┌──────────┐
          │ BCM5464  │      │ BCM5464  │
          └──────────┘      └──────────┘
              │                  │
              ▼                  ▼
          10 x GbE           10 x GbE
```

General Description

The BCM5696 is an integral component of the highly modular switch architecture. Each port supports 10/100/1000-Mbps Ethernet with copper or fibre physical interfaces. The BCM5696 has a fully integrated SerDes with an SGMII interface on the GbE ports. The flexibility and modularity of the BCM5696 switch architecture makes it suitable for a wide range of applications including fixed, blade server, and metro Ethernet switching.

Advanced QoS

The highly flexible ContentAware packet filtering and classification engine in the BCM5696 switch family provides a common application platform across the entire StrataXGS™ product line. It supports ToS/DiffServ, rate limiting, policing, shaping, marking, and remarking. These features enable cutting-edge voice and video applications based on the Internet Protocol.

Multi-Service Intelligence

Superior scalability, high availability, and performance enable network designers to meet the growing needs of mission-critical enterprise applications. Support of multi-service intelligence in the form of integrated security (IEEE 802.1x), wirespeed access control lists, policy-based rate limiting, IP Multicast replication, IPv6 awareness, and advanced Layer 3 functionality ensures robust network design.

New metro Ethernet features extend the security boundary beyond the enterprise networks into service provider networks with support for double VLAN tagging (IEEE 802.1Q) and VLAN translation.

Superior Performance

The BCM5696 delivers wirespeed switching performance across all ports simultaneously. The BCM5696 also introduces very low switching latency, enabling very high-quality transmission of voice, video, and data traffic. The BCM5696 supports advanced packet flow control such as head-of-line blocking prevention and IEEE 802.3x-compatible full-duplex control.

Additional Information

Production-ready reference design kits enable faster time-to-market for system vendors and come with extensive support documentation and software. Please contact your local sales representative for more information.

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