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BCM53118 PRODUCT Brief



9-PORT GbE SWITCH WITH EIGHT INTEGRATED 10/100/1000 PHYs

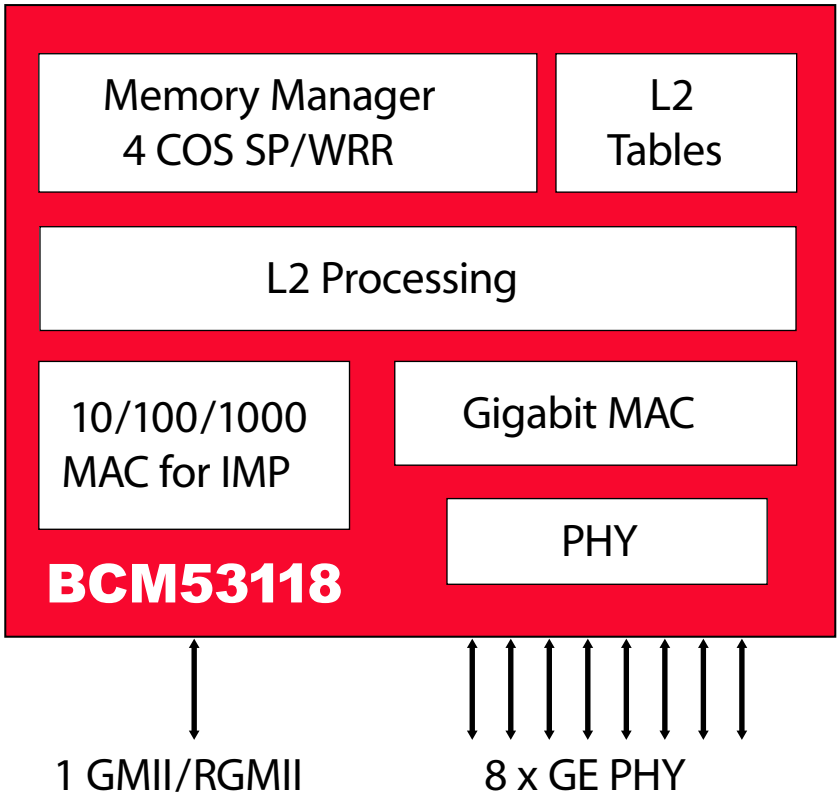
FEATURES

- **Highly integrated, non-blocking 9-port 10/100/1000 switch silicon that integrates:**
  - Eight 10/100/1000 PHYs
  - One GMII/RGMII interface for an Inband Management Port (IMP) for glueless connection to a CPU/management entity
  - Serial EEPROM, MDC/MDIO, SPI, and Interrupt-to-CPU interfaces
- **Broadcom's LoopDTech™ and CableChecker™ help reduce network downtime and minimize installation, maintenance, and support efforts**
  - LoopDTech technology provides loop detection without running spanning tree protocol
  - CableChecker enables advanced cable diagnostics based on the Broadcom® Convergence Algorithm
- **Virtual Local-Area Network (VLAN)**
  - IEEE 802.1Q-based VLAN with 4K entries
  - Port-based VLAN
  - VLAN double tagging (Q-in-Q)
- **Quality of Service (QoS)**
  - Four selectable QoS per port; SP and WRR
  - Port, MAC, IEEE 802.1P, and IPv4/IPv6 DSCP based QoS
- **Performance**
  - 9 KB jumbo frame support; wirespeed performance for all fame sizes
  - 4K MAC addresses with automatic learning and aging
  - 256 multicast group support
  - 196-KB packet buffer
- **Security**
  - IEEE 802.1x support for secure user authentication
  - DoS prevention hardware
- **Traffic control and network resiliency**
  - Storm control and port-based ingress/egress rate control
  - Spanning Tree support (Rapid Spanning Tree and Multiple Spanning Trees—up to 16)
  - IPv4 IGMP and IPv6 MLD snooping
  - IEEE 802.3x programmable per-port flow control and backpressure
  - Port mirroring, LLDP, LACP
- **Management**
  - On-chip MIB counters to collect receive and transmit statistics for each port, hardware support for SNMP/MIBs and RMON
- **Technology and physical specifications**
  - State-of-the-art 65 nm LP, 6-layer metal technology
  - 1.2V core and 3.3V I/O
  - Typical power consumption less than 3.9W

SUMMARY OF BENEFITS

- **Flexible solution enables cost-optimized board and system designs.**
- **Additional interfaces enable efficient designs for branch office switch applications. Flexible CPU interface allows it to work with any CPU.**
- **Broadcom-patented features provide unique solutions to network loop and cable problems. LoopDTech, without running STP, automatically detects loops, reducing system cost. CableChecker, unlike traditional TDR-based cable diagnostics, can be run at any time to detect cable length and problems without interrupting live traffic.**
- **VLAN feature insures proper layer 2 isolation and security.**
- **Double tagging enables private VLAN capability.**
- **Supports all types of client connections, including VoIP, video, multimedia, and data. Priority can be assigned each traffic type to guarantee delivery of time-sensitive packets and efficient use of network bandwidth.**
- **Provides a bigger bang for the buck (with line-rate and non-blocking performance in an SMB switch).**
- **Highly integrated and scalable design supports large number of client connections, prolonging the life of the switch even as the number of users increases and, in turn, reducing the cost of network expansions.**
- **Increases network security and blocks unwanted access.**
- **Providess an easy way to troubleshoot security problems.**
- **Enhances network security and resiliency to keep the network running efficiently. A network that is always available and rarely goes down enhances workplace efficiency and minimizes IT support costs.**
- **Enables multicast switching with IGMP and MLD snooping without expensive L3 multicast routing.**
- **QoS, VLAN, and rate control, coupled with security, make the BCM53118 one of the most powerful SMB switches to provide control over who is connected, the resources assigned to the users, and bandwidth management.**
- **Can be managed remotely using SNMP or RMON. Build sophisticated applications on the switch with the fully featured, easy-to-use Broadcom SDK.**
- **Leapfrogs one generation of process technology to provide the lowest power and lowest system cost solution in the industry.**

OVERVIEW



BCM53118 Block Diagram

The BCM53118 is a highly integrated, cost-effective, gigabit switch. The switch design is based on the field-proven industry-leading BCM5398. The BCM53118 combines all the functions of a high-speed switch system, including eight full-duplex 10/100/1000BASE-T/TX Ethernet transceivers, packet buffer, Media Access Controllers (MACs), and a non-blocking switch fabric, into a single 65-nm LP CMOS device. In addition, the BCM53118 has one GMII/RGMII/MII/RvMII interface for a CPU or a wireless/DSL/cable router chip. It complies with the IEEE 802.3™ and IEEE 802.3x specifications, including the MAC control PAUSE frame, providing compatibility with all industry-standard Ethernet, Fast Ethernet, and Gigabit Ethernet (GbE) devices.

The BCM53118 is packed with features, including VLAN, VLAN double tagging, per port QoS, jumbo frame support, DOS prevent engine, per port rate control, and MIBs management. It also includes two Broadcom patented technologies, LoopDTech and CableChecker, that are designed to lower the human effort for troubleshooting cable problems and loops during installation and for post-installation support. LoopDTech also eliminates the additional cost of hardware and software required to run Spanning Tree Protocol. CableChecker, unlike traditional TDR-based cable diagnostics, can detect cable and connector problems without disconnecting the cable from the other end. This allows CableChecker to run while the switch is passing packets. Network support personnel can monitor and troubleshoot network problems remotely, which is very important in an SMB environment, where IT resources are scarce. LoopDTech and CableChecker, when set up correctly, actually detect problems automatically without any human intervention.

The BCM53118 has all the features required to enable residential gateways and home office switches that can be connected to voice, multimedia, and data devices simultaneously. With per-port QoS/ queuing and rate control support, different packet types can be identified and prioritized within the switch, and voice packets can be assigned a higher priority for outbound delivery.

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