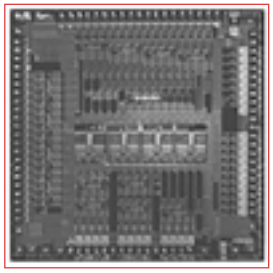
BROADCOM®

BCM5703S PRODUCT Brief



10/100/1000BASE-T CONTROLLER WITH INTEGRATED TRANSCEIVER

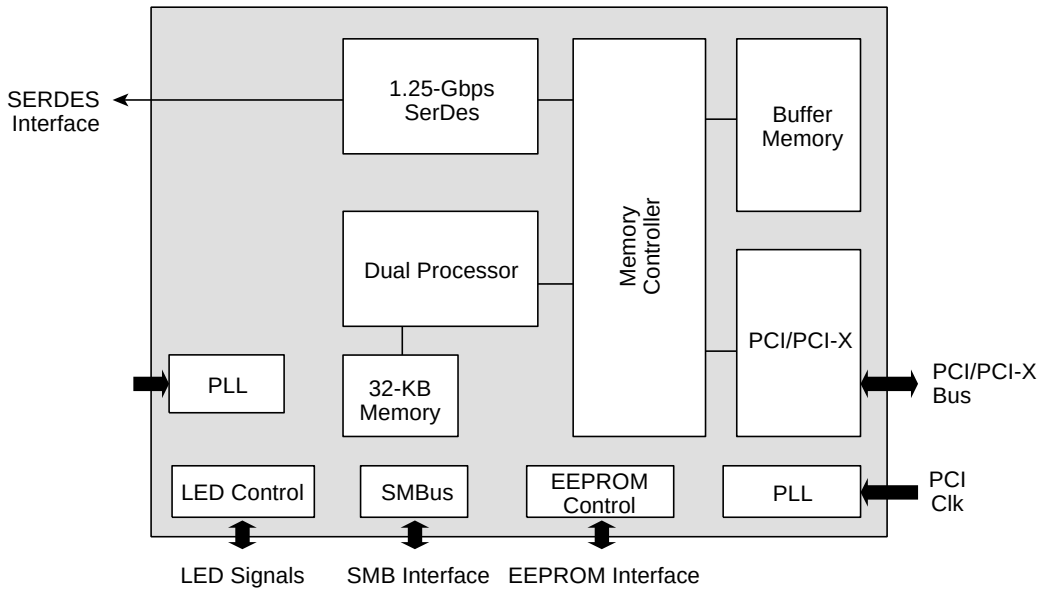
BCM5703S FEATURES

- **Single-chip solution for LAN on Motherboard (LOM) and Network Interface Card (NIC) applications**
  - Integrated SERDES interface
  - 10/100/1000 triple-speed MAC
  - Host interfaces
    - PCI v2.2 – 32/64 bits, 33/66 MHz
    - PCI-X v1.0 – 64 bits, 66/100/133 MHz
  - Ultra-deep 96-KB on-chip packet buffer
  - Dual high speed RISC cores with 16-KB caches
- **Programmable, in-line packet classification**
  - SMBus controller
  - On-chip power circuit controller and Wake-on LAN power switching circuit
  - Performance features
  - TCP, IP, UDP checksum
  - TCP segmentation
  - CPU task offload
  - Adaptive interrupts
  - Ultra-deep 96-KB packet buffer
- **Robust manageability**
  - PXE 2.0 remote boot
  - Alert Specification Forum – ASF 1.0 support
  - Wake-on LAN
  - Statistic Gathering (SNMP MIB II, Ethernet like MIB, Ethernet MIB (802.3x, clause 30))
  - Comprehensive diagnostic and configuration software suite
  - ACPI 1.1a complaint – multiple power modes
- **Advanced network features**
  - Priority queuing — 802.1p Layer 2 priority encoding; support for four priority queues
  - Virtual LANs — 802.1q VLAN Tagging; support for up to 64 VLANs
  - Jumbo frames (9 KB)
  - 802.3x flow control
- **Advanced server features**
  - Link Aggregation – 802.3ad, GEC/FEC, Smart Load Balancing™ (supports heterogeneous teams)
  - Heterogeneous, mixed speed failover
  - PCI Hot Plug support
- **Low-power 0.13µ CMOS design**
- **256-pin FPBGA package**
- **3.3V I/Os (5V tolerant)**
- **JTAG**

SUMMARY OF BENEFITS

- **Industry's smallest 10/100/1000 MAC+PHY solution – power and space optimized for LOM and low profile NIC applications.**
- **Integrated 1.25-Gbps SERDES**
  - IEEE 802.3z compliant
  - For fiber on backplane applications
- **Future-proof**
  - PCI-X interface, on-chip programmable CPUs, ASF support
- **Performance-focused, optimized for throughput and CPU utilization**
  - Adaptive interrupts
  - PCI-X eliminates PCI bottlenecks
  - Ultra-deep 96-KB packet buffer lowers CPU utilization, avoids PCI congestion
  - CPU task offloads reduces utilization level of CPU
- **Robust and highly manageable**
  - PXE 2.0, ACPI 1.1, Wake-on LAN, ASF 1.0
  - Broadcom EyeOpener™ Adaptive Equalization technology – allows longer backplane lengths and robust signal integrity.
- **Advanced features**
  - VLAN, priority queuing, Jumbo frames
  - RISC processors for advanced packet classification
- **Server class reliability, availability and performance features**
  - Link aggregation and load balancing
    - Switch-dependent
      - 802.3ad (LACP), generic trunking (GEC/FEC)
    - Switch- and NIC-independent
      - Smart Load Balancing™ — unique technology that supports heterogeneous teams, and can operate with any switch
  - Failover
    - Smart Load Balancing™ allows heterogeneous failover
  - PCI Hot Plug
- **Low power for zero airflow implementations**
  - 0.13µ CMOS design
  - Advanced power management
- **Space savings for LOM**
  - 256-pin FPBGA package
  - No external memory
  - Integrated power circuitry

BCM5703S OVERVIEW



The **BCM5703S** 10/100/1000BASE-T Gigabit Ethernet Media Access Control and Serializer/Deserializer (SERDES) is a fully integrated interface solution for high-performance network applications. The **BCM5703S** is a highly integrated solution combining a triple-speed, IEEE 802.3 compliant Media Access Controller (MAC), PCI and PCI-X bus interfaces, on-chip buffer memory, and an integrated SERDES transceiver in a single device. The **BCM5703S** is fabricated in a low-voltage .13µ CMOS process, providing a low-power system solution. By itself, the **BCM5703S** provides a complete single-chip Gigabit Ethernet NIC or LOM solution.

Support for the following 802.3 functions is featured in the MAC: VLAN tagging, layer 2 priority encoding, link aggregation, and full-duplex flow control.

The device provides both PCI v2.2 and PCI-X v1.0 bus interfaces. The **BCM5703S** provides large on-chip buffer memory for stand-alone operation. Dual on-chip high-performance processors enable custom frame processing features, including TCP segmentation.

Along with IEEE 802.3z specification, several enhancements, such as ultra-low jitter technology, have been added to make designs even more robust.

Target Applications of the BCM5703S

Network Interface Cards (NIC) designs	
SINGLE PORT	
1000 BASE-SX	PCI 2.2 Adapters PCI-X v1.0 Adapters
1000 BASE-LX	PCI 2.2 Adapters PCI-X v1.0 Adapters
DUAL PORT	
10/1000 BASE-SX	PCI 2.2 Adapters

LAN on Motherboard (LOM) designs	
SINGLE PORT	
1000 BASE-SX	PCI 2.2 LOM PCI-X v1.0 LOM
DUAL PORT	
1000 BASE-SX	PCI 2.2 LOM PCI-X V1.0 LOM

Gigabit Ethernet Network Interface Cards (NICs) and LAN-on Motherboard (LOM) applications for Desktop and Mobile PCs.

BCM5703S Software Support

- Microsoft® Windows® 98, NT4.0, 2000, XP, NT64
- Linux® 2.2, 2.4
- Linux64®
- NetWare® 4.x, 5.x, 6.x
- PXE 2.0
- Solaris x86
- UnixWare 7.0
- OpenServer 5.0

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