



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

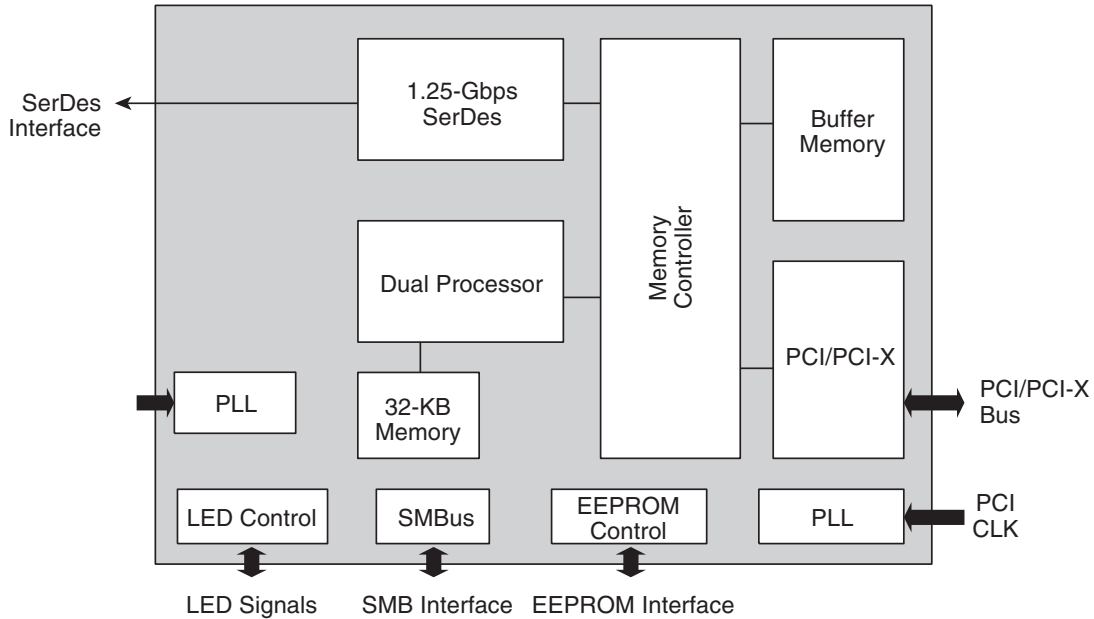
### FEATURES

- **Single-chip solution for LAN on Motherboard (LOM) and network interface card (NIC) applications**
  - Integrated SerDes interface
  - 10/100/1000 Mbps triple-speed media access controller (MAC)
  - Host interfaces
    - PCI v2.2, 32/64-bit, 33/66 MHz
    - PCI-X v1.0 64-bit, 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 Standard Format (ASF 1.0 support)
  - Wake on LAN
  - Statistics gathering: SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, Clause 30)
  - Comprehensive diagnostic and configuration software suite
  - ACPI 1.1a compliant (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
  - Hot-Plug PCI support
- **Low power, 0.13-µm CMOS design**
- **300-pin HBGA 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
- **Futureproof**
  - 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 and averts PCI congestion
  - CPU task offloads reduce CPU utilization level
- **Robust and highly manageable**
  - PXE 2.0, ACPI 1.1, Wake on LAN, ASF 1.0, IPMI 1.5
  - Broadcom EyeOpener® adaptive equilization 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
  - Hot-Plug PCI support
- **Low power for zero airflow implementations**
  - 0.13-µm CMOS design
  - Advanced power management
- **Space savings for LOM**
  - 300-pin HBGA 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, an on-chip buffer memory, and an integrated SerDes transceiver in a single device. The BCM5703S is fabricated in a low-voltage 0.13- $\mu$ m 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 BCM5703S provides both PCI v2.2 and PCI-X v1.0 bus interfaces. It also 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 complying with the 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		LAN on Motherboard (LOM) designs	
<b>Single Port</b>			
1000 BASE-SX	PCI 2.2 Adapters PCI-X v1.0 Adapters	1000 BASE-SX	PCI 2.2 LOM PCI-X v1.0 LOM
1000 BASE-LX	PCI 2.2 Adapters PCI-X v1.0 Adapters	<b>Dual Port</b>	
		1000 BASE-SX	PCI 2.2 LOM PCI-X v1.0 LOM
<b>Dual Port</b>			
10/1000 BASE-SX	PCI 2.2 Adapters		

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

## BCM5703S Operating Systems

- Microsoft® Windows® 98, NT®4.0, 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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