INTEGRATED GIGABIT ETHERNET CONTROLLER

FEATURES

- Integrated 10/100/1000BASE-T transceiver
  - 10/100/1000BASE-T triple-speed MAC
  - State-of-the-art physical layer interface that exceeds IEEE requirements
  - SMBus 2.0 controller
  - On-chip voltage regulation
  - Wake-on-LAN (WOL) power switching circuit
- PCI Express® host interface
  - x1 PCIe™ v1.1
  - Active state power management (ASPM) capability
  - Message signal interrupt (MSI)
- Intelligent power management
  - Centralized power management enables easy and efficient control of various power modes
  - Innovative implementation that optimizes power consumption dynamically and transparently, depending on network and system states
  - Policy-based implementation allows easy system integration and enables OEMs to differentiate
- Performance features
  - TCP, IP, and UDP checksum offload (CSO)
  - Receive side scaling (RSS) for multicore client processors
  - IPV4 and IPV6 Microsoft® Large Send Offload (LSO)
  - Interrupt coalescing
- Industry-compliant web services-based manageability
  - Robust ACPI-compliant WOL
  - IPMI pass-through support
- Complies with IEEE standards
  - Statistics for SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (IEEE 802.3z, Clause 30)
  - Complies with IEEE 802.3, 802.3u, 802.3ab, and 802.1p

SUMMARY OF BENEFITS

- Single-chip device for LAN on Motherboard (LOM) and network interface card (NIC) applications
- Proven technology built on ten generations of controller products
- Wire-speed performance increases user performance.
  - PCI Express provides wire-speed non-blocking throughput.
  - TCP/IP offloads significantly reduce CPU usage and increase network throughput for large-file download.
- Extremely low power consumption enables environment-friendly designs.
  - Advanced power management capabilities with ASPM L0s, L1, and PCIE CLKREQ
  - ENERGY STAR compliant
- Industry’s smallest GbE form factor enables easier motherboard design.
  - 10 x 10 mm, 68-pin QFN package
- Lower BOM cost and chip cost, reducing overall cost of solution
  - 65 nm process
  - Self-boot feature, utilizing smaller EEPROM size
  - Serial NVRAM interface with Flash autosensing
  - Serial Flash memory support
- Supports iSCSI boot
  - Allows for diskless boot
  - Eliminates drives—disk failure is #1 failure for computer systems
  - Storage consolidation
  - Unifies and simplifies management and backup
  - Increases disk capacity utilization
  - Allows easier mirroring of data for disaster recovery (DR)
- Manageability
  - Easier remote boot
  - Allows for a readily available technical toolbox
- IPMI pass-through support reduces IT costs.
  - Support for standards-based manageability allows IT managers to receive automatic alerts when PC support issues occur
  - Remote power-on/off features allow IT managers to power cycle PCs to address issues.
The BCM5723 is an eleventh-generation 10/100/1000-Mbit BASE-T Ethernet LAN controller solution for high-performance network applications. The device combines a triple-speed IEEE 802.3-compliant media access controller (MAC) with a triple-speed Ethernet transceiver, x1 PCIe bus interface, and on-chip buffer memory in a single device. The BCM5723 is fabricated in a 1.2V CMOS process, providing a low-power system solution.

The BCM5723 includes a 10/100/1000-Mbps Ethernet MAC with full-duplex and half-duplex capabilities at all speeds. Support for the following IEEE 802.3™ functions is featured in the MAC:

- VLAN tagging
- Layer 2 priority encoding
- Full-duplex flow control

The device performs all the physical layer functions for 1000BASE-T, 100BASE-T, and 10BASE-T Ethernet on standard Category 5 UTP cable. Based on proven DSP technology, the device is a highly integrated solution combining digital adaptive equalizers, ADCs, PLLs, line drivers, echo cancellers, crosstalk cancellers, and all other required support circuitry. A full-featured MAC provides full-/half-duplex capability at all speeds.

The on-chip high-performance processor enables custom frame processing features.

**Target applications:**
- Server PC NIC
- Server PC LOM

**Software drivers available:**
- Linux® 2.4, and 2.6
- NetWare®
- Solaris™ x86
- SCO™ UnixWare® and SCO OpenServer™