# BROADCOM®

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## BCM5757
## PRODUCT Brief

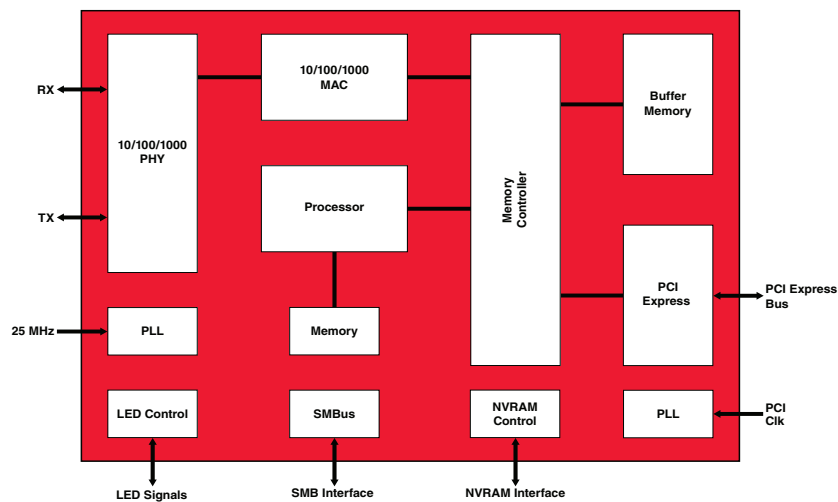# 10/100/1000BASE-T CONTROLLER WITH INTEGRATED TRANSCEIVER

## FEATURES

- **Single-chip device for LAN-on-Motherboard (LOM) applications**

- **Integrated 10/100/1000BASE-T transceiver**
  - 10/100/1000BASE-T triple-speed MAC
  - SMBus 2.0 controller
  - On-chip voltage regulation

- **PCI Express® host interface**
  - x1 PCIe v1.1
  - Active State Power Management (ASPM) capability
  - Message Signal Interrupt (MSI)

- **Performance features**
  - TCP, IP, and UDP checksum
  - Receive Side Scaling (RSS) for multicore client processors
  - Microsoft® Large Send Offload
  - Interrupt coalescing

- **Industry-compliant manageability features**
  - DASH manageability support
  - Robust ACPI-compliant Wake-on-LAN (WoL)
  - Dynamic Host Configuration Protocol (DHCP) support
  - Alert Standard Format (ASF) 2.0 support
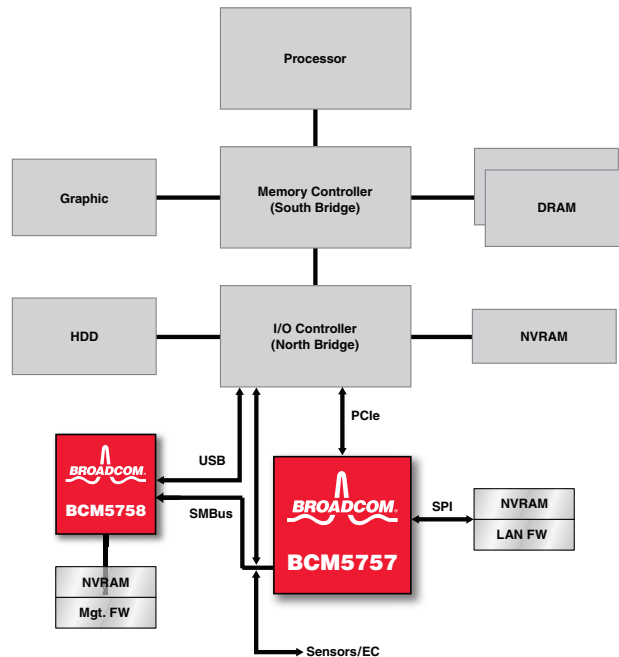
- **JTAG**

## SUMMARY OF BENEFITS

- **Proven technology built on nine generations of controller products**

- **Wirespeed performance increases user performance**
  - PCI Express provides wirespeed non-blocking throughput.
  - TCP/IP offloads significantly reduce utilization of CPU.
  - TCP/IP offloads significantly increase throughput to enable faster downloads of large files.

- **DASH remote manageability reduces IT costs**
  - Support for standards-based manageability allows IT managers to remotely manage PCs when support issues occur.
  - Remote and secure power control, boot control, assets inventory, and other desktop and laptop management functions.

## BCM5757 Block Diagram



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**DASH Typical System Implementation Diagram**

The BCM5757 is a fully integrated 10/100/1000BASE-T Gigabit Ethernet media access control and physical layer transceiver solution for high-performance network applications. The BCM5757 combines a triple-speed, IEEE 802.3 compliant media access controller (MAC), PCI Express bus interface, on-chip buffer memory, and integrated physical layer transceiver in a single device. The BCM5757 is fabricated in a low-voltage silicon process, providing an ultra-low power solution. By itself, the BCM5757 provides a complete single-chip Gigabit Ethernet NIC or LOM solution.

The BCM5757 includes a 10/100/1000-Mbps Ethernet MAC with full-duplex and half-duplex capability at all speeds. Support for the following 802.3 functions is featured in the MAC—VLAN tagging, Layer 2 priority encoding, and full-duplex flow control.

The transceiver is fully compatible with the IEEE 802.3 standard for auto-negotiation of speed. Additionally, several Plug-and-Play enhancements are included to make the device even more user-friendly. A unique integrated cable analyzer feature allows a user to self-diagnose any issues with the network cabling that could affect the host machine. A link quality indicator LED and a GUI application give installers an instant visual indication of problems. This includes physical wiring

defects or channel conditions, such as excessive cable length, return loss, crosstalk, echo, and noise.

Broadcom's remote cable management and diagnostics software can be used with the device to provide remote management of the cable and a first level of diagnostics and fault isolation.

When combined with the BCM5758 applications processor, the BCM5757 offers a complete hardware, firmware, and software solution enabling DASH management functionality. The on-chip processor, and via the SMBus controller, allows the device to communicate management commands/responses to/from the application processor, the system chipset and the system sensors. Providing this management functionality as part of the Gigabit-Ethernet controller, and using a centralized architecture, enables system vendors to offer advanced management functionality with an extremely reliable and power efficient solution.

Target applications of the BCM5757:
- Desktop and mobile PC LOM

Software drivers available:
- Windows® NT, 2000, XP, and Vista
- Linux® 2.2, 2.4, and 2.6

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