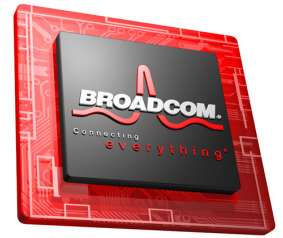




# BCM5764M PRODUCT Brief



## INTEGRATED GIGABIT ETHERNET CONTROLLER

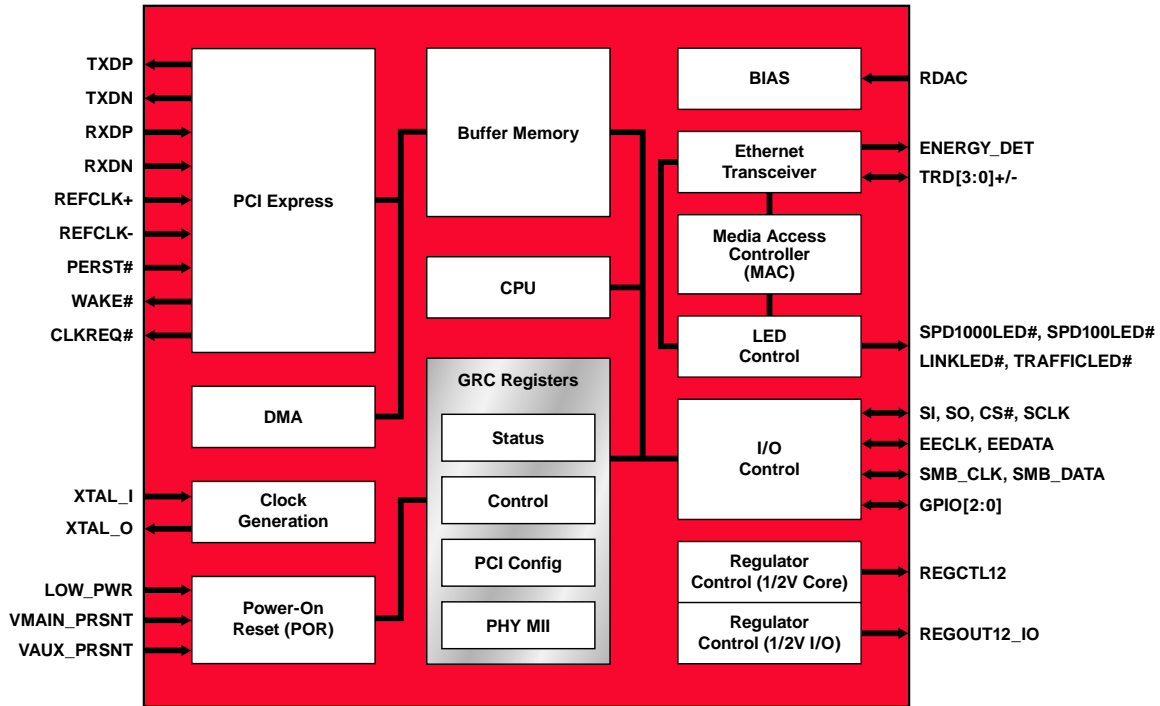
### FEATURES

- **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
  - Alert Standard Format (ASF) 2.0 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 10 generations of controller products**
- **Wirespeed performance increases user performance**
  - PCI Express provides wirespeed 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**
  - Increases battery life in mobile applications and saves energy in desktop implementations.
  - 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**
  - Attractive for client deployments (mobile and desktop)
  - 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.
- **Secure alerting and power cycling reduces IT costs**
  - ASF 2.0 support for standards-based alerting—IT managers receive automatic alerts when PC support issues occur .
  - Remote power-on/off features allow IT managers to power cycle PCs to address issues.
  - Hardware-based authentication and random number generation ensures the highest level of security possible.

# OVERVIEW



## Functional Block Diagram

The BCM5764M is a Broadcom® NetXtreme® 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 BCM5764M is fabricated in a 1.2V CMOS process, providing a low-power system solution.

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:

- Desktop and mobile PC LOM

### Software drivers available:

- Windows®, 2000, XP, and Vista®
- Linux® 2.4, and 2.6

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