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BCM5715C PRODUCT Brief



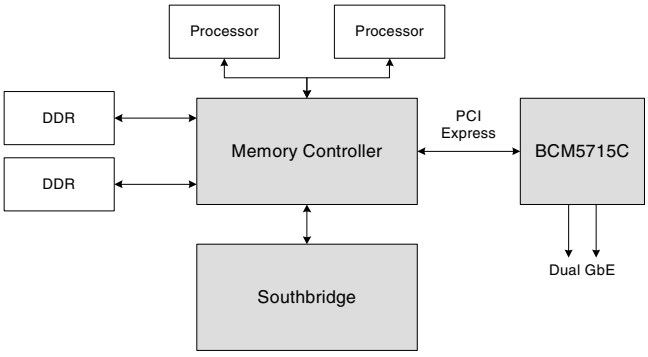
DUAL-PORT GIGABIT ETHERNET CONTROLLER WITH A PCI EXPRESS® HOST INTERFACE

FEATURES

- **Dual integrated 10BASE-T/100BASE-TX/1000/BASE-T BCM5715C transceivers**
- **PCI Express® x4 Host Interface**
- **Dual 10/100/1000 trispeed MACs**
- **Media Access Controller**
  - Integrated high-speed RISC cores
  - 56 KB receive and 22 KB transmit buffers
  - CPU task offload features (TCP, IP, UDP checksum, and Microsoft® Large Send Offload)
- **TCP segmentation, IP fragmentation, and reassembly**
- **Robust manageability**
  - PXE 2.0 remote boot
  - Universal Management Port interface for high-speed system management traffic
  - IPMI compliant server management interface
  - Out-of-Box Wake-on LAN (OOB WOL)
  - Statistic gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB) (802.3x, clause 30)
  - Comprehensive diagnostic and configuration software suite
  - SMBus 2.0 controller
- **Power management, ACPI 1.1a compliant in multiple power modes**
- **Advanced Features**
  - Priority queuing—802.1p layer 2 priority encoding
  - Virtual LANs—802.1q VLAN tagging and support for up to 64 VLANs
  - Jumbo frames (9 KB)
  - 802.3x flow control
  - Link aggregation—802.3ad, GEC/FEC, and Smart Load Balancing
  - Failover
- **Performance features**
  - CPU task offload
  - Adaptive interrupts
- **484-pin PBGA package**
- **Power**
  - Rails—1.2V core, 2.5V I/O, and 3.3V I/O
- **0.13 µm CMOS technology**

APPLICATIONS

- Highly integrated LAN on Motherboard (LOM) designs
- Blade Servers
- Rack Optimized Servers
- Dual-port Gigabit Ethernet Network Interface Controller (NIC) card



System Block Diagram

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OVERVIEW

The BCM5715C is a fourth-generation 10/100/1000BASE-T dual-port LAN controller for high-performance server applications. The device combines dual triple-speed IEEE 802.3-compliant Media Access Controllers (MACs) with dual 10/100/1000 Ethernet Transceivers, a Universal Management Port (UMP), and an on-chip memory buffer in a single device. The device is fabricated in a 1.2V CMOS process, providing a low-power system solution.

The BCM5715C provides a single x4 PCI Express host interface and two Gigabit Ethernet Controllers. Each function has its own PCI configuration space. Each Ethernet controller has a dedicated on-chip high-performance RISC processor for custom frame features.

The BCM5715C supports a Universal Management Port (UMP) interface for high-speed system management communications via the dual Gigabit Ethernet ports. The BCM5715C performs all physical layer functions for 1000BASE-T, 100BASE-T, and 10BASE-T 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 cancelers, crosstalk cancellers, and all other required support circuitry. Two full-featured MACs provide full-duplex and half-duplex modes at 1000 Mbps.

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