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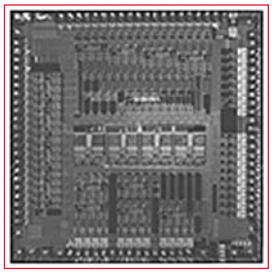
BCM5701 PRODUCT Brief



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

BCM5701 FEATURES

- **Single-chip solution for LAN on Motherboard (LOM) and network interface card (NIC) applications**
  - Integrated 10BASE-T/100BASE-TX/1000BASE-T transceivers
  - 10/100/1000 tri-speed MAC
  - Host interfaces
    - PCI v2.2, 32/64-bit, 33/66-MHz
    - PCI-X v1.0, 64-bit, 133-MHz
  - MII/GMII/TBI interfaces for external transceivers
  - 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 specification forum (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)
  - Wake on LAN
- **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, 0.18 µm CMOS design**
- **300-pin HBGA package**
- **3.3V I/Os (5V tolerant)**
- **JTAG**

SUMMARY OF BENEFITS

- **Industry's first 10/100/1000 MAC/PHY solution (power and space optimized for LOM and low profile NIC applications)**
- **Completely backward compatible:**
  - To existing 10/100 network infrastructure
  - To existing PCI-based desktop and server platforms
- **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
- **Robust and highly manageable**
  - PXE 2.0, ACPI 1.1, Wake-on LAN, ASF 1.0
  - Integrated cable testing (link quality, length, pair skew, pair polarity, pair swap)
- **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**
  - 0.18 µm CMOS design
  - Advanced Power Management
- **Space savings for LOM**
  - 300-pin HBGA package
  - No external memory
  - Integrated power circuitry