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BCM5718
PRODUCT Brief

X2 PCI EXPRESS® DUAL-PORT GIGABIT ETHERNET CONTROLLER

FEATURES

- Integrated dual 10/100/1000BASE-T transceivers.

- Energy Efficient Ethernet-compliant with IEEE Draft P802.3az/D1.21

- Dual 10/100/1000BASE-T full-duplex/half-duplex MACs

- Dual 1000BASE-X/SGMII full-duplex/half-duplex MACs

- Automatic MDI crossover

- x2 PCI Express® v2.0

- x1 at 5 GT/s

- x2 at 2.5 GT/s

- MSI and MSI-X capabilities - up to 17 MSI-X vectors

- I/O Virtualization support for VMWare® NetQueue®, and Microsoft® VMQ

- 17 receive queues and 16 transmit queues

- 17 MSI-X vectors supporting per queue interrupt to host

- Flexible MSI-X vector to transmit/receive queue association

- Function level reset (FLR)

- Receive Side Scaling (RSS) with per queue MSI-X vector support

- Transmit Side Scaling (TSS) and multi-Tx queue with per queue MSI-X vector support

- Jumbo frame support for up to 9600 KB payload

- Virtual LAN (VLAN) support — 802.1q VLAN tagging

FEATURES (CONT.)

- TCP, IP, UDP checksum offload

- Large Send Offload (LSO), TCP Segmentation Offload (TSO)

- 802.3x flow control

- Network Controller Sideband Interface (NC-SI)

- Statistics for SNMP MIB II, Ethernet-like MIB and Ethernet MIB (802.3z, Clause 30)

- ACPI power management compliance

- Advanced power management by a Central Power Management Unit (CPMU)

- Efficient integrated switching regulator controller

- PCI Express CLKREQ support

- Power Management Offload (PM Offload)

- 65 nm low-power CMOS design

- Serial flash and EEPROM NVRAM support; flash auto-configure

- ECC error detection and correction on internal SRAM

- JTAG boundary scan support
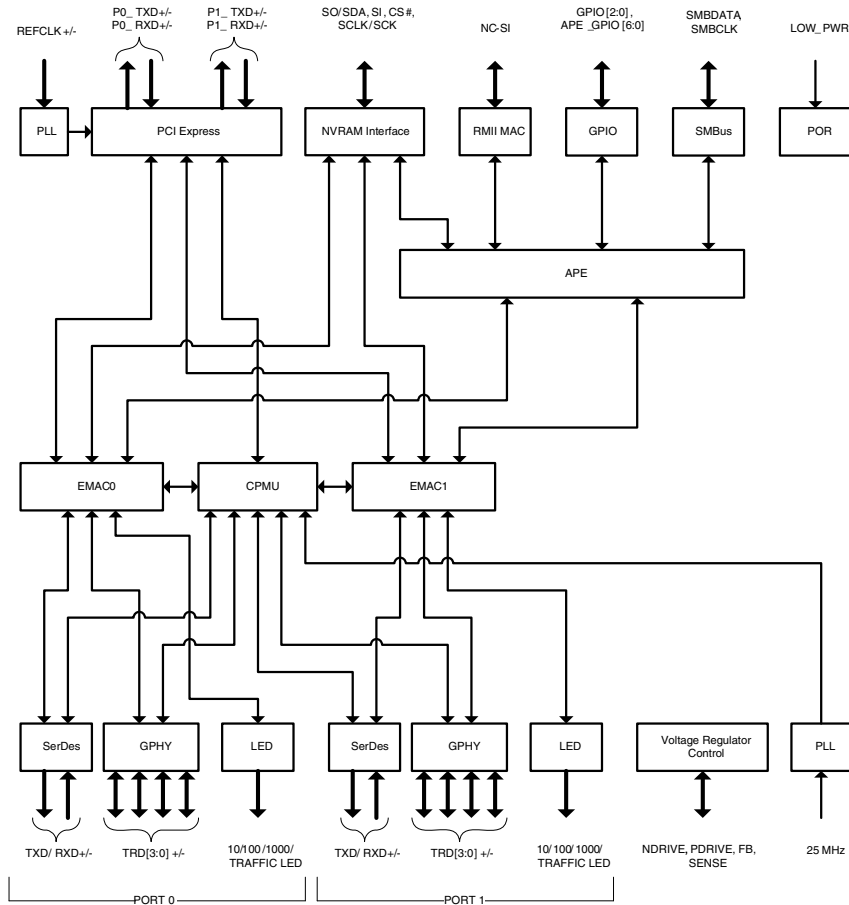
- 169-ball FBGA (1.0 mm pitch)

APPLICATIONS

- LAN on motherboard (LOM) for servers and workstations

- PCI Express Gigabit Ethernet Add-in NIC

Ordering Information

Part Number	Package	Ambient Temperature
BCM5718A0KFBG	169-ball FBGA (14 mm x 14 mm, lead-free)	0°C to 55°C

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Functional Block Diagram

The BCM5718 is a twelfth-generation 10/100/1000BASE-T Ethernet LAN controller solution suitable for high-performance server applications. The BCM5718 combines dual triple-speed IEEE 802.3 compliant Media Access Controllers (MACs) with dual 1000BASE-X/SGMII SerDes transceivers or dual 10/100/1000 Ethernet transceivers (PHYs), selectable individually per port, a Network Controller Sideband Interface (NC-SI) and on-chip memory buffer in a single device. The device provides a PCI Express v2.0-compliant host interface, which can operate at 5GTs at x1 link width or at 2.5GT/s at x2 link width. The PCI Express supports MSI and MSI-X capabilities and Function Level Reset (FLR). The host interface supports a separate PCI Express function for each LAN interface. The BCM5718 includes I/O Virtualization (IOV) features such as 17 receive and 16 transmit queues, 17 MSI-X vectors with flexible vector-to-queue association. These IOV features enable the

BCM5718 to support the VMWare® NetQueue and Microsoft® VMQ technologies.

The BCM5718 is fabricated in a low-voltage 65 nm CMOS process, and integrates an efficient switching voltage regulator controller for core power supplies. Advanced power management features built into the BCM5718 enable minimizing the power consumption of the network controller subsystem by lowering the controller's power consumption under lighter network traffic without compromising performance. The BCM5718 implements Energy Efficient Ethernet (EEE) compliant to the IEEE Draft P802.3az™/D1.21 amendment to IEEE Std 802.3-2008, which further reduces the power consumption with idle 100Mbit or 1Gbit GPHY links. These features provide a low system power consumption Ethernet network interface controller solution.

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