



# Broadcom® NetXtreme II® 5709 Quad-Port Ethernet PCIe™ Adapter Card with TOE and iSCSI HBA

## TECHNICAL BRIEF



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### Highlights

- *TCP/IP Offload Engine (TOE) for Windows®, significantly reduces CPU utilization*
- *Optimizes server efficiency and improves network performance*
- *Total Ethernet compatibility: standard TCP/IP implementation*
- *Teaming and failover ensure Smart Load Balancing™ and data availability*
- *Host Bus Adapter (HBA) functionality supporting Accelerated iSCSI*
- *Auto negotiation of speed ensures highest available throughput*

### OVERVIEW

The Broadcom® NetXtreme II® 5709 Gigabit Server Adapter is a new class of Gigabit Ethernet (GbE) adapter able to simultaneously perform accelerated networking and storage networking on standard Ethernet. The NetXtreme II is a family of Converged Network Interface Controllers (C-NICs) with superior design. These devices also support teaming and failover to improve network application performance and provide server redundancy.

### PERFORMANCE AND RELIABILITY

Broadcom validates its network interface cards over a variety of operating systems and platforms ensuring compatibility and interoperability. This Gigabit Ethernet adapter card takes full advantage of the PCI Express® bus architecture to maximize network throughput. Teaming enables Smart Load Balancing to help increase throughput and fault tolerance when multiple adapters are configured to work together as a team to share traffic and provide data reliability with failover.

### iSCSI STORAGE SUPPORT

Host Bus Adapter (HBA) functionality on the NetXtreme II 5709 Adapter supports Accelerated iSCSI. This converges block storage and network processing over standard TCP infrastructure, eliminating the need for a separate storage adapter and cabling while providing fibre channel comparable performance and reliability at a fraction of the cost. There is no need to maintain a separate storage infrastructure and no need for additional training.

### ADVANCED TECHNOLOGY

The NetXtreme II 5709 Adapter features TCP/IP Offload Engine (TOE) technology for Windows which reduces the server CPU utilization and improves application performance. TOE offloads the TCP protocol processing from the server CPU onto the server adapter. This preserves valuable CPU cycles for applications processing and improves overall server performance and network efficiency. Receive Side Scaling (RSS) also enables packet receive processing to scale with the number of available processors.

### MANAGING WITH CONFIDENCE

The NetXtreme II 5709 Adapter helps preserve your existing networking environment: operating systems, network administration tools, core cabling, personnel training, etc., while improving server efficiency and networking application performance. Major operating systems are supported, including Microsoft® Windows and Linux, and the TOE and RSS functionality is fully integrated in the Microsoft Server 2003® Scalable Networking Pack. In addition, the Broadcom Advanced Control Suite 3 (BACS3) provides an unprecedented level of governance across your entire network, enabling detailed tests, analyses, and diagnostics to be performed for each network adaptor installed in your system. In addition, BACS3 includes utilities to help you configure VLANs and set up teams for link aggregation, Smart Load Balancing and Failover, Generic Trunking, and more.

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### STANDARD FEATURES

<b>Controller</b>	Broadcom BCM5709C
<b>Data Path</b>	Four lanes (x4)
<b>Bus Architecture</b>	PCI Express
<b>Form Factor</b>	Low profile 5.8 x 2.5 in.
<b>Data Rate</b>	Auto-Negotiate 10/100/1000 Mbps
<b>Ethernet Ports</b>	Four
<b>On-Chip Memory</b>	92 KB
<b>Cabling</b>	Category 5
<b>Connector</b>	RJ-45
<b>Maximum Cable Length</b>	100 meters

### ADVANCED FEATURES

- TCP/IP Offload Engine (TOE)
- Host Bus Adapter functionality for iSCSI support
- Receive Side Scaling
- TCP, IP, UDP Checksum
- TCP Segmentation
- 802.1q VLAN Tagging
- IPMI management pass-through capability
- Link Aggregation and Load Balancing
- Heterogeneous Teaming
- Jumbo Frames
- IPv4 and IPv6 iSCSI Offload support

### OPERATING SYSTEMS MANAGEMENT

<b>Standards Supported</b>	IEEE 802.3z, 802.3x, Dynamic 802.3ad, 802.3p, 802.1Q PCI Express version 1.0a, ACPI version 2.0.
<b>Operating Systems</b>	Microsoft Windows 2003 and 2008 Server, Red Hat Enterprise Linux® 4 and 5 for x86 and x64, and SUSE Linux Enterprise Server 10 for x86 and x64.
<b>Wake on LAN</b>	Yes
<b>PXE 2.1 Support</b>	Yes

### OPERATING SYSTEMS MANAGEMENT

<b>Protocols</b>	NETBUI, Collision Sense Multiple Access/ Collision Avoidance, 802.2 NetBios, IPX/SPX, IPX, IP, TCP/IP - IPv4 and IPv6
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### POWER CONSUMPTION

<b>Operating Voltage</b>	+3.3V +/-5%, Maximum 2A @3.3V (DC)
<b>Temperature Operating</b>	32° to 131° F (0° to 55° C)
<b>Temperature Storage</b>	-40° to 185° F (-40° to 85° C)

For more information on Broadcom:

[www.broadcom.com](http://www.broadcom.com)

For more information on Cisco NICs:

<http://www.cisco.com/en/US/products/index.html>



Cisco has tested and certified the Broadcom NetXtreme II 5709 Quad-Port Ethernet PCIe™ Adapter Card with TOE and iSCSI HBA in the Cisco rack server systems. Cisco specifically disclaims knowledge of the accuracy, completeness, or substantiation for all statements and claims made in this document regarding the properties, capabilities, speeds, or qualifications of the adapter.

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