Broadcom® now offers a quad-port 10 Gb Ethernet (10GbE) Network Daughter Card (NDC) for Dell® PowerEdge® 12G blade servers. It leverages Broadcom’s long-standing industry leadership in Ethernet, providing the highest levels of performance, efficiency, and scalability for the enterprise data center.

For more effective utilization of the 10GbE bandwidth, the Broadcom 57840S-based NDC offers Switch Independent Partitioning which enables the segmentation of a single 10GbE port into two virtual ports with flexible allocation of bandwidth to each of the ports. This allows IT organizations to improve resource utilization while lowering infrastructure and operational costs.

Virtualization, cloud computing, High-Performance Computing (HPC), convergence, and clustering initiatives are increasing workload demands. The Broadcom 57840S-based blade NDC is the solution of choice for workload-intensive computing environments, providing a reliable, high-performance 10GbE connectivity solution.

**Overview**

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**Features**

- Quad-port 10GbE connectivity for Dell PowerEdge 12G blade servers
- x8 PCI Express® (PCIe™) V3.0 (8 GT/s) support
- Full line-rate performance across all ports
- Broad OS and hypervisor support
- Full iSCSI and FCoE hardware offload
- Full TCP/IP hardware offload
  - Microsoft® Chimney-compliant
- Network boot support:
  - iSCSI remote boot
  - FCoE boot from SAN
  - Preboot eXecution Environment (PXE) 2.0
- Switch Independent Partitioning with up to two partition assignments per 10GbE link
- Broadcom Advanced Control Suite (BACS) management application
- Integration into Dell’s embedded management framework (iDRAC7 and Lifecycle Controller)
- MSI and MSI-X support
- IPv4 and IPv6 offloads
- PCI-SIG SR-IOV
- Comprehensive stateless offloads
- RX/TX multiqueue
- Receive Side Scaling (RSS)
- Transmit Side Scaling (TSS)
- Support for VMware® NetQueue™ and Microsoft VMQ
- VLAN tagging support
- Jumbo frame support for frames larger than 1500 Bytes
- Network Teaming, Failover and Load Balancing:
  - Smart Load Balancing (SLB)
  - Link Aggregation Control Protocol (LACP) and Generic Trunking
- Data Center Bridging (DCB)
### Benefits

- **Accelerates Server Performance:**
  - Boosts network performance with full line-rate 10GbE performance across all ports.
  - Increases server performance with full hardware offload for storage traffic.
  - Delivers highest networking performance and lowest CPU utilization with TCP/IP offload (TOE).
  - Optimizes server processing performance by reducing CPU overhead and lowering interrupt latency through the use of the MSI-X standard.
  - Boosts performance in Windows® and Linux® environments by directing interrupts to the server’s CPU cores, leveraging Transmit/Receive Side Scaling (TSS/RSS).

- **Robust Virtualization Capabilities:**
  - Superior network performance with support for VMware NetQueue and Microsoft VMQ technologies.
  - Enhances network management and efficiency with support for VLAN tagging.

- **Streamlines Deployment and Management:**
  - Increases network flexibility, scalability, and capacity with Switch Independent Partitioning, segmenting 10GbE ports and reallocating their bandwidth and resources to address application’s performance requirements.
  - Simplifies deployment and management complexity—Broadcom Ethernet solutions are available across a wide range of Dell server platforms.
  - Unifies the NIC and storage management using Dell iDRAC and Lifecycle Controller management framework or Broadcom Advanced Management Suite (BACS).

### Specifications

#### General

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form factor</td>
<td>NDC 2.45” x 3.0” (62.2 mm x 76.2 mm)</td>
</tr>
<tr>
<td>Data rate</td>
<td>10 Gbps (per port, per direction), backward compatible with 1 Gbps</td>
</tr>
<tr>
<td>Bus type</td>
<td>x8 PCI Express 3.0 (8.0 GT/s)</td>
</tr>
<tr>
<td>MAC controller</td>
<td>Broadcom BCM57840S</td>
</tr>
</tbody>
</table>

#### OS Support

<table>
<thead>
<tr>
<th>OS</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>Windows Server® 2008 and 2008 R2, all editions</td>
</tr>
<tr>
<td>Linux</td>
<td>Red Hat® Enterprise Linux (RHEL) 5.7.5, 6.1, 6.2, 6.3</td>
</tr>
<tr>
<td></td>
<td>SUSE® Linux Enterprise Server (SLES) 10 SP4, 11 SP2</td>
</tr>
<tr>
<td>VMware</td>
<td>vSphere™ 4.1 and 5.x</td>
</tr>
<tr>
<td>Citrix</td>
<td>XenServer 6.0.6.1</td>
</tr>
</tbody>
</table>

#### Management

- Broadcom: Broadcom management application, WMI, and Broadcom Management API (BMAPI)
- Dell: Embedded management framework (iDRAC and Lifecycle Controller)

#### Environmental Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>32°F to 131°F (0°C to 55°C)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>−40°F to 149°F (−40°C to 65°C)</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>5% to 95% noncondensing</td>
</tr>
</tbody>
</table>

#### Hardware

- Certifications: RoHS, FCC A, UL, CE, VCCI, BSMI, CTICK, KC

#### Advanced Features and Standards

- PCI Express base specification 3.0
- PCI bus power management interface (rev. 1.2)
- Advanced Error Reporting (AER)
- TCP segmentation/large send offload
- ACPI v2.0
- SMBus 2.0
- IEEE 802.3ap
- IEEE 1588—Precision Time Protocol (PTP)-Ready
- IEEE 802.1q—VLAN tagging support
- IEEE 802.3x—Flow control
- IPv4 and IPv6 offload
- Teaming support
- MSI-X supports independent queues.

### Ordering Information

**Broadcom 57840S Quad-Port 10GbE Blade Converged Network Daughter Card**

**Server Option P/N**

540-BBCQ

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**About Broadcom**

Broadcom Corporation (NASDAQ: BRCM), a FORTUNE 500® company, is a global leader and innovator in semiconductor solutions for wired and wireless communications. Broadcom® products seamlessly deliver voice, video, data, and multimedia connectivity in the home, office, and mobile environments. With the industry’s broadest portfolio of state-of-the-art system-on-a-chip and embedded software solutions, Broadcom is changing the world by Connecting everything®. For more information, go to [www.broadcom.com](http://www.broadcom.com).

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May 31, 2013 • 2CS9578405-PB100-R