

Broadcom® 57712-k Converged Network Daughtercard

Connecting everything®



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Highlights

- Supports both networking traffic and storage traffic over a single 10 GbE connection.
- Supports up to eight virtual NIC ports with NPAR. Each partition appears as a separate NIC to the operating system.
- Provides a dependable, performance-focused solution that can be optimized for high throughput and high I/O per second, with low CPU utilization.
- Partitions can be assigned to networking or storage functions such as iSCSI or FCoE.
- Optimizes performance with high throughput and lowest latency and CPU utilization.
- Provides robust and seamless manageability through management application software.

DUAL-PORT 10 GbE CONVERGED NETWORK DAUGHTERCARD (NDC) FOR DELL® BLADE SERVER FEATURING NIC PARTITIONING (NPAR)

Overview

The Broadcom® 57712-k supports the Dell® PowerEdge® M710HD and M915 blade servers. The Network Daughtercard (NDC) is a flexible LAN-on-Motherboard networking solution with integration into embedded management and configuration subsystems.

The 57712-k is fully enabled with 10 GbE network interface card (NIC) partitioning (NPAR). The switch-independent NPAR technology gives administrators the ability to divide a single network port into as many as four partitions and allocate bandwidth as needed, resulting in optimal resource allocation and lowered infrastructure and operational costs.

Increased demand for network and storage connectivity performance is driven by growth of server virtualization coupled with data storage. The Broadcom family of 10 GbE adapters empower network and data intensive applications such as convergence, digital, and social media content, as well as cloud computing, to achieve the desired levels of performance and consolidation.

Features

- 10GBase-KR interface works with Dell I/O modules for the M1000e chassis with -k in the name.
- Full TCP/IP offload.
 - Microsoft® Chimney-compliant.
- Full iSCSI and FCoE HBA offload.
 - FCoE with full HBA offload functionality.
 - iSCSI boot and iSCSI crash dump support.
 - FCoE boot from SAN.
- PCI Express® x8 2.0, 5GT/s host interface.
- PCI-SIG SR-IOV ready.
- Blade NDC form factor.
- Up to four partitions can be assigned per port (eight total partitions). NPAR bandwidth allocation in 100 Mbps increments.
- Ethernet features:
 - Jumbo frame support (9600 bytes).
 - Flow-control support (IEEE 802.3x).
 - Priority service IEEE 802.1™.
 - RX/TX multiqueue.
 - Receive-side scaling (RSS) for IPv4 and IPv6.
 - TCP/IP checksum offload for IPv4 and IPv6.
 - UDP/IP checksum offload for IPv4 and IPv6.
 - Message signal interrupt (MSI, MSI-X) support.
 - VLAN support.
- Management:
 - BACS and BACS Command Line Interface (CLI).
 - WMI, Broadcom Management API (BMAPI).
- Preboot execution environment (PXE) 2.0.
- Teaming with load balancing and failover support.



| | 57712-k |
|------------------|---------|
| Service Provider | ● |
| Data Centers | ● |
| Enterprise | ● |

● Supported ● Best Choice

Benefits

Benefits include the following:

- **High-performance:** Provides the highest performance levels for mission-critical enterprise and mega data centers.
- NPAR helps manage the 10 GbE bandwidth allocation to virtual machines and applications.
- **No-compromise converged NIC:** Broadcom uniquely leverages field-proven support for L2 networking, TCP/IP offload, and iSCSI HBA offload. Showcases an FCoE HBA offload with low CPU utilization.
- **Low CPU utilization:** Broadcom offload architecture minimizes the CPU overhead, eliminating competition with the host application for host resources and freeing valuable CPU cycles for processing user applications:
 - iSCSI and FCoE operation is offloaded and accelerated for block storage, with high I/O per second and high bandwidth.
 - RSS is used to avoid bottlenecks by distributing network processing across multiple CPUs.
 - Adaptive interrupt coalescing streamlines interrupt processing.
 - MSI/MSI-X allows interrupt distribution in multi-CPU systems.

- **Field-proven software:** The 57712-k leverages field-proven networking and storage software stacks for networking and storage. Broadcom's software suite supports the advanced Ethernet features in virtualization, load balancing, failover, and performance.
- **Unified NIC and storage management:** Dell Life Cycle Controller version 1.5 for NIC, iSCSI, and FCoE functionality and Broadcom Advanced Management Suite (BACS) application.

Specifications

General

- Supported servers: PowerEdge M710HD and M915
- Dell Blade NDC form factor: 62.23 mm x 85.09 mm (2.45" x 3.35")

Environmental Requirements

- Operating temperature: 0° to 55°C (32° to 131°F)
- Storage temperature: -40° to 70°C (-40° to 158°F)
- Relative humidity: 5% to 95% noncondensing

OS Support—Networking and iSCSI

- Windows Server® 2008, 2008 R2
- VMware® ESX/ESXi 4.0 4.1
- Red Hat® Enterprise Linux® Server RHEL 5.5, 6.0
- Novell® SUSE® Linux Enterprise Server SLES 11 U1

OS Support—FCoE

- Windows Server 2008, 2008 R2
- Red Hat Enterprise Linux Server RHEL 6.1
- Novell SUSE Linux Enterprise Server SLES 11 U1

Hardware Certifications

- FCC Class A, UL, CE, VCCI, BSMI, CTICK, KCC
- RoHS, EU RoHS (Directive 2002/95/EC), China RoHS

Advanced Features and Standards

- PCI Express base specification 2.0
- PCI Bus Power Management Interface, rev. 1.2
- Advanced Error Reporting (AER)
- TCP segmentation/large send offload
- MSIX supports independent queues
- IPV6 offloading
- Teaming support
- IEEE 802.3ae
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.1q (Virtual LANs)
- IEEE 802.3x (Flow Control)
- PCI hot plug/hot swap

Data Center Bridging (DCB)

- IEEE 802.1Qbb—Priority-based Flow Control
- IEEE 802.1Qaz—Enhanced Transmission Selection
- IEEE 802.1Qau ready—Congestion notification

Ordering Information

Converged Network Daughtercard

Part Number

331-1947

Dell has tested and certified the Broadcom 57712-k Dual-port 10 GbE Converged Network Daughtercard with NIC Partitioning (NPAR), TOE, iSCSI, and FCoE technology. Dell 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.

About Broadcom

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products, and mobile devices.

These solutions support our core mission: Connecting everything®.

Broadcom, one of the world's largest fabless communications semiconductor companies, with 2010 revenue of \$6.82 billion, holds more than 4,800 U.S. and 2,000 foreign patents, and has more than 7,800 additional pending patent applications, and one of the broadest intellectual property portfolios addressing both wired and wireless transmission of voice, video, data and multimedia.

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