NetXtreme® E-Series Dual-Port PCIe NIC and OCP Mezzanine Ethernet Adapters

Based on the BCM57410 High-Performance 10GbE/25GbE/40GbE/50GbE Solutions

Description

Virtualization technologies continue to expand server CPU demand, with network performance requirements scaling accordingly. This growth demands a new breed of Ethernet connectivity solutions.

Designed and optimized for rack and tower servers, the Broadcom® BCM57410 family of Ethernet Controllers provides high-performance, low-latency, and value added features for end-to-end solutions in standard adapter form factors.

The E-Series adapters support dual-port 25/10 Gb/s or single-port 50/40 Gb/s. They also feature TruFlow™, Data Center Bridging (DCB), RDMA over Converged Ethernet (RoCE), Single Root I/O Virtualization (SR-IOV), Stateless Offloads, and advanced RDMA Congestion Control.

NetXtreme® E-Series Ethernet adapters are available in standard PCIe half-height/low-profile or OCP v2.0 Mezzanine form factors.

Highlights

• High-Performance Network Controller
  - Full line-rate throughput on all ports
  - Low device latency for optimal application performance
  - Comprehensive stateless offloads to minimize host CPU workload

• Robust Virtualization Features
  - Single Root I/O Virtualization (SR-IOV)
  - 128 VFs with fully flexible port assignment
  - VMQ support in hardware

• Optimized silicon design
  - Low device power using Adaptive Voltage Scaling (AVS)
  - Simplified device driver interface for ease of management
  - State machine device architecture for core functions
  - Integrated Ethernet PHY based on market-proven IP

• Reliability
  - Hardware architecture built on 10+ generations of Broadcom expertise in Ethernet
  - Robust drivers for all major enterprise operating systems
  - Full suite of management tools
Key Features (con’t)
• Receive-Side Scaling (RSS)
• Transmit-Side Scaling (TSS)
• VLAN insertion/removal (IEEE 802.1q)
• Interrupt coalescing
• Network boot—PXE, UEFI
• iSCSI boot
• MSI and MSI-X

Highlights (cont’d)
• End-to-End 25GbE connectivity
  − Compliant with 25GbE standards (IEEE 802.3by and 25G Ethernet Consortium)
  − Assured performance and compatibility when paired with industry leading Broadcom StrataXGS® and StrataDNX™ based switches

Benefits
• End-to-End 25G and 50G connectivity
  − Paired with industry-leading StrataXGS® and StrataDNX™ switches
  − Congestion avoidance with hierarchical traffic management
• High performance
  − Line rate throughput on all ports
  − Small packet rate up to 30 Mp/s
  − Low device latency for optimal application performance
• Next-Generation Virtualization support
  − TruFlow on-chip flow processing engine frees the host CPU from expensive network operations, providing up to 50% application performance boost
  − TruFlow extends vSwitch policy domain over SR-IOV
• NFV and SDN optimized
  − TruFlow boosts the performance of NFV applications
  − Flexible, standards-based SDN interface enables easy configuration and management

Standards
• General
  − Host interface: PCI Express Card Electromechanical Specification Rev. 3.0
  − Network Interface: x8 PCI Express v3.0 (8.0 GT/s) and v2.0 (5.0 GT/s)
• OS Support
  − Linux: RHEL/CentOS, SLES, Oracle, and Ubuntu
  − Microsoft Windows Server
  − VMware vSphere
  − Citrix XenServer
  − FreeBSD
  − DPDK
  − OFED
• Management
  − Broadcom – Diagnostics (UEFI, Linux, DOS)
Applications
• Server Virtualization
• Host Switching
• Deep Learning
• Flash Storage

Certifications
• Environmental Requirements
  - Operating temperature: 32°F to 131°F (0°C to 55°C)
  - Storage temperature: -40°F to 149°F (-40°C to 65°C)
  - Relative humidity: 5% to 95% noncondensing
  - Vibration and Shock: IEC78-2-(*) and IEC721-3-(*)
• Electromagnetic Compatibility and Electromagnetic Discharge Compliance
  - FCC/USA: CFR47, Part 15 Class B
  - IC/Canada: ICES-003 Class B
  - ACA/Australia: EN 55022:2010 + *AC:2011 (RCM Mark)
  - BSMI/Taiwan: CNS 13438 Class B
  - MIC/S.Korea: RRL KN22 Class B, KN24 (ESD) (MSIP Mark)
  - VCCI/Japan: V-3/2014/04
  - ESD: EN55024:2010 Air/Direct Discharge

Ordering Information
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<thead>
<tr>
<th>Part Number</th>
<th>Form Factor</th>
<th>Number of Ports</th>
<th>Port Speed/Type</th>
</tr>
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<tbody>
<tr>
<td>BCM957414A4142CC</td>
<td>PCIe NIC</td>
<td>Dual</td>
<td>25GbE/10GbE SFP28</td>
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<td>PCIe NIC</td>
<td>Dual</td>
<td>10GbE SFP+</td>
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<td>BCM957416A4160C</td>
<td>PCIe NIC</td>
<td>Dual</td>
<td>10GBASE-T RJ45</td>
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