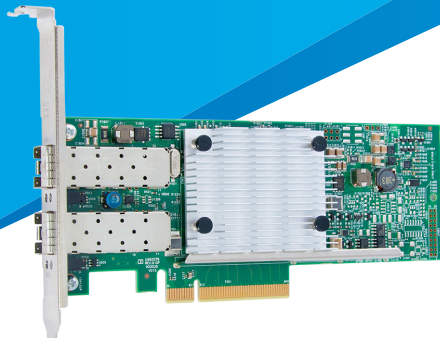


The Business Benefits of the Cavium FastLinQ 8400 Series

10GbE CNA for the Software-Defined Data Center



KEY BENEFITS

- High-Performance Network Overlays: VXLAN & NVGRE Tunneling Offloads
- Simplified Migration to 10GbE: Switch Independent NIC Partitioning (NPAR)
- Next Gen I/O Virtualization: Single Root I/O Virtualization (SR-IOV)
- Single Pane of Glass Multi-Adapter Management (ACS)
- More VMs per Server: Full FCoE and iSCSI Offloads

OVERVIEW

The Cavium™ FastLinQ® 8400 Series Adapter combines a broad set of 10Gb Ethernet features optimized for a virtualized software-defined data center (SDDC) driven by software-defined networks (SDNs). In addition, it features industry-leading performance by delivering a hardware-based true Converged Network Adapter (CNA) that fully offloads FCoE and iSCSI storage networking traffic.

INDUSTRY CHALLENGE

Do more with less.

Networking, server, and storage virtualization technologies provide more flexibility and better total cost of ownership of the IT systems that run businesses today. A crucial decision confronts business leaders building up or building out their IT infrastructure: *What is the best way to connect these highly virtualized resources within the data center and out to customers?*

Not all networking adapters have the same capabilities.

Some Ethernet adapters may be described as having “converged networking” features to connect Fibre Channel or iSCSI storage to their servers but such claims can often be misleading. A Cavium FastLinQ 8400 hardware-based true Converged Network Adapter provides all the performance and virtualization capabilities expected in a 10Gb Ethernet adapter, as well as hardware-based storage protocol offloads that make it a clear leader in performance, reliability, and control. The Cavium FastLinQ 8400 Series Adapter delivers everything imaginable for today’s needs and tomorrow’s possibilities.

PERFORMANCE WITHOUT CPU BURDEN

In today’s information age, faster data means faster business. Cavium leads the industry in providing high-performance hardware-based true Converged Network Adapters for all manner of data communication from “bare metal OS” 10GbE connectivity to virtualized SDN optimization and the industry’s highest performing FCoE and iSCSI 10GbE Converged Networking technology.

ACCELERATION FOR SOFTWARE DEFINED NETWORKING—VXLAN/NVGRE SUPPORT

Software-defined Networking (SDN) was created in part to solve problems associated with multi-tenant environments. A data center that hosts hundreds of thousands of customers across many physical locations with virtualized customer workloads will need many VLANs and the ability to share resources on different networks. To enable this wide resource sharing, Microsoft® created Network Virtualization Generic Routing Encapsulation (NVGRE) for Hyper-V® and VMware® created Virtual Extensible LAN (VXLAN) “tunneling protocols.” To optimize networking traffic, network adapters must be compatible with these tunneling protocols.

Cavium FastLinQ 8400 Converged Network Adapters support tunneling offload within the adapter hardware, which offers stateless offload support of tunneled network traffic. In addition to fully supporting Windows® Hyper-V NVGRE and VMware vSphere® VXLAN, the 8400 Series Adapter provides many other virtualization features.

Feature	Cavium FastLinQ 8400	Cavium 8300	Cavium 8200	Intel X710	Intel X540
Line Rate Performance	✓	✓	✓	✓	✓
Switch Independent NIC Partitioning	✓	✓	✓	✗	✗
VXLAN / NVGRE Offloads	✓	✗	✗	✓	✗
SR-IOV	✓	✓	✗	✓	✓
Remote Adapter Management	✓	✓	✓	✗	✗
Multi-Protocol SAN Boot Support	✓	✓	✓	✗	✓
Full iSCSI Offload in the Adapter	✓	✓	✓	✗	✗
Full FCoE Offload in the Adapter	✓	✓	✓	✗	✗

Industry Leading Hardware-based Full Offload of iSCSI & FCoE

Demartek compared the Cavium hardware-based true CNAs to our competitors in their report: [Demartek Evaluation of Cavium 57810S](#).

The Demartek® study provides data that shows 100% higher IOPS for iSCSI and FCoE storage traffic as compared to Intel® when “no offload” is used on either the Intel or the Cavium 10GbE adapter. The study found that when using hardware offloads on the QLE8442 adapter, the performance jumped to over 384% higher IOPS per CPU for the QLE8442, compared to the Intel adapter.

A 364% higher IOPS per CPU benchmark is more than a performance statistic—extremely improved CPU utilization yields a greater return on investment. The QLE8442 frees up server CPU cycles, which makes more computing power available for running more customer VMs on the same virtualized server.

RELIABILITY

Cavium has over 20 years of experience building bullet-proof state-of-the-art communications hardware. The Cavium FastLinQ 8400 Series Adapter has grown from 13 previous product generations. This technology is fully adopted by every major tier-1 OEM. Passing rigorous OEM server certifications validates the Cavium FastLinQ 8400 Series Adapter’s dependable functionality.

CONTROL

The Cavium FastLinQ 8400 Series Adapter enables quick and easy multi-adapter administration with full functionality. This lets SAN administrators discover, configure, monitor, diagnose, provision, and control access across multiple physical servers, operating systems, and protocols.

CONCLUSION

The Cavium FastLinQ 8400 Series Adapter hardware effectively matches today’s ever-evolving data center. Whether the infrastructure is virtualized or not, includes 10GbE features or converged networking, the QLE8442 is the networking adapter to choose for performance, reliability, and control.

ABOUT CAVIUM

Cavium, Inc. (NASDAQ: CAVM), offers a broad portfolio of infrastructure solutions for compute, security, storage, switching, connectivity and baseband processing. Cavium’s highly integrated multi-core SoC products deliver software compatible solutions across low to high performance points enabling secure and intelligent functionality in Enterprise, Data Center and Service Provider Equipment. Cavium processors and solutions are supported by an extensive ecosystem of operating systems, tools, application stacks, hardware reference designs and other products. Cavium is headquartered in San Jose, CA with design centers in California, Massachusetts, India, Israel, China and Taiwan.



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