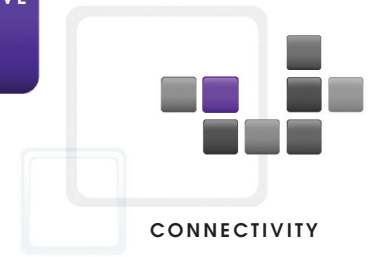




COMPETITIVE
BRIEF



OneConnect™ OCe11102-F UCNA vs. QLogic QLE8242

Emulex third-generation OneConnect UCNAs deliver better performance with 70% higher IOPS using 35% less power

Introduction

The evolution of Fibre Channel over Ethernet (FCoE) and Converged Network Adapter (CNA) technologies is continuing at a rapid pace. Most CNA providers are shipping what are considered to be third-generation adapters. The product evolution of the last two to three years has been:

- First-generation adapters that used separate chips for network, storage and convergence. Power usage was relatively high.
- Second-generation adapters combined network, storage and convergence functions onto a single chip. The end result was less power usage and a much smaller footprint that supported blade and LAN on Motherboard (LOM) implementations. Emulex launched the OneConnect Universal CNA OCe10000 platform that was the first to support full-protocol offload for TCP/IP, iSCSI and FCoE.
- New third-generation adapters use smaller manufacturing technologies and have more functions integrated into the controller.

Emulex is now shipping its third-generation FCoE adapter, the OneConnect OCe11102-F Universal CNA (UCNA). Emulex Labs did a competitive analysis of the OCe11102-F and the QLogic third-generation CNA (3GCNA) QLE8242 adapter with an emphasis on performance and management that resulted in several key findings:

Performance

Emulex Labs conducted a full range of FCoE performance tests using the Iometer benchmark tool. The tests results were reported as transmission rates at I/Os per second (IOPS) and CPU efficiency reported as IOPS per %CPU usage.

Tests were done using a combination of 50% reads and 50% writes with ten block sizes. As shown in Figure 1, the Emulex OCe11102-F adapter has better performance for the full range, including the critical 4K and 8KB block sizes that are used for most applications.

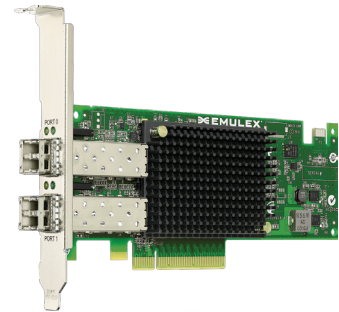
Highlights

- 70% higher IOPS on average across the full range of block sizes
- 22% higher IOPS at 4KB block size
- 77% higher IOPS at 8KB block size

At a Glance

Emulex Advantages

- 70% higher IOPS across ten block sizes
- 50% higher IOPS for 4KB and 8KB block sizes
- 32% higher IOPS per % CPU for 4KB and 8KB block sizes
- 35% less power reduces operating costs
- Lower operating temperature provides greater reliability
- Centrally manage all Emulex adapters from a single management application



Emulex OCe11102-F UCNA



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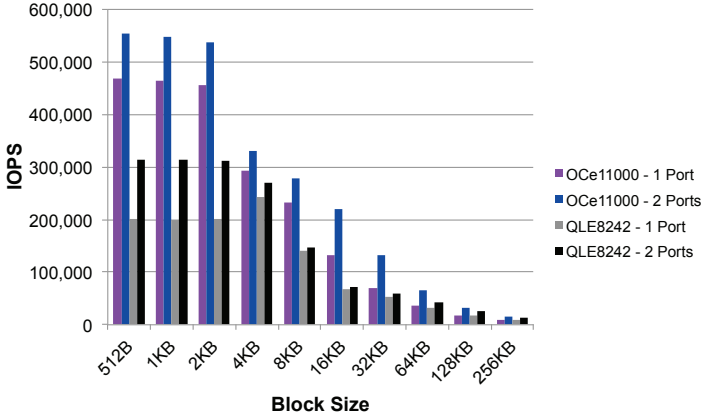


Figure 1 FCoE IOPS: Read/write full duplex.

CPU usage was also monitored to evaluate CPU efficiency, reported as IOPS per % CPU usage. As shown in Figure 2, the Emulex OCe11102-F adapter has better CPU efficiency than the QLogic QLE8242. This was the case for all block sizes, including 4K and 8KB block sizes.

Highlights

- 14% higher IOPS per % CPU on average across the full range of block sizes
- 26% higher IOPS per % CPU at 4KB block size
- 37% higher IOPS per % CPU at 8KB block size

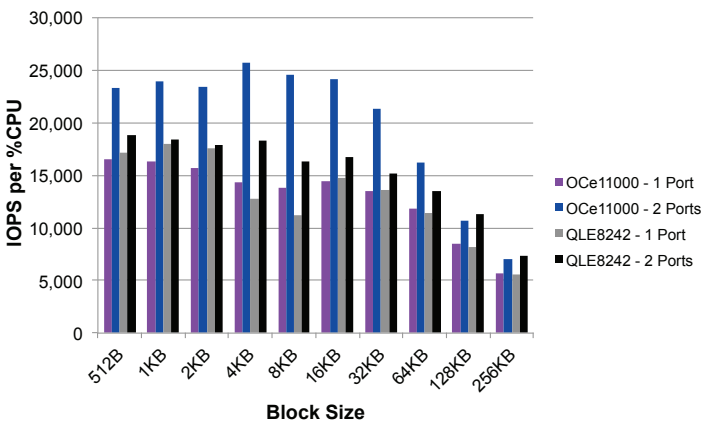


Figure 2 CPU Effectiveness: Read/write full duplex.

Power and Operating Temperatures

OCe11102-F UCNAs include an integrated Network Controller Sideband Interface (NC-SI) and Physical Layer interface (PHY) that results in significantly lower power usage, a key issue for data centers that are looking to reduce costs for power and cooling.

With that concern in mind, Emulex Labs evaluated typical power usage for the OCe11102-F and QLE8242 adapters. The OCe11102-F was measured at only 11.4 watts—35% lower than the QLE8242 at 17.5 watts.

The obvious benefit from lower power usage is cost savings, but lower power also means less heat generated and lower operating temperatures. Lower temperatures correlate with greater reliability, not only for the network adapter, but also for other components in the server.

To evaluate this issue, thermal images for the OCe11102-F and QLE8242 adapters are shown in Figure 3. The recorded temperature for the OCe11102-F was 28°F cooler than the QLE8242. It should be noted that thermal images were taken with heat sinks that are part of shipping adapters.

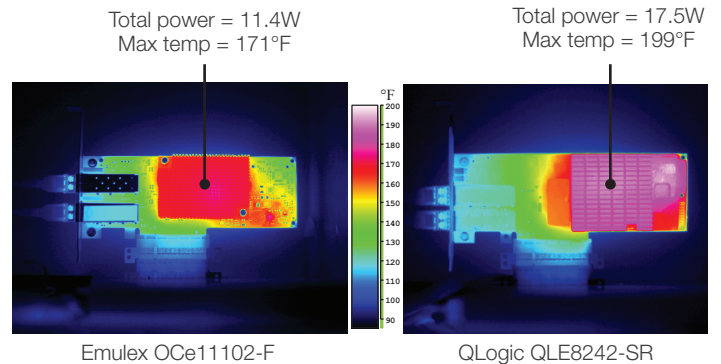


Figure 3 Thermal images.

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Management

In The InfoPro's latest report, management complexity was ranked high on the list of IT administrator concerns. Unlike QLogic's QConverge (QCC) utility, Emulex OneCommand™ Manager provides centralized management of all Emulex adapters through a single management console. QLogic's recently released QCC lack key management features which include:

- No support for VMware
- No support for all generations of QLogic adapters
- No ability to show real time conditions of the current fabric
- Limited configuration

OneCommand Manager provides greater management efficiency than QCC:

- Update driver parameters 4.8x faster
- Overall management time per year in minutes vs. hours (managing 175 ports, 4 times/year)
- Greater management granularity when needed:
 - 35% more configurable NIC parameters
 - 2X more configurable FCoE parameters
 - 100% more DCBX settings

Conclusion

Emulex OCe11102-F UCNAs have better performance than the QLogic QLE8242 while using fewer system resources. In addition, OCe11102-F UCNAs consume less power and operate at lower temperatures. Key metrics include:

- 70% higher IOPS on average for the OCe11102-F
- 14% higher IOPS per % CPU on average for the OCe11102-F
- 35% lower power usage for the OCe11102-F
- 28°F lower operating temperature for the OCe11102-F

With regards to administration, QLogic's QCC misses the mark as an enterprise class tool, with:

- No continuity between management software
- Inconsistent hardware support
- Inconsistent look and feel
- No single pane of management
- No support for VMware virtualization



www.emulex.com

World Headquarters 3333 Susan Street, Costa Mesa, CA 92626 +1 714 662 5600
Wokingham, UK +44 (0) 118 977 2929 | **Munich, Germany** +49 (0) 89 97007 177
Paris, France +33 (0) 158 580 022 | **Beijing, China** +86 10 68499547
Tokyo, Japan +81 3 5325 3261 | **Bangalore, India** +91 80 40156789

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