



# QLogic:

The Intelligent  
Adapter Choice



Outperform.

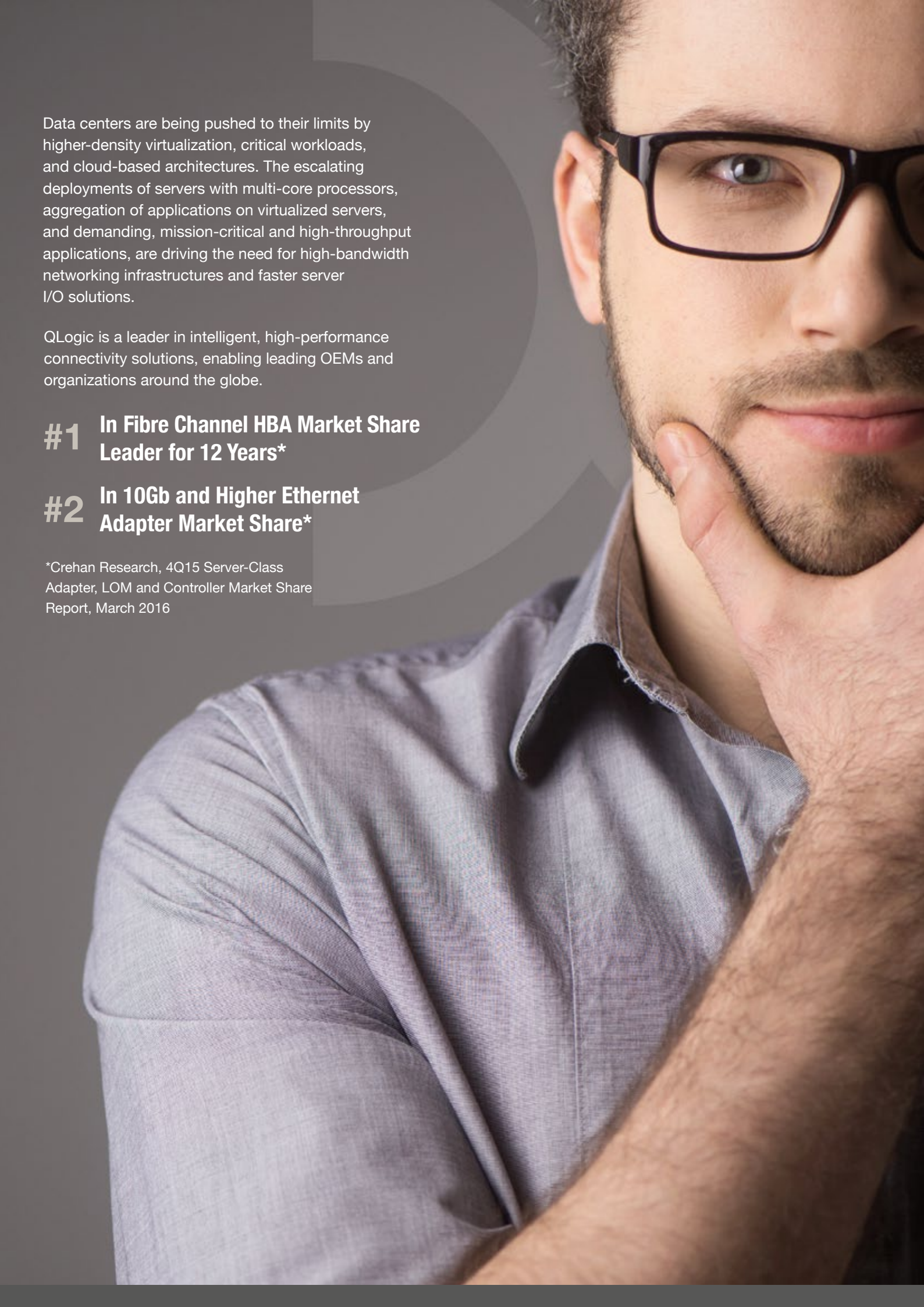


Outsmart.



Outlast.

[www.QLogic.com](http://www.QLogic.com)



Data centers are being pushed to their limits by higher-density virtualization, critical workloads, and cloud-based architectures. The escalating deployments of servers with multi-core processors, aggregation of applications on virtualized servers, and demanding, mission-critical and high-throughput applications, are driving the need for high-bandwidth networking infrastructures and faster server I/O solutions.

QLogic is a leader in intelligent, high-performance connectivity solutions, enabling leading OEMs and organizations around the globe.

**#1 In Fibre Channel HBA Market Share Leader for 12 Years\***

**#2 In 10Gb and Higher Ethernet Adapter Market Share\***

\*Crehan Research, 4Q15 Server-Class Adapter, LOM and Controller Market Share Report, March 2016

## Building your network around QLogic Ethernet and Fibre Channel intelligent, high performance adapters lets you:



### Outperform.

Increasing the speed of business

- QLogic adapters offload more network processing, freeing up more CPU cycles, increasing server efficiency and lowering CAPEX.
- QLogic delivers a new way to increase performance in a virtualized world, through tighter integration with virtualized operating environments.
- QLogic leads the industry with functionality that improves performance with hypervisors, databases, network function virtualization, software-defined networking and the cloud.



### Outsmart.

Improving agility and competitiveness

- QLogic QConvergeConsole™ (QCC) lets you deploy, diagnose and manage all your adapters from anywhere in the network, improving staff efficiency. Manageability is enhanced with plug-ins for VMware® vCenter™ and OpenStack®.
- QLogic StorFusion™ provides integration with Brocade® management to further speed up deployment, diagnostics and improved quality of service.



### Outlast.

Infusing long-term value into the infrastructure

- QLogic intelligent, high-performance connectivity solutions are programmable and configurable so that they can be easily upgraded to take advantage of new standards, software and optimizations.
- QLogic adapters ensure unlimited bandwidth for future growth with 10GbE / 25GbE / 40GbE / 50GbE / 100GbE networking and commitment to evolving generations of Fibre Channel (FC).

# The Intelligent **Ethernet** Adapter Choice

## Outperform

### High Performance

- Optimized host and VM performance with up to 100Gbps line rate performance.
- Accelerated network function virtualization applications with support for NFV in telco environments.
- Low latency and high throughput with multi-protocol RDMA.

## Outsmart

### Flexibility and Compatibility

- Better slot utilization and deployment flexibility with NPAR.
- QoS guarantees for critical business applications with 100% control over VMware® vMotion®.
- Industry-leading compatibility with Ethernet switching solutions.

## Outlast

### Highly Scalable and Adaptable

- Expanded vLANS from 4096 to 16 million with network virtualization features.
- Enterprise-class data center scalability using overlay networks to carry VM traffic over a logical tunnel.

### CPU Efficiency

- Improved host CPU efficiency with support for network virtualization tunneling offloads (VXLAN, NVGRE and GENEVE).
- Increased VM application performance with server virtualization features (SR-IOV)
- High performance network storage with full protocol offloads for iSCSI, iSER and FCoE.

### Increased Productivity

- Simplified deployment, troubleshooting and lifecycle management using the QLogic QCC® GUI, QLogic Control Suite™ CLI and vCenter Plug-in.
- Accelerated OpenStack deployment with Mirantis Fuel integration and OpenStack network visibility with the QCC utility.

### Investment Protection

- Unlimited bandwidth for future growth with 10 / 25 / 40 / 50 / 100GbE networking.
- Support for more storage protocols as network infrastructure evolves.
- Powerful scale-out storage systems with multiple RDMA support (RoCE, RoCEv2, iWARP and iSER).
- Easier upgrades to 10GbE switch connectivity with 10GBASE-T support and backward compatibility to 1GbE networks.

QLogic Intelligent Ethernet Adapters	FastLinQ QLE3400 Series	FastLinQ QLE8400 Series	FastLinQ QL45000 Series
<b>Ethernet Speed Support</b>	10GbE	10GbE	10GbE, 25GbE, 40GbE, 50GbE, 100GbE
<b>Server Virtualization</b>	NPAR, SR-IOV (concurrently)	NPAR, SR-IOV (concurrently)	NPAR, SR-IOV (concurrently)
<b>Layer 2 Network Virtualization / Overlay Networks (Tunneling) Offloads</b>	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE
<b>Network Storage Offloads</b>	✗	iSCSI, FCoE	iSCSI*, FCoE*, iSER
<b>Low Latency Protocols</b>	✗	✗	RoCE, RoCEv2, iWARP*
<b>Applications / Workloads</b>	Moderate to heavy I/O	Moderate to heavy I/O	Heavy I/O
<b>Remote Multi-adapter Management</b>	✓	✓	✓
<b>OpenStack Aware Management</b>	✓	✓	✓
<b>PCIe 3.0</b>	✓	✓	✓

\*Note: All advertised features are enabled in the hardware.

Actual feature availability is dependent on software driver releases. See the release notes.

# The Intelligent **Fibre Channel** Adapter Choice

## Outperform

### High Performance

- Improved performance of database applications connected to AFAs with 32GFC.
- Higher per-port performance with up to 2.6 million total IOPS for high-density virtualized environments.

### CPU Efficiency

- Unmatched native FC performance with extremely low CPU usage and full hardware offloads.
- Support for more users and larger applications by offloading protocol processing from host CPU.

## Outsmart

### Flexibility and Reliability

- Unparalleled stability and 100% predictable performance with port isolation design.
- Increased reliability and resiliency for critical workloads with FEC, BB\_CR and CS\_CTL-based QoS.

### Increased Productivity

- Simplified deployment, troubleshooting and lifecycle management using the QLogic QCC GUI, QLogic Control Suite™ CLI and vCenter Plug-In.
- Smarter SAN management with QLogic StorFusion and Brocade fabric integration.

## Outlast

### Highly Scalable and Adaptable

- Increased network scalability with NPIV support.
- Improved VM density with support for up to 255 vPorts.

### Investment Protection

- Complete investment protection for legacy FC with three generations of interoperability.
- Field-upgradeability to add features and support new software releases.

QLogic Fibre Channel Adapters	QLE2500 Series of 8Gb FC HBAs	QLE2690 Series of Enhanced Gen 5 (16Gb) FC HBAs	QLE2700 Series of Gen 6 (32Gb) FC HBAs
<b>FC Speeds Negotiated</b>	8Gb, 4Gb, and 2Gb	16Gb, 8Gb, and 4Gb*	32Gb, 16Gb, and 8Gb
<b>Server Class</b>	Single socket 4-6 cores per socket	Dual socket 6-12 cores per socket	Dual or quad socket 8-16 cores per socket
<b>I/O Bus</b>	PCIe 2.0    x4 or x8	PCIe 3.0    x8 or x16**	PCIe 3.0    x8 or x16**
<b>Virtualization Density</b>	6-10 VMs per server	8-20 VMs per server	15-40+ VMs per server
<b>Performance</b>	200K IOPS per port (800MBps throughput per port)	650K IOPS per port (1600MBps throughput per port)	650K IOPS per port (3000MBps throughput per port)
<b>Applications/ Workloads</b>	Low to moderate I/O: <ul style="list-style-type: none"> <li>Transactional/SMB</li> <li>Price-sensitive</li> <li>Legacy SANS</li> <li>4GFC targets</li> <li>Non-virtualized or low VM density</li> <li>Workloads: email, file and print</li> </ul>	Moderate to heavy I/O: <ul style="list-style-type: none"> <li>Enterprise customer</li> <li>Critical performance needs</li> <li>Hybrid flash arrays</li> <li>Backup/recovery/archive customers with shrinking recovery time objective limits</li> <li>Medium VM density</li> <li>Workloads: database, CRM</li> </ul>	Heavy I/O: <ul style="list-style-type: none"> <li>Enterprise customer</li> <li>Critical performance needs</li> <li>All-flash arrays</li> <li>Backup/recovery/archive customers with shrinking recovery time objective limits</li> <li>High VM density</li> <li>Workloads: database, CRM</li> </ul>
<b>Business Criticality</b>	Enterprise (port isolation, T10-PI)	Enterprise (port isolation, T10-PI, StorFusion, FEC)	Mission-critical (port isolation, T10-PI, StorFusion, FEC)
<b>Management</b>	QCC, QCC plug-in for vCenter	QCC, QCC plug-in for vCenter, StorFusion	QCC, QCC plug-in for vCenter, StorFusion
<b>Storage Array</b>	Hard disk drive	Hybrid/AFA	AFA
<b>SAN Fabric</b>	Brocade 800, Cisco® MDS 9000 QLogic 3000, QLogic 5000	Brocade 6510, Brocade 6520, Cisco MDS 9000	Brocade G620, Cisco MDS 9000

\* The QLE2694U does not support 4GFC.

\*\* QLE2764 is a quad-port Gen 6 (32Gb) FC PCIe 3.0 x16 HBA; QLE2694U is a quad-port Gen 6-ready PCIe 3.0 x16 HBA



For more information visit:

[www.QLogic.com](http://www.QLogic.com)

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