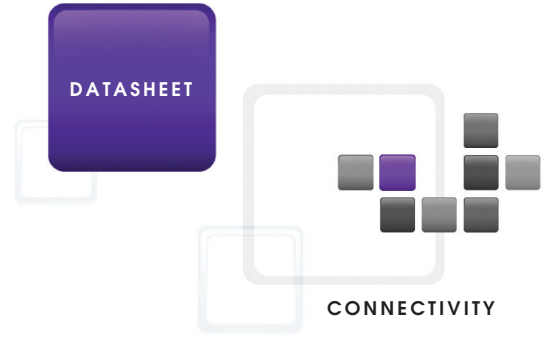




# OneConnect™ OCe11102-I

High-performance 10 Gigabit Ethernet iSCSI adapter



**SIMPLIFIED  
NETWORKING,  
MAXIMUM  
PERFORMANCE  
AND INCREASED  
BUSINESS  
AGILITY**

The Emulex OCe11102-I is a single-chip, high-performance 10 Gigabit Ethernet adapter that consolidates traffic for networking and iSCSI storage. A member of the Emulex OneConnect Universal Converged Network Adapter (UCNA) family, the OCe11102-I iSCSI adapter supports CPU offload for both network and storage I/O to optimize server performance and maximize server virtualization ratios.

### **Optimized Network and Storage Connectivity 10 Gigabit Ethernet**

Traditional iSCSI solutions based on 1 Gigabit Ethernet have limited bandwidth that can be inadequate for virtualized servers and I/O intensive applications. The solution is 10 Gigabit Ethernet (10GbE) that provides the bandwidth needed for an enterprise-class iSCSI deployment. iSCSI storage providers are shipping 10GbE iSCSI storage arrays that enable an end-to-end high-performance solution.

### **iSCSI offload**

The OCe11102-I iSCSI adapter presents a Network Interface Card (NIC) and an iSCSI adapter to the operating system or hypervisor. The OCe11102-I adapter supports full iSCSI protocol offload, providing performance that is superior to a NIC and iSCSI software initiator.

### **Enterprise iSCSI**

The OneConnect Enterprise iSCSI solution includes support for IEEE Data Center Bridging (DCB) standards for optimum performance. Priority Flow Control (PFC) is used to insure a consistent stream of data between servers and storage arrays. Quality of Service (QoS) and Enhanced Transmission Selection (ETS) support protocol priorities and allocation of bandwidth for iSCSI and IP traffic.

### **Universal Multi-Channel**

OneConnect Universal Multi-Channel (UMC) allows multiple PCI functions to be created on each adapter port. With the OCe11102-I adapter, each port can present one iSCSI function and three NIC functions to the operating system or hypervisor.



### **Key Features**

#### **One platform for network and storage connection**

- Simplifies I/O hardware choices for IT managers

#### **Superior performance**

- iSCSI offload performance exceeds NIC and software initiator
- Stateless TCP/IP and TCP Chimney offloads

#### **Energy-efficient design**

- Industry-leading performance per watt
- Complements data center “green” initiatives

#### **Easy to deploy and manage with OneCommand™ Manager**

- One management console for network and storage
- Integrated management of UCNAs and Host Bus Adapters (HBAs)
- Over 7 million ports administered with Emulex management software

### **Key Benefits**

#### **Maximum return on investment**

- Converges network and storage I/O with high-performance 10GbE connectivity
- One network infrastructure reduces CapEx
- One management console reduces OpEx

#### **Optimized for server virtualization with Emulex vEngine™ technology**

- Up to 50% more virtual machines (VMs) per server with iSCSI offload

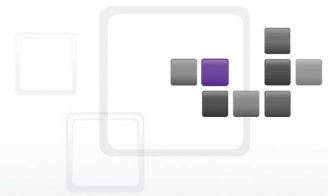
#### **Enterprise-ready**

- Hardware parity, CRC, ECC and other advanced error checking
- Backed by field-proven Emulex reliability and support



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## SPECIFICATIONS

### Simplified Management

#### Boot from SAN

OCe11102-I adapters support boot from SAN using an iSCSI hardware device. Boot targets and parameters are easily set with boot management software that runs on the OCe11102-I adapter.

#### OneCommand Manager

OneCommand Manager provides centralized management of Emulex One Connect 10GbE adapters and LightPulse® HBAs throughout the data center from a single management console. OneCommand Manager provides a graphical user interface (GUI) and a scriptable command line user interface (CLI), which drive administration efficiency and business agility.

### Highest Performance and Reliability

#### More virtual machines per server with vEngine technology

Protocol offloads for TCP/IP and iSCSI enable more VMs per server, providing greater cost savings for server virtualization. Emulex Lab tests showed iSCSI protocol offload can support I/O for 50% more VMs than a NIC and software initiator.

#### Green data centers

The OCe11102-I uses the BladeEngine 3 controller with integrated Network Controller Sideband Interface (NC-SI) and KR (Backplane Ethernet) Serializer/Deserializer (SerDes) interfaces to minimize power usage. Protocol offload enables efficient use of computing resources, supports more VMs per CPU and reduces the number of servers required to support data center demands.

#### Advanced error checking

End-to-end data protection with hardware parity, CRC, ECC and other advanced error checking and correcting ensure that data is safe from corruption.

#### Controller

- BladeEngine 3

#### Standards

- RFC 3720 iSCSI, RFC 4171 iSNS, RFC 4544 iSCSI MIB, RFC 4545 IP Storage User Identity
- PCI Express base spec 2.0
- PCI Bus Power Management Interface, rev. 1.2
- Advanced Error Reporting (AER)
- IEEE 802.3ae (10GBASE Ethernet ports)
- IEEE 802.1q (virtual LANs)
- IEEE 802.3ad (link aggregation)
- IEEE 802.3x (flow control)
- IEEE 802.1p (quality/class of service)
- IEEE 802.1Qaz (enhanced transmission selection)
- IEEE 802.1Qaz (data center bridging capabilities exchange)
- IEEE 802.1Qbb (priority-based flow control)
- IEEE 802.1ab (link layer discovery protocol)
- PHP hot plug-hot swap

#### Architecture

- Dual-channel, 10Gb/s Ethernet Link speed
- PCIe Express 2.0 (x8, 5GT/s), MSI-X support
- Integrated data buffer and code space memory

#### Ethernet Features

- IPv4/IPv6 TCP, UDP checksum offload; Large Send Offload (LSO); Large Receive Offload; Receive Side Scaling (RSS); TCP Segmentation Offload (TSO); IPv4 TCP Chimney Offload
- VLAN insertion and extraction
- Jumbo frames up to 9000 Bytes
- Preboot eXecution Environment (PXE) 2.0
- Interrupt coalescing
- Load balancing and failover support including adapter fault tolerance (AFT), adaptive load balancing (ALB), teaming support and IEEE 802.3ad

#### iSCSI Features

- Target discovery methods
- Authentication modes
- INT 13 Boot

#### Comprehensive OS Support

- Windows Server
- VMware ESX
- Red Hat Enterprise Linux Server
- Novell SUSE® Linux Enterprise Server
- CentOS

#### Hardware Environments

- x86, x64 processor family

#### Interconnect

- Optical
  - Optics: 10GBASE-SR short wave lasers with LC type connector
- Copper Direct Attach
  - SFP+ Direct Attached Twin-Ax Copper interface
  - Standards compliant passive copper cables up to 5m and active copper cables up to 10m
- Copper Twisted Pair
  - Connectors: IEC 60603-7 8 Position 8 Contact (8P8C), commonly known as RJ45
  - Cables: Cat 6 up to 55m, Cat 6a up to 100m

#### Physical Dimensions

- Low profile with standard bracket (low-profile bracket available)

#### 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% non-condensing

#### Agency Approvals

- Class 1 Laser Product per DHHS 21CFR (J) and EN60825-1
- UL recognized to UL 60950-1 2nd edition
- CUR recognized to CSA22.2, No. 60950-1-03
- Baurt-certified to EN60950-1 2nd edition
- FCC Rules, Part 15, Class A
- ICES-003, Class A
- EMC Directive 2004/108/EEC (CE Mark)
  - EN55022, Class A
  - EN55024
- Australian EMC Framework (C-Tick Mark)
  - AS/NZS CISPR22, Class A
- VCCI (Japan), Class A
- KCC (Korea), Class A
- BSMI (Taiwan), Class A
- EU RoHS Compliant (Directive 2002/95/EC)
- China RoHS Compliant

#### Ordering Information

- **OCe11102-IM**
  - Dual-channel, 10GBASE-SR (short reach optical)
- **OCe11102-IX**
  - Dual-channel, 10GBASE-CR (direct attach copper)
- **OCe11102-IT**
  - Dual-channel, 10GBASE-T (twisted pair copper)
- **OCe10100-OPT**
  - Dual-channel transceiver kit
- **OC-Storage-01A**
  - FCoE/iSCSI enablement

**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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