



# Dual-Port 40G QSFP Adapter



**Quick Installation Guide**  
DN-10190

# Table of Contents

1. Introduction .....	2
2. Package Contents .....	3
3. Specification .....	3
4. System Requirements .....	4
5. Hardware Installation .....	5
6. Install Drivers and Software .....	5

## 1. Introduction

The DN-10190 Dual-Port 40G QSFP adapter with PCI Express 3.0 and x8 Mellanox Connectx-3 technic delivers high-bandwidth and industry-leading Ethernet connectivity and is compliant with PCIe2.0 and 1.1. It features two 40 Gigabit QSFP+ Ethernet ports compliant with QSFP+ MSA Spec Rev 1.0, and two QSFP ports supporting FDR-14 InfiniBand or 40Gb Ethernet, with support for InfiniBand FDR speeds of up to 56Gbps (auto-negotiation FDR-10, DDR and SDR). The low-profile form factor adapter with 2u bracket supports virtual protocol interconnect (VPI), InfiniBand Architecture specification v1.2.1, IEEE Std. 802.3, copper cables and optical cables with the use of QSFP connectors, and SFP+ cables available through QSA (Quad to Serial). It enables low latency RDMA over 40Gb Ethernet, with legacy and UEFI PXE network boot support, and supports iSCSI as a software iSCSI initiator in NIC mode with NIC driver. The adapter supports multiple operating systems, such as FreeBSD, Linux 5.x and above, VMware, Windows server2008/2012/2016/2019, win7/ win8/

win8.1/ win10 32 or 64bit. It also supports CORE-Directo,R application off-load, GPUDirect application off-load, RDMA over converged Ethernet (RoCE), end-to-end QoS and congestion control, TCP/UDP/IP stateless off-load, Ethernet encapsulation (EoIB), SR-IOV support (16 virtual functions supported by KVM and Hyper-V(OS dependant) up to a maximum 127 virtual functions supported by the adapter), and traffic steering across multiple cores, making it a versatile adapter suitable for a wide range of applications.

## **2. Package Contents**

- 1x Dual-Port 40G QSFP adapter
- 1x User’s Manual
- 1x CD Driver
- 1x Low profile bracket

## **3. Specification**

- PCI-Express host interface specification v3.0 x8 and Complete with PCIe2.0 and 1.1
- Two 40 Gigabit QSFP+ Ethernet ports
- Compliant with QSFP+ MSA Spec Rev 1.0
- Two QSFP ports supporting FDR-14 InfiniBand or 40Gb Ethernet.
- Support for InfiniBand FDR speeds of up to 56Gbps (auto-negotiation FDR-10, DDR and SDR)
- Low-profile form factor adapter with 2u bracket
- Virtual protocol interconnect (VPI)
- InfiniBand Architecture specification v1.2.1 compliant
- IEEE Std. 802.3 compliant
- Compliant with copper cables and optical cables with the use of QSFP connectors.
- Support for SFP+ cables available through QSA (Quad to Serial)
- CORE-Directo, R application off-load.

- GPU Direct application off-load.
- RDMA over converged Ethernet (RoCE)
- End-to-End QoS and congestion control
- TCP/UDP/IP stateless off-load.
- Ethernet encapsulation (EoIB)
- SR-IOV support;16 virtual functions supported by KVM and Hyper-V (OS dependant) up to a maximum 127 virtual functions supports by the adapter.
- Enables low latency RDMA over 40GbEthernet (supported with both non-virtualized and SR-IOV enable virtualized servers)— latency as low as 1us.
- Traffic steering across multiple cores
- Microsoft VMQ/VMware Net Queue support
- Industry-leading throughput and latency performance
- Legacy and UEFI PXE network boot support
- Supports iSCSI as a software iSCSI initiator in NIC mode with NIC driver.
- Supports Operation Systems: FreeBSD, Linux5.x and above, VMware, Windows server2008/2012/2016/2019, win7/win8/win8.1/win10 32 or 64 bit.

## **4. System Requirements**

- FreeBSD, Linux, VMWare ESXi
- Win-server2008 R2/ Win-server2012 R2/ Win-server2016/ Win-server2019
- Windows: 7/8/8.1/10 32/64bit
- One available PCI Express x8/x16 slot

## 5. Hardware Installation

1. Turn Off the power to your computer.
2. Unplug the power cord and remove your computer's cover.
3. Remove the slot bracket from an available PCIe x4/x8/X16 slot.
4. To install the card, carefully align the card's bus connector with the selected PCIe slot on the motherboard. Push the board down firmly.
5. Replace the slot bracket's holding screw to secure the card.
6. Replace the computer cover and reconnect the power cord.

## 6. Install Drivers and Software

### Windows Operating Systems

You must have administrative rights to the operating system to install the drivers.

1. insert the CD driver bound with Mellanox network driver into your CD-ROM drive.
2. if the Found New Hardware Wizard screen is displayed, click Cancel.
3. select a driver based on the system type:
  - **for Windows Server type: (Assume that D):**  
"D:\NIC Drivers\Mellanox\ConnectionX-3\Windows Server"
  - **for Windows type: (Assume that D):**  
"D:\NIC Drivers\Mellanox\ConnectionX-3\Windows Client"
4. Double click the driver corresponding to the system.
5. Follow the instructions in the install wizard to finish it.

### Installing Linux Drivers from Source Code

1. Download and expand the base driver tar file.
2. Compile the driver module.
3. Install the module using the mod probe command.
4. Assign an IP address using the ipconfig command.

<b>Function</b>	
controller	MELLANOX ConnectX-3
Fibre Media	10Gbase-cx4, 10Gbase-R, and 1000Base-R, 40Gbase-R4
Fiber type	10Gbase-cx4, 10Gbase-R, and 1000Base-R, 40Gbase-R4
Connect type	PCIE3.0 X8
Operation Systems	Windows8.1
	Windows10 (1909,1809,1607)
	Windows Server2003/2003 R2
	Windows Server2008/2008 R2
	Windows Server2012/R2
	Windows Server2016/R2
	Ubuntu 14.04 or later
	Sles12 sp2 or later
	REHL/CentOS7.2 or later
	Oracle Linux 7.8 or later
	KYLIN 10
	Fedora 32
	Debian 9.11/9.13/10.5/10.8
	BCLINUX7.5 OR later
Stable kernel version 3.x,4.x or later	
VMware ESX/ESXi 5.X,6.X or later	
Port type	Dual- Port 40G QSFP28 connector
Each Port transmit speed	1/10/40Gbps
Ethernet power management	yes

standards	IEEE 802.3ae 10 GbE IEEE 802.3ba 40 GbE (all three FDR adapters) IEEE 802.3ad Link Aggregation IEEE 802.3az Energy Efficient Ethernet IEEE 802.1Q, .1P VLAN tags and priority IEEE 802.1Qbg IEEE P802.1Qaz D0.2 Enhanced Transmission Selection (ETS) IEEE P802.1Qbb D1.0 Priority-based Flow Control IEEE 1588v2 Precision Clock Synchronization
PXE/UEFI support	YES
ISCSI support	yes
VMDs, SR-IOV support	yes
TCP/IP Sec offload	YES
IPv4, IPv6 Support	yes
Jumbo frame size	9.6KB
Network I/O Virtualization	VXLAN, Geneve, NVGRE, ISER, SR-IOV
Operation temperature	0°~55°C (32°F or 131°F)
Storage temperature	-40~ 70°C (-40°F or 158°F)
Relative humidity	20~80 non-condensing relative humidity
MAX Power	10.13W

Hereby ASSMANN Electronic GmbH declares that the Declaration of Conformity is part of the shipping content. If the Declaration of Conformity is missing, you can request it by post under the below mentioned manufacturer address.

**www.assmann.com**

Assmann Electronic GmbH

Auf dem Schüffel 3

58513 Lüdenscheid

Germany

