SUPERMICRO®

AOC-UIBQ-m1/m2 Add-on Card

User's Guide

Revison 1.0b

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WARNING: HANDLING OF LEAD SOLDER MATERIALS USED IN THIS PRODUCT MAY EXPOSE YOU TO LEAD, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

Manual Revison 1.0b

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Introduction

About this Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate SuperMicro's AOC-UIBQ-m1/m2 add-on card add-on card to their system.

Product Features

The AOC-UIBQ-m1/m2 add-on card offers the following features:

- Mellanox® ConnectX-2 QDR
- Single QSFP connector (AOC-UIBQ-m1) or dual QSFP connectors (AOC-UIBQ-m2)
- 40Gb/s per port
- PCI-e x8 Gen.2, Low Profile, UIO form factor
- Virtual Protocol Interconnect (VPI)
- 1us MPI ping latency
- CPU off-load of transport operations
- End-to-end QoS and congestion control
- Hardware-based I/O virtualization
- TCP/UDP/IP stateless off-load
- Fibre Channel encapsulation (FCoIB or FCoE)
- External optical media adapter and active cable support
- Both standard and low profile brackets available
- Dimensions: 5.63” (14.29cm) x 2.5” (6.35cm) (length x width)

NOTE: The AOC-UIBQ-m1/m2 add-on card may require a riser card for mounting in some systems.

NOTE: The AOC-UIBQ-m1/m2 add-on card is designed for UIO Supermicro motherboards and server systems. Please go to www.supermicro.com for the latest list of supported platforms.

Operating Systems Supported

The AOC-UIBQ-m1/m2 add-on card supports the following Operating Systems (OS):

- Windows 2003/Windows 2008
- VMware ESX Server 3.5
- SLES
- RedHat
- Fedora
- CCS 2003

Required Cables

The AOC-UIBQ-m1/m2 add-on card requires 7m+ of QSFP passive copper cable supporting InfiniBand SDR/DDR/QDR standards.

An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online at:

http://www.supermicro.com/support/rma/

Whenever possible, repack the add-on card in the original Supermicro box, using the original packaging materials. If these are no longer available, be sure to pack the add-on card in an anti-static bag and inside the box. Make sure that there is enough packaging material surrounding the add-on card so that it does not become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Contacting SuperMicro

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Chapter 1
Safety Guidelines

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

1-1 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the add-on card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

1-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer.
- Disconnect the power cable before installing or removing any cables from the system.
- Make sure that the add-on card is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

1-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

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Chapter 2
Card Components

2-1 Front Components

Figure 2-1 shows the front components of the AOC-UIBQ-m1/m2 add-on card.

Figure 2-1. AOC-UIBQ-m1/m2 Add-on Card Front Components

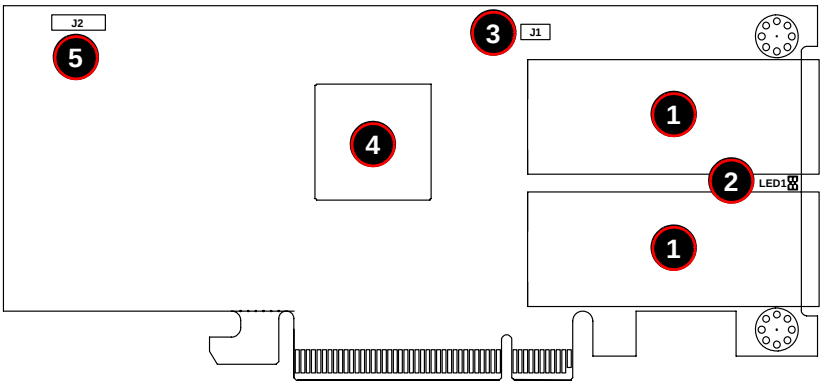

Table 2-1 lists the add-on card's front components and their description.

Table 2-1. Front Components

Number	Name	Description
1	QSFP Connector Port	Port for a single or dual QSFP connectors (single for AOC-UIBQ-m1, dual for AOC-UIBQ-m2)
2	LEDs	LEDs for QSFP activity and link-up
3	J1 Jumper	Flash ROM Present enable/disable jumper
4	Mellanox ConnectX-2 QDR chip	Controller chip for the AOC-UIBQ-m1/m2 add-on card.
5	J2 Jumper	This jumper is used for Engineering Debugging only.

2-2 Front Connectors, Jumpers and LEDs

This section describes the front connectors, jumpers and LEDs found on the AOC-UIBQ-m1/m2 add-on card.

QSFP Port

The single or dual QSFP ports allows the add-on card to connect to a QSFP passive copper network cable at speeds up to 40 Gbps using four channels. This connector offers four times the density of traditional SFP ports and support speeds up to 10 Gb/s per channel. The AOC-UIBQ-m1 card contains a single port, while the AOC-UIBQ-m2 card contains dual ports.

LEDs

The AOC-UIBQ-m1/m2 add-on card contains one or two LEDs (LED1/LED2) which are used to display activity as well as link-up of the port. For the AOC-UIBQ-m1 card a single LED is active, while both of the LEDs of AOC-UIBQ-m2 card are active. See Table 2-2 for the definitions of each of these LEDs.

Table 2-2. LAN Port LEDs

LED	Color	Definition
Activity	Blinking	Port Activity
Link-up	Yellow	Logical Link-up
	Green	Physical Link-up
	Off	No connection

J1 Jumper

The J1 jumper is used to tell the Mellanox chip that there is a Flash ROM present in the system. If the jumper is closed (enabled) it means that no Flash ROM is present, while open (disabled) means that a Flash ROM is present.

J2 Jumper

The J2 jumper is used for engineer debugging only.

Chapter 3
Installation

3-1 Hardware Installation

User the directions below to install the AOC-UIBQ-m1/m2 add-on card into your server system.

Before Installation

Before Installation, do the following

1. Power down the system.
2. Remove the power cord from the wall socket.
3. Use industry standard anti-static equipment (i.e. gloves or wrist strap) and/or an environment that prevents accidental electrostatic discharge.
4. Familiarize yourself with the server, motherboard, and/or chassis documentation.
5. Confirm that your Operating System includes the latest updates and hot-fixes.

Installation

NOTE: This card is designed for UIO (Supermicro's Universal I/O) servers and motherboards only.

The AOC-UIBQ-m1/m2 add-on card can be either installed using a riser card or directly in a UIO slot directly in the system.

If installed directly in the UIO slot, use the procedure below. When using a riser card, simply connect the AOC-UIBQ-m1/m2 add-on card to the riser card and install the riser card into the designated slot on the mainboard.

NOTE: The AOC-UIBQ-m1/m2 add-on card can be configured as either a standard or low-profile card depending upon the bracket used.

Installing the Add-on Card

1. Remove the server cover and, if necessary, set aside any screws for later use.
2. Remove the add-on card slot cover. If the case requires a screw, place the screw aside for later use.
3. Position the add-on card in the slot directly over the connector and gently push down on both sides of the card until it slides into the PCI connector.

4. Secure the add-on card to the chassis. If required, use the screw that you previously removed.
5. Replace the chassis cover.
6. Connect the incoming QSFP cable to the QSFP port provided on the card.
7. Plug the power cord into the wall socket and power up the system.

3-2 Installing Drivers and Firmware

Use the procedures below to install both drivers and firmware for the AOC-UIBQ-m1/m2 add-on card for both Linux and Windows.

Linux Drivers

Use the following procedures for installing AOC-UIBQ-m1/m2 add-on card drivers for the Linux operating system.

Installing InfiniBand Drivers for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → INFINIBAND → LINUX.
2. Choose the *InfiniBand Linux* driver package file.
3. Install the driver by the following commands:

```
tar xzvf OFED-<ver>.tgz
cd OFED-<ver>
./install.pl
```

   This installs the Linux drivers to your system.

Installing 10G Drivers for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → CONNECTX_EN → LINUX.
2. Choose the *10G Linux* driver package file.
3. Install the driver by the following commands:

```
tar xzvf mlnx_en-<ver>.tgz
cd mlnx_en-<ver>
./install.sh
```

   This installs the 10G drivers to your system.

Windows Drivers

Use the following procedures for installing AOC-UIBQ-m1/m2 add-on card drivers for the Windows operating system.

Installing InfiniBand Drivers for the Windows Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → INFINIBAND → WINDOWS.
2. Choose the desired InfiniBand Windows driver package file.
3. Double-click to run and install the driver package file.

Installing 10G Drivers for the Windows Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → CONNECTX_EN → WINDOWS.
2. Choose the desired 10G Windows driver package file.
3. Double-click to run and install the driver package file.

Firmware Update Procedures

Use the following procedures for updating the AOC-UIBQ-m1/m2 add-on card firmware for both the Linux and Windows operating systems.

Updating Firmware for the Linux Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → FIRMWARE_TOOL → LINUX.
2. Choose the *MFT Linux* package file and *untar* the package file.
3. Install the package by the following command:

```
cd mft-<ver>

./install.sh
```

4. Install the firmware by the following commands:

```
mst start

mst status   *note down the pci_cr0 device name*

flint –d <pci_cr0 device name> -i <firmware file name>.bin
b
```

Upadating Firmware for the Windows Operating System

1. From the CDR-NIC LAN driver CD or FTP site, go to the following directory: MELLANOX → FIRMWARE_TOOL → WINDOWS.
2. Choose the desired MFT Windows package file.
3. Double-click to run and install the MFT package file.
4. Open up the DOS Command Prompt and locate the MFT folder.
5. Install the firmware by the following commands:

```
mst start

mst status   *note down the pci_cr0 device name*
```

```
flint –d <pci_cr0 device name> -i <firmware file name>.bin
b
```

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Notes