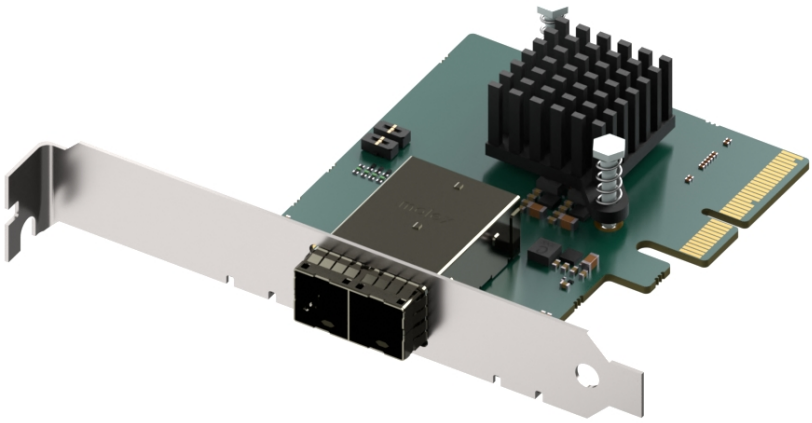
ximea



HA-2P-X4G3-SFF-X4G3

Host adapter

XIMEA Accessories
Technical Manual
Version v260831

Introductions

About this manual

Dear customer,

Thank you for purchasing a product from XIMEA.

We hope that this manual can answer your questions, but should you have any further queries or if you wish to claim a service or warranty case, please contact your local dealer or refer to XIMEA Support on our website: www.ximea.com/support

The purpose of this document is to provide a description of XIMEA Accessories and to describe the correct way to install related software, drivers and run it successfully. Please read this manual thoroughly before operating your new XIMEA Accessories for the first time. Please follow all instructions and observe the warnings.

This document is subject to change without notice.

About XIMEA

XIMEA is one of the worldwide leaders for innovative camera solutions with a 30-year history of research, development and production of digital image acquisition systems. Based in Slovakia, Germany and the US, with a global distributor network, XIMEA offers their cameras worldwide. In close collaboration with customers XIMEA has developed a broad spectrum of technologies and cutting-edge, highly competitive products.

XIMEA's camera centric technology portfolio comprises a broad spectrum of digital technologies, from data interfaces such as USB 2.0, USB 3.1 and PCIe to cooled digital cameras with CCD, CMOS and sCMOS sensors, as well as X-ray cameras.

XIMEA has three divisions – generic machine vision and integrated vision systems, scientific imaging and OEM/custom.

Our broad portfolio of cameras includes thermally stabilized astronomy and x-ray cameras, as well as specialty cameras for medical applications, research, surveillance and defense.

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1 General description



Figure 1: Isometric view of the host adapter

- X4 gen 3. PCIe host adapter with dual ports for SFF-8644 fiber optic cables with lengths of up to 100 m
- Supports PCIe Gen3 x4 lines and requires PCIe Gen.3 x4 slot on the computer side
- The bandwidth of 32 Gbps, Male connector
- For use with xiB-64 or xiX camera series

LED Description

LED	Description
PERST	ON when not active
PORT_GOOD0	Upstream port speed [1]
PORT_GOOD1	Downstream port 1 speed [1]
PORT_GOOD2	Downstream port 2 speed [1]
PORT_GOOD3	Downstream port 3 speed [1]
PORT_GOOD4	Downstream port 4 speed [1]

[1] Trained speed: OFF - Link is down
Blinking 1 Hz (512 ms ON / 512 ms Off) - Link is up, 2.5 GT/s, any negotiated link width
Blinking 2 Hz (256 ms ON / 256 ms Off) - Link is up, 5.0 GT/s, any negotiated link width
ON - Link is up, 8.0 GT/s, any negotiated Link Width

Table 1: LED status

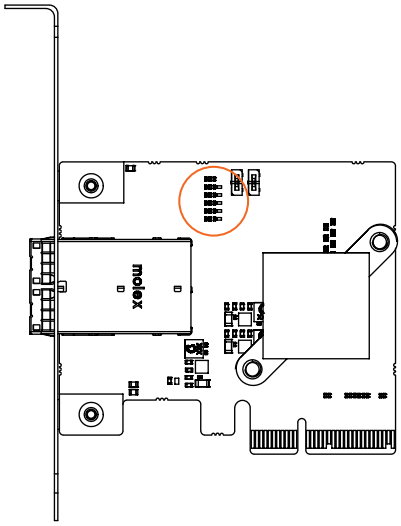


Figure 2: LED position

2 Dimensional drawings

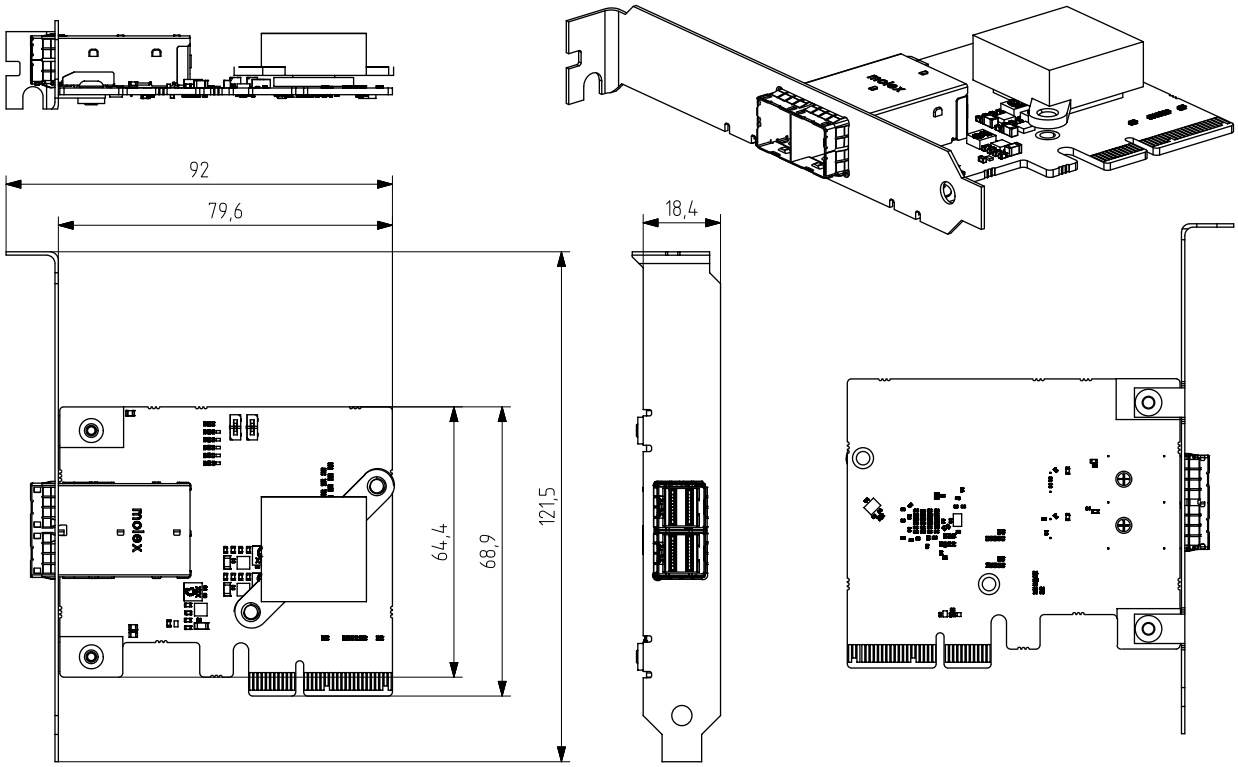


Figure 3: Host adapter dimensional drawing

Width [W]	Height [H]	Depth [D]	Mass [M]	Material	Cooling options
92 mm	121.5 mm	18.4 mm	60.6 g	Stainless steel	Passive heatsink

Table 2: Parameters and mass

3 Configuration

3.0.1 DIP switches

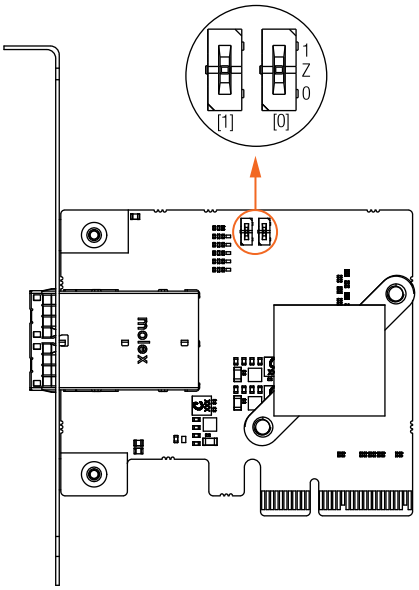


Figure 4: DIP switches

DIP switch [1] position	DIP switch [0] position	PCIe blade lines	SFF PORT A lines	SFF PORT B lines	PCIe PORT configuration
Z	Z	x4	x4	x4	Port A - Port 1 Port B - Port 2[1]
1	Z	x4	x2, x2	x2, x2	Port A - Port 1 / Port 2 Port B - Port 3 / Port 4

[1]Devices connected to Port 1 and Port 2 have to share X4G3 bandwidth

Table 3: DIP switch configuration

4 Connectors

4.1 Location of connectors

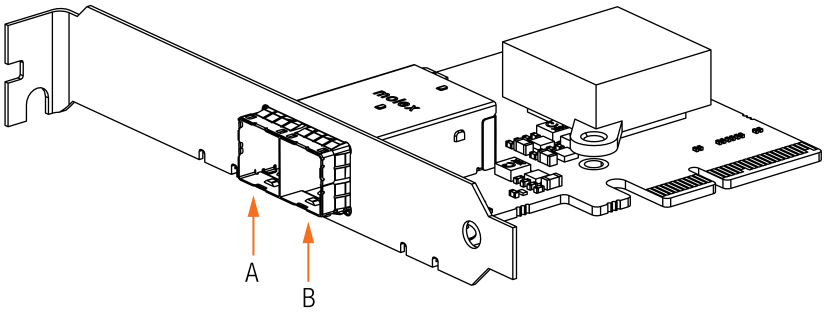


Figure 5: HA-2P-X4G3-SFF-X4G3 connectors

num.	connector
A	port A for SFF-8644 fiber optic cable
B	port B for SFF-8644 fiber optic cable

Table 4: Connectors descirption

4.2 Data interfaces

4.2.1 PCIe iPass+ HD connector

Item	Value
Connector	Conn Receptacle MINI-SAS HD RIGHT ANGLE PUSH-IN, 2149966-1, 2x36pos
Signals	Data delivery
Mating cables	Ximea PN: CBL-SFF-X4G3-10M0, CBL-SFF-X4G3-30M0, CBL-SFF-X4G3-50M0

Table 5: PCIe iPass+ HD connector description

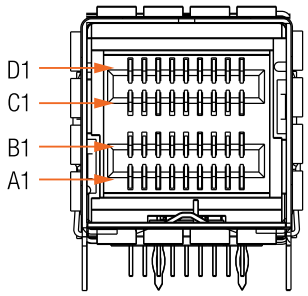


Figure 6: PCIe iPass+ HD SFF connector pinout

Pin	Name	Description	Pin	Name	Description
A1	CADDR	Control Address	C1	CMISCL	Clock line for Control Management Interface
A2	CINT	Control Interrupt	C2	CMISDA	Data line for Control Management Interface
A3	GND	Ground	C3	GND	Ground
A4	PCIe_PERP_0	PCIe RX differential signal (Lane 0)	C4	PCIe_PETP_0	PCIe TX differential signal (Lane 0)
A5	PCIe_PERN_0	PCIe RX differential signal (Lane 0)	C5	PCIe_PETN_0	PCIe TX differential signal (Lane 0)
A6	GND	Ground	C6	GND	Ground
A7	PCIe_PERP_3	PCIe RX differential signal (Lane 3)	C7	PCIe_PETP_3	PCIe TX differential signal (Lane 3)
A8	PCIe_PERN_3	PCIe RX differential signal (Lane 3)	C8	PCIe_PETN_3	PCIe TX differential signal (Lane 3)
A9	GND	Ground	C9	GND	Ground
B1	PWR	Power supply	D1	PWR	Power supply
B2	CBLPRSNT	Cable Present signal	D2	MGTPWR	Multi-Gigabit Transceiver Power
B3	GND	Ground	D3	GND	Ground
B4	PCIe_PERP_1	PCIe RX differential signal (Lane 1)	D4	PCIe_PETP_1	PCIe TX differential signal (Lane 1)
B5	PCIe_PERN_1	PCIe RX differential signal (Lane 1)	D5	PCIe_PETN_1	PCIe TX differential signal (Lane 1)
B6	GND	Ground	D6	GND	Ground
B7	PCIe_PERP_2	PCIe RX differential signal (Lane 2)	D7	PCIe_PETP_2	PCIe TX differential signal (Lane 2)
B8	PCIe_PERN_2	PCIe RX differential signal (Lane 2)	D8	PCIe_PETN_2	PCIe TX differential signal (Lane 2)
B9	GND	Ground	D9	GND	Ground

Table 6: PCIe iPass+ HD connector pin assignment

5 Additional information

5.1 Cables

5.1.1 CBL-SFF-X4G3-10M0

The cable is available in 30 m, and 50 m lengths. PCIe Gen3 x4 fiber SFF cable (SFF-8644) is a high-speed optical connection used to link PCIe devices over longer distances. It uses Corning ClearCurve glass fiber (OM3, 850 nm) and provides four bi-directional data lanes, reaching up to 12 Gbps per lane (48 Gbps in total).



Figure 7: CBL-SFF-X4G3-10M0

5.1.2 CBL-SFF-X4G3-COP-5M0

The CBL-SFF-X4G3-30M0 is a PCIe Gen3 x4 copper cable (SFF-8644) designed to connect compatible XIMEA products. Cable provides four data lanes with speeds of up to 12 Gbps per lane (48 Gbps total). The cable length is 5 m, making it suitable for short-distance, high-bandwidth camera connections.



Figure 8: CBL-SFF-X4G3-COP-5M0

6 Quickstart guide

6.1 Hardware setup

6.1.1 Essential components

It is important that the power is turned off when inserting/detaching the cables. General ESD precautions need to be applied. Failing this requirement may lead to product damage.

- host PC (adapter requires PCIe Gen.3 x4 slot on the computer side)
- host adapter
- SFF-8644 fiber optic cables

Note: Two X4G3 SFF cables are required for X8G3 devices for proper use and data transfer.

6.1.2 Connecting the components

Step 1. Deploy the host adapter to the turned-off PC and ensure the PC is also unplugged from the power source

Step 2. Connect SFF-8644 fiber optic cables to the host adapter

Step 3. Connect SFF-8644 fiber optic cables to the turned-off connected device (e.g., the camera)

Step 4. Power up the connected device

Step 5. Power up the PC

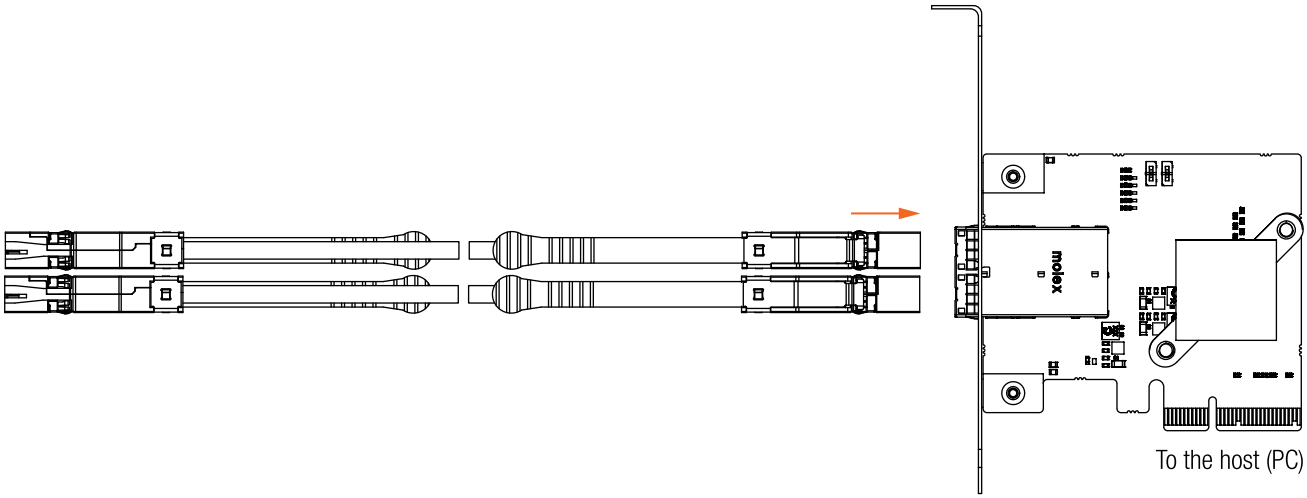


Figure 9: Connecting the components

For more information about HA-2P-X4G3-SFF-X4G3 please contact: sales@ximea.com.

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