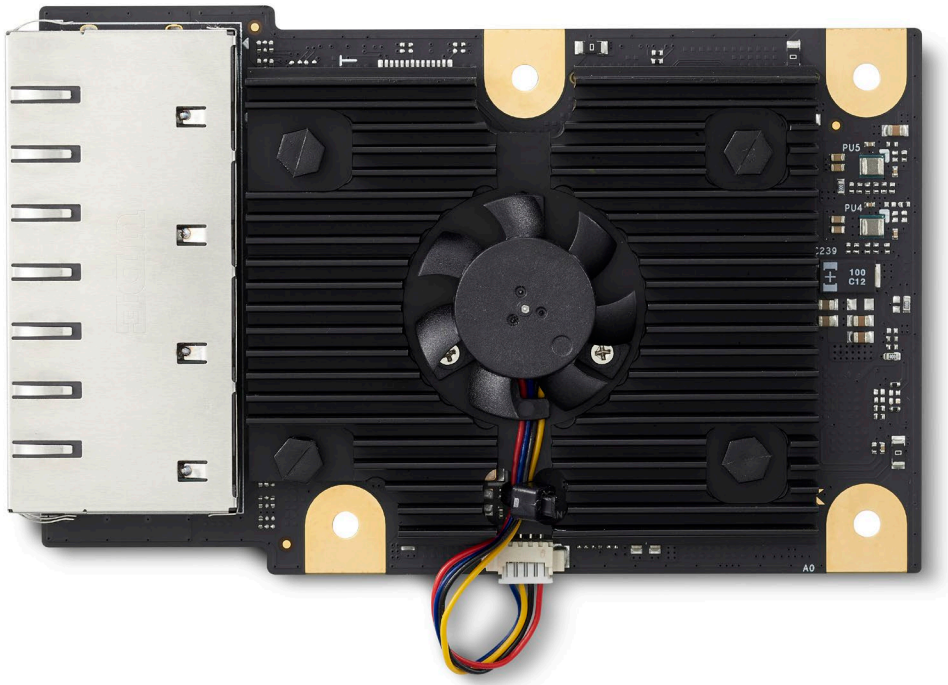
CEI-4x10GBASE-T User's Guide



COM Express®

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Revision History

Revision	Description	Date	Author
1.0	CEI-4x10GBASE-T Card	2023/6/29	Lauryn Hsu

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Preface

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Safety Instructions

For user safety, please read and follow all Instructions, **WARNING**s, **CAUTION**s, and **NOTE**s marked in this manual and on the associated equipment before handling/operating the equipment.

Read these safety instructions carefully.

- Keep this manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- Turn off power and unplug any power cords/cables when installing/mounting or un-installing/removing equipment.
- To avoid electrical shock and/or damage to equipment:
- Keep equipment away from water or liquid sources;
- Keep equipment away from high heat or high humidity;
- Keep equipment properly ventilated (do not block or cover ventilation openings);
- Make sure to use recommended voltage and power source settings;
- Always install and operate equipment near an easily accessible electrical socket outlet;
- Secure the power cord (do not place any object on/over the power cord);
- Only install/attach and operate equipment on stable surfaces and/or recommended mountings;
- If the equipment will not be used for long periods of time, turn off the power source and unplug the equipment.

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Conventions

The following conventions may be used throughout this manual, denoting special levels of information

Note: This information adds clarity or specifics to text and illustrations.

Caution: This information indicates the possibility of minor physical injury, component damage, data loss, and/or program corruption.

Warning: This information warns of possible serious physical injury, component damage, data loss, and/or program corruption.

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1. Introduction

The ADLINK CEI-4x10GBASE-T Card is a 10GbE copper network adapter card that delivers fast 10Gbps network access. It converts up to four 10GBASE-KR interfaces & related CEI style sideband signals to four 10GBASE-T interfaces at RJ45 connectors, through Intel X557-AT4 PHY and multiple IO expanders.

The CEI-4x10GBASE-T Card can only be used with ADLINK's COM-HPC-sIDH module (PICMG COM-HPC Rev 1.0 Server Type compliant)

By using the CEI-4x10GBASE-T Card with an COM-HPC Server reference carrier board and COM-HPC-sIDH module, customers can quickly emulate the functionality of their end product for software development and hardware verification. Applications include entry level switch, cloud storage platforms and communications servers.

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2. Specifications

2.1. Interface

Input

Up to four 10GBASE-KR & related CEI style sideband signals from a dedicated COM-HPC Server Type through 64-pin OCP Mezzanine card connector

Output

Up to four 10GBASE-T at four RJ45 connectors

2.2. 10GbE PHY

PHY

Intel X557-AT4 Copper

Converts 10GBASE-KR and sidebands to 10GBASE-T

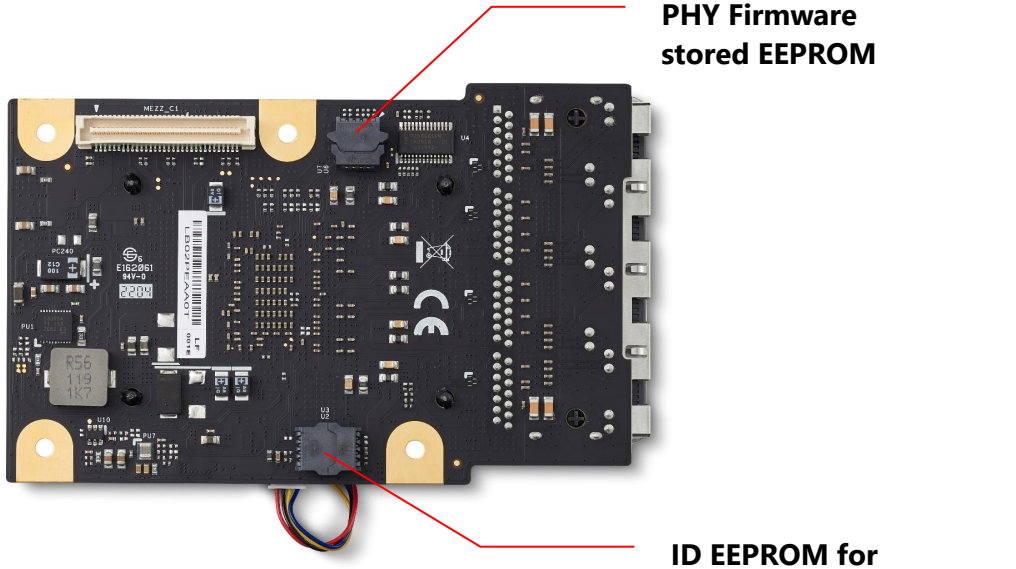
PHY FW on SPI ROM

Dedicated ROM for PHY firmware store

ID EEPROM (AT24C32E EEPROM)

I2C based device, identify the capabilities of the attached site. This allows the firmware to configure the attached PHY(s) and necessary I/O modes.

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2.3. Dimensions

110 mm x 68 mm (PCB only, including edge connector)

2.4. Operating Temperature

0°C to +55°C

2.5. Specification Compliance

PICMG COM-HPC: Rev 1.0 Server Type

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2.6. IO Expander & EEPROM

Additional expander and EEPROM not mention above are described as below:

PCA9575 IO Expander

I2C based device, deserialize for low speed sideband IO, including interrupt, reset and so on

PCA9685 LED Ctrl

I2C based device, handle the LED indication

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3. Block Diagram

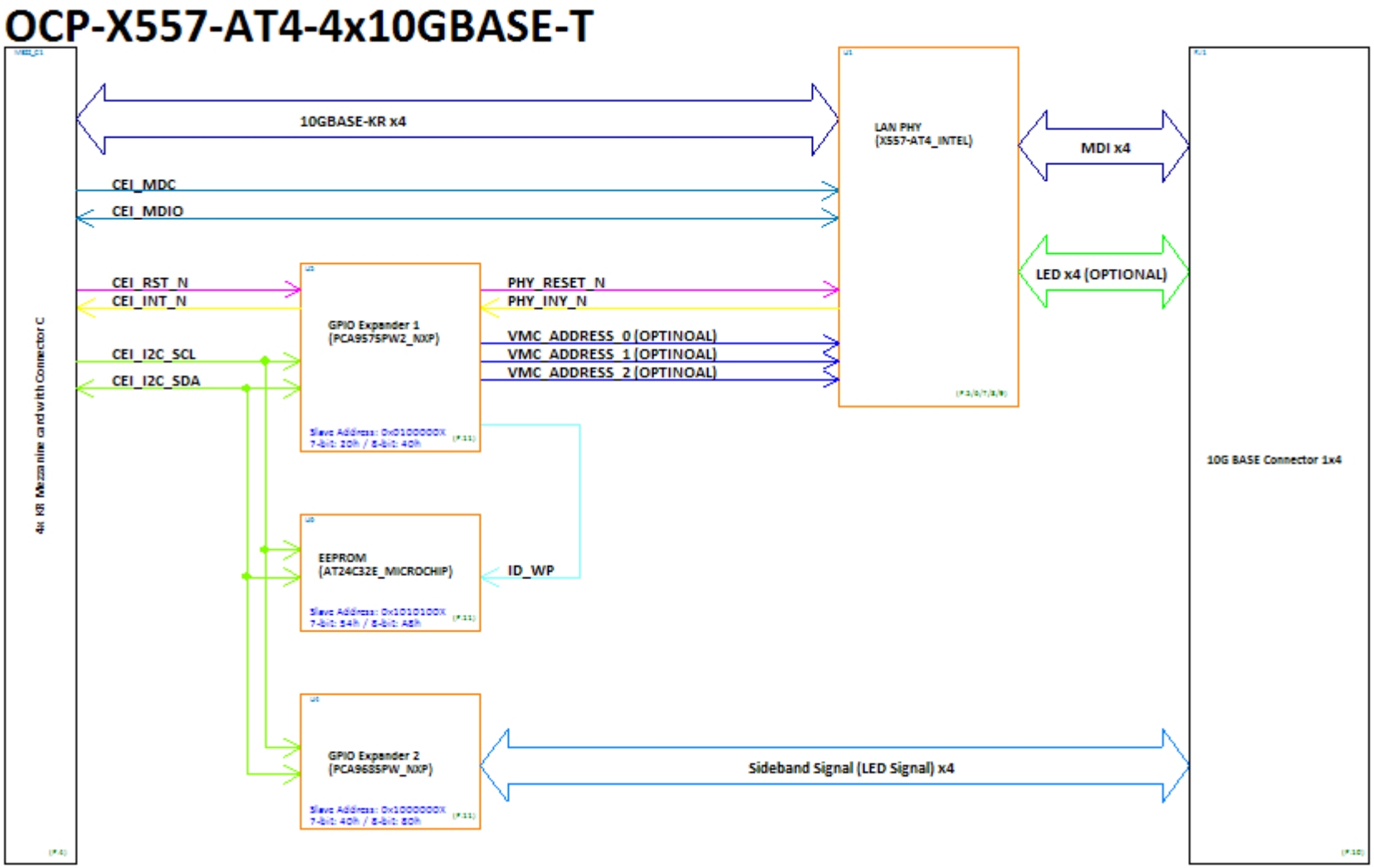


Figure 1 – CEI-4x10GBASE-T function diagram

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4. Pinout and Signal Descriptions

4.1. Input Interface Definitions

The table below is a comprehensible list of all signal pins supported on the 64-pin OCP connector of CEI-4x10GBASE-T Card. The signal naming follow the PICMG COM-HPC Rev 1.0 Server Type specification. Signals described in the specification but not supported on the CEI-4x10GBASE-T Card are strikethrough ~~STRIKETHROUGH.~~



Table 1: CEI-4x10GBASE-T Card Pin Definitions

Pin	Name	Pin	Name
33	+12V	1	MEZZC_SMCLK
34	+12V	2	MEZZC_SMDATA
35	+12V	3	MEZZC_EXT_MDIO_I2C_SEL_OU
36	MEZZC_RSVD1	4	GND
37	R_ETH_SDP0	5	MEZZC_TX_P_ETH2
38	R_ETH_SDP1	6	MEZZC_TX_N_ETH2
39	GND	7	GND
40	MEZZC_TX_P_ETH0	8	MEZZC_LED_P1_0_N
41	MEZZC_TX_N_ETH0	9	MEZZC_LED_P1_1_N

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Pin	Name	Pin	Name
42	GND	10	GND
43	MEZZC_LED_P0_0_N	11	MEZZC_TX_P_ETH3
44	MEZZC_LED_P0_1_N	12	MEZZC_TX_N_ETH3
45	GND	13	GND
46	MEZZC_TX_P_ETH1	14	MEZZC_LED_P2_0_N
47	MEZZC_TX_N_ETH1	15	MEZZC_LED_P2_1_N
48	GND	16	GND
49	ETH_CEI0_MDIO_CLK_R	17	OCP_RX_P_ETH2
50	ETH_CEI0_MDIO_DAT_R	18	OCP_RX_N_ETH2
51	GND	19	GND
52	OCP_RX_P_ETH0	20	MEZZ_SCL0
53	OCP_RX_N_ETH0	21	MEZZ_SDA0
54	GND	22	GND
55	MEZZC_LED_P3_0_N	23	OCP_RX_P_ETH3
56	MEZZC_LED_P3_1_N	24	OCP_RX_N_ETH3
57	GND	25	GND
58	OCP_RX_P_ETH1	26	MEZZ_SCL1
59	OCP_RX_N_ETH1	27	MEZZ_SDA1
60	GND	28	GND
61	MEZZ_SCL2	29	MEZZ_SCL3
62	MEZZ_SDA2	30	MEZZ_SDA3
63	GND	31	R_ETH_SDP2
64	MEZZC_PRSNTC_N	32	R_ETH_SDP3

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5. Module Interfaces and Configuration

This chapter describes connectors, LEDs and switches that are used on the 10GbE adaptor card. The locations of these items is as below:

5.1. Connector and LED Locations

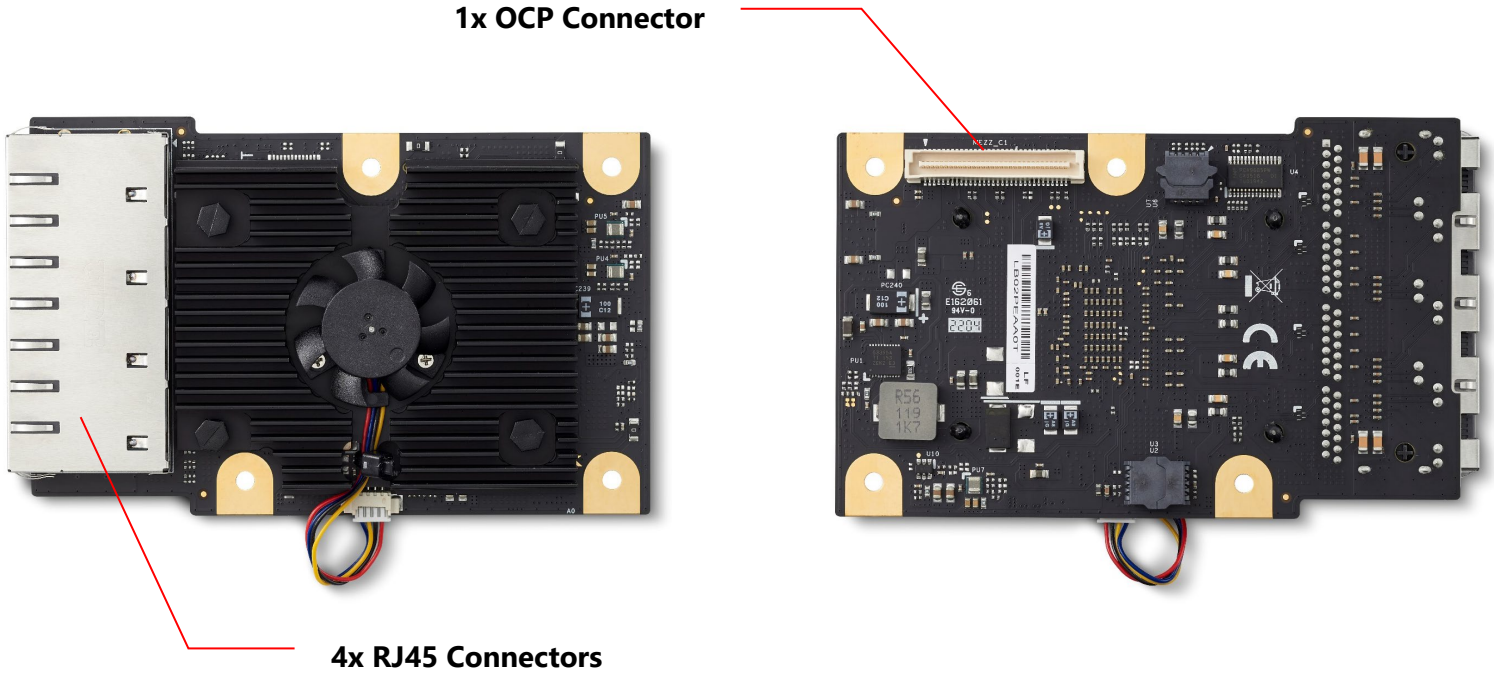
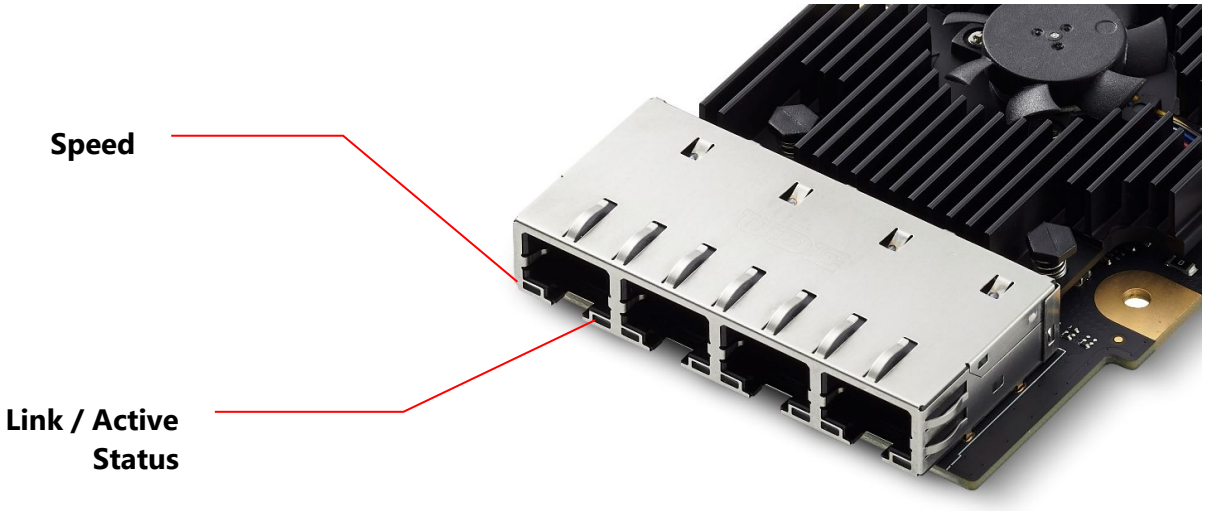


Figure 2 – Module feature locations

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5.2. LED Indicators

There are two status LEDs for each 10GBASE-T port

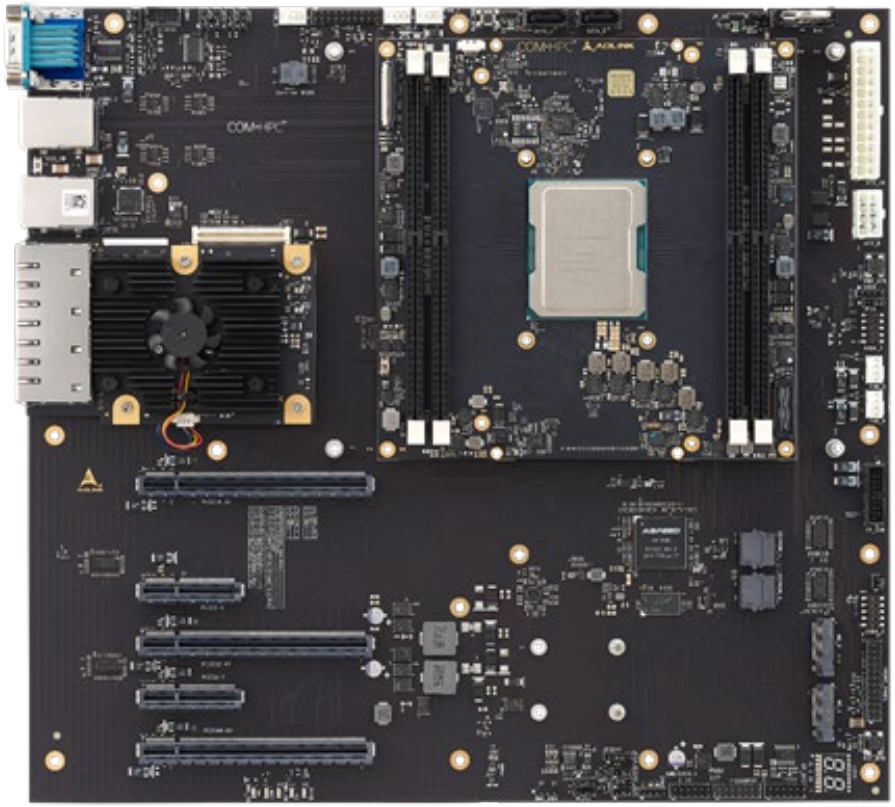


Function	LED Color	LED State	Description
Speed	Green / Yellow	Off	TBC
		Yellow	1 Gbps link speed
		Green	10 Gbps link speed
Link / Active Status	Green	Off	No Link
		Steady On	Link established, no activity detected
		Blinking	Link established, activity detected

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5.3. 10GbE Adaptor Card Installation

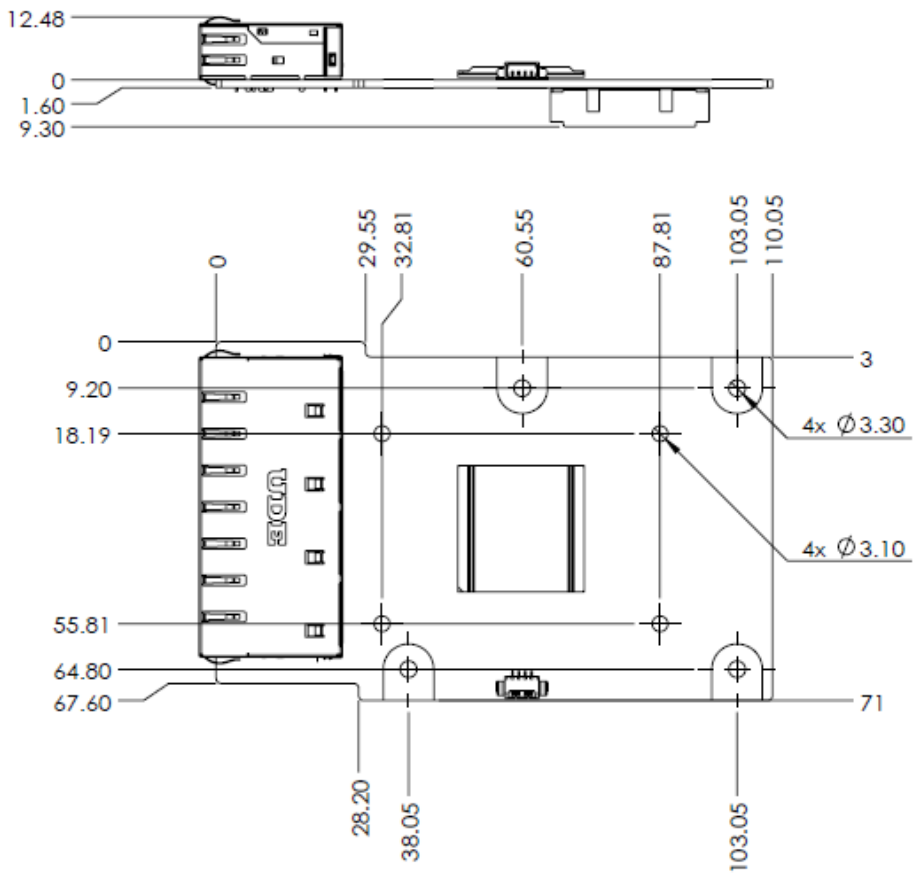
Below is an example of a 10GbE adapter card installed on the COM-HPC Server carrier board with a COM-HPC-sIDH Module (or illustration purposes only).



Note: a specific cable and connection will be required if input 5VSB to 10GbE adaptor card is needed for the testing purpose, please contact local ADLINK representative for detail

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6. Mechanical



All dimensions are shown in millimeters. Tolerances should be ± 0.25mm, unless otherwise noted.

Figure 3 – CEI-4x10GBASE-T mechanical dimensions

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