

PCIe-miniPCIe Adapter (Low Profile)

PCI Express Adapter for miniPCIe Cards

User Manual



Document version 1.1.0 (2015-08-19)

PEAK
System

Products taken into account

Product Name	Model	Part Number
PCIe-miniPCIe Adapter		IPEH-003029

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1 Introduction

With the help of the PCIe-miniPCIe adapter, you can operate PCI Express Mini and Half PCI Express Mini cards in a computer with low profile housing. Two spacers on the plug-in card can be appropriately positioned to attach the card in place. The adapter includes a Mini-USB socket, a Micro-SIM card holder, as well as a voltage supply of 1.5 V and 3.3 V for plugged PCI Express Mini cards.

In addition to the PCAN-miniPCIe from PEAK-System, USB solutions as well as cards for wireless communications such as WLAN, WWAN, and WPAN can be operated via the adapter.

1.1 Properties at a Glance

- └ Form factor Low Profile
- └ 4-layer board with gold-plated connectors
- └ PC plug-in card (PCIe x1) for the PCI Express slot
- └ Suitable for operation of USB solutions and add-in cards for wireless communication:
 - WWAN (Wireless Wide Area Network, e. g. UMTS & GSM)
 - WLAN (Wireless Local Area Network)
 - WPAN (Wireless Personal Area Network, e. g. Bluetooth)
- └ Status LEDs for power supply and state of communication add-in cards
- └ Mini-USB socket for operation of USB solutions
- └ Micro-SIM card holder for operation of UMTS and GSM cards

- └ Supply voltage of the adapter of 3.3 V
- └ Supply voltage of 1.5 V and 3.3 V for plugged PCI Express Mini cards
- └ Screw fixing for PCI Express Mini and Half PCI Express Mini cards
- └ Extended operating temperature range from -40 to +85 °C (-40 to + 185°F)

1.2 System Requirements

- └ A vacant PCI Express slot (PCIe-x1) in the computer

1.3 Scope of supply

- └ PCIe-miniPCIe adapter with mounted D-Sub slot bracket incl. connection cable
- └ Manual in PDF format

2 Hardware

2.1 Operation

- ▶ To attach a PCI Express Mini or a Half PCI Express Mini card on the PCIe-miniPCIe adapter, proceed as follows:
 1. Unscrew the nuts on the spacer.
 2. Insert the PCI Express Mini card into the contact strip. Hold the PCI Express Mini card in a slightly slanted position; slide the card into the contact strip and fold it down.
 3. Refasten and tighten the PCI Express' spacer nuts.
- ▶ Do the following to install the PCIe-miniPCIe adapter into the computer:



Attention! Electrostatic discharge (ESD) can damage or destroy components on the PCIe-miniPCIe adapter. Take precautions to avoid ESD when handling the card.

1. Shut down the computer and switch it off.
2. Disconnect the computer from the power supply.
3. Open the computer's casing.
4. If applicable, remove the front blind in front of the desired slot of the PCIe-miniPCIe adapter.
5. Connect the supplied special cable with the add-in card (e.g. PCAN-miniPCIe).
6. Insert the adapter into an empty PCI Express slot. Observe the computer's documentation for this.
7. Close the computer's casing.

8. Reconnect the power supply of the computer.

2.2 Connectors

2.2.1 PCI Express Mini Connector

The following table shows the assignment of the contact strip for add-in cards. It corresponds to the PCI Express Mini specification.

Pin	Name	Pin	Name
51	Reserved ¹	52	+3.3 V
49	Reserved ¹	50	GND
47	Reserved ¹	48	+1.5 V
45	Reserved ¹	46	LED_WPAN#
43	Reserved ¹	44	LED_WLAN#
41	Reserved ¹	42	LED_WWAN#
39	Reserved ¹	40	GND
37	Reserved ¹	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5 V
25	PERp0	26	GND
23	PERn0	24	+3.3 Vaux
21	GND	22	PERST#
19	Reserved ² (UIM_C4)	20	W_DISABLE#
17	Reserved ² (UIM_C8)	18	GND

¹ Reserved for future second PCI Express lane (if required)

² Reserved for future UIM interface (if required)

Pin	Name	Pin	Name
15	GND	16	UIM_VVP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved ³	6	1.5 V
3	Reserved ³	4	GND
1	WAKE#	2	3.3 V

2.2.2 CAN Connection

The adapter has the technical requirements for the operation of a PCI Express Mini CAN adapter. When using a PCAN-miniPCIe card, connect the D-Sub connector of the slot bracket with the PCAN-miniPCIe card by using the supplied connection cable (see also Chapter 2.1 Operating). The pin assignment is determined by the PCAN-miniPCIe card (see PCAN-miniPCIe manual) and corresponds to the specification CiA® 102.

2.2.3 USB

Connect the PCIe-miniPCIe adapter with a free USB port on the computer via a USB cable. The USB port is used exclusively as a data line, and can not be used for the power supply.

2.2.4 Micro-SIM Card Holder

This card holder is suitable for a micro-SIM card. Should the adapter be operated in the WWAN mode (e.g. UMTS, GSM, or GPRS) a micro-SIM card must be inserted.

³ Reserved for future wireless coexistence control interface (if required)

2.3 Status LED

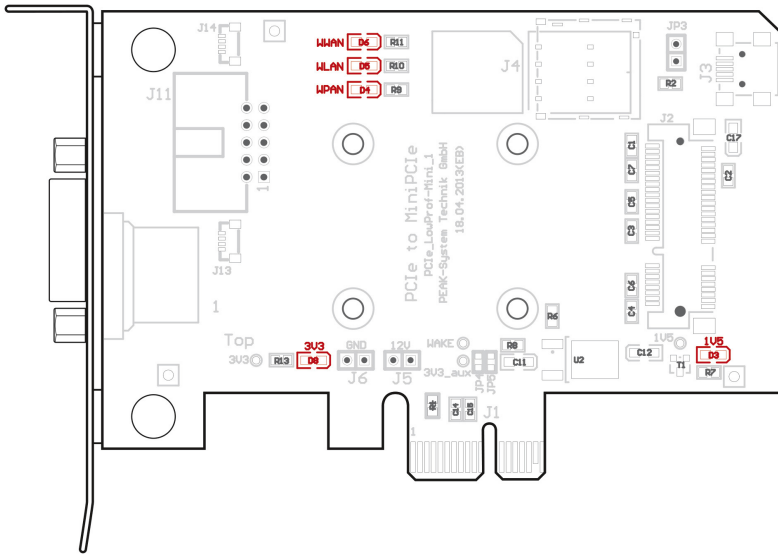


Figure 1: Positions of the LEDs on the PCIe-miniPCIe adapter

On the upper half of the adapter are the status LEDs for the communication add-in cards (WWAN, WLAN, and WPAN). These LEDs light up when the inserted add-in card uses the appropriate communication form.

On the bottom right half is the LED for the 1.5 V power supply and the one for 3.3 V is located in the middle. The power supply LEDs will stay lit continuously when the adapter card is correctly supplied.

3 Technical specifications

Connectors

CAN	D-Sub (m), 9 pins
Mini-USB socket	Mini-USB 2.0, 5 pin
Micro-SIM card holder	Micro-SIM card
Computer	PCI Express x1 (1 Lane), Specification 1.1
Slot	PCI Express Mini and Half PCI Express Mini, Specification 1.1

Supply

Supply voltage of the adapter	3.3 V
Current consumption of the adapter	max. 20 mA
Supply voltage for the PCI Express Mini cards	1.5 V and 3.3 V
Current consumption for the PCI Express Mini cards	1.5 V max. 375 mA 3.3 V max. 1100 mA

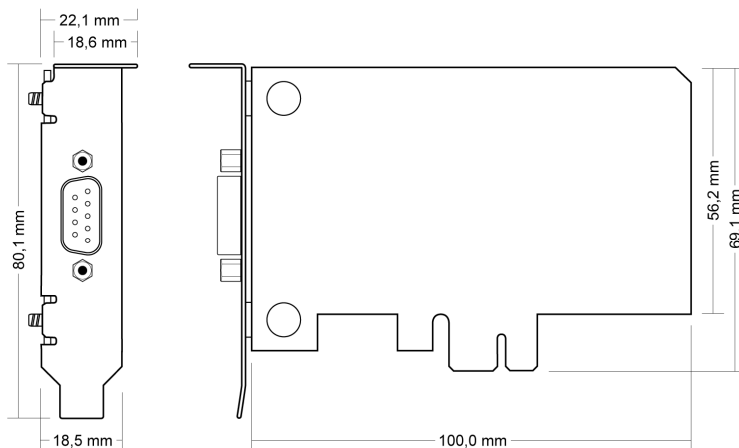
Measures

Size	69 x 100 x 1.5 mm (W x L x H) See also dimension drawing in Appendix A on page 11
Weight	45 g, incl. mounted D-Sub slot bracket

Environment

Operating temperature	-40 - +85 °C (-40 - +185 °F)
Temperature for storage and transport	-40 - 125°C
Relative humidity	15 - 90 %, not condensing

Appendix A Dimension Drawing



The figure doesn't show the actual size of the product.