



IPC-C4443I

Mini PCIe Industrial I/O Control Board

4-ch Isolated Digital Input

4-ch Isolated Digital Output



Introduction

SUNIX IPC-C4443I, industrial isolated digital I/O Mini PCIe card, is designed for PC-based IoT Gateway or Edge Computer that enables data acquisition and I/O controls in industrial automation. This board built-in SUNIX Digital-I/O controller, **QiuNiu**, and also built with many of SUNIX advanced features and technologies. In addition, SUNIX provides API software and SDK library, allowing users to program under Windows 10/11 and Linux operating systems. The software package includes a dynamic library.dll, C, C# and Python programming language sample code, making it easier to develop application software. SUNIX IPC-C4443I board enriches digital I/O expandable capacity with cost-efficient design; it is the best digital I/O control solution for lite-industrial applications.

Features

- Suitable for Mini PCIe slot on PCI Express communication.
- Designed to meet PCI Express Base Specification Revision 2.1.
- With high reliable SUNIX **QiuNiu** Digital-I/O controller.
- Plug-n-Play, I/O address and IRQ assigned by system.
- Ultra low power consumption (<1.5W) design for green environment and industrial application.
- High quality electronic components, low impedance and high stability ensure product quality and reliability.
- Support Microsoft Windows 10/11 and Linux with C, C# and Python programming language sample code.
- Capable of engaging with EdgeX device C SDK for EdgeX service development.
- Certified by CE, FCC, RoHS, and Microsoft approvals.
- With low profile bracket extension board to meet various of Edge PC chassis.

Digital I/O Interfaces:

- Expands isolated four (4) digital input channels with features for all channels.
 - Support both NPN & PNP devices
 - Support both dry and wet contact connections
 - With digital filter for noise reduction
 - Built-in 32-bit counter for all digital in channels
- Expands isolated four (4) NPN type digital output channels with initial value (Booting & Restart) protection.
- Each channel built-in 2.5KV isolation protection for signal and power, allowing the input signals to be completely floated so as to prevent ground loops.

Specifications

Board Level

Interface	Mini PCI Express
Controller	SUNIX QiuNiu Digital-I/O controller
BUS	PCI Express Gen2 x 1 (single Lane)
IRQ & IO	Assigned by System
ESD Protection	±15KV IEC61000-4-2 Air Gap Discharge ±8KV IEC61000-4-2 Contact Discharge

Digital Input

Type	NPN & PNP	Channel	4-channel
Dry Contact	Logic Level 0: Open; Logic Level 1: Close to GND	Wet Contact	Logic Level 0: 0 to 3VDC; Logic Level 1: 10 to 50VDC
Input Resistance	10KΩ	Isolation	2500 VDC
Counter	32-bit counter on all channel	Frequency	Input Range 2KHz max.
Digital Filter	Digital filter for noise reduction	Pin Define	DI1~D4, COM, GND
Interrupt Mode	Event trigger (Rising Edge, Falling Edge, Both modes) & polling for all channels		
PCB Connector	Terminal block on extension board		

Digital Output

Type	NPN	Channel	4-channel
Voltage Range	3.5 to 40VDC	Current	500mA per Channel
Isolation	2500 VDC	Pin Define	DO1~DO4, PWR, GND
Initial Protection	Load preset output value automatically during booting and restart		
PCB Connector	Terminal block on extension board		

Software Support

OS	Windows 10 (X86/X64), Windows 11, Linux
SDK	Library: Supporting C, C++, C# and Python languages. C, C# and Python sample code available
Third Party Software support	Capable of engaging with EdgeX device C SDK for EdgeX service development.

Declaration

Green Product	RoHS, WEEE
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Regulatory Approvals

Hardware	CE / FCC / VCCI / BSMI
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Environment

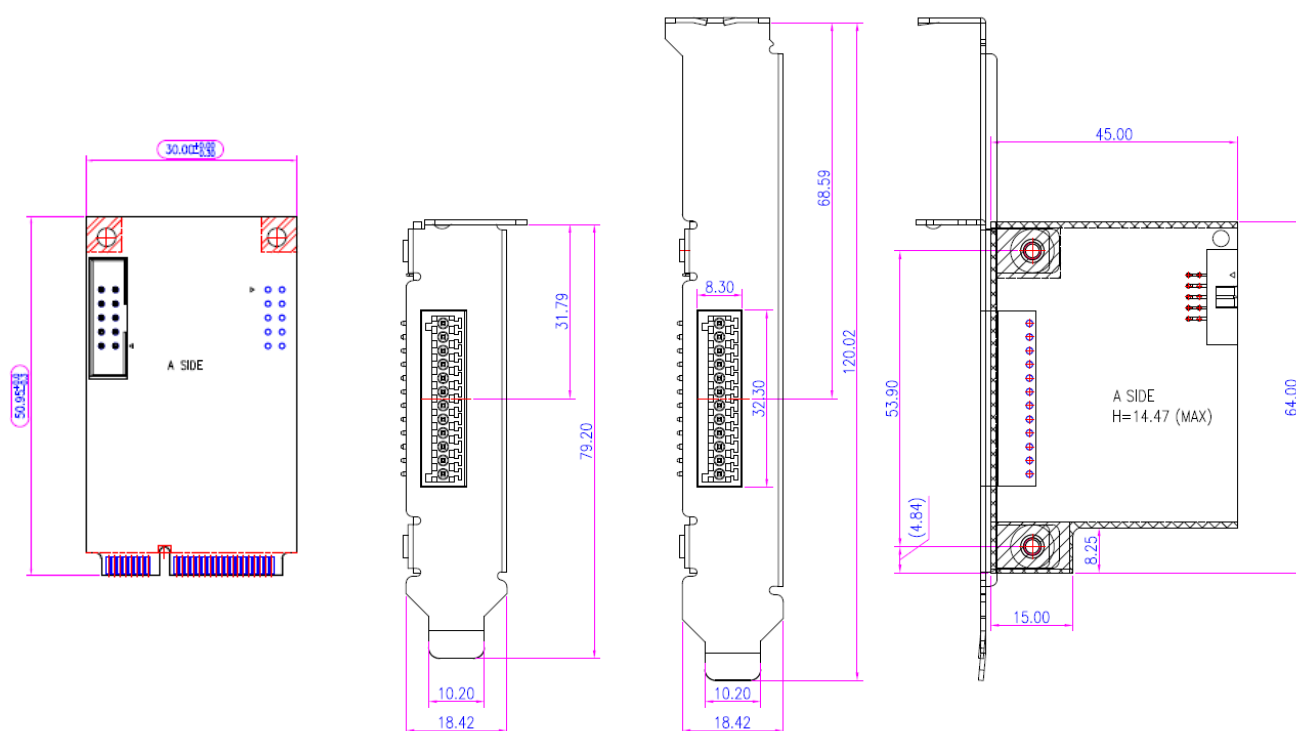
Operation Temperature	-20 to 70°C (-4 to 158°F)
Operation Humidity	5 to 95% (non-condensing)
Storage Temperature	-20 to 70°C (-4 to 158°F)

Dimension

PCB Dimension	Mini PCIe card 50.95 x 30 mm / Extension board 64 x 45 mm
Bracket	Low Profile 79.2mm
Bracket Space	1

Unit: mm

Extension board

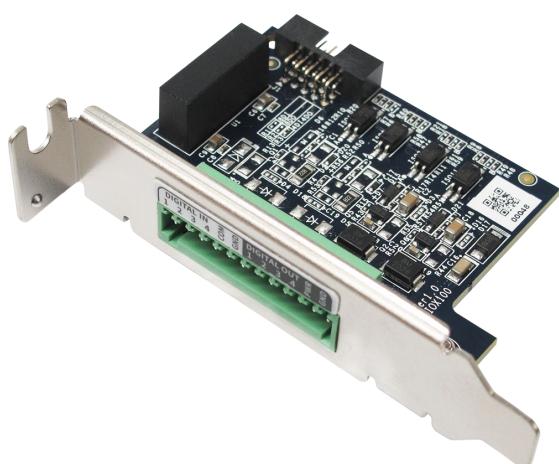


Package

- IPC-C4443I Mini PCI Express Industrial I/O Control Board
- Extension board with low profile bracket
- Standard Bracket
- 2x5 ribbon cable 15 cm
- Terminal block

Pin Assignment

- Digital Input / Output



PIN	Signal
1	DI 1
2	DI 2
3	DI 3
4	DI 4
5	COM
6	GND
7	DO 1
8	DO 2
9	DO 3
10	DO 4
11	PWR
12	GND