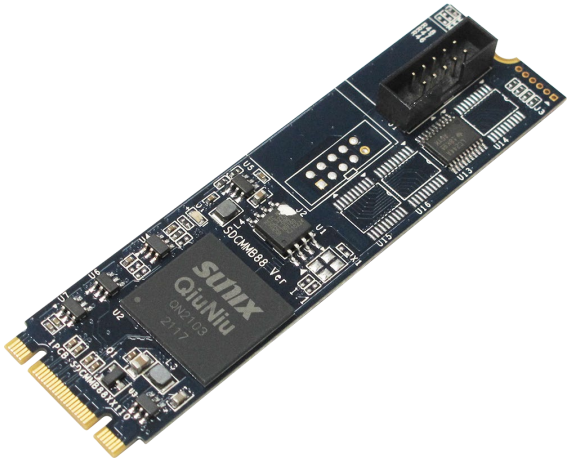


IPC-M4443I

M.2 PCIe Industrial I/O Control Board
4-ch Isolated Digital Input
4-ch Isolated Digital Output

Introduction

SUNIX IPC-M4443I, industrial isolated digital I/O M.2 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-M4443I 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 M.2 slot with Key-M or Key-B based 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	M.2 PCI Express
Controller	SUNIX **QiuNiu** Digital-I/O controller
BUS	PCI Express Gen1 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

Regulatory Approvals

Hardware	CE / FCC / VCCI / BSMI

Environment

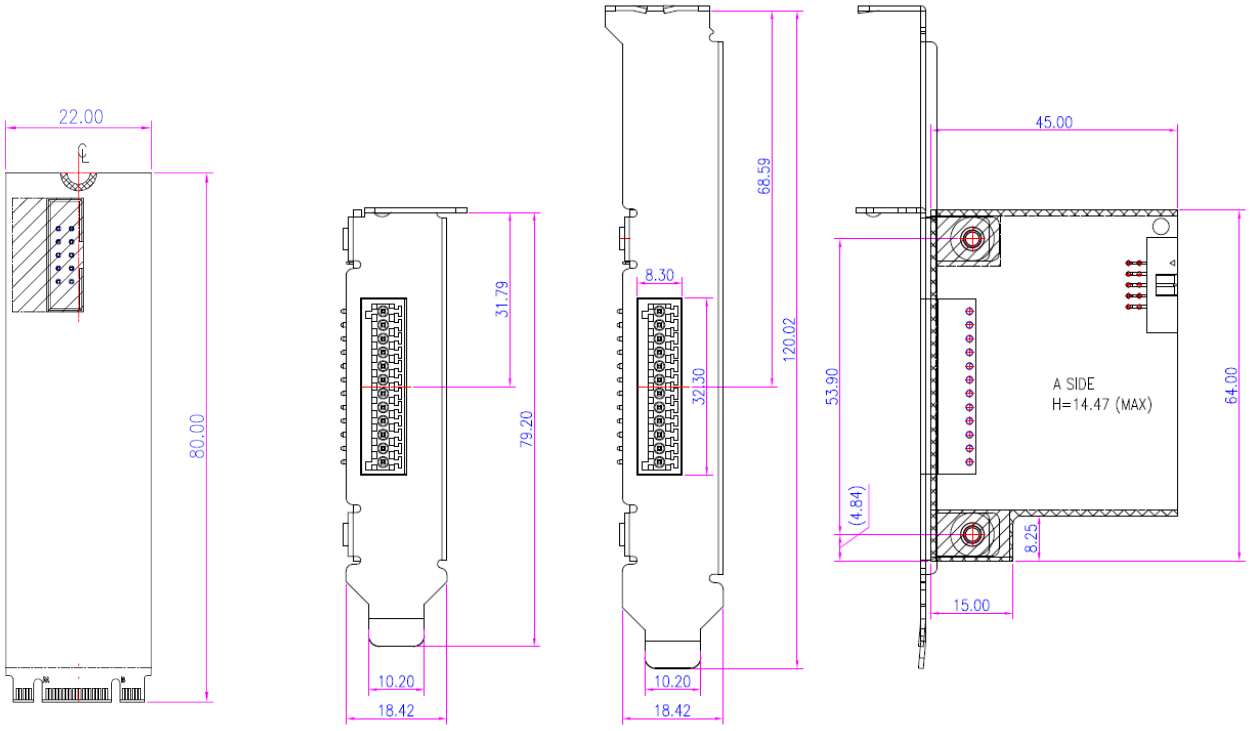
Operation Temperature	-20 to 70°C (-4 to 158°F)
Operation Humidity	5 to 95% (non-condensing)
Storage Temperature	-20 to 70°C (-4 to 158°F)

Dimension

PCB Dimension	M.2 card 80x22mm / Extension board 64 x 45 mm
Bracket	Low Profile 79.2mm
Bracket Space	1

Unit: mm

Extension board

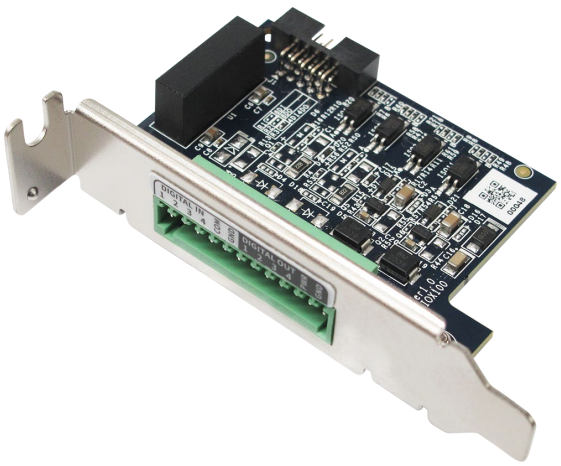


Package

- IPC-M4443I 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