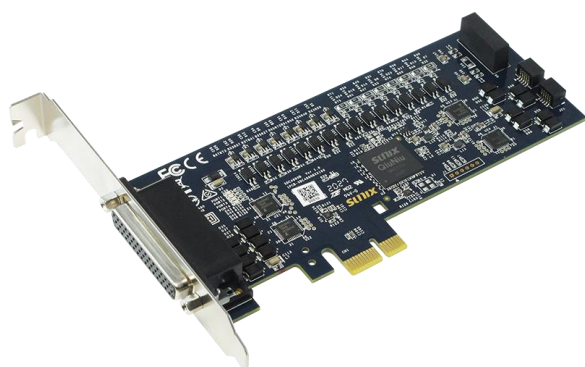# SDC4880B

PCI Express Industrial I/O Control Board
4-port RS-232/422/485
8-ch Isolated Digital Input
8-ch Isolated Digital Output

Introduction

SUNIX SDC4880B, industrial RS-232/422/485 and isolated digital I/O PCI-Express add-on card, is designed for PC-based IoT Gateway or desktop that enables data acquisition, I/O controls and serial communication in industrial automation. This board built-in SUNIX UART & 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 SDC4880B board enriches I/O expandable capacity with cost-efficient design; it is the best serial and digital I/O communicating solution for lite-industrial applications.

Features

- Designed to meet PCI Express Base Specification Revision 2.1.
- With high reliable SUNIX **QiuNiu** UART & 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.
- Support Node-RED serial and Modbus communication module.
- Certified by CE, FCC, RoHS, and Microsoft approvals.
- Support both standard and Low profile bracket design to meet various of PC chassis.

Serial Interfaces:

- Expands internal two (2) ports RS-232/422/485 and external two (2) ports RS-232/422/485.
- Utilize 16C950 UART and on-chip 128-bytes hardware FIFO for reliable, high-speed serial communication.
- RS-232/422/485 interface and 120Ω terminal resistor configured by software.
- On-chip patented **AHDC/CS** hardware auto flow control to guarantee no data loss.
- 2KV surge protection for all serial signals meets IEC-61000-4-5.

Digital I/O Interfaces:

- Expands isolated eight (8) 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 eight (8) 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	PCI Express
Controller	SUNIX **QiuNiu** UART & 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

Serial Ports

Interface	RS-232/422/485	No. of Port	4 ports
Controller	16C950 UART Compatible	Data bit	5, 6, 7, 8
FIFO	128byte Hardware	Parity bit	even, odd, none, mark, space
Baud rate	50bps ~921.6Kbps	Flow Control	RS-232:CTS/RTS(H/W), DTR/DSR(HW), Xon/Xoff(S/W) RS-422/485: Xon/Xoff(S/W)
Terminator	120Ω	IRQ & IO	Assigned by System
Surge Protection	2KV Surge (Meets IEC61000-4-5 requirement)		
Signal	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485: Data+, Data-, GND		
PCB Connector	2 ports on DB44 Female connector ; 2 ports on pitch 1.0 pin header connectors		

Digital Input

Type	NPN & PNP	Channel	8-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~DI8, COM, GND
Interrupt Mode	Event trigger (Rising Edge, Falling Edge, Both modes) & polling for all channels		
PCB Connector	DB44 Female connector		

Digital Output

Type	NPN	Channel	8-channel
Voltage Range	3.5 to 40VDC	Current	500mA per Channel
Isolation	2500 VDC	Pin Define	DO1~DO8, PWR, GND
Initial Protection	Load preset output value automatically during booting and restart		
PCB Connector	DB44 Female connector		

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	Support Node-RED serial and Modbus communication module. 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	146 x 68.5 mm
Bracket	Standard 121 mm / Low Profile 79.2mm
Bracket Space	1

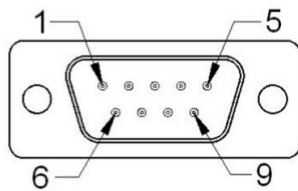### Unit : mm

Standard bracket

Low Profile bracket
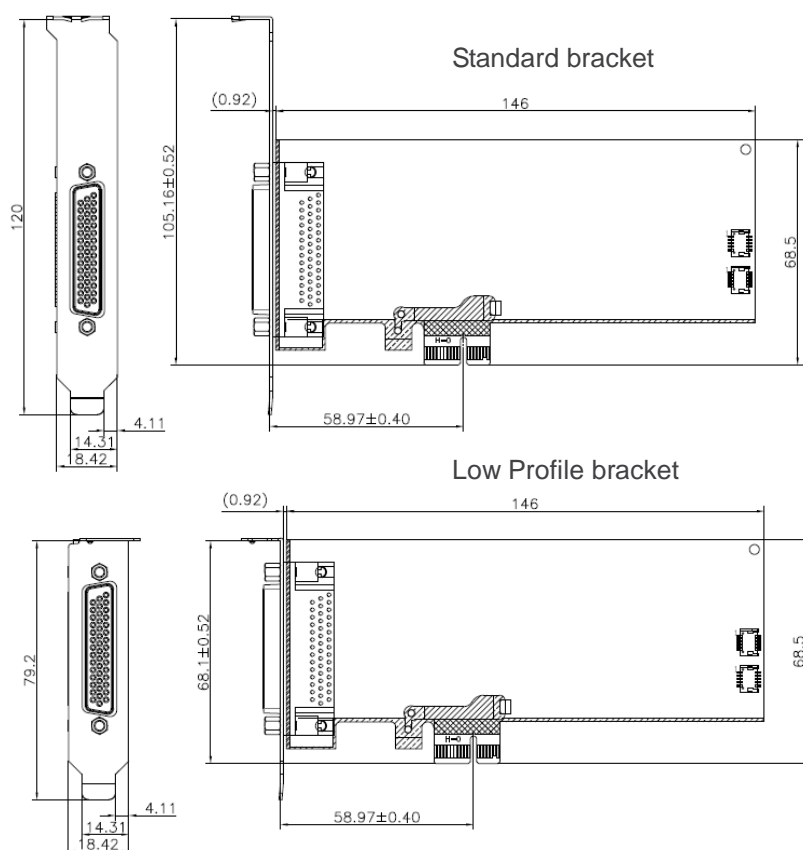
Package

- SDC4880B PCI Express Industrial I/O Control Board
- DB44 to 2-port DB9 Male & 1-port DB25 Female connection cable, 100cm
- Serial RS-232 D-Sub 9-pin male with nuts on cable, 30cm, 2 pcs
- DB25 Male DIN-rail wiring board
- Low Profile bracket
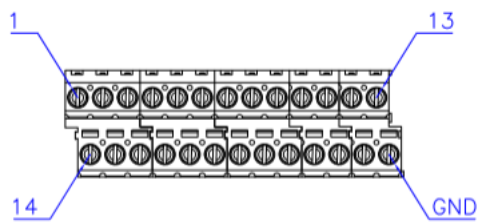- Quick Installation Guide

Pin Assignment

■ RS-232/422/485

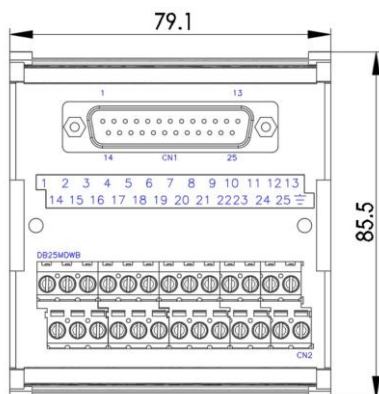| PIN	RS-232	RS-422	RS-485
1	DCD	TxD-	Data-
2	RxD	TxD+	Data+
3	TxD	RxD+	
4	DTR	RxD-	
5	GND	GND	GND
6	DSR	RTS-	
7	RTS	RTS+	
8	CTS	CTS+	
9	RI	CTS-	

■ Digital Input / Output

PIN	Digital Input	PIN	Digital Output
1	DI COM	14	DO PWR
2	DI COM	15	DO PWR
3	DI GND	16	DO GND
4	DI GND	17	DO GND
5	DI 1	18	DO 1
6	DI 2	19	DO 2
7	DI 3	20	DO 3
8	DI 4	21	DO 4
9	DI 5	22	DO 5
10	DI 6	23	DO 6
11	DI 7	24	DO 7
12	DI 8	25	DO 8
13	NC	GND	NC

Accessories

■ **DB44 to 2-port DB9 Male & 1-port DB25 Female connection cable**
■ **100cm**
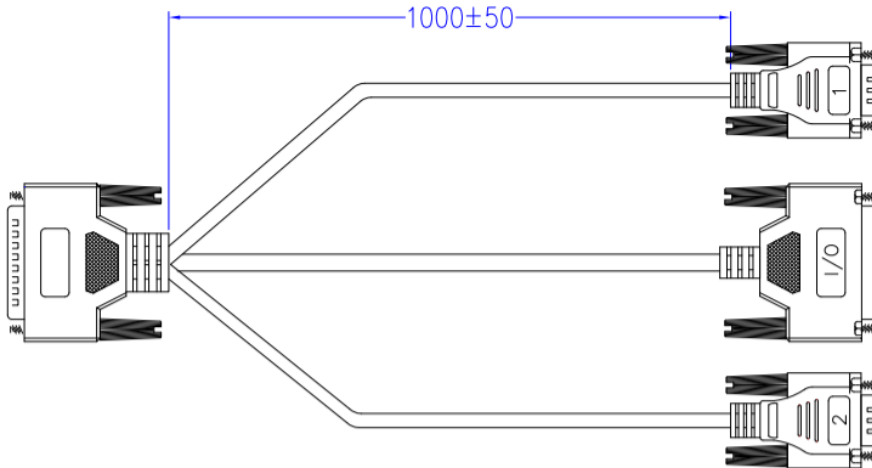
■ **Serial RS-232 D-Sub 9-pin male with nuts on cable, 2 pcs**
■ **30cm**

■ **DB25 Male DIN-rail wiring board**
■ **79.1 x 85.5 mm**

■ **Low Profile Bracket**