

PCI Express Powered USB Card

User's Manual

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Safety Information

1. Keep this User's Manual for future reference.
2. Always read the safety information carefully.
3. Keep this equipment away from direct sunlight, or in humid or damp places.
4. Do not place this equipment in an unstable position, or on vibrating surface before setting it up.
5. Do not use or place this equipment near magnetic fields, televisions, or radios to avoid electronic interface that affects device performance.

Regulatory Compliance

FCC Conditions

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This equipment may not cause harmful interference
- (2) This equipment must accept any interference received, including interference that may cause undesired operation.

Important! Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment. Use an approved phone set.

CE

This equipment is in compliance with the requirements of the following regulations: EN 55022:

CLASS B

WEEE Information

For EU (European Union) member users: According to the WEEE (Waste electrical and electronic equipment) Directive, do not dispose of this product as household waste or commercial waste. Waste electrical and electronic equipment should be appropriately collected and recycled as required by practices established for your country. For information on recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.



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1.

Introduction

Thank you for purchasing SUNIX Powered USB PCI Express Card, which is designed to enable users accessing USB devices without additional external power supply connection. Powered USB provides the necessary power as well as the communication signals over a hot pluggable cable. SUNIX Powered USB PCI Express Add-On card, carrying the latest power switching technology provides +12V and 24VDC, through the PC power supply directly to its Powered USB ports. Powered USB PCI Express Add-On card is backward compatible to regular USB 1.1 and USB 2.0 devices.

The following topics are covered in this chapter:

- ◆ **1.1 Overview**
- ◆ **1.2 Package Checklist**
- ◆ **1.3 Product Features**
- ◆ **1.4 Product Specifications**

1.1 Overview

USB allows peripheral devices to exchange data with a PC and also to receive power over the USB bus. Unfortunately, the bus supplied power is limit to 2.5 Watts (0.5A @ +5V) per port, sufficient to provide enough power to input devices, web cameras among other low power devices. Other devices like printer, displays, pin pads, external CD-ROM and hard drives still require an external power supply. Here comes Powered USB, it eliminates the need for additional power supplies. Powered USB provides the necessary power as well as the communication signals over a hot pluggable cable. In addition, the Powered USB solves the physical host side cable locking problem associated with the standard USB connector by providing a host cable locking mechanism.

The Powered USB PCI Express Add-On card provides a convenient and affordable way to add up to 3 Powered USB 2.0 ports to a PC. Devices which require more power than provided by the regular USB interface can be easily installed and used with no need for an additional power supply. SUNIX Powered USB PCI Express Add-On card, carrying the latest power switching technology provides +12V and +24VDC, through the PC power supply directly to its 3 Powered USB ports. Powered USB PCI Express Add-On card is backward compatible to regular USB 1.1 and USB 2.0 devices.

Retail POS systems become more and more stylish now days, with limited space for the terminal and all peripherals inside. Safe your valuable space and get rid of the peripherals' power supplies using the Powered USB PCI Express Add-On card. This Add-On card is the ideal solution for today's point of service retail systems.

1.2 Package Checklist

Please check if the following items are present and in good condition upon opening your package. Contact your vendor if any item is damaged or missing.

1. Powered USB PCI Express Card
2. User's Manual (This document)

1.3 Product Features

- Compliant with PCI Bus Power Management Interface Specification Revision 1.2
- Compliance with PCI Express Base Specification Reversion 1.1.
- Compliant with the Universal Serial Bus (USB) Specification Revision 2.0
- High performance USB2.0 PCI Express host controller on board.
- Support 3 external Powered USB ports.
- Powered USB port supports +24 and +12VDC power output with maximum 3A / per port.
- Each Powered USB ports built-in over current protection.
- Plug-n-Play, I/O address and IRQ assigned by operating system.
- Support USB device Hot-Swapping and Plug-n-Play function.
- Compatible with modern standby runtime D3 (RTD3) cold power saving requirement.
- Low profile bracket design idea for slim or portable PC.
- Support Linux, Microsoft Windows 10 (x86/x64) and 11 operation system.

1.4 Product Specifications

Hardware

BUS	PCI Express Spec 1.1, Single-Lane (x1)
Controller	PCI Express USB3.0 Host controller, ASM3042
USB Standard	Enhanced Host Controller Interface (EHCI) and Open Host Controller Interface (OHCI)
IRQ & IO	Assigned by System

Serial Communication

Interface	Universal Serial Bus 2.0
Speed	High-Speed (HS), Full-Speed(FS) and Low-Speed(LS) Data Transfer rate of 1.5, 12, and 480Mbps
No. of Port	3-port
Protection	±15KV ESD protection for each signal Human Body Model (HBM) ±15KV IEC61000-4-2 Air Gap Discharge ±8KV IEC61000-4-2 Contact Discharge
PCB Connector	Powered USB Connector

Power

Source	+12VDC / PCIe GFx power connector 2x3 Type
Output Capacity	Standard USB2.0 Port: +5VDC / Maximum 0.5A / each port Powered USB Port: +24VDC / Maximum 3.0A / each port +12VDC / Maximum 3.0A / each port Note: Total power output capacity will be limited by system power supply.
Over Current Protection	Standard USB2.0 Port: +5VDC / Share Maximum 2.0A / 3-port total Powered USB Port: +24VDC / 3.0A@30V PTC fuse / each port +12VDC / 3.0A@16V PTC fuse / each port
Power Consumption	1.1W @ 3.3V (board only without power output to device)

Driver Support

Microsoft Client	Windows 10 (x86/x64)/ 11
Microsoft Server	2012 R2 /2016 /2019 (x86/x64) and above
Linux	Linux 2.6 and above

Environment

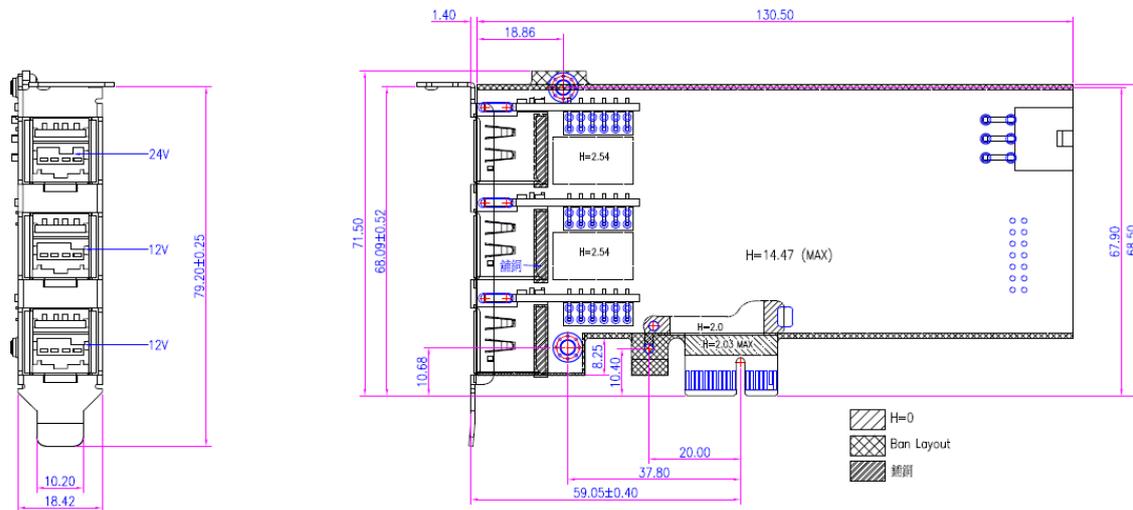
Operation Temperature	0 to 60°C (32 to 140°F)
Operation Humidity	5 to 95% RH
Storage Temperature	-20 to 70°C (-4 to 158°F)

Standards and Certifications

EMC	CE, FCC, VCCI, BSMI
Green	RoHS, WEEE

Physical Characteristics

PCB Dimension	130 x 68 mm
Bracket	Low profile 80 mm
Bracket Space	1



2.

Hardware Installation

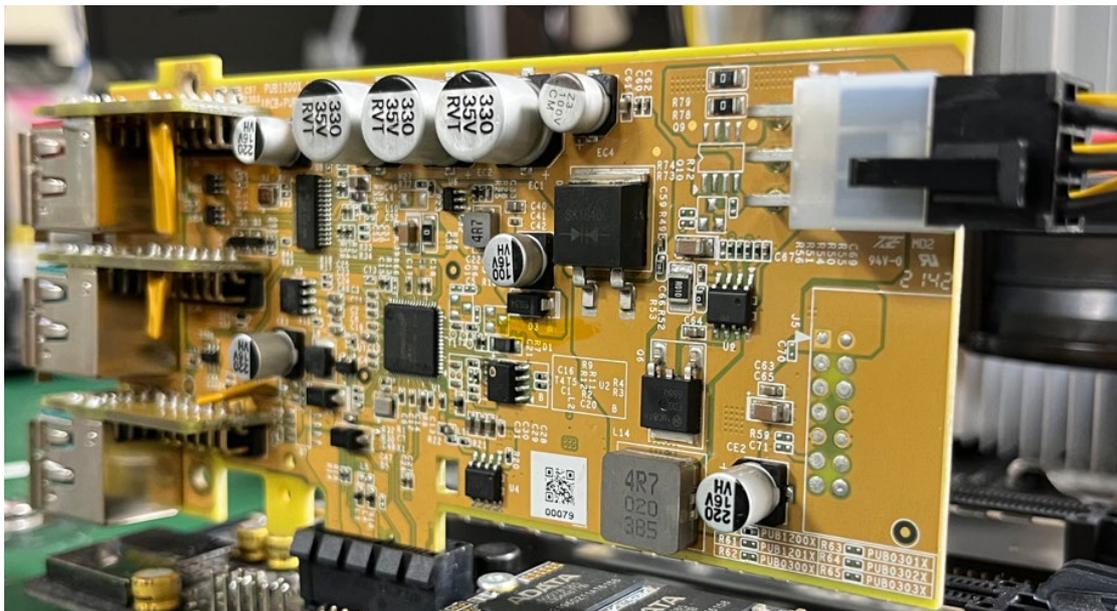
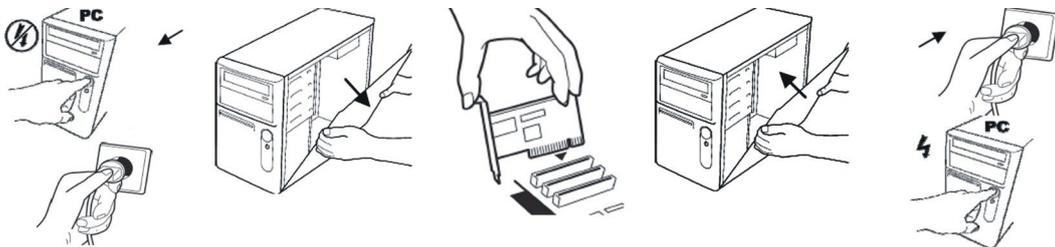
This chapter includes information about hardware installation for PCI Express Powered USB PCI Express Card. The following topics are covered:

- ◆ **2.1 Hardware Installation**
- ◆ **2.2 Product Configuration Options**
- ◆ **2.3 Pin Assignments**

2.1 Hardware Installation

Follow the instruction given below to install the Powered USB PCI Express Card.

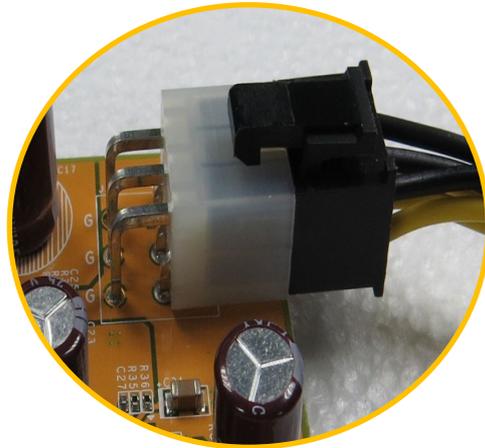
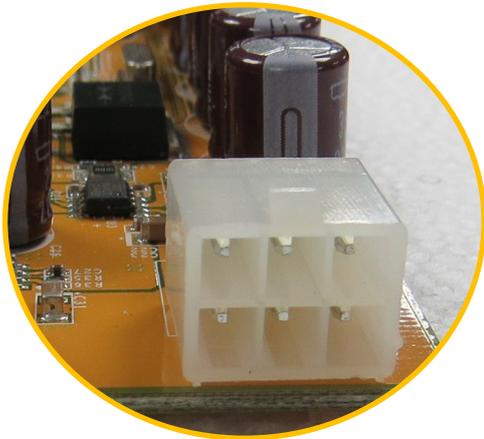
1. Turn your computer off
2. Remove the power plug from the plug socket.
3. Remove the cover from the computer case.
4. If fitted. Remove the metal cover plate on the rear of a free PCIe slot.
5. Insert USB 2.0 PCI Express Card into the free PCI Express slot and screw it firmly on the bracket side.
6. Plug the PCIe GFX 6-pin power male connector from power supply into the 6-pin power female connector on board.
7. Place the cover back onto the computer.
8. Insert the plug into the plug socket.



SAFETY FIRST

1. To avoid damaging, make sure to disconnect power connection before wiring or disposing the Powered USB card.
2. In order to output enough power to your device, we strongly recommend using 400W or above power supply in your system.
3. PCIe GFX 6-pin power sets all should be plugged by power cable.
4. Does NOT use power Y-cable or share power with graphics card; we strongly recommend connecting independent power cable directly from power supply.

Power for the USB Powered USB connectors are supplied from PCIe GFX power connector located on the PCB. These connectors allows a PC graphics card's power supply connector to provide the higher currents required by the power peripherals.



2.2 Product Configuration Options

SUNIX provides several models with different power voltage output for customer options.

PUB1200X

+24VDC / 1-port / Maximum 3A each port



PUB1200XL (Low Profile)

+12VDC / 2-port / Maximum 3A each port



PUB0300XL (Low Profile)

+12VDC / 3-port / Maximum 3A each port

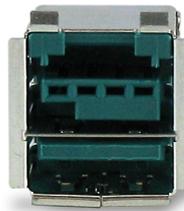


2.3 Pin Assignments

The Powered USB connectors are a standard USB “A” type connector with 4 extra pins designed to supply higher voltages. In order to differentiate varieties of power voltage level, Powered USB connector built-in different connect-key with different color coding to allow the correct voltage cable connection.



+24VDC Voltage Keyed with Red coding



+12VDC Voltage Keyed with Teal coding

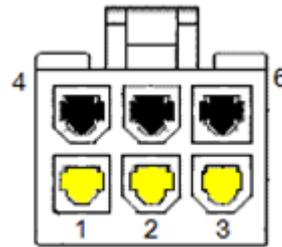
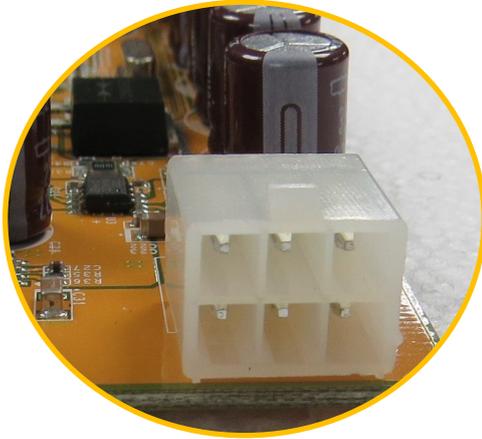


+5VDC Voltage Keyed with Black coding

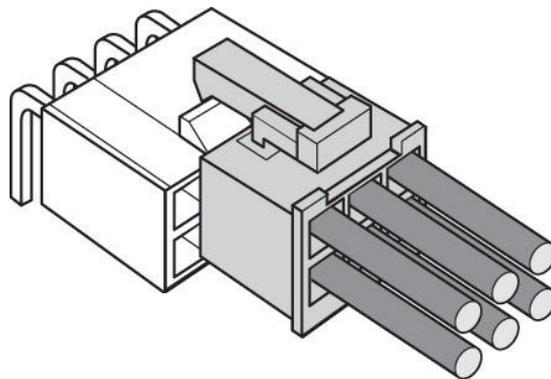


Pin No.	Signal Name	Port Type	Description
1	VBus Power	USB Type A Port	Bus power (connected to +5V)
2	D -	USB Type A Port	Twisted pair differential data line
3	D +	USB Type A Port	
4	Ground	USB Type A Port	Signal ground
5	Ground	Powered USB Port	
6	VBus-Plus Power	Powered USB Port	Bus power (connected to +24V, +12V, or +5V)
7	VBus-Plus Power	Powered USB Port	
8	Ground	Powered USB Port	Signal ground
9	Connect Key	Powered USB Port	Key to prevent incorrect connection
Shell	Shield	Powered USB Port	Cable (shield) ground

SUNIX Powered USB card has one right-angle internal PCIe GFX power connector that sources from power supply. Here is the Pin Definition of PCIe GFX power connector.



Pin No.	Signal Name	Description
1	+12V	+12VDC
2		+12VDC or not connected
3		+12VDC
4	GND	Ground
5		Ground
6		Ground



3.

Driver Installation

After Powered USB card hardware installs properly in your system, the first thing you should do is that check operation system detect the card or not. This chapter introduces the method to confirm the Powered USB card installation.

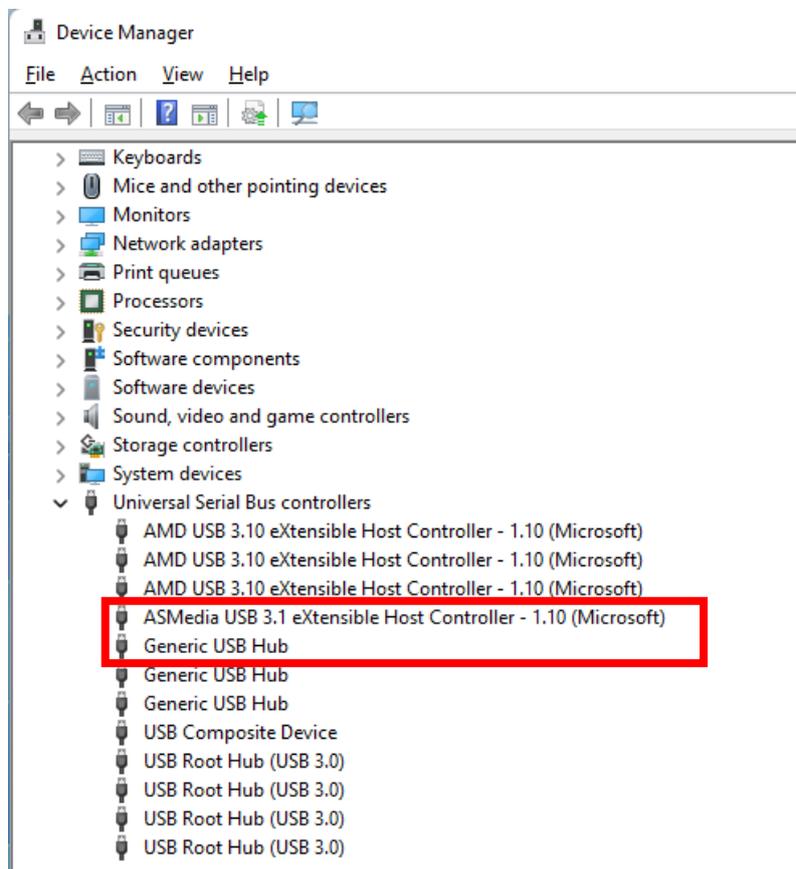
The following topics covered in this chapter:

- ◆ **3.1 Driver Installation**
- ◆ **3.2 Powered USB Card Operation**

3.1 Driver Installation

Powered USB PCI Express Card will be installed automatically with system USB in-box driver. Please check click on the “**Device Manager**” tab in System Properties, which you access from the Windows Control Panel. You should see an entry for the driver you installed under the Universal Serial Bus Controllers item.

Start > Controller Panel > System > Device Manager



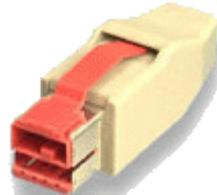
You can find out “**ASMedia USB3.1 eXtensible Host Controller**” and “**Generic USB Hub**” under Universal Serial Bus Controllers item.

3.2 Powered USB Card Operation

User can plug standard USB Type A male or Powered USB male cable into the Powered USB connector on board.



Standard USB Type A Male



Powered USB Male Type

Please press the key on the Powered USB male connector, then you can eject the cable from the card.



SAFTY FIRST

Unplugging or ejecting a device without first stopping them can often cause your computer to crash and lose valuable data. To safely unplug or eject any of the USB devices, firstly use the hardware wizard in the control panel to stop the devices. Or you can use the **“Safety Remove”** icon on the taskbar to quickly unplug or eject your devices.



4.

Troubleshooting

This chapter shows some problems that user came with usually. Also you can check it if the Powered USB Card can not work properly in your system after following hardware and software installation steps.

◆ 4.1 Troubleshooting

4.1 Troubleshooting

1. If the card and devices connected to the computer do not seem to be working properly, please perform following basic troubleshooting steps:

1. Check that all cables are correct and securely connected.
2. Make sure the devices are turned on.
3. Make sure the devices are getting the power they require.
4. Make sure there is no problem with the card installation.

2. Computer failed to start after inserting the Powered USB PCI Express Card.

Turn off the computer, remove the Powered USB PCI Express Card, and try to restart the computer. If the computer starts successfully, it means that the card has not been inserted into the PCI slot correctly. Please insert the card firmly into the PCI slot or try another slot.

3. The USB cable has been extended and the device no longer works.

The length of the USB cable must not exceed 3.5 meters. Please do not extend the cable or a USB repeater must be used if the cable is longer than 3.5 meters.

4. Is it possible to connect current USB 1.1 devices to the Powered USB PCI Express Card?

Yes.

The device will not, however, obtain the USB 2.0 speed (480 Mbits/sec) but the USB 1.1 speed (12 Mbits/sec).

5. Is it possible to connect a USB2.0 hub to the Powered USB PCI Express Card?

Yes. You will then be able to connect a number of devices (max. 127) to one USB port.

6. Why not I can get enough power current to my Powered USB device?

Our Powered USB card PCB design can tolerance up to 3Amp power current per port, so please use sufficient 400W or above power supply. Of course, if your system connect many devices which cost lots of power current, such as VGA graphic card, DVD ROM, or hard disk, we recommend using more than 500W power supply in your system.

7. There is no +24, +12 , or 5VDC power output to Powered USB device.

Please confirm PCIe GFX 6-pin power sets are all connection ready. Please refer to the chapter 2 hardware installation for detail.

8. May I have different power voltage combination of Powered USB port mode or LOW PROFILE bracket support?

Yes, we provide several models with different power voltage output for customer options. If our current model can not satisfy your request, please contact us for the detail service.

5.

Appendix

This chapter shows you how to contact with us.
In this appendix, we cover the following topics.

◆ 5.1 Contact Information

5.1 Contact Information

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, SUNIX services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support

..... info@sunix.com

World Wide Web (WWW) Site for product information:

..... <https://www.sunix.com>