



AXIOMTEK

AX92321-4U/8U

**4-port/8-port USB3.0 PCI Express
Card with 4 independent host
controllers**

User's Manual



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ESD Precautions

The boards have integrated circuits sensitive to static electricity. To avoid damaging chipsets from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on a human body.
- When handling boards and components, wear a grounding wrist strap available from most electronic component stores.

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Section 1

Introduction

This section contains general information and detailed specifications of the AX92321-4U/8U 4/8-port USB 3.0 PCI Express card, including the following sections:

- General Description
- Features
- Specifications
- Dimensions

1.1 General Description

The AX92321 has two versions – 4-port or 8-port – for users to choose from for various applications. The 4-port AX92321-4U has four independent Renesas μ PD720202 USB 3.0 host controllers to offer up to 5 Gbps bandwidth per port, even when four ports are used simultaneously. The AX92321-4U/8U can be configured to support maximum 900mA or 1500mA current output to supply stable power for various external USB devices. The AX92321-4U/8U also support power on/off control for each port via software settings. This USB 3.0 PCI Express card is able to operate under a wide operating temperature range of 0°C to 70°C, allowing it to be used in harsh environments for vision and factory automation applications.

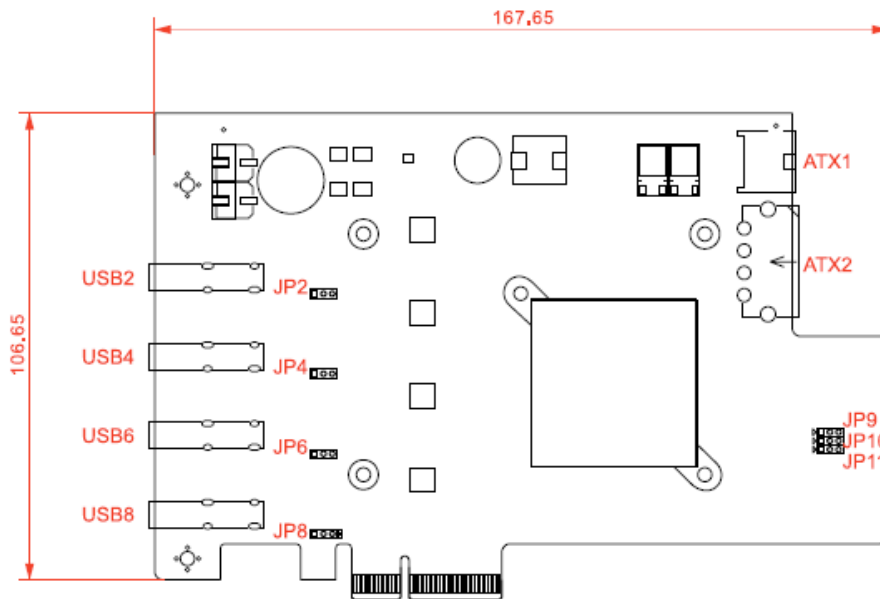
1.2 Features

- Four or eight USB 3.0 ports
- Four independent USB 3.0 host controllers
- 900 mA/1500 mA max. per port configurable via jumper settings
- Compliant with USB 3.0 Rev.1.0 and Intel® xHCI Rev.1.0
- PCI Express x4 interface
- Operating temperature from 0°C to 70°C
- Supports Windows7/10
- Supports power on/off for each port via software settings

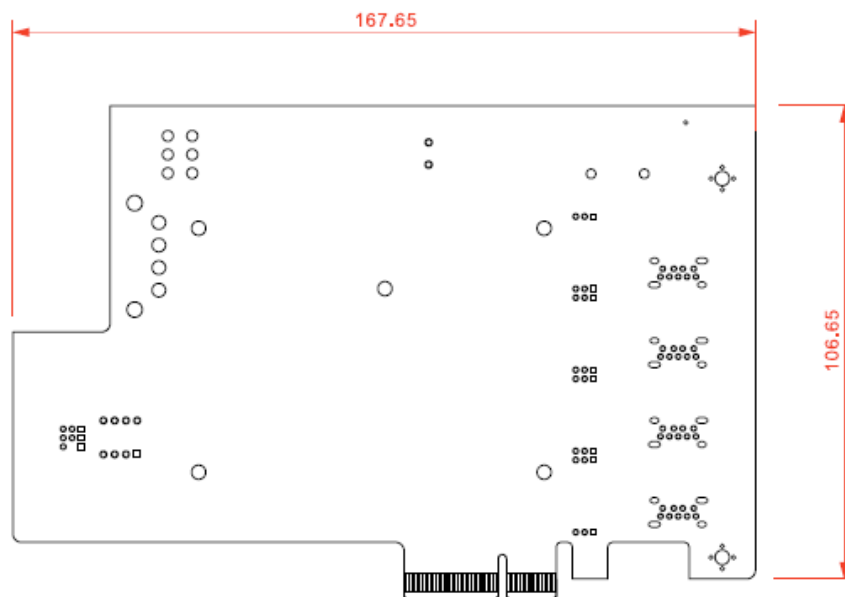
1.3 Specifications

- **Channels**
 - 4/8 x USB 3.0 type A connector
- **Controller**
 - 4 x Renesas μ PD720202 host controllers; compliant with USB 3.0 specification and Intel® xHCI specification, revision 1.0
- **Max. Current**
 - 900/1500 mA maximum per port configurable via jumper settings
- **Data Transfer Rate**
 - Super speed (5.0 Gbps)/high speed (480.0 Mbps)/full speed (12.0 Mbps)/low speed (1.5 Mbps)
- **Dimensions**
 - W 168mm x D 107 mm
- **OS Support**
 - Windows® 7, Windows® 10 (32/64-bit)
- **Environmental**
 - Operating temperature: 0°C ~ 70°C
 - Operating humidity 10% ~ 95% non-condensing
 - Storage temperature: -20°C ~ 80°C
- **Certifications**
 - CE compliance
- **Power Requirements**
 - Power from PCIe slot (Max. 20W output)
 - 2.1A @ +12V
 - 0.8A @ +3.3V
 - Power from ATX power connector (Max. 60W output for ATX power or 4P Molex power)
 - 5A @ +12V or 2.5A @ +24V
 - 0.8A @ +3.3V (from PCIe slot)
 - Power from 4P Molex power connector
 - 5A @ +12V
 - 0.8A @ +3.3V (from PCIe slot)

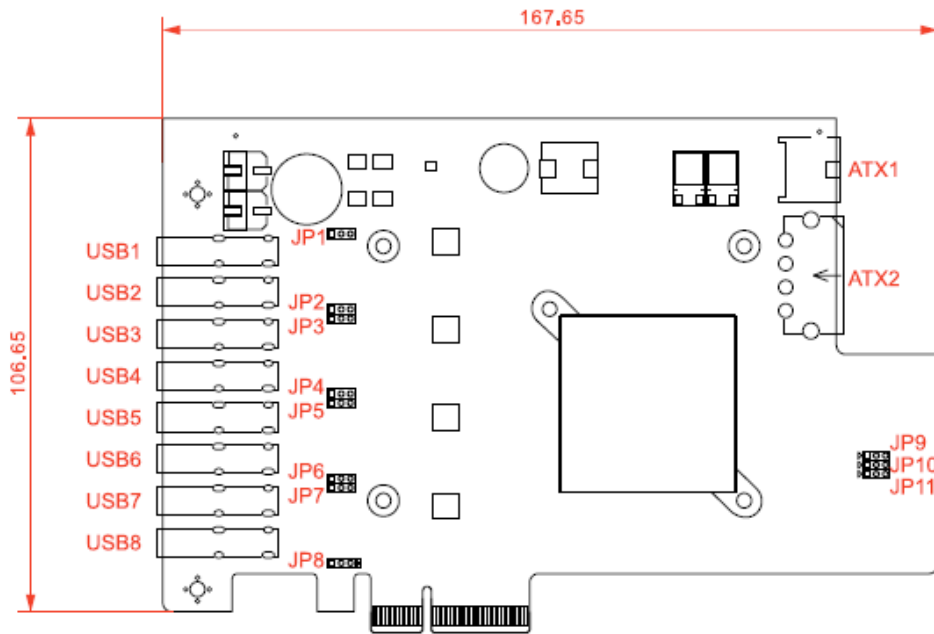
1.4 Dimensions



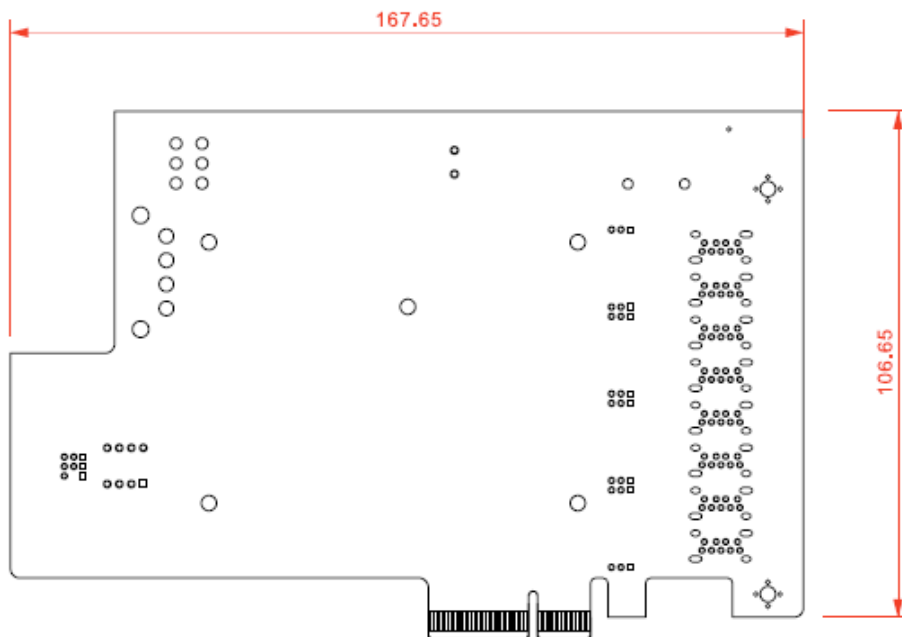
AX92321-4U Component Side



AX92321-4U Solder Side



AX92321-8U Component Side



AX92321-8U Solder Side

Section 2

Connectors & Jumper

2.1 Connectors

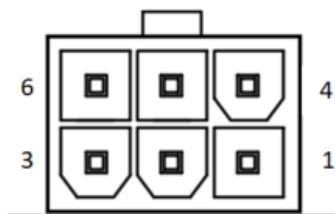
Connectors connect the board with other parts of the system. Loose or improper connection might cause malfunctions. Make sure all connectors are properly and firmly connected. The following table lists the function of each connector on the AX92321.

| Connectors | Label |
|------------|-------|
| ATX1 | 2.1.1 |
| ATX2 | 2.1.2 |

2.1.1 12/24V Power Input (ATX1)

Note: 24V is for Axiomtek's system use only.

| Pin | Signal |
|-----|--------------|
| 1 | +12V / +24V |
| 2 | +12V / +24V |
| 3 | +12V / +24V |
| 4 | Ground (GND) |
| 5 | Ground (GND) |
| 6 | Ground (GND) |



2.1.2 4P Molex Male connector (ATX2)

| Pin | Description |
|-----|-------------|
| 1 | 12V |
| 2 | GND |
| 3 | GND |
| 4 | NC |



2.2 Jumper setting for current limit

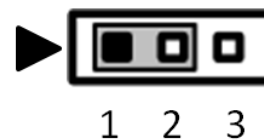
The following table lists each jumper on the AX92321.

| Jumper | Label |
|----------|-------|
| JP1~JP8 | 2.2.1 |
| JP9~JP11 | 2.2.2 |

2.2.1 Output current USB port setting (JP1~JP8)

If a device over current setting, a USB port will stop providing current. When you restart the system, the USB port will recover this function.

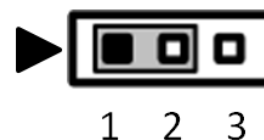
| Function | Setting |
|----------|-----------|
| 900mA | 1-2 close |
| 1500mA | 2-3 close |



2.2.2 Board ID (JP9~JP11)

Default jumper setting is 0.

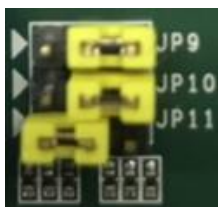
| Function | Setting |
|----------|-----------|
| Bit=1 | 1-2 close |
| Bit=0 | 2-3 close |



| JP9 | JP10 | JP11 | Board ID |
|-----|------|------|----------|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 2 |
| 0 | 1 | 1 | 3 |
| 1 | 0 | 0 | 4 |
| 1 | 0 | 1 | 5 |
| 1 | 1 | 0 | 6 |
| 1 | 1 | 1 | 7 |

Example:

When JP9, JP10 both set to 0 and JP11 set to 1, the board ID is 1 Please also refer to the configuration as the picture below illustrates.



Note: When you use two or more cards in your system, please use this configuration.

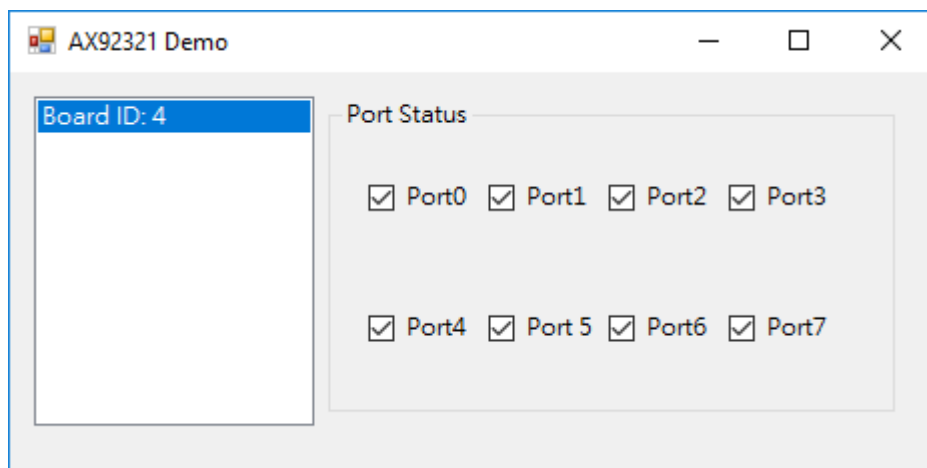
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Chapter 3

Software

3.1 Software User Guide

The tool allows you to easily verify AX92321 module; further, It also supports power on/off control for recovering each port.



1. Board ID List

This section will show available devices in your system.

2. Port Status

Check/Uncheck to control port status. (Checked as ON)



Note: AX92321-4U: Port1, Port3, Port5 and Port7 are not valid.