USB3.1 Enhanced SuperSpeed PCI Express Host Card with Type-C Receptacle

User Manual

ver.1.0

www.sunix.com

Driver & Manual Download :

Please visit SUNIX website *http://www.sunix.com* by searching keyword "USB2311C" or "USB2312C" for manual & driver update.

Introduction

SUNIX USB2311C (/USB2312C) is a 1 (/2)-port Super-Speed USB3.1 PCI Express card, and it's compliant with the PCI Express Generation 3 specification for host PC system. Based on USB Type-C pure DFP (Downstream Facing Port) mode, it works up to 10 Gbps for data transfer when connecting to USB 3.1 compliant peripherals, while maintaining compatibility with existing USB peripheral devices. USB3.1 performance is 2 times faster than USB3.0, and 20 times faster than USB2.0 connectivity.

With USB Type-C Receptacle, SUNIX USB3.1 host card sports reversible plug orientation and cable direction, which means that users will no longer need to be concerned with plug orientation/cable direction, making it easier to plug in. The new connector is smaller and thinner design, but drive higher power output capacity to USB device. USB Type-C port supports 5VDC@3000mA power output to USB device with over current protection on each USB port. This card is an ideal choice for external storage devices, digital cameras, webcam, video devices, and all other USB electronic devices.

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. USB3.1 PCI Express Host Card: (product dependent)
   * USB2311C - 1-port USB3.1 PCIe Host Card with Type-C Receptacle or
   * USB2312C - 2-port USB3.1 PCIe Host Card with Type-C Receptacle
2. CD Driver
3. User's Manual (this document)

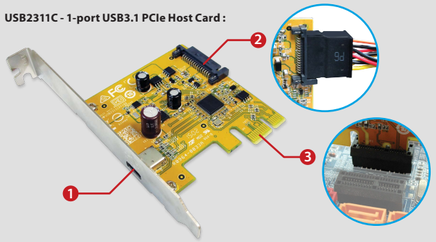
Optional Accessory (product dependent):
USB Type-C (Male) to Type-A (Female) Dongle

System Requirement

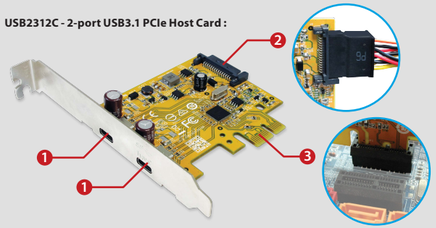
- One available x1, x4, x8 or x16 PCI Express slot. (Recommend PCI Express Gen3)
- Microsoft Windows 7, 8.x and 10 operation system.
- INTEL Core i Processor with 4GB DDR RAM or above.
- CD/DVD-ROM drive for driver installation, or user can download driver from SUNIX Website.

Hardware Guide

USB2311C - 1-port USB3.1 PCIe Host Card :



USB2312C - 2-port USB3.1 PCIe Host Card :



1. External USB3.1 Super-speed+ Type-C Female port
2. Power Sourcing Connector SATA Type
3. PCI Express x1 Gold Finger

Note:

1. In order to output effieient +5VDC power to USB device, be sure to plug SATA power cable (from PC's power supply) into USB3.1 card's SATA power connector.
2. In order to get USB3.1 SuperSpeed+ performance, please use PCI Express Generation**3** slot for card installation. Or only get half of the data transfer rate.

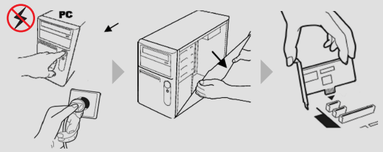
Features

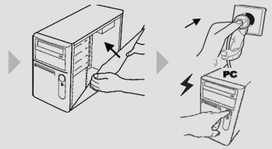
- PCI Express Base Specification Revision 3.0 single-lane (x1).
- Compliant with Universal Serial Bus 3.1 specification Gen2.
- Compliant with xHCI (eXtensible Host Controller Interface) SPEC Rev 1.1.
- Supports simultaneous operation of multiple USB 3.1, 3.0, 2.0 & 1.1 devices.
- Supports USB data transfer rate of 10G/5G/480/12/1.5 Mbps.
- Expands single external USB3.1 Super-Speed+ Type-C port (DFP) on the system.
- Each USB port supplies maximum +5VDC / 3000mA power output to USB device.
- Built-in over current protection on the USB port.
- Support device remote wakeup function from USB keyboard or mouse.
- Hot-swapping feature allows connect/disconnect USB devices.
- Driver supports for Microsoft Windows 7, 8.x and 10 operation systems.
- Certified by Electromagnetic Compatibility (CE, FCC, VCCI, C-Tick, BSMI).
- Green Product meets RoHS standard and Low Power consumption.

Hardware Installation

Follow the instruction given below to install the PCI Express Card:

1. Turn your computer off and remove the power plug from the plug socket.
2. Remove the cover from the computer case.
3. Remove the metal cover plate on the rear of a free PCI Express slot (e.g. PCIex16).
4. Insert the card into one free PCI Express slot and screw it firmly on the bracket side. Plug SATA Power cable (from PC's Power Supply) to the add-on card's SATA port.
5. Place the cover back onto the computer.
6. Insert the plug into the plug socket.





Safety First:
To avoid damaging, make sure to discount power connection before wiring or disposing USB3.1 card installation.

Unplugging or ejecting a devices 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, always use "**Safely Remove USB Device**" icon on the taskbar to quickly unplug or eject your USB devices.

Specification

Hardware

BUS	PCI Express Spec 3.0, Single-Lane (x1)
Controller	PCI Express USB3.1 Host controller, Asmedia ASM1142
USB Standard	eXtensible Host Controller Interface (xHCI) Rev1.1
IRQ & IO	Assigned by System

USB Communication

Interface	Universal Serial Bus 3.1 / 3.0 / 2.0 / 1.1
Speed	Super Speed+ (10Gpbs), Super Speed(5Gpbs) High Speed(480Mbps), Full Speed(12Mbps), Low Speed (1.5Mbps)
No. of Port	USB2311C: 1-port USB2312C: 2-port
PCB Connector	USB3.1 USB Type-C port (Downstream Facing Port)
Protection	±8KV IEC61000-4-2 Air Gap Discharge ±4KV IEC61000-4-2 Contact Discharge

Power

Source	SATA Power Connector Type
Output Capacity	USB Type-C Port: +5VDC / Maximum 3.0A / each port Note: Total power output capacity will be limited by system power supply.
Over Current Protection	USB Type-C Port: +5VDC / Maximum 3.7A / each port
Power Consumption	1.1 W @ 3.3V (board only without power output to USB device)

Driver Support

Microsoft	Windows 7 (X86/X64) Windows 8.x / 10 (X86/X64) (Windows in-box driver)

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	EUR: CE, EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3 US: FCC Part 15 Class B TAIWAN: BSMI: CNS13438 AS/NZS: C-Tick: CISPR22 JAPAN: VCCI
Green	RoHS, CRoHS, WEEE

Physical Characteristics

PCB Dimension	65.3 x 68.5 mm
Bracket	Standard 120 mm (Low Profile 80mm)
Bracket Space	1

Note:

To comply with status of most motherboard's available PCIex1 expansion slot, this USB3.1 host card adopts the PCIe **Gen3/x1 (8Gb/s)** interface connector design. However, most PC system does not support PCIe Gen3 specification, but only PCIe Gen2x1 (5Gb/s) performance. So that SUNIX USB3.1 host card could not sport full-power performances (10Gb/s). Please contact with your PC vendor for system detail information.

To satisfy USB3.1 10Gb/s SuperSpeed+ highest performance, please pick SUNIX USB2312 (USB3.1 PCIe add-on card with 2-port USB Type-A Receptacle) that adopts PCIe **Gen2/x2 (10Gb/s)** interface connector design. User has to plug USB2312 add-on card into PCIe x16 (or x4 above) slot on the mainboard, such as graphics add-on card adopting.

Driver Installation

SUNIX USB3.1 PCIe Host card design bases on Microsoft Windows operation systems.
The table in this topic provides the operating system for the driver support lists.

Operating System	USB3.1 Driver	Remark
Windows **10**	**Driver Free**	Microsoft Windows in-box driver (with UASP).
Windows **8 / 8.1**		
Windows **Server 2012R2**		
Windows **7**	Driver is Necessary * USB3.1 Host Diver * Microsoft USB Hotfix	User has to install additional USB3.1 driver. * Asmedia USB3.1 Host IC Driver (without UASP). * Microsoft USB Hotfix Diver KB 2581464.
Windows **Server 2008R2**		
Windows **XP**	Do NOT support	USB Driver implemented USB3.0 performance only.
Windows **Vista**		
Windows **Server 2003**		
Linux	Do NOT support	USB Driver implemented USB3.0 performance only. Linux Kernel 2.6.31 or later includes USB3.0 driver.
MAC OS	Do NOT support	Do NOT support
DOS	Do NOT support	Do NOT support

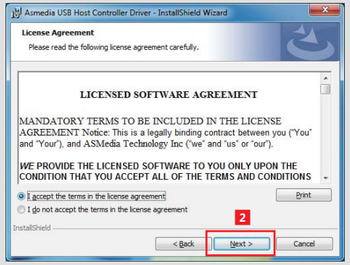
Please note that Microsoft® USB Hotfix driver has to install separately on Win7 and 2008R2. Due to Microsoft® licensed issue, driver package is not included, user can go to Microsoft official website (***http://support.microsoft.com/***) and search keyword "**KB 2581464**" to download driver package.

Asmedia USB3.1 host controller driver is necessary under Microsoft Windows 7 and Server 2008R2 operation system. Please install driver as below steps:

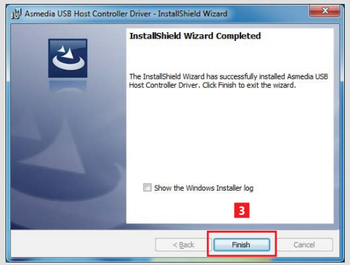
(1) Please insert the attached CD into your DVD ROM and click **Setup.exe**.
User also can go to SUNIX website to download least driver verison.

: \ USB \ USB3.1 \ Asmedia \ Setup.exe

(2) Click "**Next**" to continue.
Please check accept license agreement box, and click "**Next**" to continue.



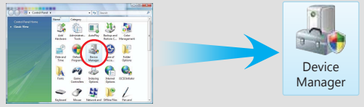
(3) Specify driver installation folder in system and click "**Next**" to continue
Click "**Finish**" to end of the driver installation steps.



Hardware Verify

Click on the "**Device Manager**" tab in the Windows Control Panel

Start > Control Panel > Device Manager



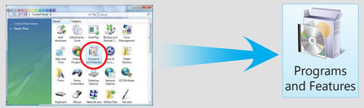
Under Win7 and 2008 OS, entry Universal Serial Bus controllers catalog, and "**ASMedia XHCI1.1 Controller**" shows in the device manager.

Under Win10, 8.x and 2012 OS, entry Universal Serial Bus controllers catalog, and "**ASMedia USB3.0 eXtensible Host Controller - 0110 (Microsoft)**" shows in the device manager.
USB3.0 description will be updated at the next Microsoft driver hot-fix.

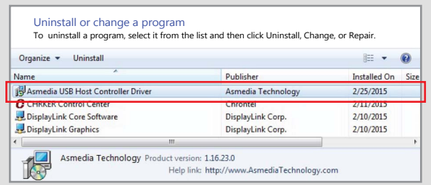
Driver Uninstall

Click on the "**Programs and Features**" tab in the Windows Control Panel

Start > Control Panel > Programs and Features



Entry Uninstall or change a program page, and double click "**ASMedia USB Host Controller Driver**" to process driver uninstallation procedure.

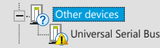


Troubleshooting

Q 1. If card and devices connected to the computer do not seem to be working properly, please perform below basic troubleshooting steps:
Ans:a. Check that all cables are correct and securely connected.
b. Make sure USB device's power is turned on.
c. Make sure the devices are getting enough power they require.
d. Make sure there is no problem with the card installation.
e. Make sure to plug SATA Power cable (from PC's Power Supply) to the add-on card's SATA port.

Q 2. Computer failed to start after inserting the USB3.1 PCI Express card.
Ans: Turn off the computer, remove the USB3.1 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 Express slot correctly. Please clean PCI golden finger by rubber firstly, then change another PCI-E slot!

Q 3. How to deal with there is a yellow exclamation point on controller?



Ans:a. Please shutdown your computer and move the card to another available slot then re-install USB3.1 driver.

b. Please point on this device then right-check on the mouse.
Selecting "Update Driver" to renew USB driver.

c. This exclamation point usually means there is a resource conflict between the this card and another card in your system. Please move the card to another available slot. Restart your computer. Windows will re-configure itself and re-assign resources. Check your device manager again.

Q 4. The USB cable has been extended and the device no longer works.
Ans: The length of the USB3.1 cable must not exceed 1.0 meters. Please do not extend the cable or a USB repeater must be used if the cable is longer than 1.0 meters. The longer cable causes poor performance.

Q 5. Is it possible to connect current USB 1.1, 2.0, 3.0 devices to the USB 3.1 PCIe card?
Ans: Yes it works. Device will not obtain the USB 3.1 10G top performance, but depends on your USB 3.0/2.0 device.

Q 6. I could not get USB3.1 top performance?
Ans: USB3.1 PCIe Card benchmark performs up to 700~750MB/s with SSD (Solid State Drive) RAID 0 structures. So please check your USB3.1 device could satisfy USB3.1 bandwidth.

Q 7. Will my USB 3.0/2.0 device raises performance when connecting with USB3.1 card?
Ans: USB3.1 card provides higher USB communicating bandwidth between PC desktop and USB device. However USB device implements performance limits on your USB device data throughput capacity itself.

Q 8. How come ASMedia USB3.0 eXtensible Host Controller - 0110 (Microsoft) shows in the device manager, instead of USB3.1 description.
Ans: USB3.1 card uses Windows in-box driver under Windows10, 8.x and 2012 operation system, and it shows default USB description. Microsoft will fix this issue at the next USB driver update. However user still can distinguish USB3.1 and USB3.0 controller by following descriptions.

USB3.1 = eXtensible Host Controller Ver **1.1** Controller = **0110** (Microsoft)
USB3.0 = eXtensible Host Controller Ver **1.0** Controller = **0100** (Microsoft)

Q 9. How to enable UASP (USB Attached SCSI Protocol) feature under Windows 7 ?
Ans: USB3.1 host controller driver does not support UASP feature. We recommend user upgrade operation system to Windows 10, 8.x or 2012 version that Windows in-box driver includes UASP feature.

Q 10. USB device can NOT source power from the host card.
Ans: To output efficient 5VDC power to USB device, make sure to plug SATA Power cable (from PC's Power Supply) to the add-on card's SATA port. This USB3.1 card does NOT support USB Power Delivery Protocol.

Regulatory Compliance

FCC Class B Declaration

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications not authorized by the manufacturer may void users authority to operate this device.

CE

This equipment meets the requirements of EC Electromagnetic Compatibility Directive (2004/108/EC and 2014/30/EC)

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.

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.

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