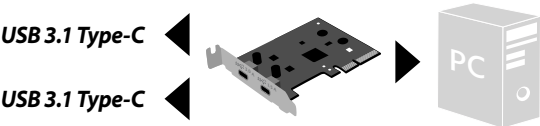




User Manual



USB 3.1 Type-C

USB 3.1 Type-C

PC



For the Latest Driver & Manual Downloads:
Visit <http://www.sunix.com> and search keyword "USB2312C" or scan the QR code on the left for manual and driver updates.

Dual USB 3.1 Enhanced SuperSpeed PCI Express Host Card with Type-C Connectors

Introduction

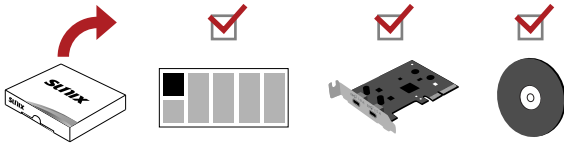
SUNIX USB2312C is a 2-port SuperSpeed USB 3.1 PCI Express card, and it's compliant with the PCI Express Generation 3 specification for host PC system. Based on USB Type-C pure DFP (Downstream Facing Port) mode, it works up to 10 Gbps for data transfer when connecting to USB 3.1 compliant peripherals, while maintaining compatibility with existing USB peripheral devices. USB 3.1 performance is 2 times faster than USB 3.0, and 20 times faster than USB2.0 connectivity.

With USB Type-C Connector, SUNIX USB 3.1 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 maximum 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

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.

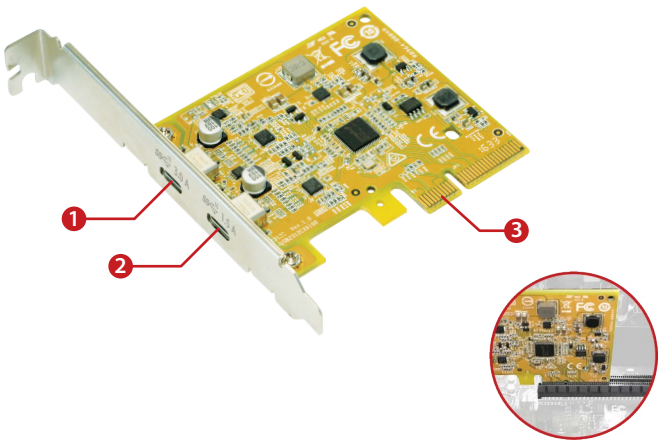
1. USB 3.1 PCI Express Host Card
2. USB2312C - 2-port USB 3.1 PCIe Host Card with Type-C Connector
3. CD Driver
3. User's Manual (this document)



System Requirement

- One available x4, x8 or x16 PCI Express slot. (Recommend PCI Express Gen3)
- Microsoft Windows or Linux 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



- 1 External USB 3.1 SuperSpeed 10G Type-C Female port (with 5V@3.0A Power Output)
- 2 External USB 3.1 SuperSpeed 10G Type-C Female port (with 5V@1.5A Power Output)
- 3 PCI Express x4 Gold Finger

Note:

In order to get best USB 3.1 SuperSpeed 10G performance, please install this card into motherboard's PCI Express Generation 3 slot.

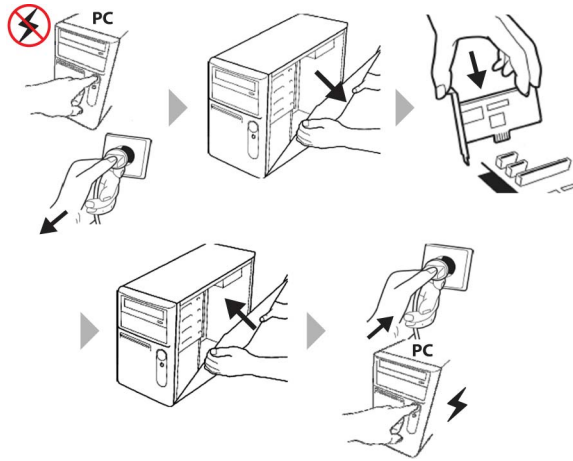
Features

- PCI Express Base Specification Revision 3.0 dual-lane (x2).
- 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 dual external USB 3.1 SuperSpeed 10G Type-C port (DFP) on the system.
- USB port supplies maximum +5VDC / 3000mA power output to USB device.
- Built-in over current protection on each USB port.
- Hot-swapping feature allows connect/disconnect USB devices.
- Driver supports for Microsoft Windows 7, 8.x, 10 and Linux Kernel 4.6 or later OS.
- 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:

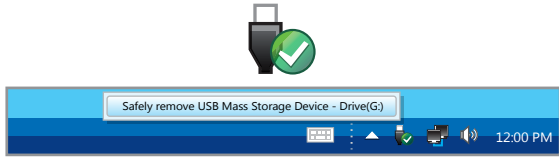
1. Turn your computer off and remove the power plug from the plug socket.
2. Remove the cover from the computer case.
3. Remove the metal cover plate on the rear of a free PCI Express slot (e.g. PCIe16).
4. Insert the card into one free PCI Express slot and screw it firmly on the bracket side.
5. Place 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 USB 3.1 card installation.

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



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E-mail for technical support: info@sunix.com
Website for product information: www.sunix.com
Tel.: +886-2-8913-1987
Fax: +886-2-8913-1986

Made in China
771-USB2312C0-504



Driver Installation

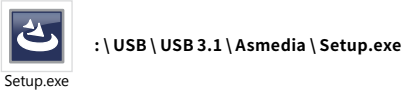
SUNIX USB 3.1 PCIe Host card design bases on Microsoft Windows operation systems. The table in this topic provides the operating system for the driver support lists.

Operating System	USB 3.1 10G 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 * USB 3.1 Host Driver * Microsoft USB Hotfix	User has to install additional USB 3.1 driver. * Asmedia USB 3.1 Host IC Driver (without UASP). * Microsoft USB Hotfix Driver KB 2581464.
Windows Server 2008R2		
Windows XP	Do NOT support	USB Driver implemented USB 3.0 performance only.
Windows Vista		
Windows Server 2003		
Linux	Kernel support	Linux Kernel 4.6 or later version supports USB 3.1 SuperSpeed Plus (SSP) protocol, offering transfer speeds of up to 10Gbps.
MAC OS	Do NOT support	Do NOT support
DOS	Do NOT support	Do NOT support

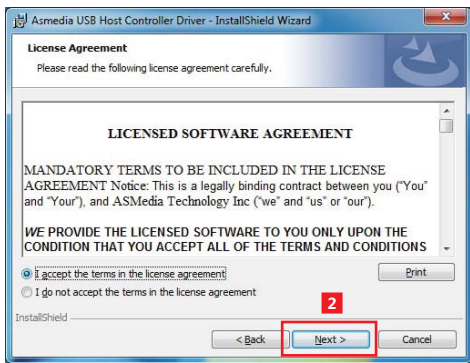
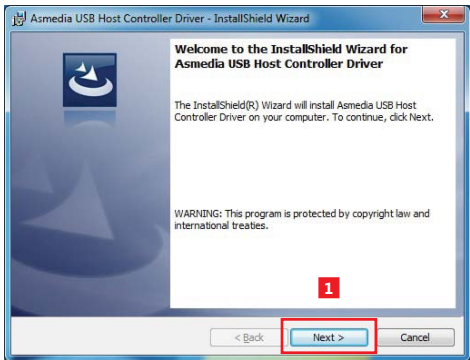
Please note that Microsoft® USB Hotfix driver has to install separately under Win7 and 2008R2. Due to Microsoft® licensed issue, driver package is not included, user can go to Microsoft official website (<http://support.microsoft.com/>) and search keyword "KB 2581464" to download driver package.

Asmedia USB 3.1 host controller driver is necessary under Microsoft Windows 7 and Server 2008R2 operation system. Please install driver as below steps:

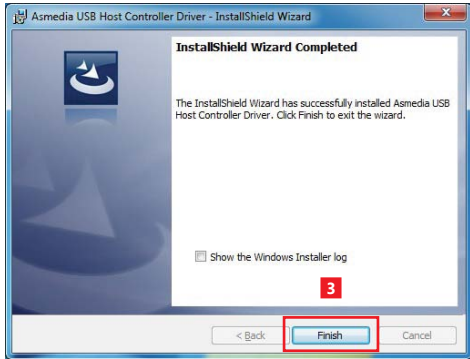
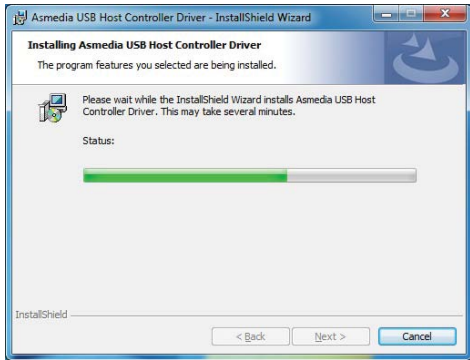
- (1) Please insert the bundled CD into your optical drive and click Setup.exe. User also can go to SUNIX website to download the latest driver version.



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

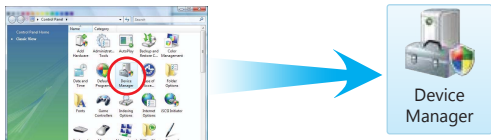


- (3) Specify driver installation folder in system and click "Next" to continue. Click "Finish" to end of the driver installation steps.

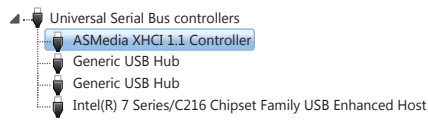


Hardware Verify

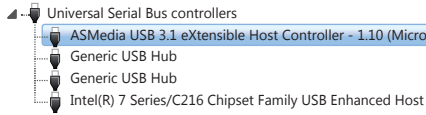
Click on the "Device Manager" tab in the Windows Control Panel
Start > Control Panel > Device Manager



Under Win7 and 2008 OS, entry Universal Serial Bus controllers catalog, and "ASMedia XHCI 1.1 Controller" shows in the device manager.

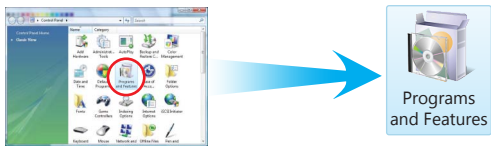


Under Win10, 8.x and 2012 OS, entry Universal Serial Bus controllers catalog, and "ASMedia USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)" shows in the device manager.

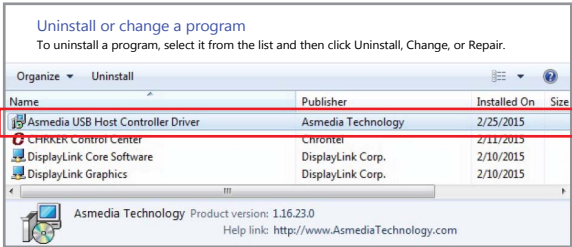


Driver Uninstall

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

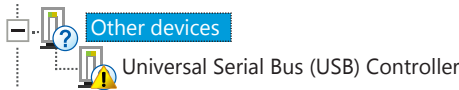
Q 1. If card and devices connected to the computer do not seem to be working properly, please perform below basic troubleshooting steps:

- 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.

Q 2. Computer failed to start after inserting the USB 3.1 PCI Express card.

Ans: Turn off the computer, remove the USB 3.1 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: Please shutdown your computer and move the card to another available slot then re-install USB 3.1 driver.

- a. Please point on this device then right-click 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 USB 3.1 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.

Specifications

Hardware	
BUS	PCI Express Spec 3.0, Dual-Lane (x2)
Controller	Asmedia PCI Express USB 3.1 Host controller
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+ (10Gbps), Super Speed(5Gbps) High Speed(480Mbps), Full Speed(12Mbps), Low Speed (1.5Mbps)
No. of Port	2-port
PCB Connector	USB 3.1 USB Type-C port (Downstream Facing Port)
Protection	±8KV IEC61000-4-2 Air Gap Discharge ±4KV IEC61000-4-2 Contact Discharge

Power

Source	PCI Express Bus Power
Output Capacity	USB Type-C Port No.1: +5VDC / 3.0A USB Type-C Port No.2: +5VDC / 1.5A Note: * USB Power Delivery Protocol does NOT support. * Built-in over current protection on each USB port. * Maximum total power output depends on the capacity of user's power supply unit.
Power Consumption	1.1 W @ 3.3V (board only without power output to USB device)

Driver Support

Microsoft	Windows 7 (X86/X64)
Linux	Windows 8.x / 10 (X86/X64) (Windows in-box driver) Linux Kernel 4.6 or later

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

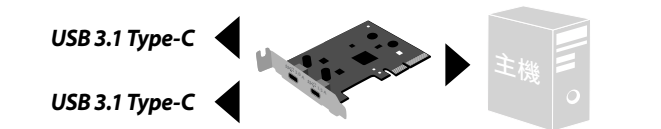
EMC	EUR: CE, EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3 US: FCC Part 15 Class B TAIWAN: BSMI: CNS13438 AS/NZS: C-Tick: CISPR22 JAPAN: VCCI
Green	RoHS, CRoHS, WEEE

Physical Characteristics

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

SUNIX

使用說明書



最新驅動程式與說明書下載：
請至三泰科技官網<http://www.sunix.com.tw>，並搜尋關鍵字“USB2312C”或掃描QR code，下載最新版的驅動程式與說明書。

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傳真：+886-2-8913-1986

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驅動安裝

SUNIX 三泰 USB 3.1 10G & DisplayPort Alt-Mode PCIe 擴充卡支援主流Windows與Linux作業系統。我們建議使用Windows 10以達到最佳的使用體驗。支援的作業系統列表如下。

Operating System	USB 3.1 10G Driver	Remark
Windows 10		
Windows 8 / 8.1	毋需額外安裝	使用微軟Microsoft內建驅動程式(支持UASP模式)
Windows Server 2012R2		
Windows 7	必須安裝驅動程式 *USB 3.1控制晶片驅動 *微軟USB驅動更新	用戶必須額外安裝 USB 3.1驅動程式，包含： *Asmedia USB 3.1 控制晶片驅動程式(不支援UASP模式) *微軟Microsoft USB驅動程式更新 KB 2581464
Windows Server 2008R2		
Windows XP		
Windows Vista	不支援	安裝Asmedia USB控制晶片驅動程式後僅能達成USB 3.0傳輸效能。
Windows Server 2003		
Linux	支援	請將Linux核心更新至 4.6 或之後的版本，以達成USB 3.1 10G的傳輸效能。
MAC OS	不支援	
DOS	不支援	

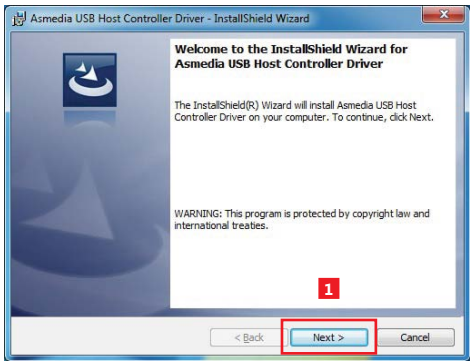
為使USB資料傳輸更加快速，使用Windows7與2008操作系統的用戶請務必更新微軟Microsoft USB驅動程式，鑑於版權所有保護，煩請用戶於微軟官方網站進行驅動程式免費更新(<http://support.microsoft.com/>)，並可透過關鍵字“**KB 2581464**”搜尋取得正確的安裝版本。

使用Windows7與2008操作系統的用戶，請依照下列步驟安裝USB3.1控制晶片的驅動程式：

1. 請讀取隨附的驅動程式光碟，於下列路徑內，並雙擊滑鼠Setup.exe開始安裝驅動程式。或前往SUNIX官網下載最新版驅動程式。

Setup.exe
：\USB\USB 3.1\Asmedia\Setup.exe

2. 點擊下一步繼續驅動程式安裝步驟，並同意合法使用此一受保護的驅動軟體。



雙埠USB 3.1 10G PCI Express 擴充卡 搭載 USB Type-C 連接器

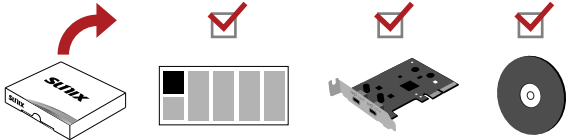
產品介紹

SUNIX 三泰 USB2312C超高速USB 3.1擴充卡提供了兩個標準的USB Type-C 電腦主機端連接埠，USB 3.1傳輸介面提供了高達10Gbps的傳輸速度，是目前USB 3.0傳輸速度的兩倍，更是USB2.0的20倍。擴充卡採用PCI Express Rev2.0 第二代匯流排 x4設計達到最佳傳輸效能，且通用各式的主機板。此外，優異的電源電路設計，用戶不須使用任何機箱內線纜做額外取電，USB連接埠可以提供最高3000mA@5VDC的電源輸出能力，並搭載USB埠獨立搭載過電流與短路保護元器件，確保用戶上的使用安全。SUNIX 三泰 USB2312C超高速USB 3.1擴充卡將是您PC擴充最新介面的解決方案，不論是連接各種USB存儲設備、數位攝影機、影像顯示擴充、以及各式行動裝置等，將同時兼顧數據傳輸效能、輸出電源效率、以及使用便利性的最佳選擇。

包裝內容

該產品內容包含下列品項，如有遺缺請速與供應商聯繫。

1. 雙埠 USB 3.1 10G PCIe擴充卡 搭載 Type-C 介面
2. 驅動光碟CD
3. 使用說明書

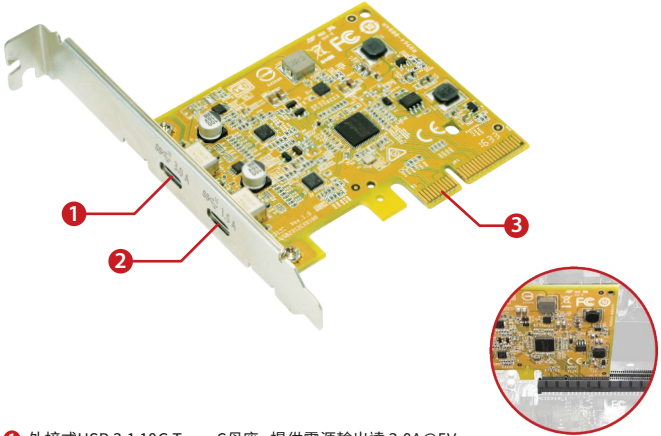


系統需求

該產品對於電腦的最低硬體要求列出如下：

1. 至少一個PCI Express擴充插槽。建議為PCI Express 第二代規格。
2. PCI Express插槽需要符合x4 x8 或 x16要求。
3. INTEL Core i 處理器，搭配4G DDR記憶體。
4. DVD光碟機讀取驅動程式。(或由SUNIX官方網站下載驅動程式)

硬體說明



- 1 外接式USB 3.1 10G Type-C母座，提供電源輸出達 3.0A@5V
- 2 外接式USB 3.1 10G Type-C母座，提供電源輸出達 1.5A@5V
- 3 PCI Express x4 金手指

備註：

為了發揮USB 3.1最大效能，請將該USB擴充卡安裝在PCI Express Gen3 第三代插槽上。

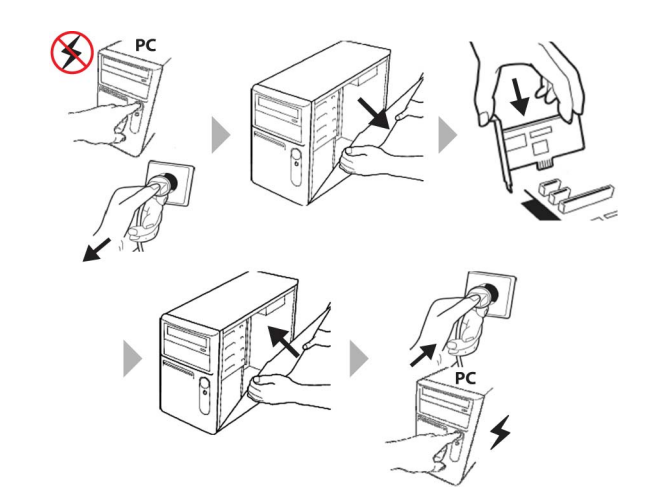
產品特色

- 支援PCI Express Rev3.0第三代規格，x2(Dual-lane)匯流排。
- 相容於Universal Serial Bus 3.1 第二代規格，速度達10Gbps。
- 相容於xHCI (eXtensible Host Controller Interface) 版本1.1規範。
- 支援USB 3.1高速設備，並相容於既有 USB 3.0, USB 2.0與USB 1.1等設備。
- 擴充卡提供兩個獨立的 USB 3.1 Type-C連接埠做為主機端擴充。(DFP模式)
- USB連接埠支援最高5VDC / 3000mA 電流輸出至USB設備。
- 每個USB連接埠具備獨立的過電流與短路保護元器件。
- 熱插拔USB設備不需要煩冗的操作程序。
- 作業系統支援 Microsoft Windows 7, 8.x, 10 以及 Linux 4.6 版本。
- 產品低功耗設計順應綠色節能趨勢，並符合環保RoHS生產製程與物料控管。
- 通過多國EMC安規認證確保用戶使用電磁輻射的安全。

硬體安裝

請依照下列步驟安裝USB Type-C擴充卡：

- 1.請關閉電腦（關機），並確實由電源插座拔除電腦電源線。
- 2.請打開電腦機箱蓋板。並移除機箱上PCI Express插槽的預設擋板（例如PClex16插槽位置）。
- 3.請將PCI Express擴充卡安裝於插槽內，並確實鎖附固定擴充卡的擋板於機箱上正確位置。
- 4.請將電腦機箱蓋板關閉復位。並將電腦主機歸置定位。
- 5.請重新將電腦的電源線重新連接至電源插座，並啟動電腦。



安全第一：
為了避免產生觸電危險，以及損害電腦設備，請務必先行關閉電腦並拔除電源線之後才可以進行擴充卡的安裝步驟。

移除任何連接在USB擴充卡上的USB設備，請務必遵守移除USB裝置的操作程序，透過右下方USB圖示中選擇“**安全地移除硬體並退出媒體**”，避免資料讀寫過程中因為USB裝置突然移除造成的資料遺失問題。



1

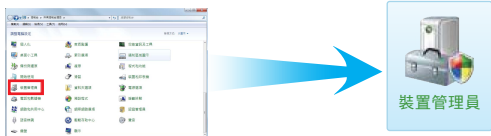
2

3

硬體安裝驗證

請開啟“裝置管理員”視窗驗證硬體安裝是否完成

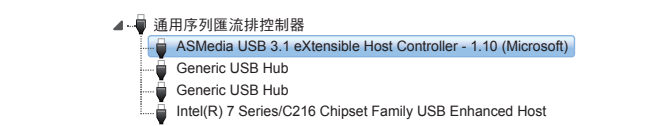
開始>控制台>裝置管理員



使用Windows 7 與 Server 2008操作系統的用戶，裝置管理員畫面內的“**通訊序列匯流排控制器**”的選項下，可以查找到“**ASMedia XHCI 1.1 Controller**”，即代表USB擴充卡安裝完成。



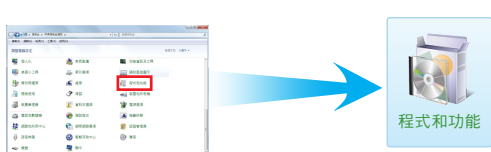
使用Windows 10, 8.x, 與Server 2012操作系統的用戶，裝置管理員畫面內的“**通訊序列匯流排控制器**”的選項下，可以查找到“**ASMedia USB 3.1 eXtensible Host Controller - 1.10 (Microsoft)**”，即代表USB擴充卡安裝完成。



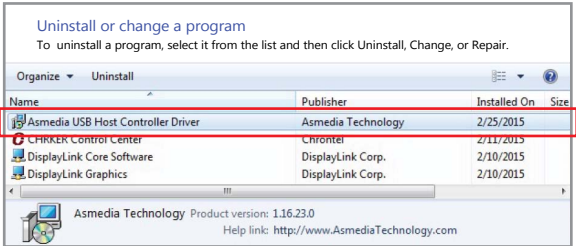
移除驅動程式

請開啟“程式和功能”視窗以移除已經安裝的軟體驅動程式。

開始>控制台>程式和功能



進入“解除安裝或變更程式”頁面，雙擊“ASMedia USB Host Controller Driver”開始移除USB驅動程式。請依照系統畫面依序操作完成整除程序。



疑難排解

Q1. 若USB設備與卡片連接後，USB設備無法順利運作，請進行以下基本除錯步驟：

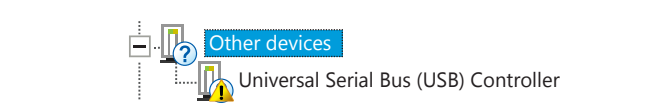
Ans: a. 請確認USB設備的線纜確實連接USB擴充卡。

- b. 請確認USB設備的電源為開啟狀態。
- c. 若您的USB設備由USB埠取電，則確認USB設備需求的電源需小於900mA。
- d. 請確認USB擴充卡確實安裝正確於PC電腦內。

Q2. 電腦安裝USB擴充卡後便無法正常啟動。

Ans: 請立即關閉電腦並移除電腦的電源，自電腦內移除USB擴充卡後，請嘗試重新開機確保PC本身運作正常。假設關鍵在於USB擴充卡安裝後變無法開機，則請確認USB擴充卡於PC電腦內確實安裝妥當，嘗試更換PCIe插槽並鎖緊固定的擋板。若問題無法解決，則請使用鉛筆用橡皮擦擦拭USB擴充卡的金手指，確保與主機板插槽的連接金屬接觸正確接觸。

Q3. 電腦安裝USB擴充卡後於裝置管理員內出現驚嘆號。



Ans: a. 請確認驅動程式已經正確的安裝於系統內。

- b. 請立即關閉電腦並移除電腦的電源，嘗試將USB擴充卡更換到其他PCIe插槽並鎖緊固定的擋板。
- c. 以上步驟皆無效則代表卡片無法正確取得系統資源，請嘗試更新主機板BIOS。

Q4. 透過額外的USB延長線連接USB擴充卡後無法達到最佳效能？

Ans: USB 3.1纜線的傳輸數據理必須小於1公尺以確保最佳的傳輸品質，越長的電纜將會導致傳輸效能的下降。我們不建議使用額外的USB延長線進行連接。

Q5. 是否可以連接既有的USB設備到此張USB3.1擴充卡？

Ans: 可以。USB3.1擴充卡可以相容於傳統USB3.0/2.0/1.1的USB設備。

Q6. 我購買的USB3.1擴充卡無法達到10G的傳輸效能？

Ans: 依照實際測試，使用雙SSD固態硬碟機執行RAID0磁碟陣列，USB3.1擴充卡可以達到700~750MB/s傳輸速度，若您的USB設備無法達到如此的傳輸速度，則請您先行確認您使用的USB設備最高傳輸能力。

Q7. 我既有的USB3.0或2.0設備安裝在USB3.1擴充卡上，資料傳輸可以更快速嗎？

Ans: USB 3.1擴充卡提供了高達10G的傳輸通道，傳統的USB3.0與2.0設備並不能因為使用該通道資料流的加大而提升傳輸速度，傳統設備依然僅能運行其本身的最高速度。

Q8. Windows7的操作系統如何啟動UASP(USB Attached SCSI Protocol)功能？

Ans: Windows7驅動程式不支援UASP功能，請升級作業系統至Windows8, 10, 或2012版本，並採用Windows內建驅動程式即內建UASP功能。

Q9. 此產品的USB-C介面是否支援PD(Power Delivery Protocol)功能？

Ans: 此產品不支援PD(Power Delivery Protocol)功能。

規格說明

硬體	
匯流排	PCI Express Spec 2.0, x2 匯流排, 適用於主機板 PCI Express x16 或 x4 以上的匯流排安裝。
控制器	Asmedia PCI Express USB 3.1 控制器
USB標準	eXtensible Host Controller Interface (xHCI) 版本 1.1
系統資源	IRQ & IO 由系統分配

USB通信

介面	USB 3.1 / 3.0 / 2.0 / 1.1
效能	Super Speed+ (10Gbps), Super Speed (5Gbps)
數據	High Speed (480Mbps), Full Speed (12Mbps), Low Speed (1.5Mbps)
連接器	USB 3.1 USB Type-C 連接器
保護	±15KV IEC61000-4-2 靜電測試 空氣放電 ±8KV IEC61000-4-2 靜電測試 接觸放電

電源

電源來源	PCI Express 匯流排供電
電源輸出	上方USB Type-C 連接埠可以輸出達 +5VDC / 3.0A 能力 下方USB Type-C 連接埠可以輸出達 +5VDC / 1.5A 能力 備註： * 最大電源輸出能力將依照用戶實際使用的電源供應器而定。 * 每個USB埠具備過載與短路電源保護元件。 * 此產品不支援USB Power Delivery電源供應功能
電源功耗	1.1 W @ 3.3VDC (備註：上述擴充卡電源功耗不包含輸出 USB 至設備的電源)

驅動支援

Microsoft	Windows 7 (X86/X64)
Linux	Windows 8.x / 10 (X86/X64) (Windows內建驅動程式) Linux Kernel 核心 4.6 或以上版本

環境

工作溫度	0 ~ 60°C (32 ~ 140°F)
工作溫度	5 ~ 95% RH
儲存溫度	-20 ~ 70°C (-4 to 158°F)

認證

EMC安規	歐洲: CE, EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3 美國: FCC Part 15 Class B 台灣: BSMI: CNS13438 澳洲/紐西蘭: C-Tick: CISPR22 日本: VCCI
綠色環保	RoHS, CrRoHS, WEEE

機構

PCB 尺寸	80 x 68.5 mm
擋板	標準 120 mm (可選短擋板 80mm)
擋板佔用空間	1

備註：

為滿足USB 3.1介面高達10Gb/s傳輸效能，SUNIX三泰USB2312C採用PCIeGen3/x2 (10Gb/s)的插槽設計，以符合整體資料流量吞吐傳輸，用戶必須使用電腦主機上的PCIe x16 (或 x4 以上)匯流排，例如顯示卡安裝匯流排插槽，該卡片**不可以**安裝於標準PCIe x1匯流排上。

(本頁留白)