



UPB21A0

USB3.2 Gen1 & USB PD to
PCI Express Host Card
with Dual USB Type-C Receptacles



Introduction

SUNIX UPB21A0 is a PCI Express Gen3 x1 add-on card designed to provide a full-function USB Type-C interface with integrated 100W Power Delivery, DisplayPort video output, and SuperSpeed USB data transmission.

The full-function USB-C port supports USB PD 3.0 up to 20V/5A (100W), enabling reliable power delivery to high-power devices such as laptops and USB-C monitors. By connecting the system's native DisplayPort output to the onboard DP input, the card supports DisplayPort 1.4 Alternate Mode for high-resolution video and audio transmission over the same USB-C cable.

In addition, UPB21A0 delivers USB 3.2 Gen1 5Gbps data transfer, ensuring stable and high-speed connectivity for storage devices, cameras, and other USB peripherals. With power, video, and data integrated into a single USB-C connection, UPB21A0 provides a clean and efficient expansion solution for modern desktop and embedded systems.

Features

- Full function USB C PD specification 3.0.
- Support up to 100W (20V/5A) USB PD power output.
- PCI Express Base Specification Revision 3.0 single-lane.
- Support PCIe L1 sub-state and CLKREQ# for advanced power management.
- Expands dual external USB3.2 Gen1 Super-Speed Type-C port (DFP) on the system.
- Compliant with Universal Serial Bus 3.2 specification Gen1.
- Compliant with xHCI (eXtensible Host Controller Interface) specifications Revision 1.1.
- Supports simultaneous operation of multiple USB 3.2 Gen1, USB 2.0 and USB 1.1 devices.
- Supports USB data transfer rate of 5G/480/12/1.5 Mbps.
- Independent 5G USB PHY for each USB Type-C port.

- USB port supplies +5VDC / 3A & 1.5A power output to USB device with over current protection.
- Compliant with DisplayPort 1.4 spec with HDTV 8K resolution and stereoscopic 3D.
- Compliant with VESA DisplayPort Alternate Mode for USB Type-C Standard Rev1.0.
- Hot-swapping feature allows connect/disconnect device without powering down the system.
- Driver supports for Microsoft Windows 10 and 11 operation systems.
- Certified by Electromagnetic Compatibility (CE, FCC, VCCI, BSMI) and RoHS approval.

Specifications

Hardware

BUS	PCI Express Spec 3.0 x1(compliant with x1/x4/x8/x16 slot)
Controller	PCI Express USB3.2 Gen1 Host controller, Asmedia ASM3042
USB Standard	eXtensible Host Controller Interface (xHCI) Rev1.1
IRQ & IO	Assigned by System

USB Communication

Interface	Universal Serial Bus 3.2 Gen1 / 2.0 / 1.1
Speed	Super Speed(5Gpbs) High Speed(480Mbps), Full Speed(12Mbps)
No. of Port	2-port
PCB Connector	USB Type-C port (Downstream Facing Port)
Protection	±15KV IEC61000-4-2 Air Gap Discharge ±8KV IEC61000-4-2 Contact Discharge

Video / Audio

Input Interface	Standard DisplayPort Female, DisplayPort Ver1.4
Output Interface	USB Type-C port
Audio	Yes (audio pass-through)

Power

Source	PCI Express Bus Power
Output Capacity	USB Type-C Port: USB bus power: full function port: +5VDC / 3A Data only port: +5VDC / 1.5A USB PD power: full function port: Maximum +20V/ 5A Note: Total power output capacity will be limited by system power supply.
Over Current Protection	USB Type-C Port: +5VDC / 1.5A / each port / Power Switch
Power Consumption	3.0W @ 3.3V (board only without power output to USB device)

Driver Support

Microsoft	Windows 10/11 (X86/X64) (Windows in-box driver)
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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, CRoHS, WEEE

Physical Characteristics

PCB Dimension	68.5x 160 mm
Bracket	Standard 120 mm (Low Profile 80mm)
Bracket Space	1
Mechanical Drawings (unit: mm)	

Package

- UPB21A0 -USB3.2 Gen1 & DisplayPort Alt-Mode PCIe Card with 2-port USB-C Receptacles
- DisplayPort Male to DisplayPort Male cable 240mm
- User's Manual

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