

Frequently Asked Questions

I'm seeing erroneous or unexpected behavior, is there a primary cause for this?

Many sink devices, especially portable power bricks, are not USB-PD certified and cannot be guaranteed to work consistently with any USB-PD system.

Why does my device seem to connect/disconnect multiple times before consistent power delivery?

Since USB-PD is still an emerging technology, many USB-PD devices on the market are not USB-PD certified and may not fully comply with the USB-PD specifications or may violate the protocol standards. We cannot guarantee that our system will operate consistently with sink devices that are not USB-PD compliant. Please secure a USB-PD certified device for testing.

Are there devices you recommend for testing USB-PD?

Certified devices should be prioritized when testing this system:

- QuadraMAX USB Type-C and PD Tester
- Mac and Dell laptops featuring type-C charging
- iPad pro
- PD compatible phones (LG G7, Google Pixel 2, iPhone X, etc.)
- Anker PowerCore+ 26800 PD*

*While not certified, this device provides accepted contracts up to 100W and is capable of pulling up to 30W and can be useful for testing different PD contracts. Erratic behavior can be observed using this device.

Is this device compatible with Qualcomm QuickCharge?

While not tested on this device, the newest QC4.0 has been developed to communicate with USB-PD systems. The other QC versions (QC3 and below) are incompatible.

Why does my sink device request a higher PD contract than it can receive according to its specifications?

Some sink devices will accept the highest contract offered to them but will only consume power within their capabilities. For example, it is common to see devices that will accept 100W contracts when they can only sink 30W.

Why does my device receive a lower PD contract than it should?

1. The port the device is connected to may be limited by the “Max Port Power” dropdown box. Increase this value to a higher wattage to allow for a higher power contract.
2. The max system power is limited in the system settings. Ensure that there is enough remaining unallocated power for your device.

Why does my device take so long to connect?

It is likely you are using a type-c non-PD device. In this case the PD negotiations need to time out before it is given a 7.5W contract.

Why does the input/output power telemetry seem erratic?

If you are charging an active device (e.g. laptop, cell phone, etc), the power demand can be inconsistent and result in erratic behavior. If you would like to load a port with a static load, the NCP81239LOADGEVK evaluation board is available for order on the NCP81239 product page at www.onsemi.com.

Why does temperature foldback not reduce port power to the appropriate %?

Temperature foldback reduces power by observing the max current for a port (3A or 5A) and selecting voltages starting from the lowest available (5V) and working up through the available voltages until a the chosen % power of that port's contract is exceeded. Once that happens, the last value that did not exceed the % power is chosen. Since the lowest value is 5V @ 3A (15W) or 5V @ 5A (25W), it is possible the new contract will exceed the % power.

Why does a fault notification appear in Active Faults and Fault History even if my fault action is set to NONE?

This is only to alert the user that the fault threshold has been passed. Action will happen upon a fault when the fault behavior is set to **RETRY**.

Why does cable compensation seem slightly lower than expected?

The UI shows the measured voltage using the internal ADC on the FUSB307. Losses in the load switch between the output of the buck converter and the type-C connector cause the voltage to be slightly below the expected cable compensation voltage increase.

Why does cable compensation give me the ability to increase the VBUS voltage by up to a volt at 5A?

As this is an emerging technology, the possibility of higher impedance type-C cables could create significant droop at the sink device. The 200mV/A is to reduce this potential droop during product evaluation. Care must be taken by the user to ensure that the voltage does not exceed the capabilities of the downstream device.

Why is the NCP81239 buck-boost controller used on ports 2 and 4 in buck only configuration instead of the NCP81231?

This is due to the need for two I2C addresses on the each of our two I2C busses. The NCP81231 buck controller has the possibility of a 2nd address that can be released with an appropriate business case.

Why does Strata fail to detect the platform and/or stop responding?

If Strata locks up, force quit Strata and open the Windows task manager (CTRL+SHFT+ESC) and close the hcs.exe process. Restart Strata and power cycle the board to detect the platform.

Strata does not detect the board when connected to USB

If the board is put into sleep state and the USB Mini-B connector is removed, the UI will not detect the board until either a device is plugged in to one of the type-C ports or all power is removed and reapplied to the board (both AC and USB power)

Strata detects the board, but no input voltage is shown

The 200W USB-PD Type-C Source requires AC power to receive the main voltage rail (24V) when using the EVK with the AC/DC Power Converter. If the EVK is used without the AC/DC Power Converter and is powered through the input power pads, then 24V must be applied for proper operation.