Overview

The PD sink battery example is a simple demonstration based on the MCUXpresso SDK PD stack.
The application simulate battery product (for example: laptop), it prints the battery percent continually.
The demo works as sink and get power from partner port.

System Requirement

Hardware requirements

- One or two Type-C shield board

- One or two 9V DC power suppliers

- Type-C Cable

- One or two hardwares (Tower module/base board, and so on) for a specific device, for example: lpcxpresso54114 board

- Personal Computer

Software requirements

- The project files are in:

  <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_pd_sink_battery/<rtos>/<toolchain>.

  Note

  > The <rtos> is Bare Metal or FreeRTOS OS.

- Terminal tool.

Getting Started

Hardware Settings

- Remove 0ohm resistor R167, R784 and remap J19-1 to GPIO_EMC_35.

- There is a known limitation that MIMXRT1015 will fail to boot after pressing SW3 button to do power on reset when the shield board is connected and powered. So you must follow these steps below to ensure MIMXRT1015 boot successfully.

  1. Power on the MIMXRT1015 board, then power on the shield board.
  2. Press SW9 button to reset MIMXRT1015 instead of using SW3 button to reset MIMXRT1015.
  3. If you press SW3 button accidentally or want to do power on reset, you need repeat the above steps to bring MIMXRT1015 back to work.

For detailed instructions, see the appropriate board User's Guide.

Note

> Set the hardware jumpers (Tower system/base module) to default settings.

Prepare the example

1. Download the program to the target board.

2. Power on Type-C shield board then power on development board.

Run the example

1. Connect the board to one charger or another shield board + development board (download usb_pd_charger_battery, usb_pd_source_charger demo) with Type-C cable.

2. Connect the OpenSDA USB port to the PC and open terminal.

3. When don't connect to charger. The battery percent reduce and print in debug console. When battery percent reduce to zero, the demo doesn't work as ture product and power off, it just keep print battery percent.

4. When connect to charger, running as sink. The demo will request the highest voltage that self and the partner charger support. The demo will simulate that the battery is charging and print the increased battery percent.