

## Overview

This PD example is a simple demonstration based on the MCUXpresso SDK PD stack.

The application use the shield host board (om13790host) to implement the DisplayPort alternate mode. It recognize attached video adapters (like "Type-C to DisplayPort" or "Type-C to HDMI"), and drive the adapter to work.

## System Requirement

### Hardware requirements

- One Type-C shield host board
- One 9V DC power supply
- Type-C Cable
- One hardware for a specific device, for example: one lpcxpresso54114 board
- Personal Computer

### Software requirements

- The project files are in:  
`<MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_pd_alt_mode_dp_host/<rtos>/<toolchain>.`

Note

The <rtos> is Bare Metal or FreeRTOS OS.

- Terminal tool.

## Getting Started

### Hardware Settings

- When connect om13790 board to frdmk22f board and frdmk22f board uses CMSIS DAP debugger, user need do as follow, otherwise the download may fail.
  - Connect debug port (J5) to PC
  - Wait about 5s
  - Click reset button (SW1)
  - Then start use CMSIS DAP to download application.

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

Note

Please reference to the re-worked document for hardware settings.

### Prepare the example

1. For MCUXpresso, please reference to the MCUXpresso SDK USB Type-C PD Stack User's Guide to make sure the `SDK_DEBUGCONSOLE = 1` in project settings.
2. Download the program to the target board.
3. Power on shield host board then power on development board.

## Run the example

1. Download this program to the board.
2. Connect the video source (like: PC) to the MinDP port (J2).
3. Connect one video adapter (like: "Type-C to DisplayPort" or "Type-C to HDMI") to the Type-C port (J1).
4. Connect one displayer to the adapter. For example: if the adapter is one "Type-C to DisplayPort" adapter, connect displayer to the adapter with one DisplayPort cable.
5. The video source (PC) will recognize the displayer and the displayer works.
6. The follow UGREEN USB-C to HDMI/VGA device has one issue. If keeping the device connected with shield host board, then reset mcu board, the UGREEN device doesn't work.



Figure 1: UGREEN USB-C to HDMI/VGA