

The Lattice USB Type-C Demo Kit V2 is designed to demonstrate the Lattice USB Type-C power delivery (PD) solution. This document provides a brief introduction and instructions to install and run basic Type-C features demo using USB Type-C Demo Kit V2. The Type-C operation requires two port partners. This Quick Start Demo utilizes one Lattice board and one external port partner such as a PC or Tablet with a Type-C interface. There are two versions of this board, as identified by the Ordering Part Number. This document is applicable to either version, with the notes as applicable.

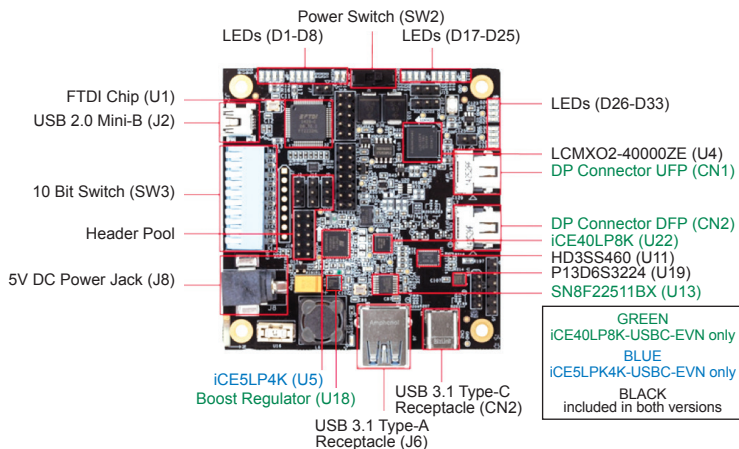


Figure 1: Top View of the Kit showing layout of components

1

Check Kit Contents

- USB Type-C Demo Kit V2 based on ordering part number (iCE40LP8K-USBC-EVN (U22) / iCE40LP4K-USBC-EVN (U5))
- Type-C to Type-C Cable
- Type-A to Type-mini-B cable
- USB 3.0 Type-A to Type-A cable
- USB 3.0 Memory Stick , 8GB (Type-A connector)
- Mini DP to DP cable (iCE40LP8K-USBC-EVN Version only)
- 5V DC Power Adapter

2 Additional Requirements

- PC/TABLET with Tera Term support (other terminal emulators also can be used). Tera Term is an open source free software terminal emulator supporting the UTF-8 protocol. A download link is available at <http://www.latticesemi.com/usbcv2>
- PC/TABLET with Type-C support

Note: Detailed information about the Kit is provided in the USB Type-C demo kit V2 board user guide (EB99). The Kit has all the default settings enabled at manufacture. To run the default demo mentioned in this document, do not change the default settings.

3 Storage and Handling Tips

Static electricity can shorten the lifespan of electronic components. Note the following tips to prevent damage which occurs from electro-static discharge:

- Use anti-static precautions such as operating on an anti-static mat and wearing an anti-static wristband.
- Keep the USB Type-C demo kit V2 Board in the anti-static bag provided.
- Touch the metal USB housing to equalize voltage potential between you and the board.

4 USB Type-C Feature Test Steps

Note: PD transaction logging supported only for iCE40LP8K-USBC-EVN. For iCE40LP4K-USBC-EVN, skip steps 1 to 3 and start from step 4.

1. Install Tera term in PC/Tablet
2. Connect Type- A to Min-B cable from PC/Tablet to USB Mini-B port (J2) of the USB Type-C demo kit V2.
3. Set the serial port setting in the tera term as shown Figure 2.
Note: COM port may be different than shown.

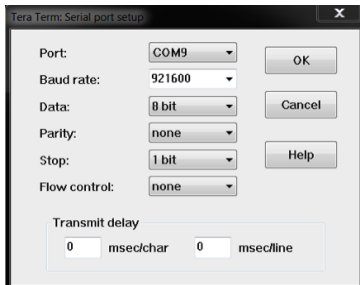


Figure 2 : Serial Port Settings

4. Connect an external power adapter to the USB Type-C demo kit V2.
5. Switch on the power switch SW2.
6. Connect Type-C cable between the USB Type-C demo kit V2 and PC/Tablet with Type-C port as shown in Figure 3.

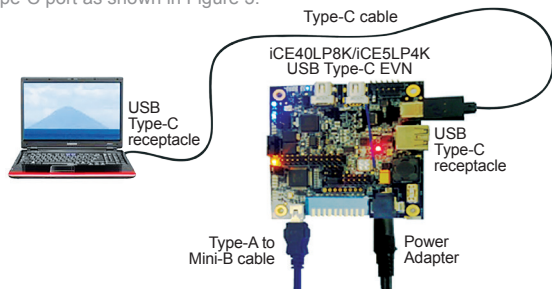


Figure 3: Type-C feature test setup

7. See PD transaction on the Tera term terminal (iCE40LP8K-USBC-EVN only). Refer Figure 4 for the status.

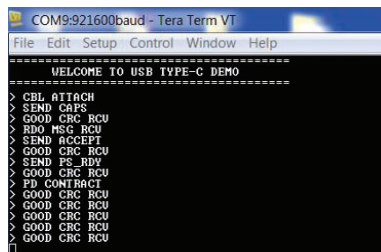


Figure 4: PD Transaction on terminal

8. Refer Table 1 for the power delivery (PD) LEDs status on board

LEDS	DESCRIPTION	COLOR
D17	Cable attached	Blue
D18	Flip	Blue
D20	PD contact established	Blue
D31	VBUS 5V	Yellow
D19	Source/sink	Blue
D21	PDO1	Green
D28	SS POL	Blue
D29	SS SEL	Blue
D30	SS enable	Yellow

Table 1: LEDs Status

5**DONE!**

You have successfully demonstrated the basic Type-C features on USB Type-C demo kit V2. Refer USB Type-C demo kit V2 user guides (UG94 and EB99) available on the website at <http://www.latticesemi.com/usbcv2> for the following:

- Running advanced demos
- Details on additional evaluation board features and operation
- Programming the MachXO2, iCE40LP8K/iCE5LP4K devices using USB cable
- Schematics
- BOM

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