

CP2110 EVALUATION KIT USER'S GUIDE

1. Kit Contents

The CP2110 Evaluation Kit contains the following items:

- CP2110 Evaluation Board
- CP2110 Product Information CD-ROM. CD content includes:
 - Example Windows and Mac Applications
 - Documentation:
 - CP2110 Data Sheet
 - CP2110 Evaluation Kit User's Guide
 - AN434: CP2110 Interface Specification
 - AN433: CP2110 HID-to-UART API Specification
- RS-232 Serial Cable
- USB Cable

2. Software Setup

The included CD-ROM contains the example applications for PC and Mac and additional documentation. Insert the CD-ROM into a system's CD-ROM drive. If using a Windows PC an installer will automatically launch, allowing you to install the software or read documentation by clicking buttons on the Installation Panel. If the installer does not automatically start when you insert the CD-ROM, run *autorun.exe* found in the root directory of the CD-ROM. Refer to the *ReleaseNotes CP210x CD.txt* file on the CD-ROM for the latest information regarding versions and known problems and restrictions. If a non-Windows PC is used, manually browse to the directory on the CD-ROM that contains the software for your OS. The instructions in this document assume a Windows PC is being used.

3. CP2110 Hardware Interface

Connect the CP2110 evaluation board to a PC as shown in Figure 1.

1. Connect one end of the USB cable to a USB Port on the PC.
2. Connect the other end of the USB cable to the USB connector on the CP2110 evaluation board.
3. Connect one end of the RS-232 serial cable to the DB-9 connector on the CP2110 evaluation board.
4. Connect the other end of the RS-232 serial cable to the target serial device.

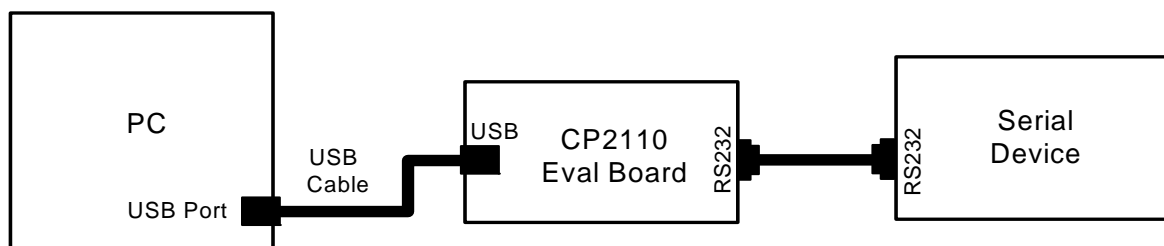


Figure 1. Hardware Setup

4. CP2110 Windows Application

The HIDUart application is an example application that uses the Windows CP2110 HID-to-UART DLL to transmit and receive data with the CP2110. The application also has access to the CP2110's GPIO pins. The HIDUart application is installed as part of the CD installation process. The following steps describe how to start the application and use some of the features.

1. Ensure that the hardware is connected to a Windows PC as shown in Section 3. If the device is properly connected, the red **SUSPEND** LED on the CP2110 evaluation board will turn on.
2. Launch the HIDUart application, which is found by clicking *Start→All Programs→Silicon Laboratories→HIDUart Example*.
3. In the application, configure the baud rate, data bits, parity, stop bits, and type of flow control using the drop-down menus. This configuration should match the communication settings used by the serial device.
4. Click **Connect** to start communication between the application and the CP2110 evaluation board. Once connected, the USB descriptors retrieved from the device are shown under "Device Information."

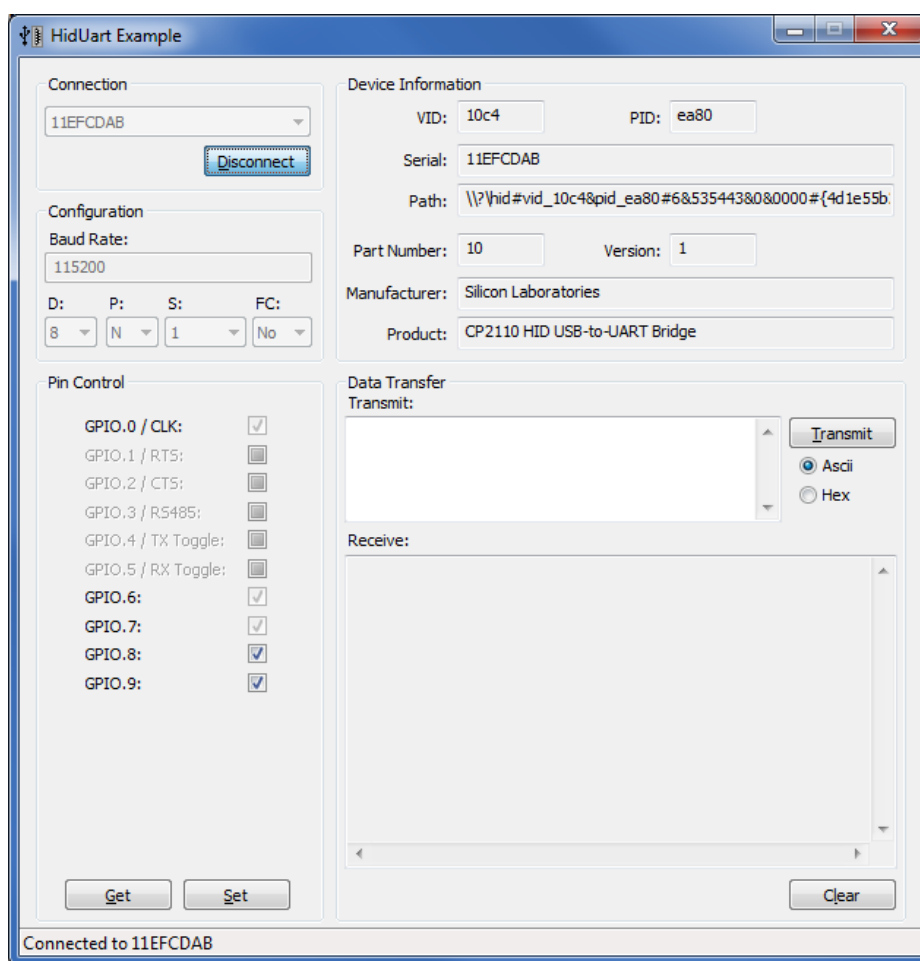


Figure 2. HIDUart Example Application after Connection

5. Type data in the Transmit text box and click *Transmit* to send data from the PC to the serial device.
6. Send data from serial device to the PC. Any data sent by the serial device to the PC is automatically updated in the Receive text box.
7. The HIDUart example automatically recognizes how the GPIO pins are configured and enables/disables the ability to change and read the pin. The default configuration is shown in Figure 2. Use the Get and Set buttons to read and write the GPIO pins' latch values. For GPIO pins that are configured as outputs, setting the pin to logic low '0' will turn on the corresponding LED on the CP2110 evaluation board.

5. Evaluation Board Overview

The CP2110 Evaluation Kit includes an evaluation board with a CP2110 device pre-installed for evaluation and preliminary software development. Numerous input/output (I/O) connections are provided to facilitate prototyping using the evaluation board. Refer to Figure 3 for the locations of the various I/O connectors.

P1	DB9 connector for RS-232 interface
P2	USB connector for USB interface
J1	UART signal access connector
J2	VDD and VIO power connectors
J3	GPIO0 and GPIO1 LED connectors
J4	GPIO2 and GPIO3 LED connectors
J5	GPIO4 and GPIO5 LED connectors
J6	GPIO6 and GPIO7 LED connectors
J7	GPIO8 and GPIO9 LED connectors
J8	REGIN pin power connector
J9	SUSPEND RED LED connector
J12	Self-Power mode VDD and GND access connectors

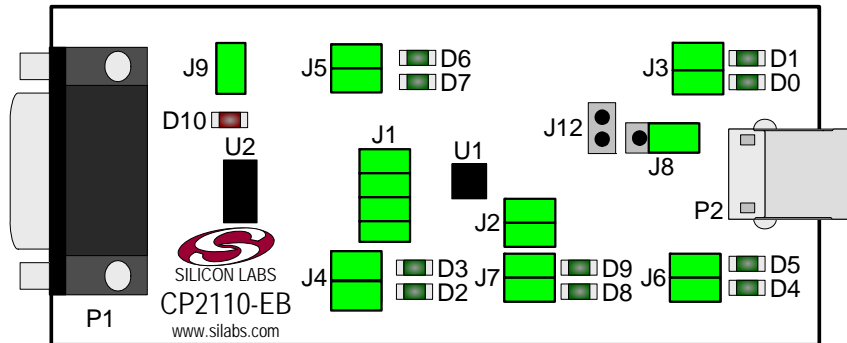


Figure 3. CP2110 Evaluation Board with Default Shorting Blocks Installed

5.1. LED Headers (J3, J4, J5, J6, J7)

Connectors J3, J4, J5, J6, and J7 are provided to allow access to the 10 GPIO pins on the CP2110. Place shorting blocks on these headers to connect the GPIO pins to the 10 green LEDs D0 - D9. These LEDs can be used to indicate active communications through the CP2110. Table 1 shows the LED corresponding to each header position.

Table 1. J2 and J3 LED Locations

LED	Pins	LED	Pins
GPIO0-D0	J3[3:4]	GPIO4-D7	J5[1:2]
GPIO1-D1	J3[1:2]	GPIO6-D4	J6[3:4]
GPIO2-D2	J4[3:4]	GPIO7-D5	J6[1:2]
GPIO3-D3	J4[1:2]	GPIO8-D8	J7[3:4]
GPIO4-D7	J5[3:4]	GPIO9-D9	J7[1:2]

5.2. Universal Serial Bus (USB) Interface (P2)

A Universal Serial Bus (USB) connector (P2) is provided to facilitate connections to the USB interface on the CP2110. See Table 2 for the USB pin definitions.

Table 2. USB Connector Pin Descriptions

Pin #	Description
1	VBUS
2	D–
3	D+
4	GND (Ground)

5.3. UART Signals (P1, J1)

An RS-232 transceiver circuit and DB9 connector (P1) are provided on the evaluation board to connect the CP2110 virtual serial port to external serial devices. See Table 3 for the RS-232 P2 pin descriptions. The J1 connector is provided to facilitate direct access to the CP2110's UART signals. Shorting blocks on J1 are required to connect the UART signals to P2. See Table 4 for J1 pin descriptions.

Table 3. RS-232 Pin Descriptions

Pin	Signal	CP2110 Direction	Description
2	RXD	Input	Receive Data
3	TXD	Output	Transmit Data
5	GND		Ground
7	RTS	Output	Request to Send
8	CTS	Input	Clear to Send

Table 4. J1 Pin Descriptions

Pins	Signal	CP2110 Direction	Description
1-2	TXD	Output	Transmit Data
3-4	RXD	Input	Receive Data
5-6	RTS	Output	Request to Send
7-8	CTS	Input	Clear to Send

5.4. VDD and VIO Power Connector (J2)

This header (J4) is included on the evaluation board to provide several power options. The following describes the function of each pin:

- Pins 1,3: Connects CP2110 VIO input (pin 5) to CP2110 VDD (pin 6). Remove the shorting block to power VIO from an external source.
- Pins 2,4: Connects the main +VDD_A net to the CP2110 VDD (pin 6). The main +VDD_A net powers the RS-232 transceiver on the evaluation board.

5.5. RGIN Power Connector and Self-Powered Mode Connector (J8, J12)

The J8 header is used to connect the CP2110 RGIN pin (pin 7) to the VBUS source from the USB connector (default) or to the CP2110 VDD pin (pin 6). When connected to the VBUS source, the device is intended for bus-powered operation. When connected to the CP2110 VDD pin, the device is intended for self-powered operation. When in self-powered operation, an external power source can be connected to the J12 header to power the VDD pin directly.

5.6. SUSPEND LED Connector (J9)

The J9 header is used to connect the CP2110 SUSPEND pin (pin 17) to the D10 red LED. When the LED is on, the device has enumerated with the PC operating normally. When the LED is off, the device has not yet enumerated or is in the USB Suspend state.



NOTES:

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