

TUSB422 EVM Quick Start Guide

This document describes how to use the TUSB422EVM.

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1 TUSB422 BoosterPack™ EVM

The TUSB422 BoosterPack™ EVM is designed to evaluate the TUSB422 device. The EVM can operate stand-alone or with an MSP43x LaunchPAD™. The board can be powered via an external DC 20-V input or USB Type-C™ VBUS, depending on the power switch selection. If the board is to operate standalone, DIP switches are provided to enable the power switches on the board for USB Type-C VBUS or VCONN source and sink operations. It is important that all DIP switches remain in the OFF position if the board is to operate with a MSP43x LaunchPAD or external controller that controls the power switches on the board.

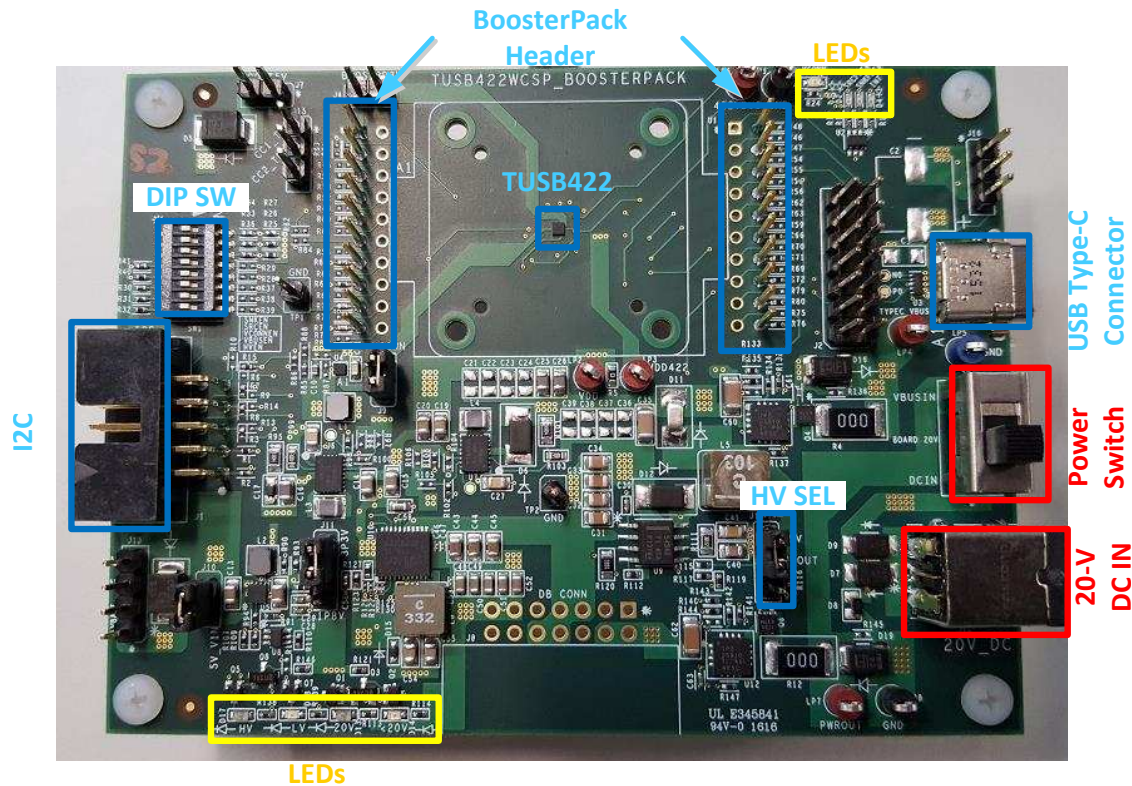


Figure 1. TUSB422 EVM

2 Power

The board can be powered via 20-V DC IN or VBUS if the board is to operate in sink mode. For 20-V DC IN operation, the power switch, SW2, should be positioned on DCIN (position 1). For USB Type-C VBUS operation, the power switch (SW1) should be positioned on VBUSIN (position 3).

3 DIP Switch Setting

DIP switches are provided for the EVM and device configuration purposes. Unless other modes of operation are desired for test purposes, TI recommends using the default switch configurations in Table 1. Refer to the board schematics in the datasheet (SLLSEW6) for details.

Table 1. Default Switch Configuration Settings

Reference Designator	SW Control Function	Default Switch Setting	Description
SW1.1	SCL	OFF	Debug only
SW1.2	SDA	OFF	Debug only
SW1.3	INT	OFF	Debug only
SW1.4	SNK_EN#	OFF	Enables or disables USB Type-C VBUS sink power switch
SW1.5	SRC_EN#	OFF	Enables or disables USB Type-C VBUS source power switch
SW1.6	VCONN_EN	OFF	Enables or disables VCONN switch
SW1.7	5V_VBUS_EN	OFF	Enables or disables 5-V VBUS source
SW1.8	HV_VBUS_EN	OFF	Enables or disables high voltage VBUS source (9 V or 15 V)

4 Header Settings

There are several headers provided for the EVM and device configuration purposes. Refer to the board schematics in the datasheet ([SLLSEW6](#)) for details.

Table 2. Headers With SHUNT Configuration Options

Reference Designator	Header Control Function	Default SHUNT Setting	Description
J7	BOOST5V	OPEN	When SHUNT is placed, 5 V is supplied to the board by the LaunchPAD instead of the on-board regulator. Remove the SHUNT on J10 if a SHUNT is to be placed on J7.
J4	BOOST3P3V	OPEN	When SHUNT is placed, 3P3V is supplied to the board by the LaunchPAD instead of the on-board regulator. Remove the SHUNT on J10 if a SHUNT is to be placed on J4.
J9	VCONN	SHUNT ON 1-2	Connects VCONN output: SHUNT ON 1-2: VCONN connected SHUNT OFF: VCONN disconnected
J10	5V_VIN	SHUNT ON 1-2	Connects 5-V source: SHUNT ON 1-2: 5-V Source Connected SHUNT OFF: 5-V source disconnected
J11	IO Pull-up Selection	SHUNT ON 1-2	Configures TUSB422 pull-up voltage to 3P3V vs. 1P8V: SHUNT ON 1-2: Pull-up voltage = 3P3V SHUNT ON 2-3: Pull-up voltage = 1P8V
J14	HV VBUS Source Selection	SHUNT ON 2-3	Configures high voltage VBUS source: SHUNT ON 1-2: VBUS source = 15 V SHUNT ON 2-3: VBUS source = 9 V

Table 3. Other Headers and Test Loops

Reference Designator	Header Function	Description
J15	CC1 and CC2 Probe	CC1 and CC2 probe and debug
J5 and J6	LaunchPAD headers	LaunchPAD connection
J13	5 V/VBATT input	5 V/VBATT external input. On-board 5-V input must be disconnected (remove J10 or SW1 in OFF position (position 2)).
J16	SBU1/SBU2	SBU1/SBU2 probe and debug
J2	Test header	Various signal probe and debug. See schematics for details
LP4	USB Type-C connector VBUS	Connects to USB Type-C connector VBUS for measurement and debug purposes.
LP6	TUSB422 VBUS	Connects to TUSB422 VBUS input. Use the test loop to supply VBUS externally. Make sure there is no other source driving TUSB422 VBUS.
LP1	TUSB422 VDD	Connects to TUSB422 VDD. Remove R5 if external power supply is to be connected to LP1 for current measurement purposes.
LP2	VDD	Test loop for measuring VDD input. If an external power supply is to be used, an on-board VDD source must be removed. When R5 is removed, the device current can be measured through LP2 and LP1.
LP7	VBUS power out	When the EVM and TUSB422 is in VBUS SINK operation, VBUS output can be measured via LP7.
LP1 and LP8	GND	GND probe and debug purposes. Do not connect to power source.

5 Quick Start Guide

This section contains quick-start steps for EVM operation.

5.1 External I²C Controller Operation

1. Ensure all DIP Switches on SW1 are in the OFF position and all SHUNTS are positioned in default configuration, unless other operations are desired.
2. Plug 20V_DC IN power source via J12.
3. Power up the board by sliding the SW2 to DCIN position. If the device is operational, the INT RED LED (D4) should light up at power-on. The 20-V input BLUE LED(D13) should also light up.
4. No other LEDs light up in default DIP switch (All OFF) and header configuration.
5. Plug in an external I²C controller. This should be done after the board has been powered to avoid any errors that could be caused by the leakage path on the device IO.
6. The EVM is now ready to be configured for the desired mode of operation.

5.2 MSP43x LaunchPAD Operation

1. Ensure all power is OFF.
2. Plug the TUSB422 BoosterPack into the MSP43x LaunchPAD. An example illustration with the MSP430 LaunchPAD with TUSB422 BoosterPack connection is shown in [Figure 2](#):

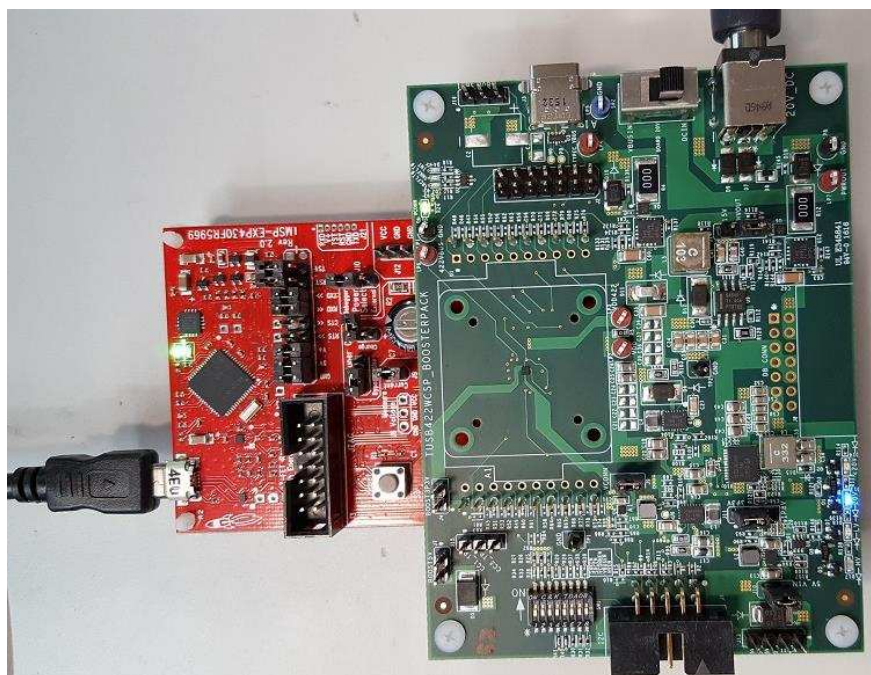


Figure 2. MSP430 LaunchPAD With TUSB422 BoosterPack

3. On the TUSB422 EVM, ensure all DIP switches on SW1 are in the OFF position and all SHUNTS are positioned in default configuration, unless other operations are desired.
4. Power on the MSP43x LaunchPAD, first via the micro-AB USB receptacle on the LaunchPAD.
5. Plug 20V_DC IN power source via J12 on the TUSB422EVM
6. Power up the TUSB422 board by sliding SW2 into the DCIN position. The 20-V input BLUE LED (D13) should light up at power-on. No other LEDs light up in default DIP switch (all OFF) and header configuration.
7. If the MSP43x FW + TUSB422 are configured and operating correctly, all interrupts should be cleared at power-on, therefore the INT RED LED (D4) should not light up.
 - (a) Press down the **S3 Reset** button on the MSP43x board.

- (b) While holding the **S3 Reset** button, on the TUSB422 BoosterPack board, switch SW2 off and on (OFF position then DCIN position)

NOTE: The **SW3 Reset** button on the MSP430 may have to be held, then power cycle the TUSB422 BoosterPack as there is a chance the device enters an unknown state when back-powered by IOs.

8. An example configuration of the com terminal is shown in [Figure 3](#) if the test log is to be viewed via the UART terminal. Select "Port" based upon the COM port number of the UART terminal connection.

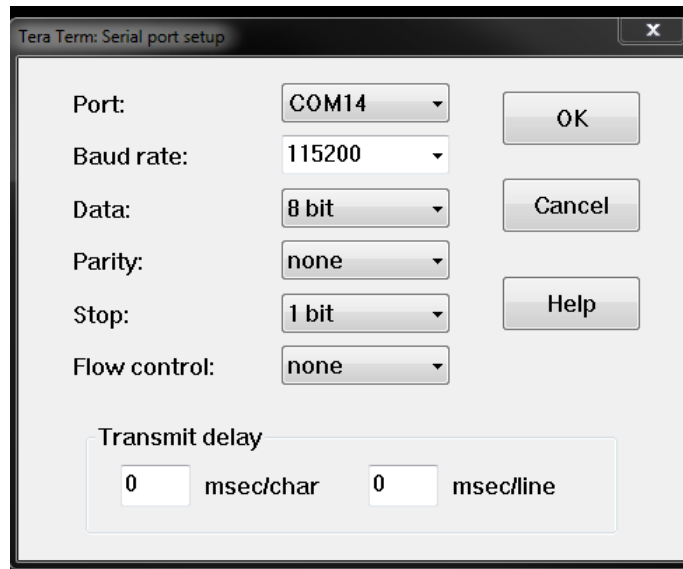


Figure 3. Serial Port Setup

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