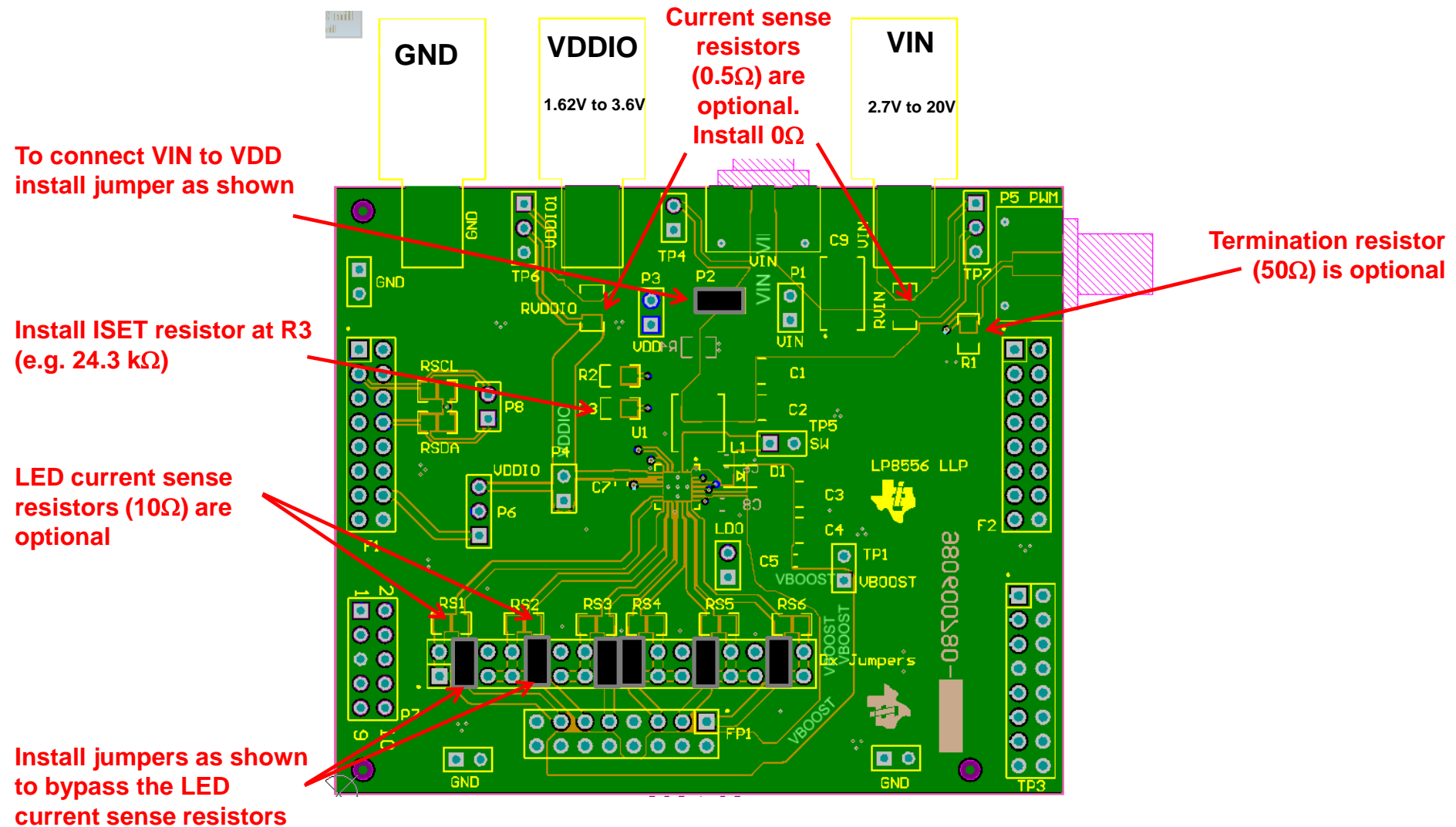
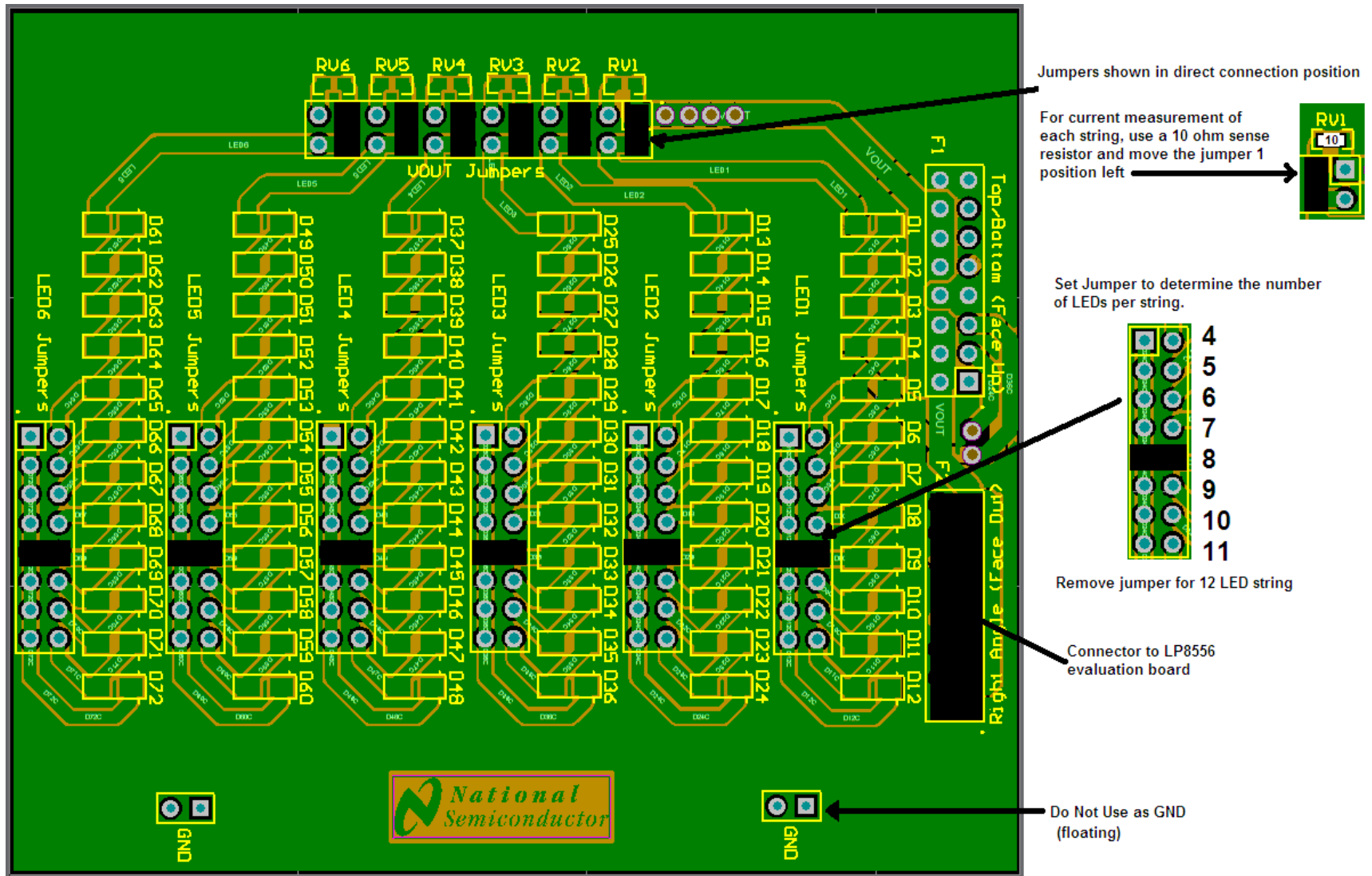


LP8556SQ-EVM Quick Start

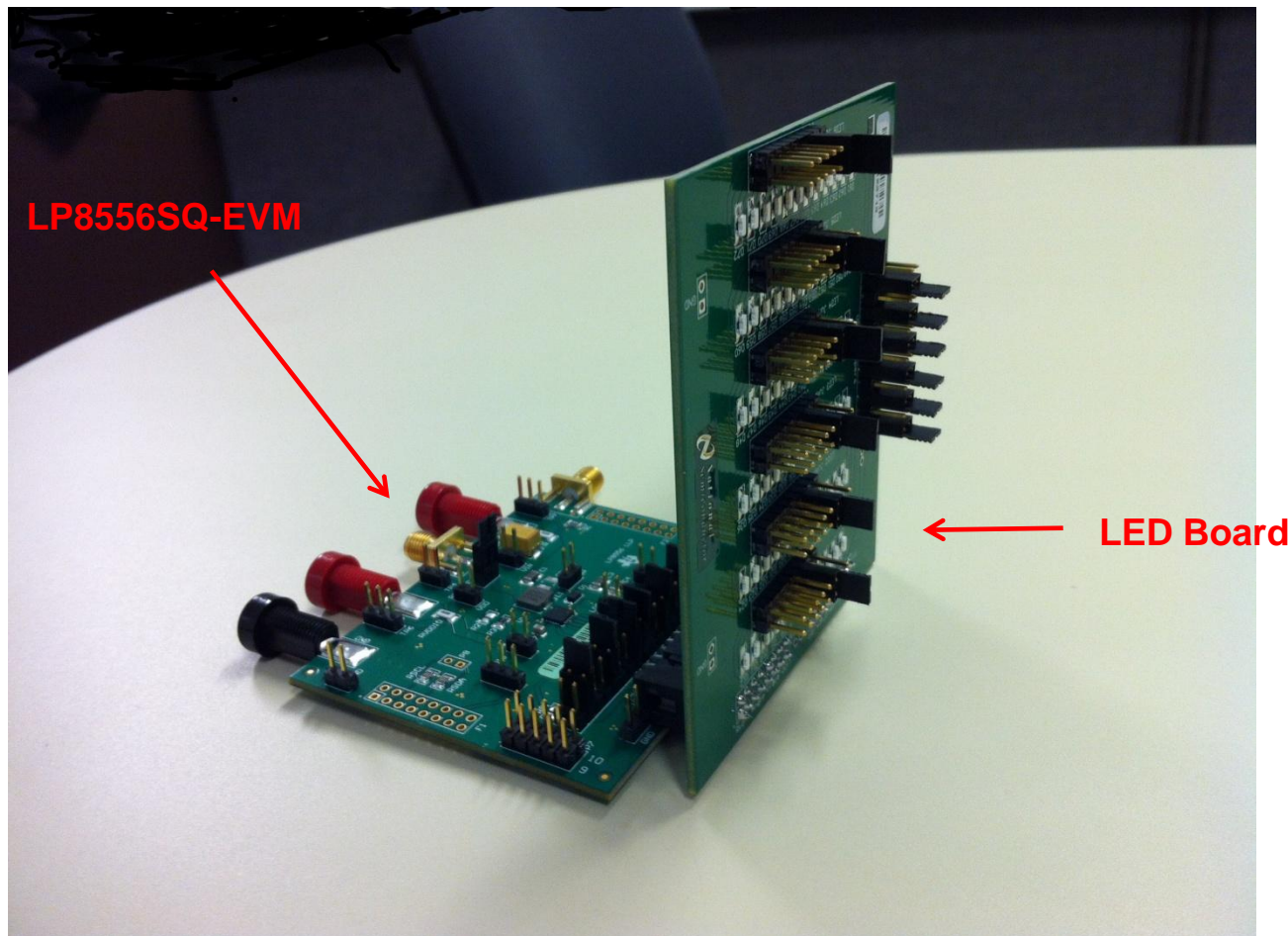
Step 1: Configure the LP8556SQ-EVM



Step 2: Configure the LED Board



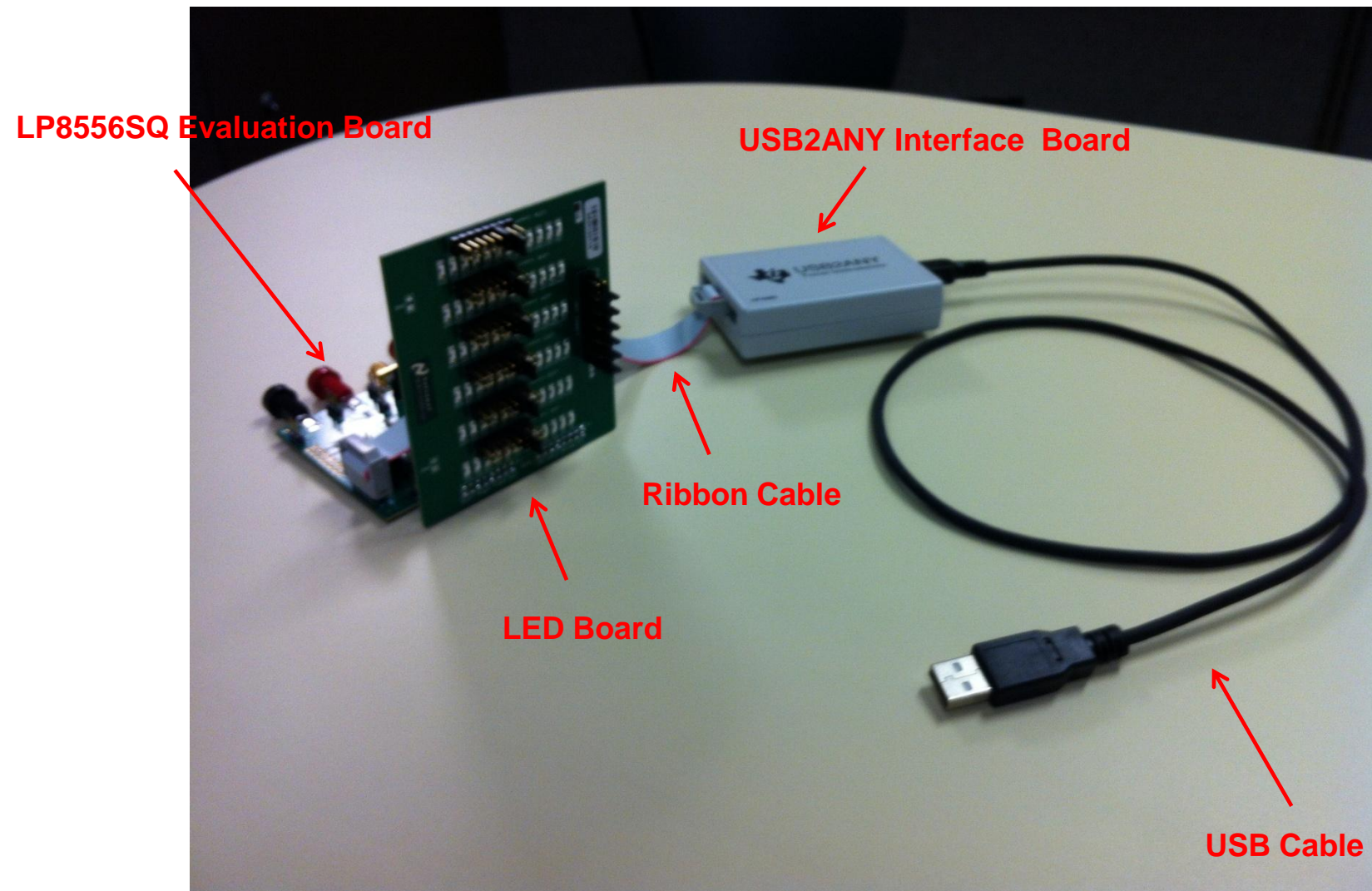
Step 3: Assemble the Kit for PWM Control



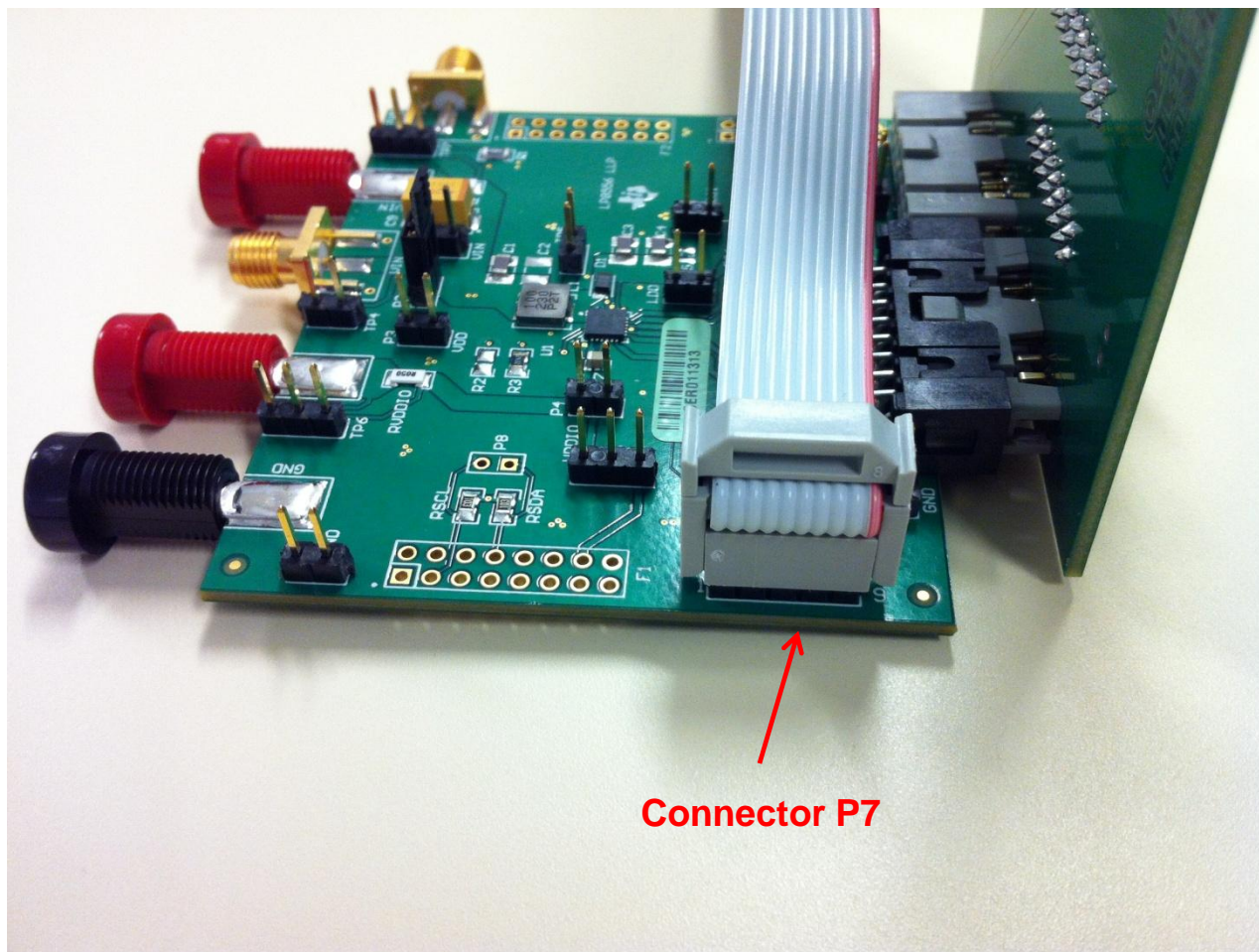
Remaining Steps to Light LEDs with PWM Signal

- 4) Connect external power and ground to the board.
 - a) Recommend connecting 3.6V to VIN jack. (Any valid VIN 2.7V to 20V)
 - b) Recommend connecting 3.3V to VDDIO jack. (Any valid VDDIO 1.62V to 3.6V)
 - c) Connect Ground to GND jack.
- 5) Turn on the external supplies.
- 6) Connect an external PWM generator with levels matching the levels of the VDDIO supply to the P5 connector. Send a PWM signal with 75 Hz to 25 kHz frequency.

Step3A: Assemble the Kit for I2C Control



Step3A: EVM to USB2ANY Interface Detail



Connector P7

Remaining Steps to Light LEDs with I2C Control

- 4) Connect external power and ground to the board.
 - a) Recommend connecting 3.6V to VIN jack. (Any valid VIN 2.7V to 20V)
 - b) Recommend connecting 3.3V to VDDIO jack. (Any valid VDDIO 1.62V to 3.6V)
 - c) Connect Ground to GND jack.
- 5) Turn on the external supplies.
- 6) Connect the USB2ANY Interface board to a computer USB port.
- 7) Run LP8556SQ.exe (Make sure USB2ANY.dll file is in the same directory as LP8556SQ.exe)
- 8) Quick Start
 - a) Uncheck the Backlight ON, Iset EN, Boost FSET EN and PWM FSET EN boxes under Config Register A2 (Click Update as well)
 - b) Change the Mode in the dropdown box under Brightness Mode and Control Registers 00 and 01 to Brightness register only.
 - c) Check the Enable Backlight box.
 - d) Move the slider under Brightness Mode and Control Registers 00 and 01 to increase the current provided to the LEDs

Evaluation Program Quick Start

The screenshot shows the LP8556SQ Evaluation Software interface. Annotations are placed on the interface as follows:

- a**: Points to the 'UVLO Enable' checkbox in the 'Config Register A2' section.
- b**: Points to the 'Mode' dropdown menu in the 'Brightness Mode and Control Register Addr 00 and 01' section.
- c**: Points to the 'Enable Backlight' checkbox in the top right area.
- d**: Points to the brightness slider in the 'Brightness Mode and Control Register Addr 00 and 01' section.

The interface includes various configuration sections for registers 00-01, 02, 16, A0-A1, A2, A3, A4-A5, A6-A9, and A7. It also features a 'Register Readback' section, a 'Configuration Register Readback' section, and a 'Manual Control' section.

- Uncheck the Backlight ON, Iset EN, Boost FSET EN and PWM FSET EN boxes under Config Register A2 (Click Update as well)
- Change the Mode in the dropdown box under Brightness Mode and Control Registers 00 and 01 to increase the current provided to the LEDs
- Check the Enable Backlight box.
- Move the slider under Brightness Mode and Control Registers 00 and 01 to increase the current provided to the LEDs

Evaluation Program Features

The screenshot shows the LP8556SQ Evaluation Software interface. The interface is divided into several sections for configuring the device. Annotations are placed on the interface as follows:

- a**: Points to the "Readback All" button in the top right section.
- b**: Points to the "Status Register Addr 02 (Read Only)" section, specifically the "VRef OK" and "VBoost OK" checkboxes.
- c**: Points to the "LED Enables Register Addr 16" section, specifically the checkboxes for LED strings 1 through 6.
- d**: Points to the "Current Value" slider and "Current Scale" dropdown in the "Config Registers A0 and A1" section.
- e**: Points to the "Update" button in the "Config Register A2" section.
- e**: Points to the "Update" button in the "Config Register A7" section.

The interface includes sections for:

- Brightness Mode and Control Register Addr 00 and 01**: Mode (PWM input only), Fast Resume, Enable Backlight.
- Status Register Addr 02 (Read Only)**: Open, Short, VRef OK, VBoost OK, Over Temperature, Over Current, TSD, UVLO.
- LED Enables Register Addr 16**: Checkboxes for LED strings 1 through 6, All On, All Off.
- Current Value Config Registers A0 and A1**: Slider, Current Scale (100 = 23mA), Target (FFF), Set, PDET Standby.
- Config Register A2**: UVLO Enable, UVLO Level, Backlight On, Iset EN, Boost FSET EN, PWM FSET EN, Update.
- Config Register A3**: PWM Slope (Immediate), Filter (None), PWM Hysteresis (1-bit with 12-bit res), Update.
- Config Registers A4 and A5**: PWM / Current Dimming Threshold (PWM Below 25%), PWM Direct, Phase Shift Mode (6 PH 6 DR), PWM Frequency (9616 Hz).
- Vboost Config Registers A6, A9, and AA**: Vboost Maximum (25 V / 34.5 V), Frequency (1250kHz), SS, Adaptive EN.
- Config Register A7**: Enable DRV3, Enable DRV2, PFM Threshold (49 uA), Current Limit (1.5 A / 2.6 A), Update.
- Configuration Selection**: Config Strings Vmax (E00 5 34.5V), Load.
- Config Eprom Burn Helper**: 72h = 0F, Prepare Write, -> Apply 6V to VLDO, Complete Write.
- IBoost Range 98**: Radio buttons for 0.9 - 1.8A and 1.6 - 2.6A.
- Vboost Range 9E**: Radio buttons for 7 - 34 V and 16 - 43 V.
- Manual Control**: Reg Addr, Data, Write, Read.

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- Readback All: Reads all registers at once. Also updates Status register.
- Status Register: Vref OK and Vboost OK are checked when device is working properly.
- LED Enable: Uncheck a box to disable an LED string.
- Current Value: Set full scale LED current with Current Scale pull-down menu. Further fine tune the current with the slider.
- Changes to registers A2, A3 or A7 require the Update button to be pressed for the changes to take effect.
- Any register can be accessed manually by typing hex values here.