Application Note

How to Configure the TUSB1044 Using SigCon Architect

ABSTRACT

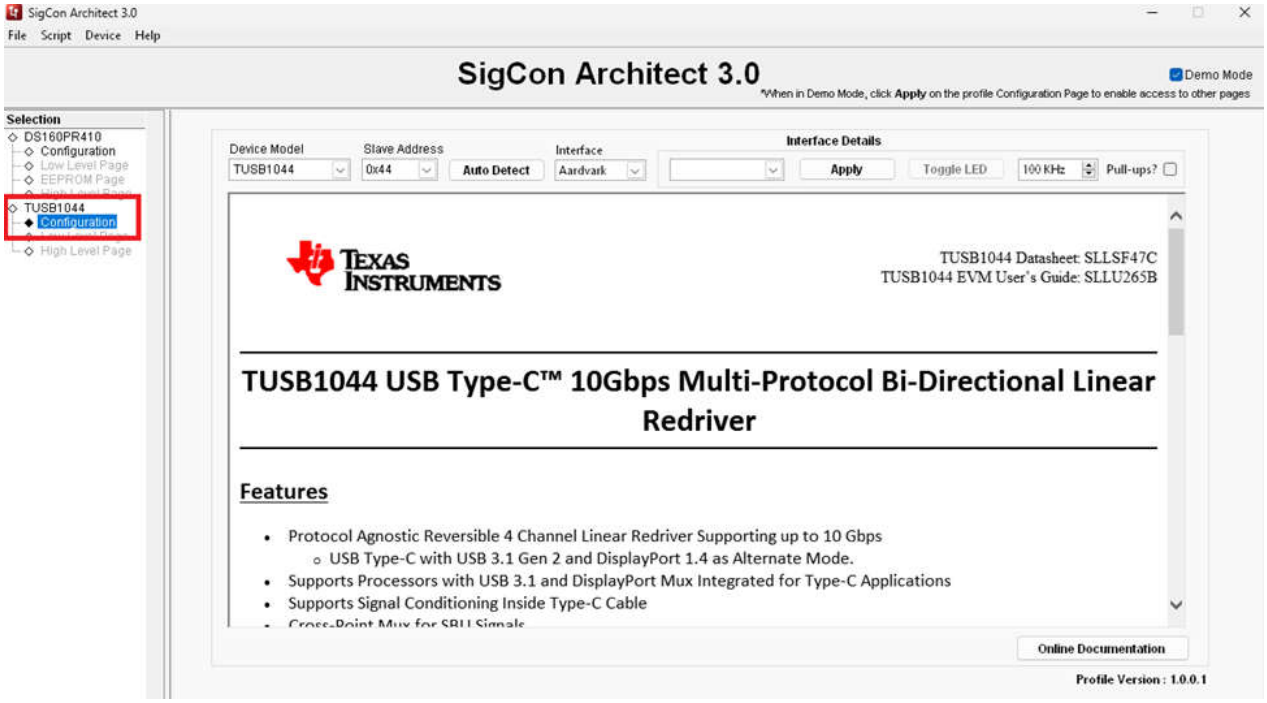
This Falcon SigCon Architect document explains how to configure your TUSB1044 redriver using the user-friendly GUI.

Table of Contents

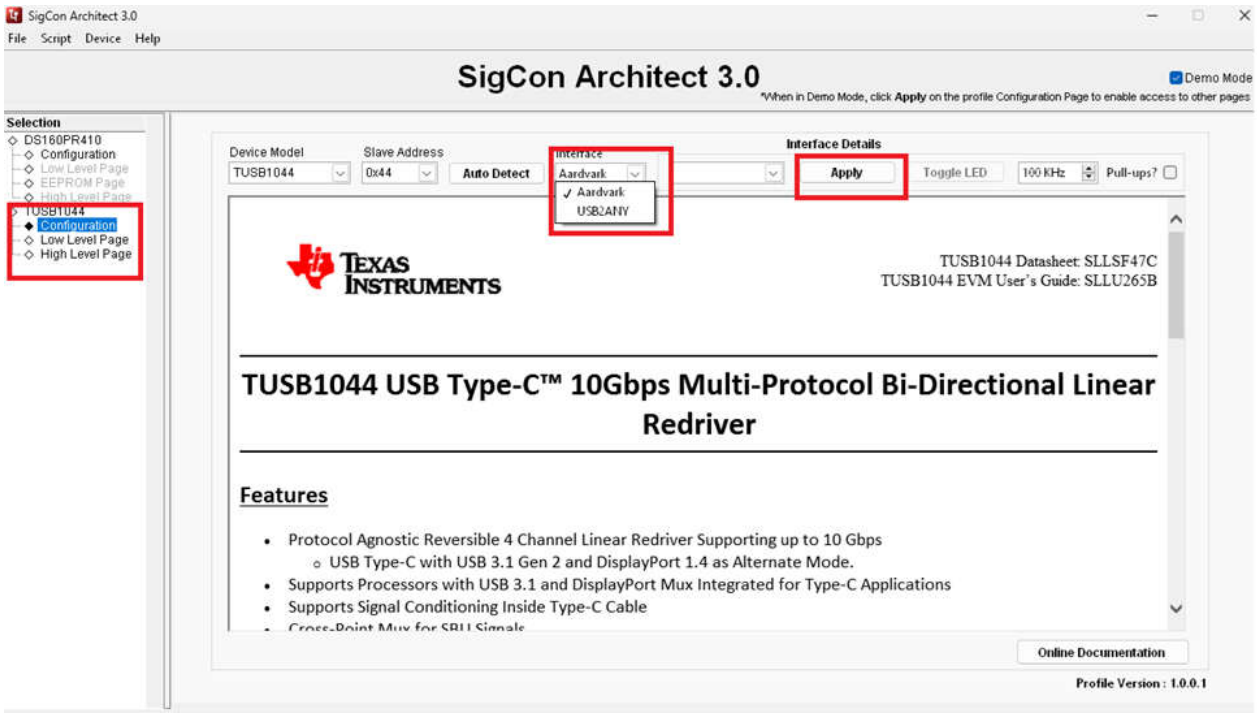
Trademarks

1 Getting Started

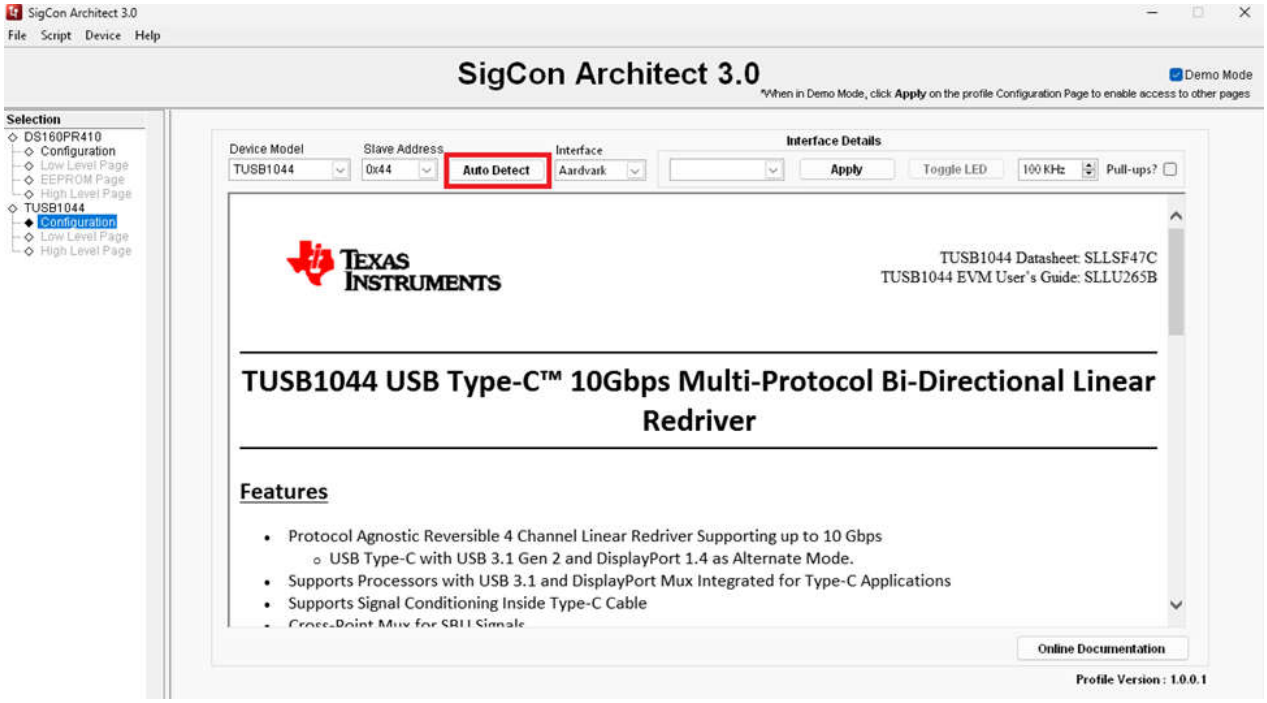
1. Download and install SigCon Architect. Follow the steps in the SigCon Architect: Installation and Starter's Guide for detailed instructions.
2. Download and install the TUSB1044 Profile Updater.
3. Connect a USB2ANY Interface Adapter or Aardvark I^2C Host Adapter to the desired TUSB1044 and PC.
4. Open SigCon Architect and click the *Configuration* tab below the TUSB1044 profile on the left, as shown below.



5. Ensure the correct interface adapter is selected below the interface drop-down menu (USB2ANY or Aardvark), then click **Apply** to activate the other tabs under the TUSB1044 profile. Click the desired tab to begin programming the device.



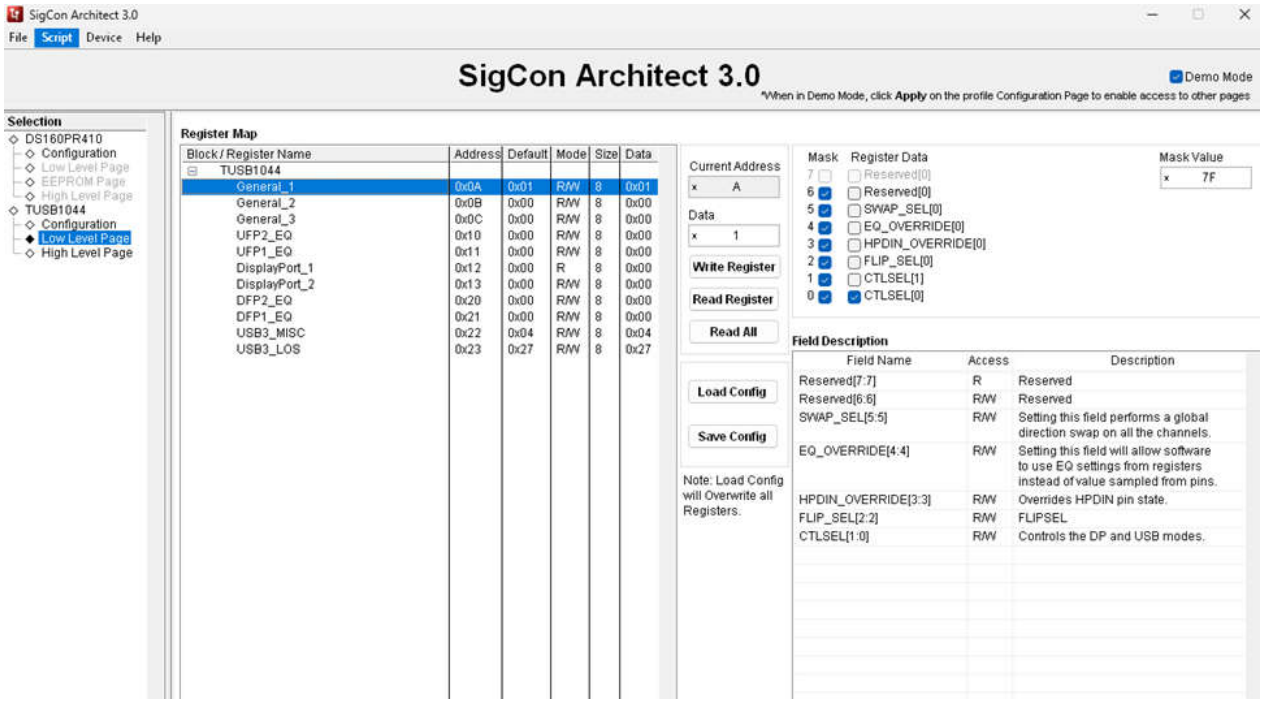
6. Click the **Auto Detect** button to detect the device and I²C bus addresses.



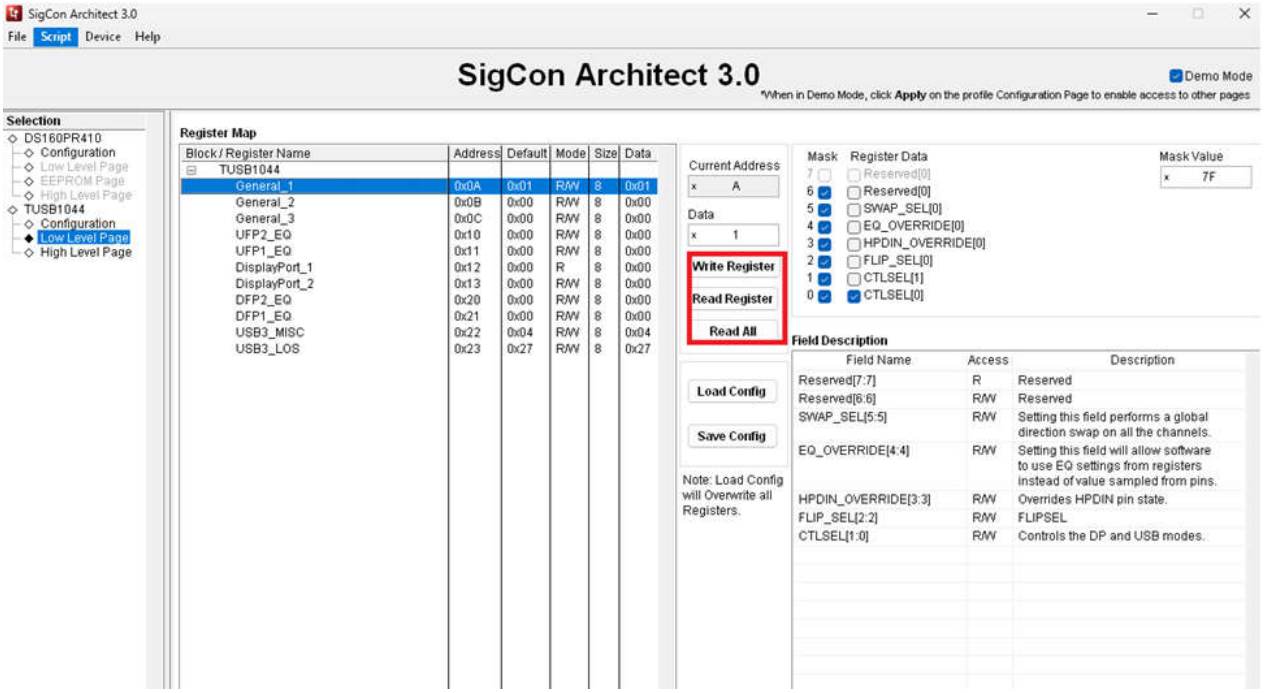
7. Descriptions of each tab is listed below:
   - Low Level Page: Individual register access to the lowest level of the device. Can be used to change specific settings, or to verify changes from the high-level page have taken effect.
   - High Level Page: Main page used to change EQ settings of the device and to see the active status of each channel

2 Low Level Page

1. When the device is selected, the complete register map appears in the table below.



2. Click the **Read All** button to read the configuration of the entire device. Alternately, select a specific register and click the **Read Register** button to update the target register quicker. The current address field automatically updates with the highlighted register.



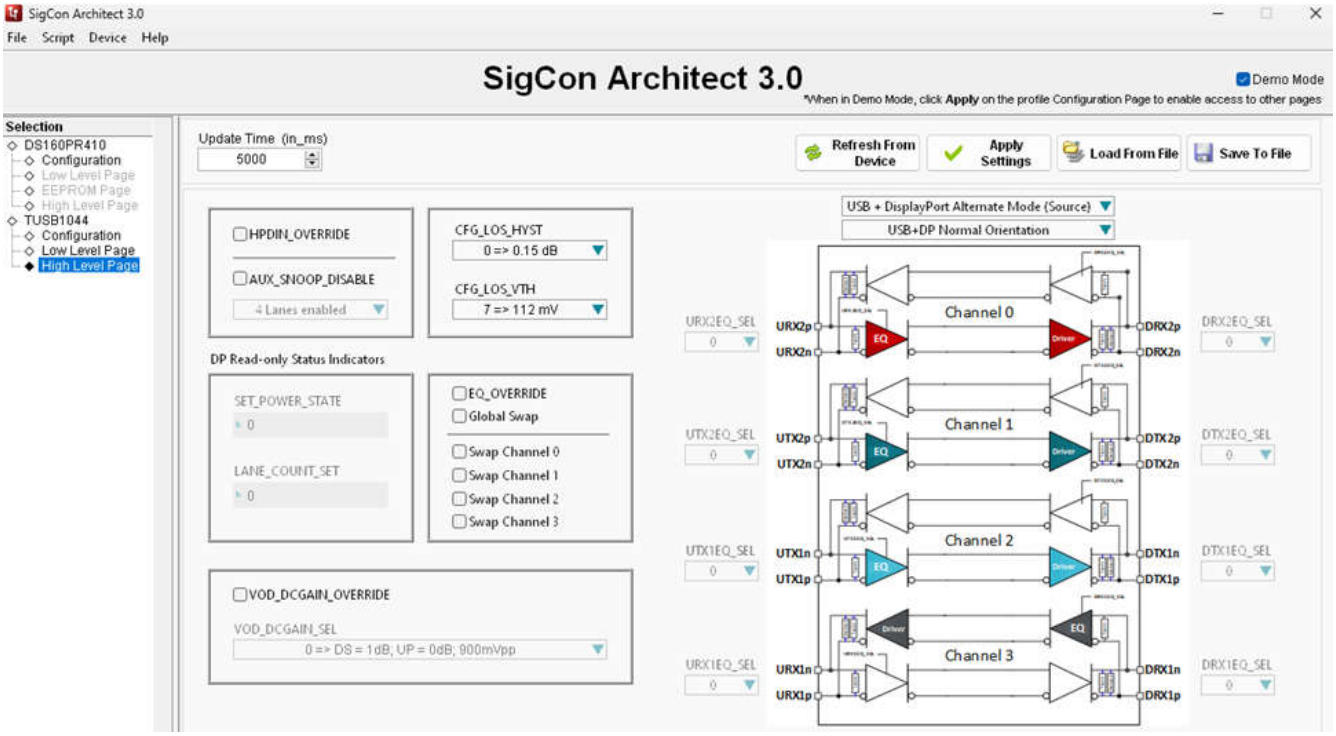
3. To write to the selected register, check or deselect the boxes in the Register Data field. You can also manually enter a hex value into the Data field. Click the **Write Register** button to complete the update, then click the **Read Register** button to verify that the change was made. Note the Field Description table describes the function of each bit in the highlighted register
4. Use the Save Config and Load Config buttons to save the current configuration in a .cfg file, and load the file back as needed. Click the **Reset Device** button to reset every setting to the default.

3 High Level Page

The TUSB1044 redriver features a continuous-time linear equalizer (CTLE) that applies high-frequency boost and low-frequency attenuation to help equalize the frequency-dependent insertion loss effects of a passive channel.

This page is used to quickly and easily adjust the EQ settings as needed for your specific application. A further description of this feature is described in the data sheet.

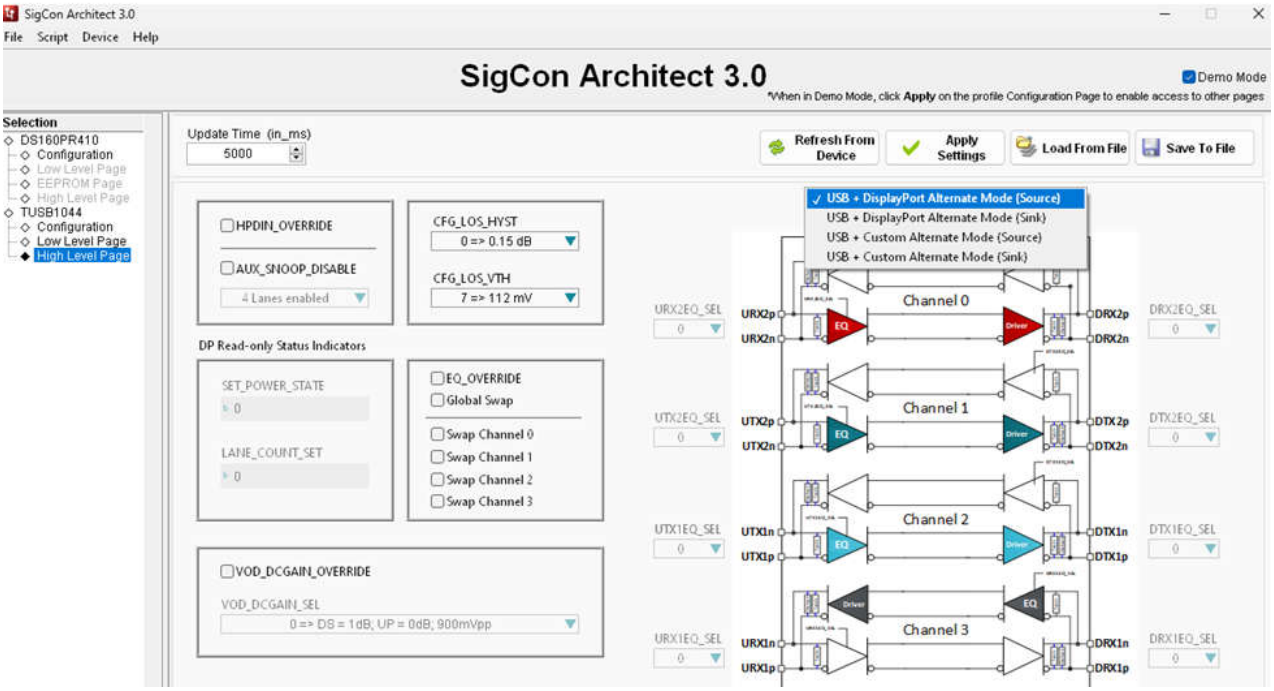
The High Level page also contains a device status page which shows which channels are detecting a signal.



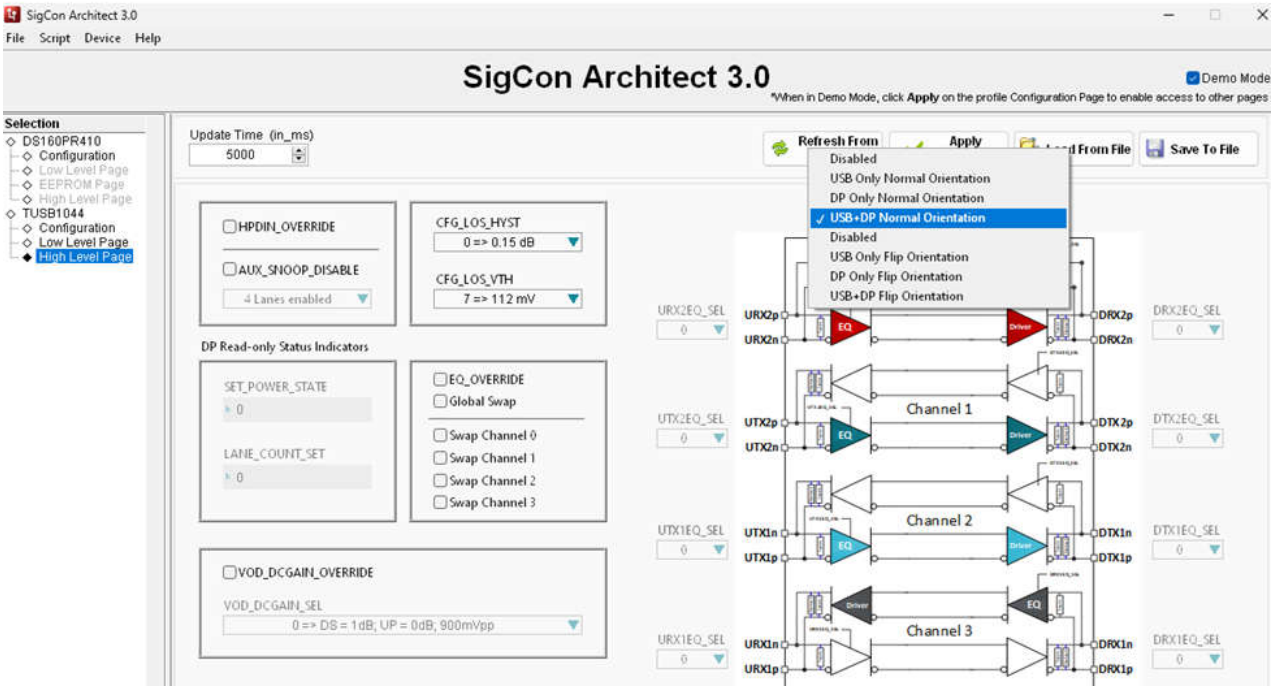
1. Select the right application mode form the menu.

   There are four modes to select:

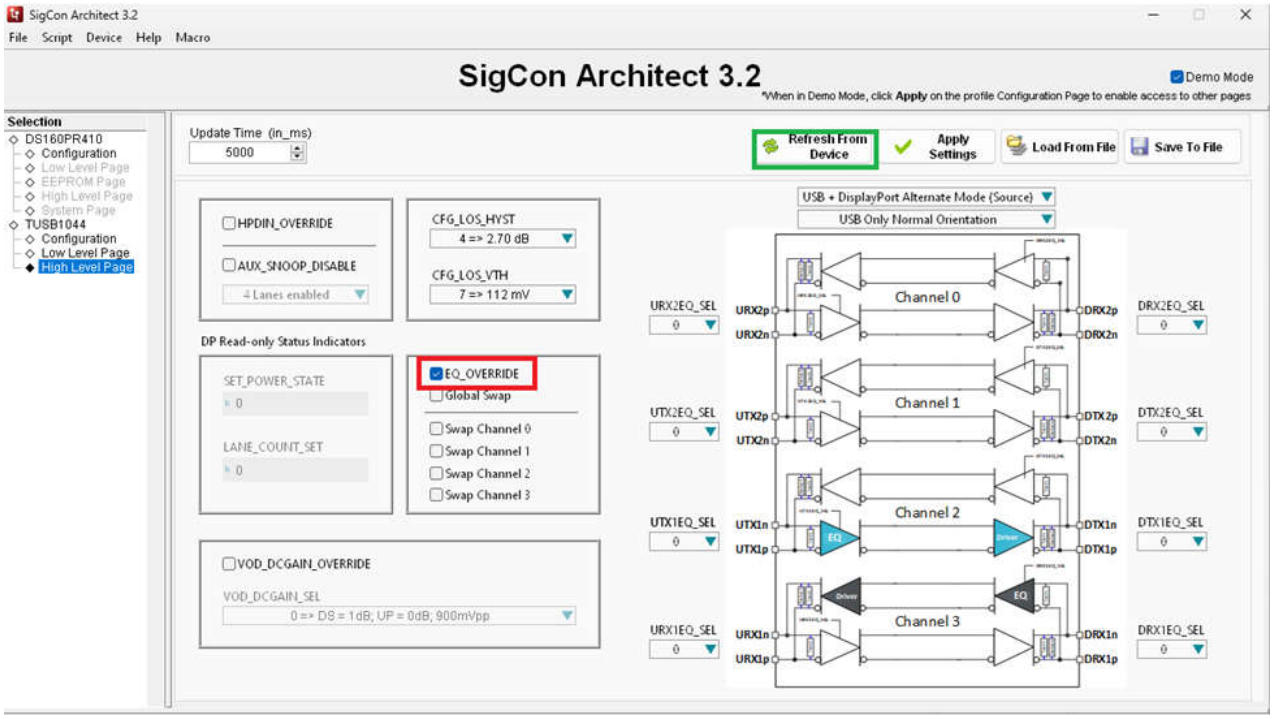
   - USB + DisplayPort Alternate mode for Source
   - USB + DisplayPort Alternate mode for Sink
   - USB + Custom Alternate mode for Source
   - USB + Custom Alternate mode for Sink



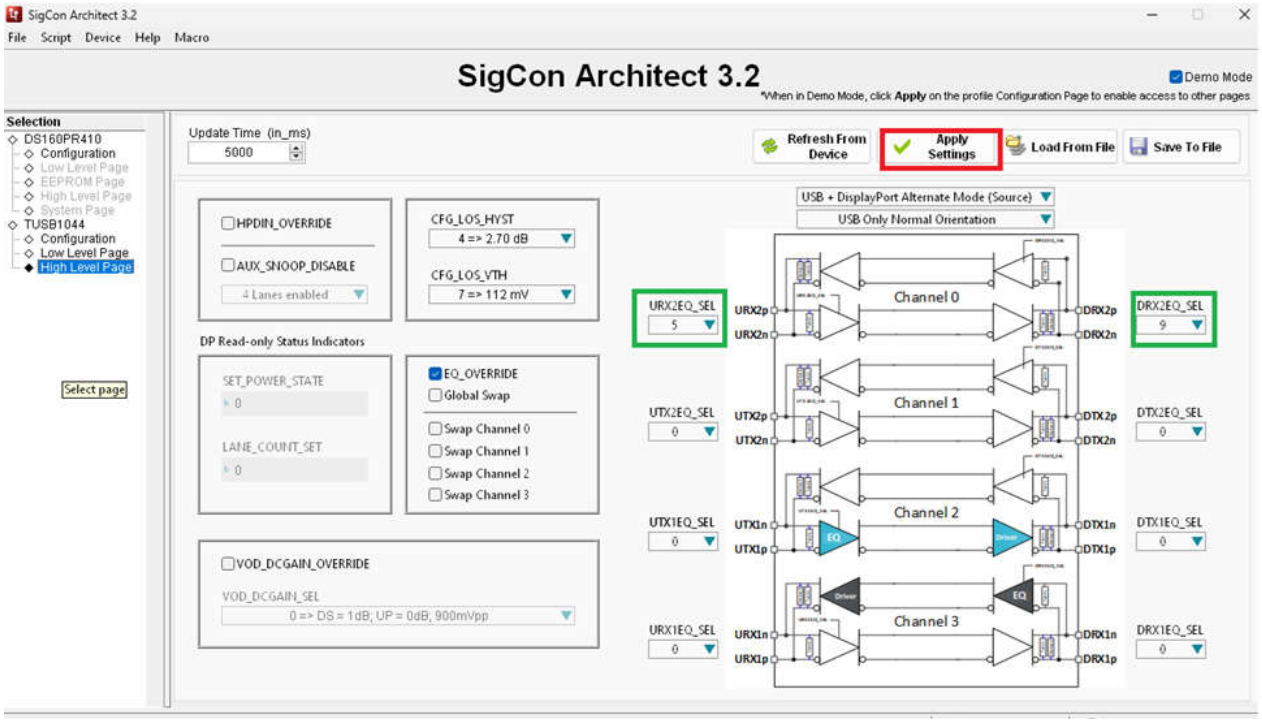
2. Select either the normal orientation or flip orientation.



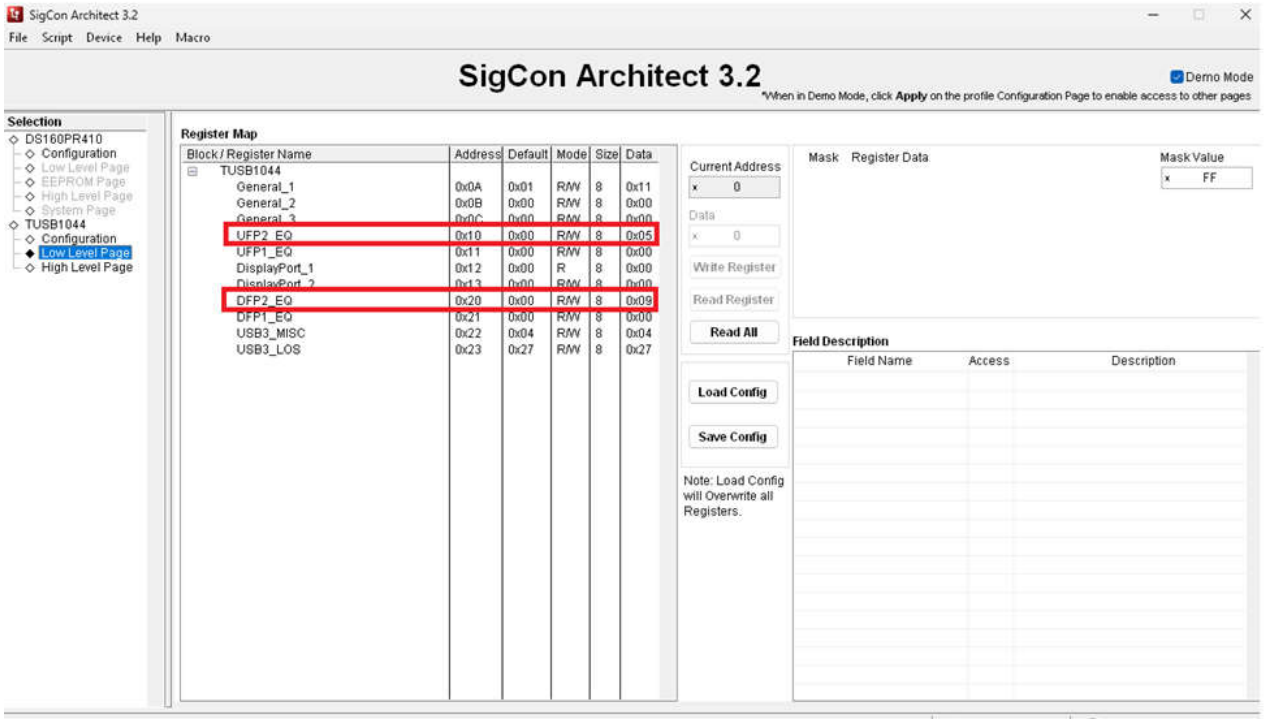
3. Select the EQ_OVERRIDE checkbox and click the **Refresh From Device** button. You can then change the EQ setting for your desired channel.



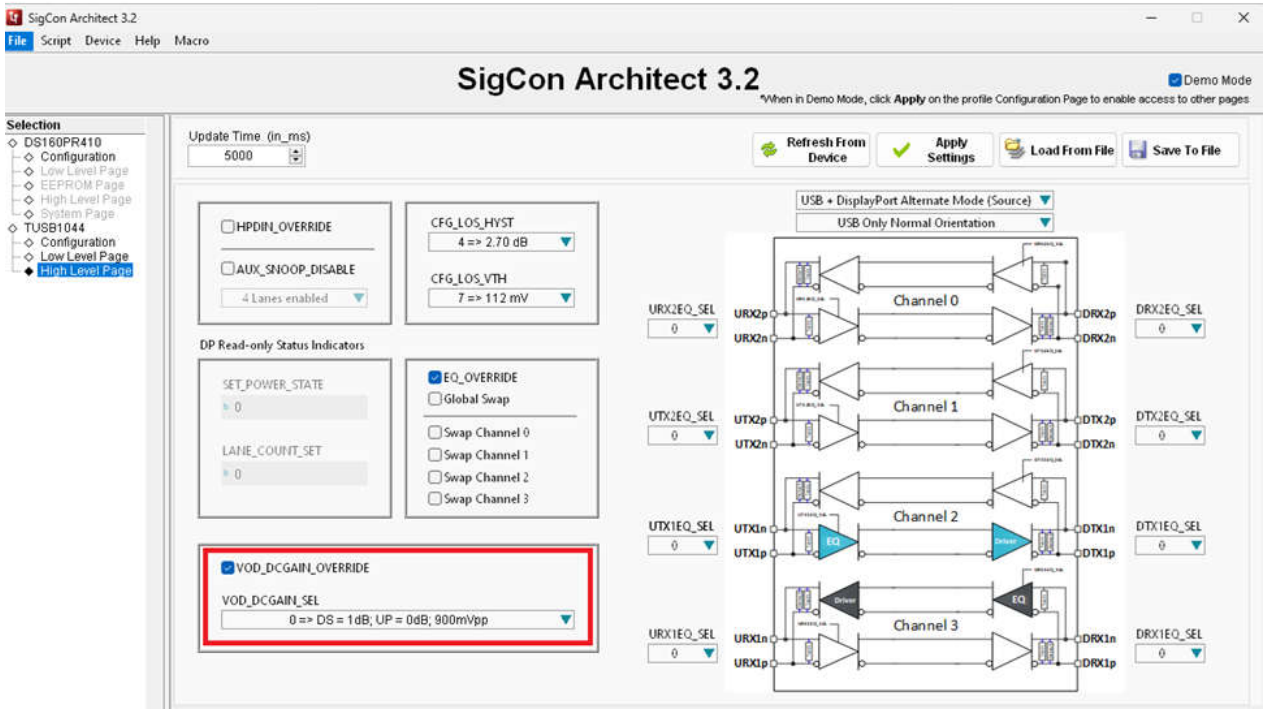
4. After the EQ setting change, click the **Apply Setting** button to update the EQ setting to the register.



5. Go back to Low Level page to see the updated register.



6. Select the VOD_DCGAIN_OVERRIDE checkbox and select a DC gain setting in the drop-down list.



4 References

- Texas Instruments, *TUSB1044 USB TYPE-C™ 10Gbps Multi-Protocol Bidirectional Linear Redriver* data sheet

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