UG229: Si51211/Si51218 Evaluation Board User's Guide

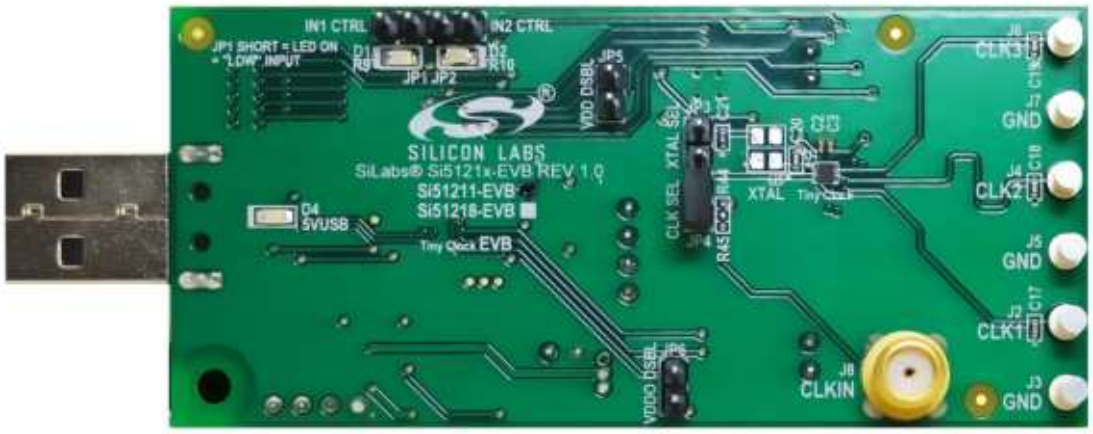
The Si51211/Si51218 evaluation boards (the Si5121x-EVB) can be used to emulate custom Si5121x part numbers as below:

Base Part Number	EVB
Si51210/14	Si51211 EVB
Si51211	
Si51218	Si51218 EVB

The Si5121x-EVB has an on-board programmable Si514 that generates the input clock frequency and can demonstrate function of up to two dc input pins and one output clock or up to three output clocks from the Si5121x part, depending on the part emulated and the frequency plan.

EVB FEATURES

- Powered from USB port
- Onboard Si514 to generate any input clock based on the frequency plan
- CBPro™ GUI programmable V_{DD} supply allows device at 3.3 V or 2.5 V



1. Identifying the EVB Part

Look for the “check” on one of the two boxes for either the Si51211-EVB or the Si51218-EVB as shown in Figure 1.1 Si5121x-EVB Identification on page 1. Other than this check box selection (and the Si5121x device used in the EVB), the EVBs are both identical by design. Therefore, the user guide to the EVBs is a common document. CBPro™ also has the ability to identify the EVBs and displays the EVB type as shown in Figure 1.2 Si5121x-EVB Identification by CBPro on page 1.



Figure 1.1. Si5121x-EVB Identification

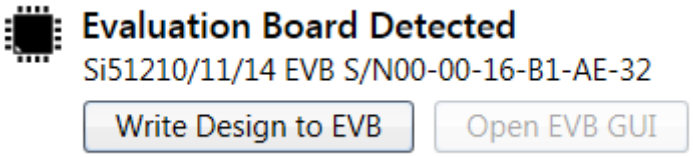


Figure 1.2. Si5121x-EVB Identification by CBPro

2. Functional Block Diagram

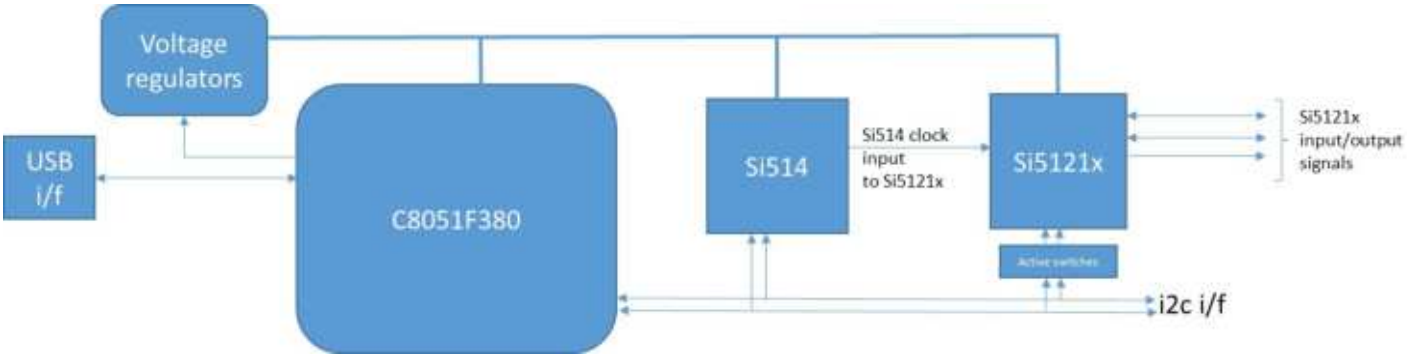


Figure 2.1. Si5121x- CEVB Functional Block Diagram

The C8051F380 MCU is used to control the Si514, Si5121x devices, and the voltage regulators and implement the plans created on CBPro.

3. Installing ClockBuilderPro (CBPro) Desktop Software

To install the CBPro software on any Windows 7 or above PC, go to www.silabs.com/CBPro and download the CBPro software. Installation instructions and a User's Guide for CBPro can be found at the download link shown above. Follow the instructions as indicated.

4. Using the Si5121x EVB

4.1 Connecting to a Si5121x EVB using CBPro

Once CBPro software is installed, connect to the EVB with a USB cable as shown in the figure below:



Figure 4.1. Connecting to Si5121x EVB via CBPro

4.2 Programing the Si5121x EVB using CBPro

There are three ways to select (or arrive at) a frequency plan on the CBProsoftware. They are as follows:

1. Selecting a “default plan” from CBPro.
2. Creating a plan using the CBPro wizard.
3. Opening an existing plan stored as a CBPro project file.

At the end of any of these three steps, the starting point to programming the EVB will be as shown in the following figures:

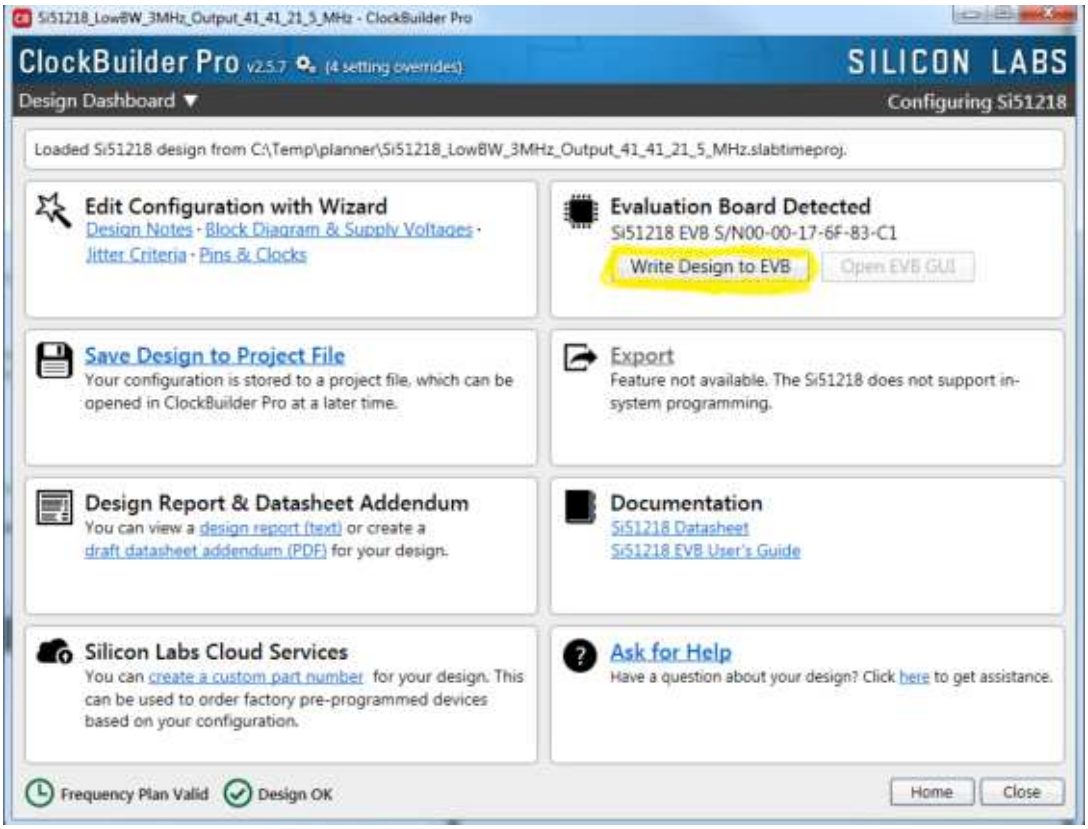


Figure 4.2. Starting Screen for EVB Write

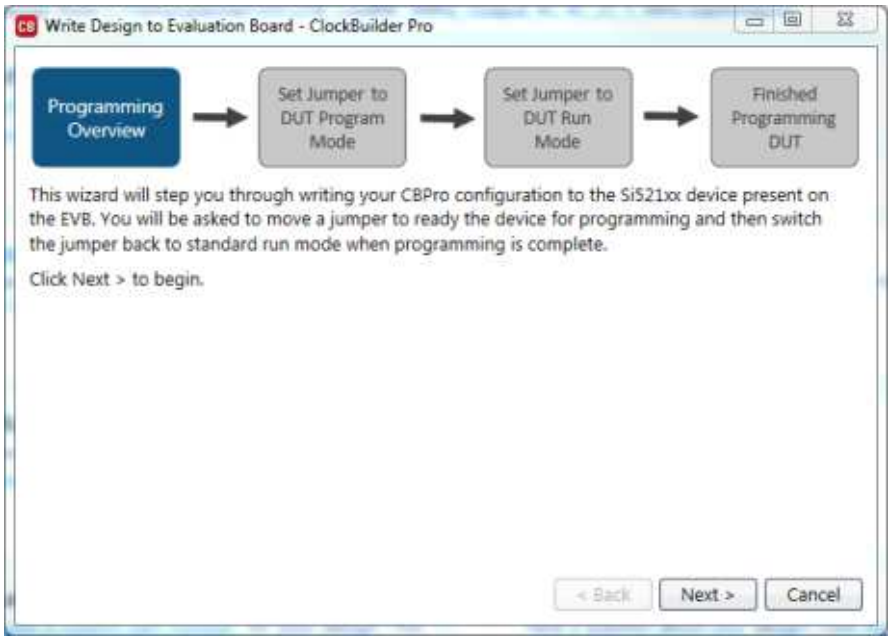


Figure 4.3. Step 1 of 4 in EVB Write

Click “Next” to get to the next window.

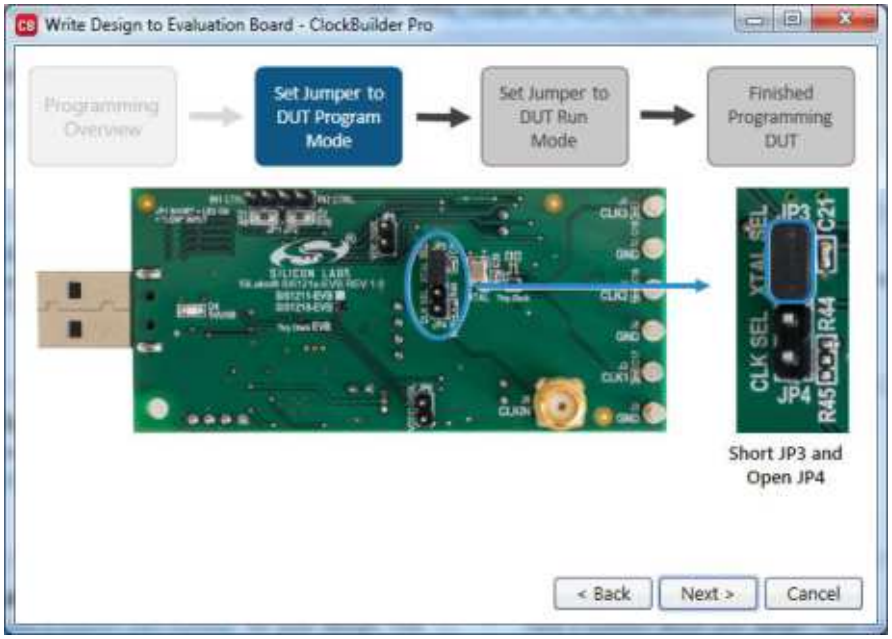


Figure 4.4. Step 2 of 4 in EVB Write

Now, ensure that the jumper JP3 is shorted and jumper JP4 is open. Then click "Next" to get to the window in Figure 4.5 Step 3 of 4 in EVB Write on page 7.

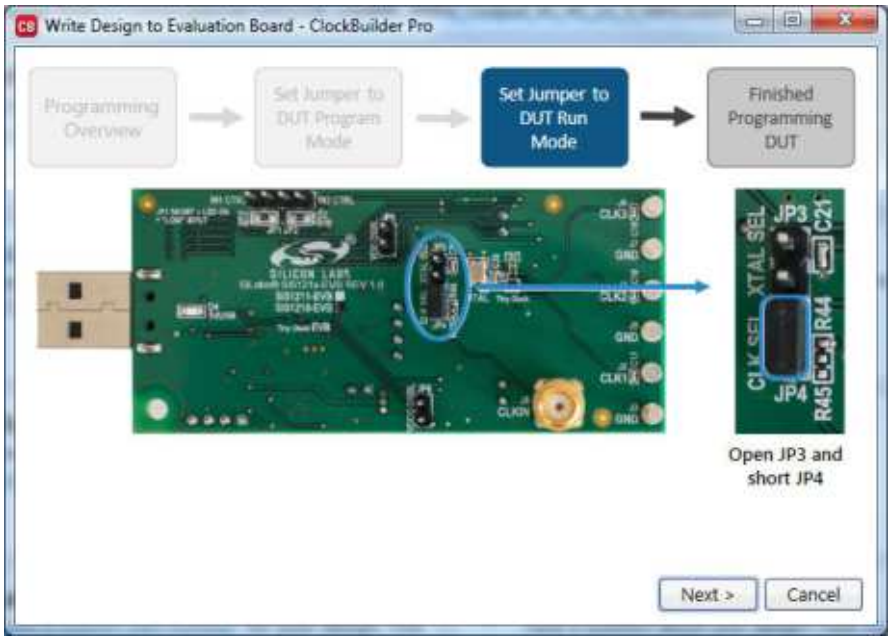


Figure 4.5. Step 3 of 4 in EVB Write

Next, ensure that the jumper JP4 is shorted and jumper JP3 is open. Then click "Next" to get to the window in Figure 4.6 Step 4 of 4 in EVB Write on page 7.

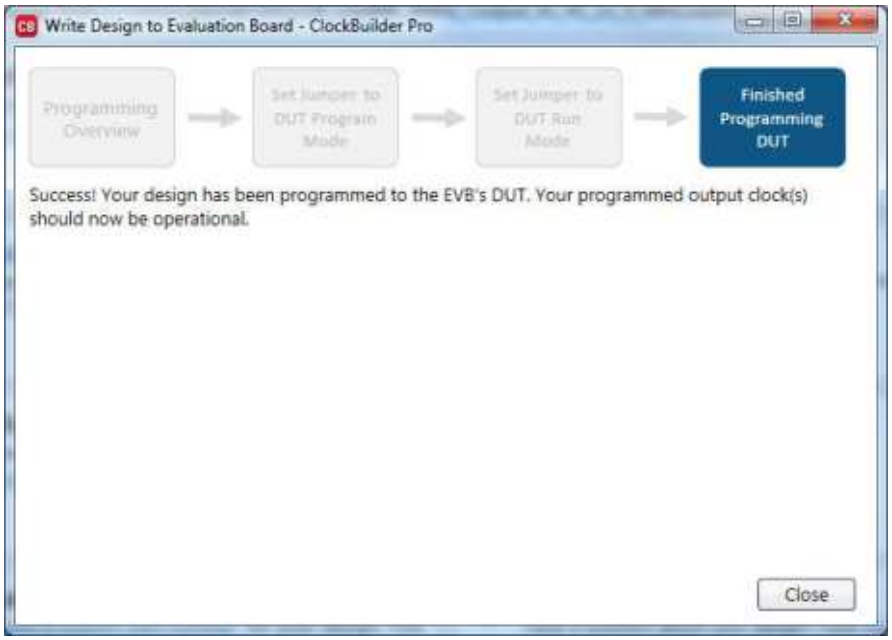


Figure 4.6. Step 4 of 4 in EVB Write

This step completes the programming. The plan can be evaluated now.

5. Controlling Input Pins

The input pin (IN1 or IN2) will be:

- High when the pin is left open, such as the IN2 setting in the figure below, or
- Low when the pin is shorted using an INx_CTRL jumper, such as the IN1 setting in the figure below.



Figure 5.1. Input Pin Control

6. Bill of Materials (BOM), Layout, and Schematic

The Si5121x EVB Bill of Materials (BOM), Layout, and Schematic design files can be found online at: http://www.silabs.com/si512xx.

Note: Please be aware the Si5121x EVB schematic is in OrCad Capture hierarchical format and not in a typical “flat” schematic format.

7. Revision History

7.1 Revision 1.0

April 20, 2016

- Initial release.

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ClockBuilder Pro

One-click access to Timing tools, documentation, software, source code libraries & more. Available for Windows and iOS (CBGo only).

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