

TDTP2500P100: 2.5kW Bridge-less Totem-pole PFC Evaluation Board

Part 1: Getting started with the code

The design files and source code for the TDTP2500P100 2.5kW bridge-less totem-pole PFC kit can be found at transphormusa.com/tdtp2500p100 and includes the complete project. The following instructions can be used to load and build the project on your computer for inspection or modification of the code. To take maximum advantage of the existing firmware, the TDTP2500P100 firmware is based on an open-source design from Texas Instruments (TI). Full documentation of the TI kit and firmware is available from TI as part of the controlSUITE package.

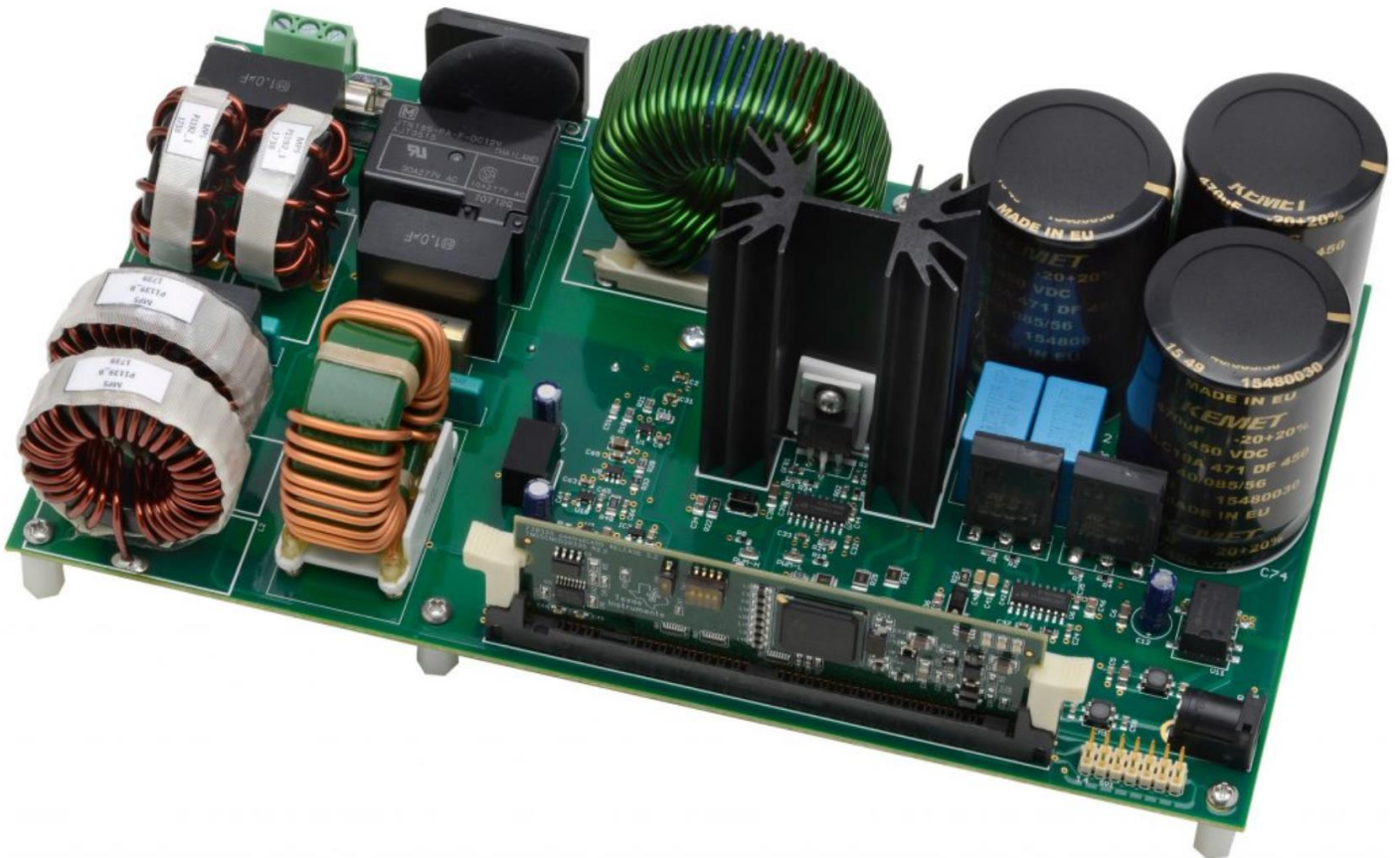
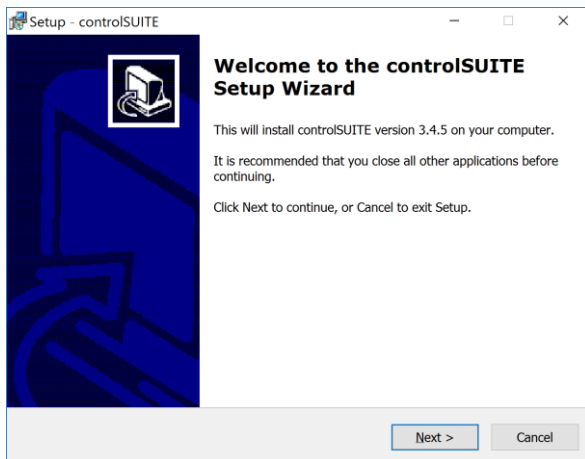


Figure 1. TDTP2500P100 0v1 2.5kW bridge-less totem-pole PFC evaluation board

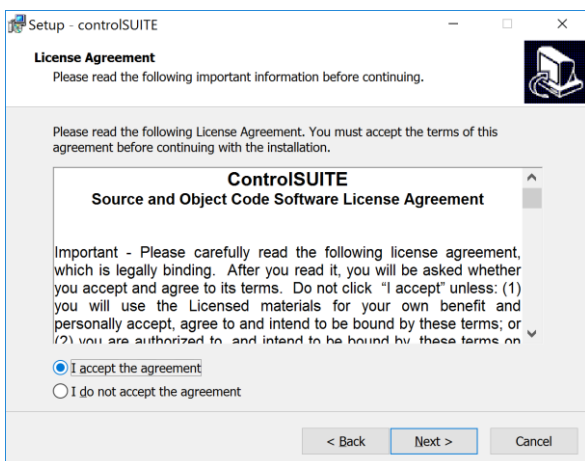
Installing Code Composer Studio and Control Suite

Code Composer Studio v7 is an integrated development environment based on the Eclipse open source framework and is available at processors.wiki.ti.com/index.php/Download_CCS.

1. Install Texas Instruments Code Composer v7.x
2. The controlSUITE package is not required to work with the firmware but a great deal of documentation is provided with it; to download, go to ti.com/tool/controlsuite and run the controlSUITE installer, following these steps:

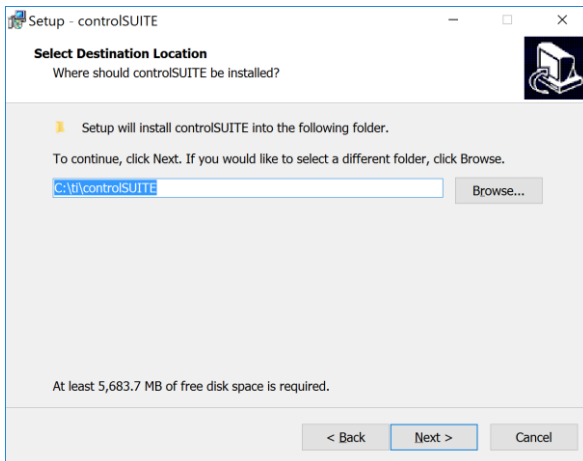


Step 1

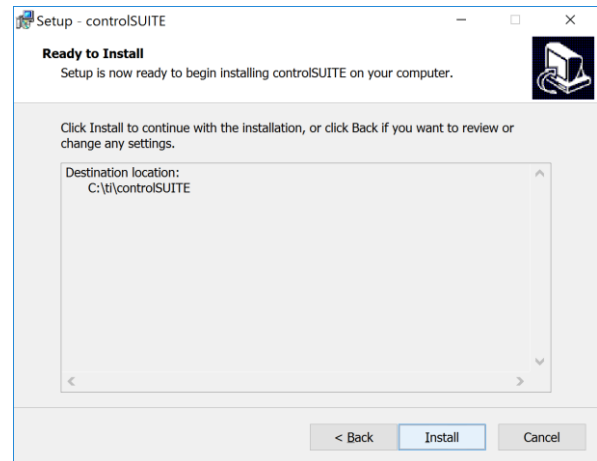


Step 2

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Step 3

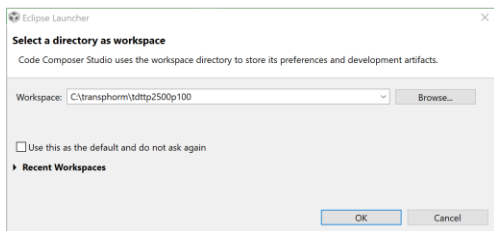


Step 4

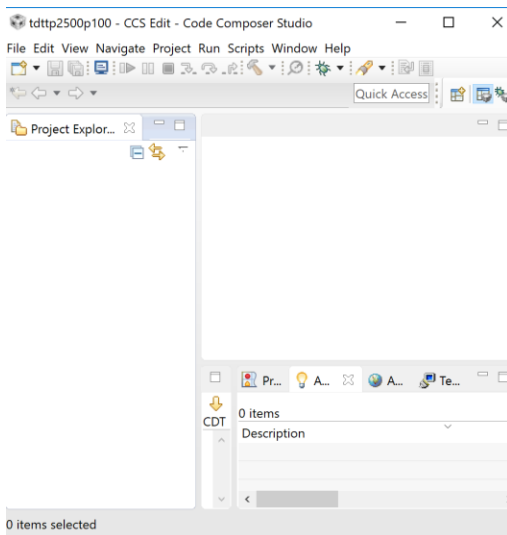
3. Once controlSUITE is installed, Code Composer can be set up to work with the TDTP2500P100 source code

Setting up Code Composer Studio to work with TDTP2500P100-KIT

4. Create a folder to use as a workspace, i.e., C:\transphorm\TDTP2500P100.
5. If not done yet, download and extract the firmware files for TDTP2500P100-kit from the transphormusa.com website (<https://www.transphormusa.com/en/design-resources/#evaluation-kits>)
6. Create a subfolder in the workspace folder to store firmware files (name folder: firmware)
7. Launch Code Composer Studio and select the desired workspace

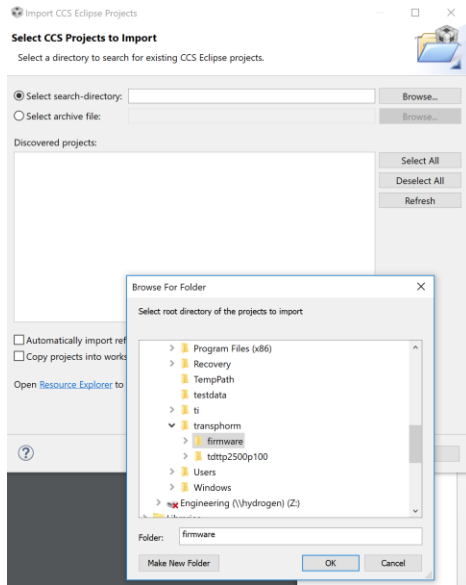


8. Go to Project section in the menu and select Import Existing CSS Project

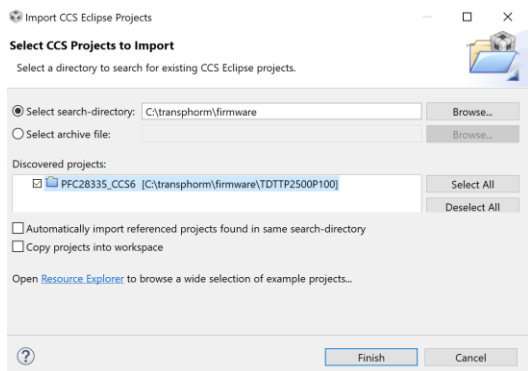


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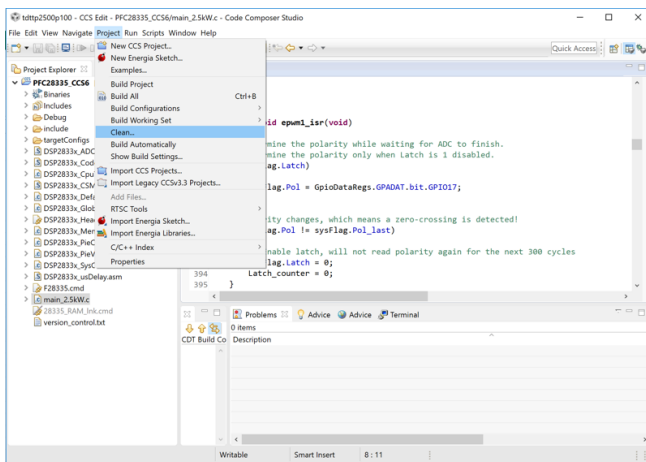
1. Navigate to the saved [firmware files](#),



2. Click Finish



9. Go to Project in the menu and select CLEAN which will perform a full build of the project

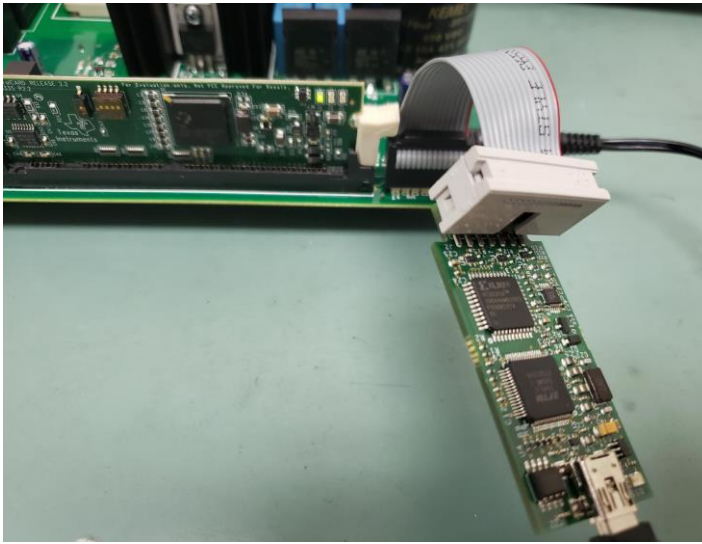


3. After finishing the build, the files will appear under Project Explorer. The TMS320F28335 will load as the target processor—to verify, click Target Configurations under the View menu item, and then select the PFC28335.ccxml under Projects.

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Load and run the code

- Connect an Emulator JTAG XDS100V2 usb cable from the computer to the SV1 pin on the TDTP2500P100 evaluation kit.
- Connect 12V_{cc} power adaptor to the TDTP2500P100 evaluation kit



10. After completion of the build, click the Debug button, located on the top-left side of screen. The IDE will now automatically connect to the target, load the output file into the device and change to the Debug perspective

11. Run the code by pressing the RUN button in the Debug tab.