



Test Procedure for the NB3H5150MNGEVB Evaluation Board

Software Installation

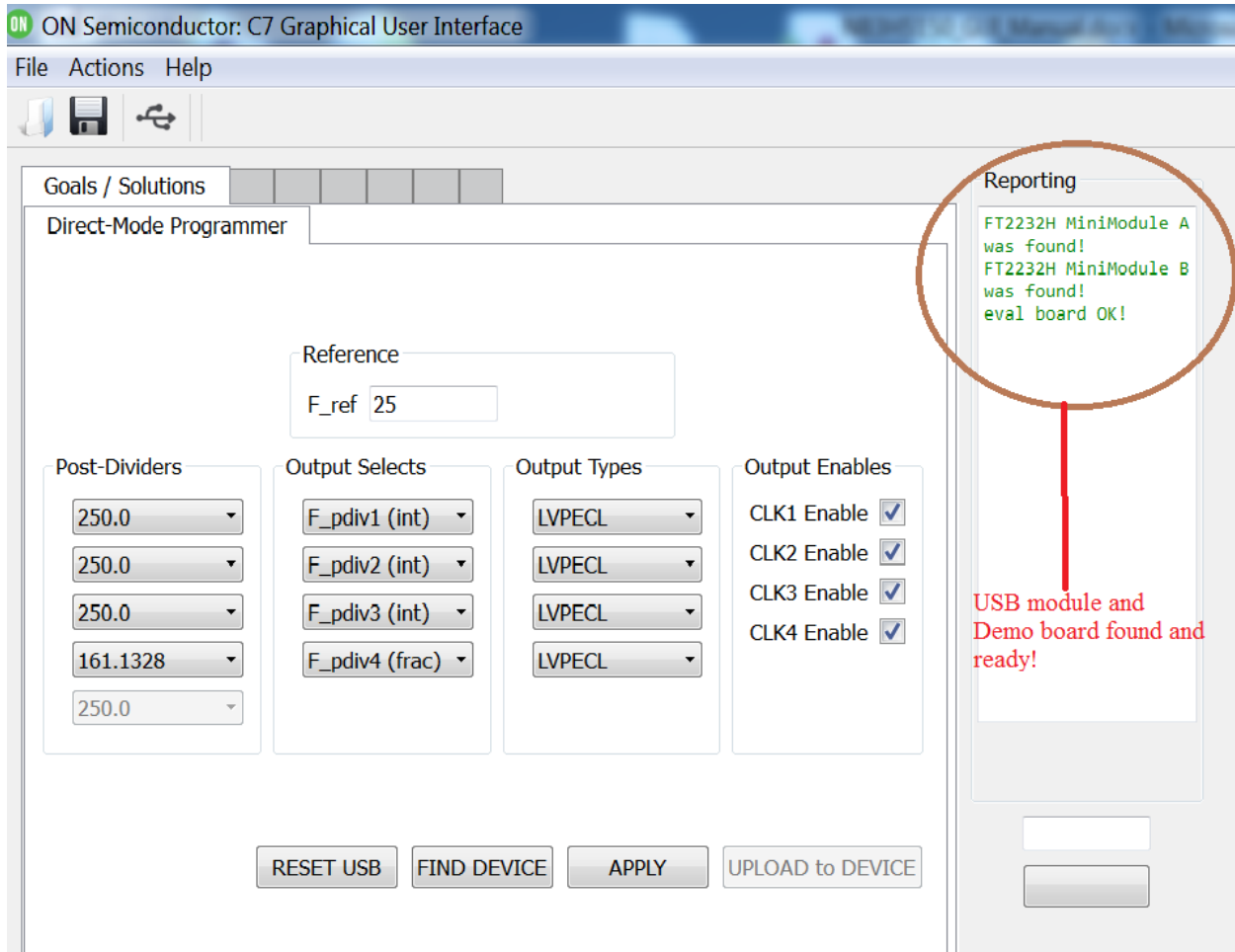
- Unzip the distribution archive
“ONSEMI_NB3H5150_Customer_GUI_Opt07.zip”
– all files are contained in a parent folder
(ONSEMI_NB3H5150_Customer_GUI_Opt07) which
you can un-zip anywhere on your PC
- Look in the parent folder: – you will see a file:
“ONSEMI_GUI.exe”..
- Make a shortcut to that file and place it on your
desktop, start menu, etc.
- That’s it! – there is no manipulation of the registry or PATH



Software Use and Hardware Initialization

- Connect the eval board to a USB port on the PC.
- Allow Windows to install the necessary drivers for the eval board USB interface hardware...it will go out to the web to find them.
- Start the program using the shortcut that you made earlier.
- You will see that the software validates that the board connection.
- Click the “Find Device” button indicated below.
- You are now ready to program the device operation.

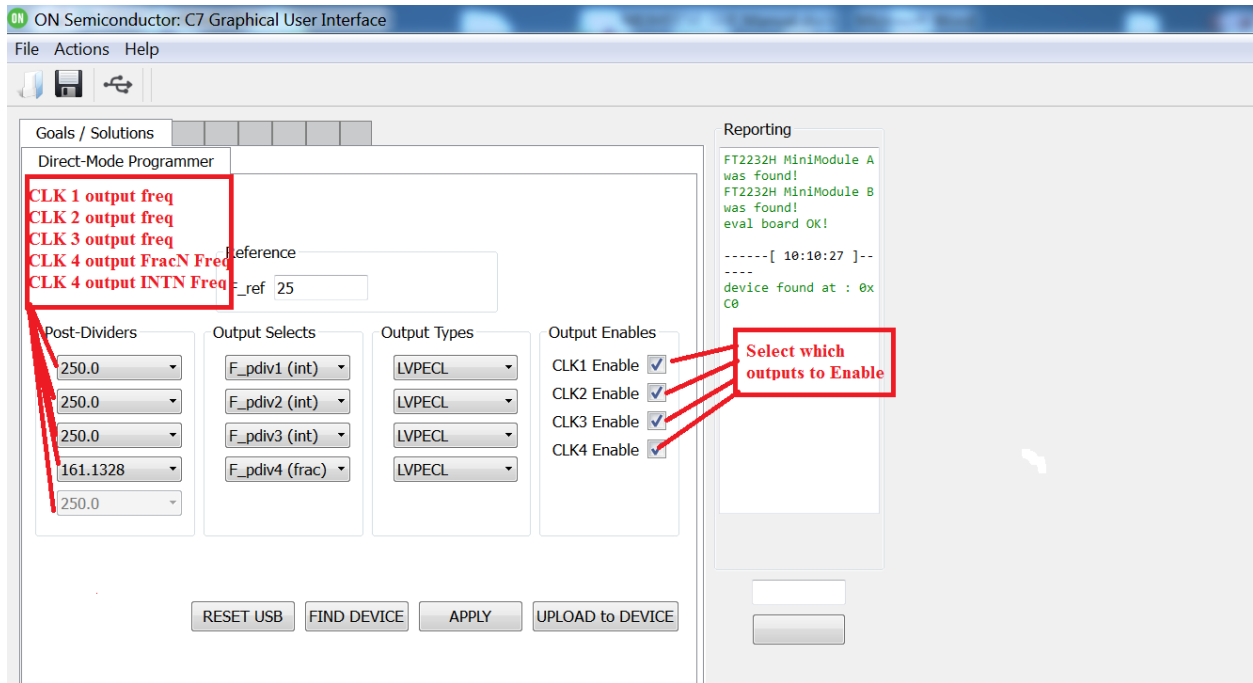
Board USB Connection Validation



The screenshot displays the ON Semiconductor C7 Graphical User Interface. The main window is titled "Direct-Mode Programmer" and contains several configuration sections: "Reference" with an input field for "F_ref" set to "25"; "Post-Dividers" with five dropdown menus showing values like "250.0" and "161.1328"; "Output Selects" with four dropdown menus for "F_pdiv1 (int)", "F_pdiv2 (int)", "F_pdiv3 (int)", and "F_pdiv4 (frac)"; "Output Types" with four dropdown menus all set to "LVPECL"; and "Output Enables" with four checked checkboxes for "CLK1 Enable", "CLK2 Enable", "CLK3 Enable", and "CLK4 Enable". At the bottom are buttons for "RESET USB", "FIND DEVICE", "APPLY", and "UPLOAD to DEVICE". On the right side, a "Reporting" window is open, displaying the following text: "FT2232H MiniModule A was found!", "FT2232H MiniModule B was found!", and "eval board OK!". A red circle highlights this reporting window, and a red arrow points from it to the text "USB module and Demo board found and ready!" located below the reporting window.

Functional Overview – I2C Activities

Select the output Frequency you would like for each output CLK 1-4 and Enable the outputs that you need.





Select the output types you require LVPECL (differential), CMOS both outputs per CLKN or CMOS out A active only or CMOS out B active only. Please refer to the board manual for proper output loading configuration for the various output types.

The screenshot displays the 'Direct-Mode Programmer' configuration window. It features several sections: 'Post-Dividers' with five dropdown menus (values: 250.0, 250.0, 250.0, 161.1328, 250.0); 'Output Selects' with four dropdown menus (values: F_pdiv1 (int), F_pdiv2 (int), F_pdiv3 (int), F_pdiv4 (frac)); 'Output Types' with four dropdown menus (all set to LVPECL); and 'Output Enables' with four checkboxes (all checked). A red callout box points to the 'Output Types' section with the text: 'Select the Output type you require (LVPECL or CMOS or CMOS A output only or CMOS B output only)'. The 'Reporting' panel on the right shows the following text: 'FT2232H MiniModule A was found!', 'FT2232H MiniModule B was found!', 'eval board OK!', '-----[10:10:27]--', '-----', 'device found at : 0x C0'.



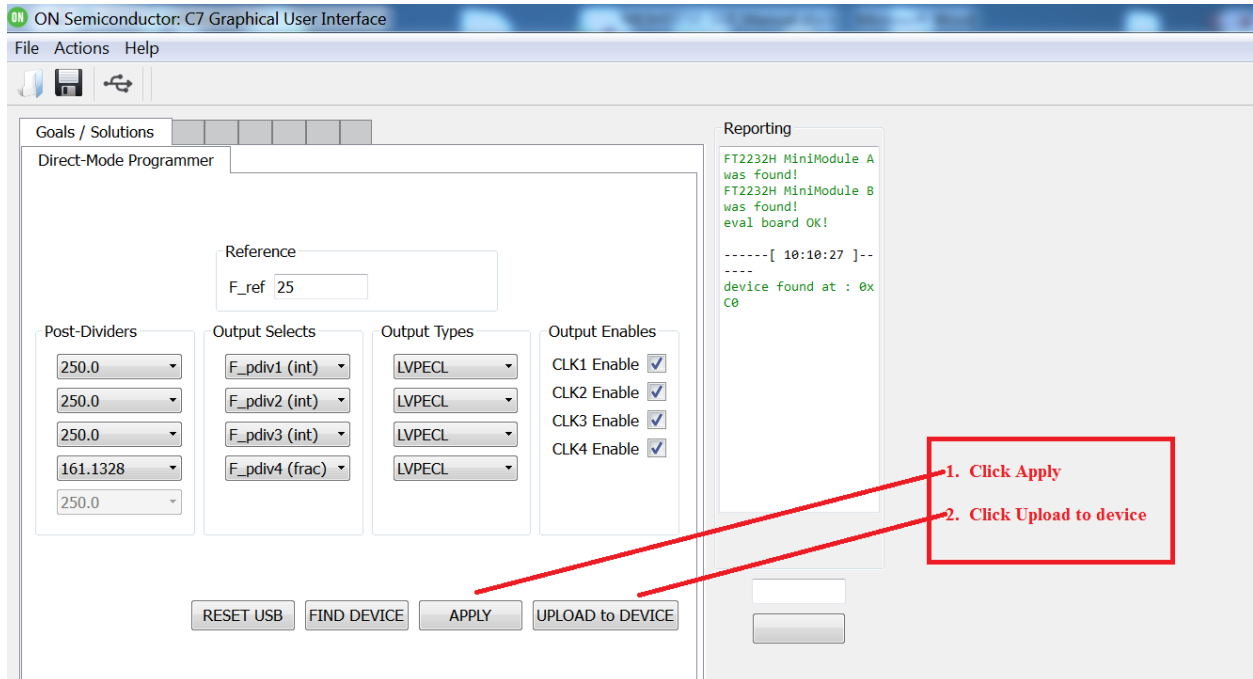
Select the input reference frequency signal path. Direct input to output mode “bypass pll” by selecting F_ref. This "bypass mode” will bring the input reference frequency to the select clock output. This can be used to verify you crystal frequency and ppm of this input.

Select F_pdivN for normal operation. This will allow to select the output frequency you require.

Clock 4 output has an additional function that allow you to select a FracN out frequency. You can select an INT or FracN mode at this step. You will notice that the frequency selection option for the deselected frequencies “INT for FracN” will be “grayed out” when not in use.

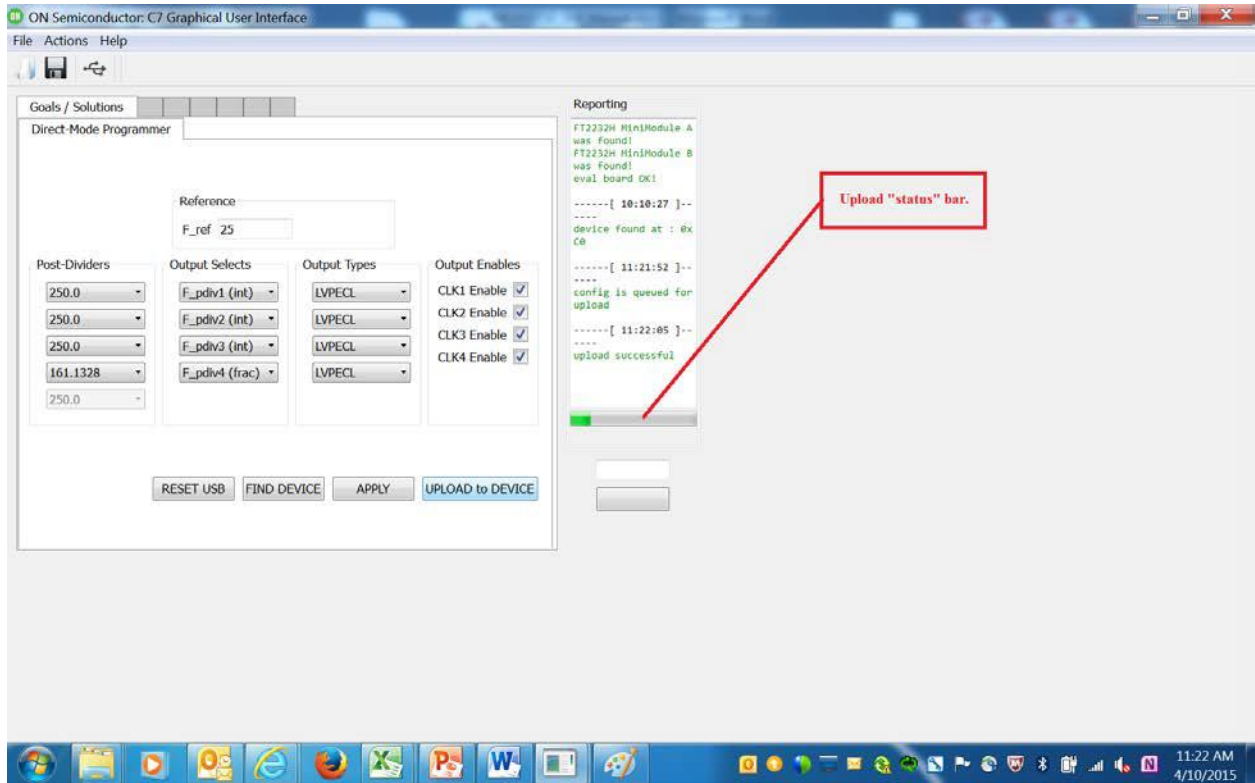
The screenshot shows the 'Direct-Mode Programmer' window in the ON Semiconductor C7 GUI. The 'Reference' section has 'F_ref' set to '25'. The 'Post-Dividers' section has four dropdowns with values 250.0, 250.0, 250.0, and 161.1328. The 'Output Selects' section has four dropdowns: 'F_pdiv1 (int)', 'F_pdiv2 (int)', 'F_pdiv3 (int)', and 'F_pdiv4 (frac)'. The 'Output Types' section has four dropdowns, all set to 'LVPECL'. The 'Output Enables' section has four checkboxes: 'CLK1 Enable', 'CLK2 Enable', 'CLK3 Enable', and 'CLK4 Enable', all of which are checked. A red box highlights the 'F_ref' dropdown and the 'F_pdiv1 (int)', 'F_pdiv2 (int)', and 'F_pdiv3 (int)' dropdowns. A red text box on the right contains the following text: 'Select input reference frequency signal path. F_ref bypasses the reference input direct to the output for that CLK output. F_pdivN (int) selects "normal" operation of that clock output and allows the user to select the frequency output of CLK 1-3. CLK 4 has an additional selection of Int number, bypass mode or FracN output frequencies. When selecting Frac or INT frequency the frequency pull down menu for the deselected frequencies will be "grayed out"'. The 'Reporting' window on the right shows the following text: 'FT2232H MiniModule A was found!', 'FT2232H MiniModule B was found!', 'eval board OK!', '----[10:10:27]--', '----', 'device found at : 0x', 'C7'.

You are now ready to send your configuration to the device by clicking “APPLY” and then “UPLOAD to Device”.



The screenshot displays the ON Semiconductor C7 Graphical User Interface. The main window is titled "Direct-Mode Programmer" and contains several configuration sections: "Reference" with a text input field set to "25"; "Post-Dividers" with five dropdown menus (values: 250.0, 250.0, 250.0, 161.1328, 250.0); "Output Selects" with four dropdown menus (values: F_pdiv1 (int), F_pdiv2 (int), F_pdiv3 (int), F_pdiv4 (frac)); "Output Types" with four dropdown menus (all set to LVPECL); and "Output Enables" with four checked checkboxes (CLK1 Enable, CLK2 Enable, CLK3 Enable, CLK4 Enable). At the bottom are buttons for "RESET USB", "FIND DEVICE", "APPLY", and "UPLOAD to DEVICE". A "Reporting" window on the right shows the following text: "FT2232H MiniModule A was found!", "FT2232H MiniModule B was found!", "eval board OK!", "-----[10:10:27]--", "----", "device found at : 0x C8". A red box highlights the "APPLY" and "UPLOAD to DEVICE" buttons, with two red arrows pointing to them from the box. The arrows are labeled "1. Click Apply" and "2. Click Upload to device".

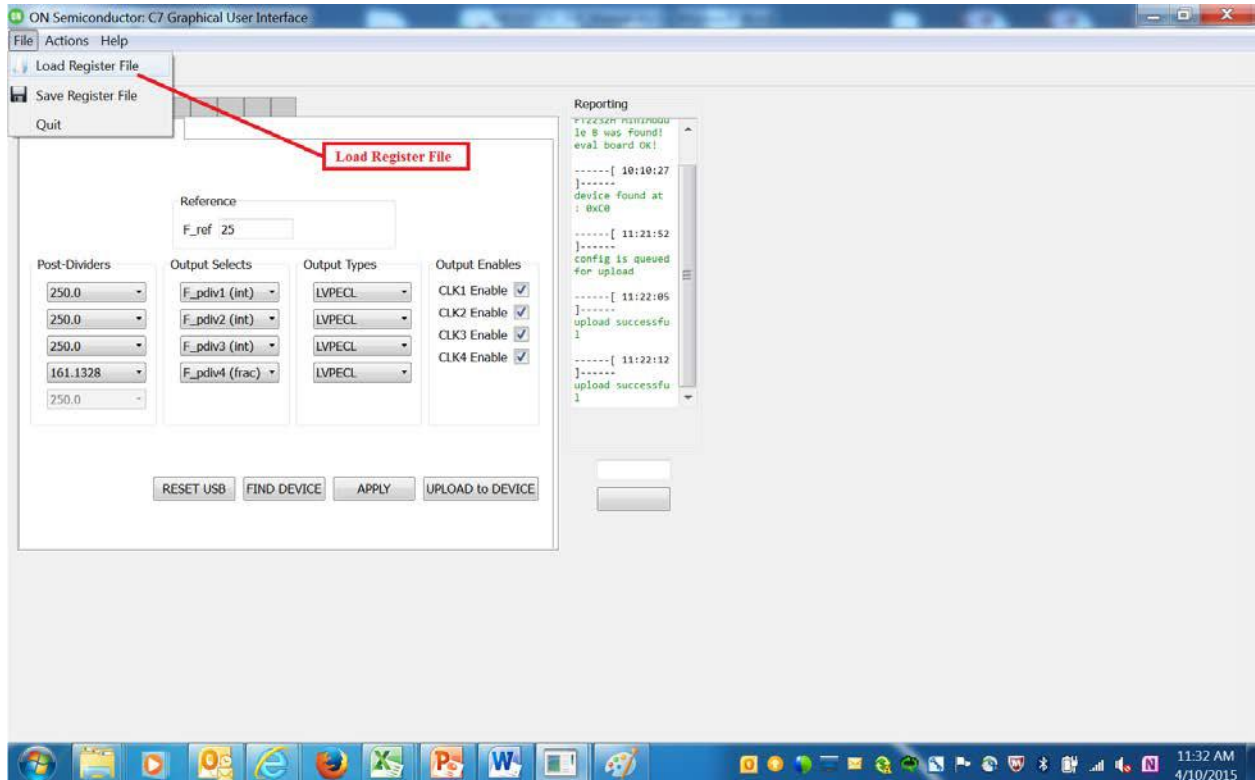
Please see the upload status bar. When the device has been completely programmed the “green” color in the status bar will disappear.



You can now see you performance selections realized in the performance of the device.



You can also load one of the saved register files from the file tab of this software. Select the file you would like to load to the device.





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After selecting the file then click “FIND DEVICE” and then “UPLOAD to Device” wait for the programming to complete and then the device will be programmed. **When loading from an external file the performance of the device will not be indicated on the GUI panel.**

