Tools setting for the Very Large FFT implementation demo.

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Introduction

This is guide aimed to help users to setup the CCS5 and other tools working under the BIOS Multicore Software Development Kit (MCSDK). Step by step instructions are given for setting and running demo for the vlfft, Very Large FFT Multicore DSP Implementation". The Demo software implements single precision floating-point very large size FFT on 'C6678 and 'C6670 DSPs.

All files required for the installation except for the CCS5 can be found in:

vlfft Installation Files Dahnoun.7z

Installing Software

Step 1 Installation of the CCS5:

Code Composer Studio 5 needs to be installed. The latest version of CCS5 at present (August 2012) is the CCS5.2.1.00018. The official download page can be found in: http://processors.wiki.ti.com/index.php/Download_CCS . It is stored under folder *1. CCS5.2.1.00018*. It doesn't really matter where you put the CCS5 but make sure the disk space is large enough since other tools will be installed under the same directory. As an example, you can install the CCS5 can be installed under **C:\Texas Instruments**.
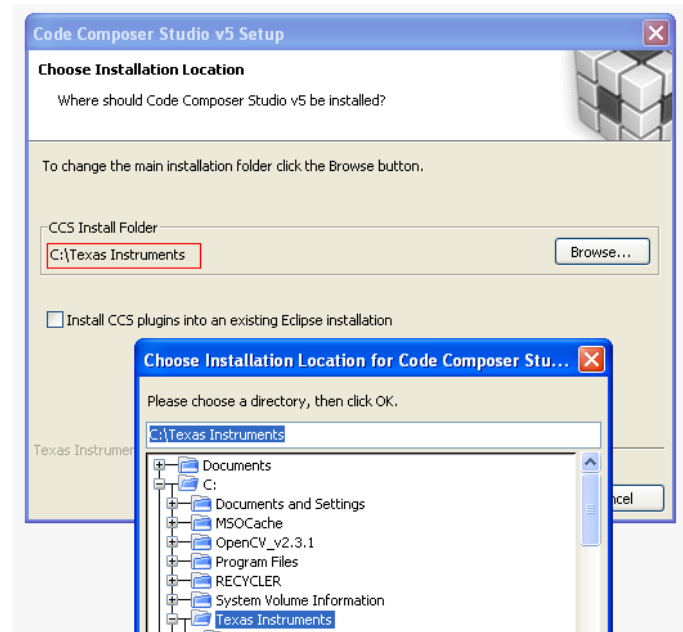
Fig 1. CCS5 installation directory

Step 2: Installation of the MCSDK

After installing the CCS5, install the BIOS MCSDK 2.0. The installation programmes can be found under folder *2*. Install the *bios_mcsdk_02_00_00_11_setup.exe* and *bios_mcsdk_02_00_09_21_setupwin32.exe.* The latest version of SYS/BIOS MCSDK can be found in: http://www.ti.com/tool/bioslinuxmcsdk. The destination location of MCSDK **must be** under the CCS5 installation directory. Make sure to change both directories so the destination in this example it looks as show in *Fig 2*.
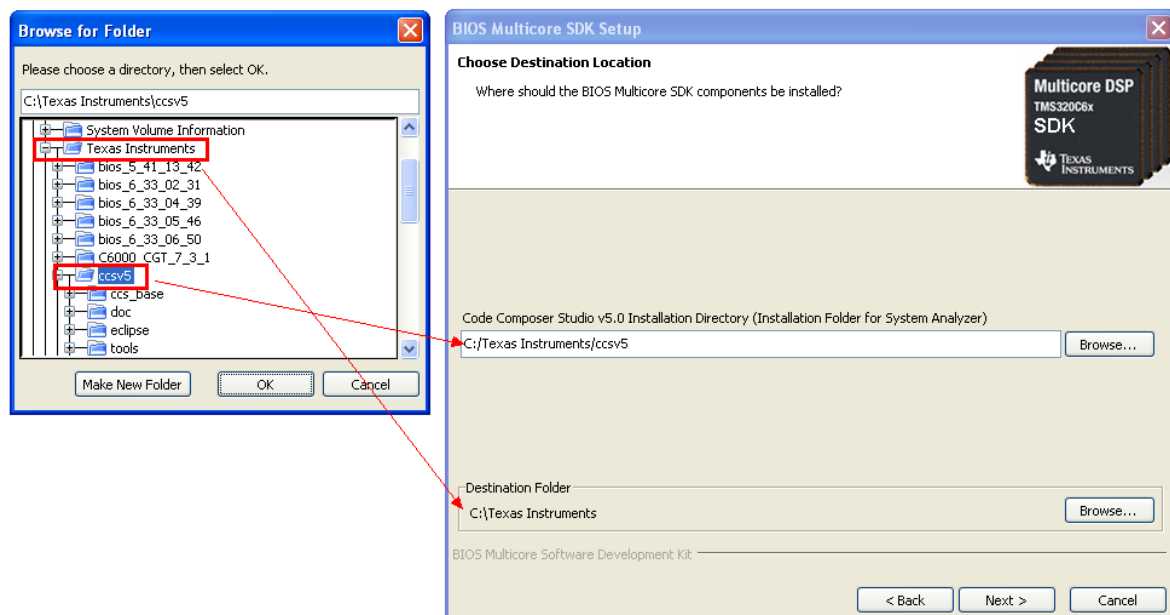

Fig 2. MCSDK installation destination directory

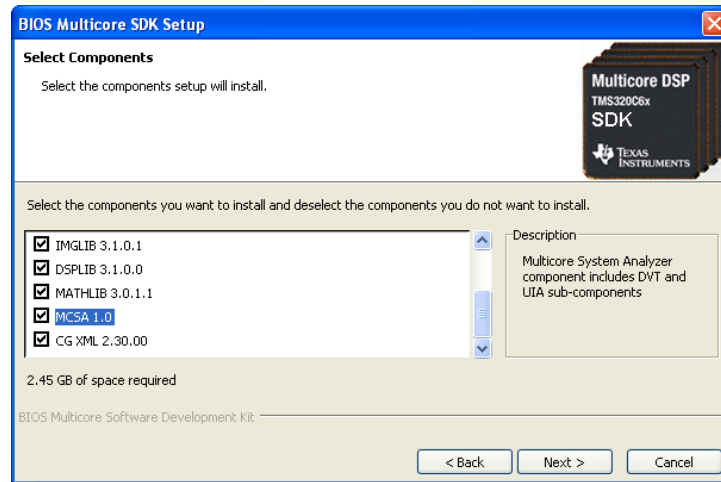During the setup, make sure to select **all** Components as shown in Fig 3.

Fig 3. Select Components in MCSDK

Step 3 Installations of the SYSBIOS and the XDC Tools

Installations of the SYSBIOS and the XDC Tools need to be installed to support the MCSDK. The installation programme can be found in folder *3. SYSBIOS 6x.* Notice, different versions of SYSBIOS are best compatible with certain version of XDC tools. They are categorised in each folder accordingly. In order to run the FFT demo, programmes in both folder *SYSBIOS 6.33.02.31* and *SYSBIOS 6.33.06.50* have to be installed. Other version of SYSBIOS and XDC Tools can be found here: http://software-dl.ti.com/dsps/dsps_public_sw/sdo_sb/targetcontent/ipc/index.html. Similar to Step 2, the SYSBIOS installation destination is shown in *Fig. 4*. While installing XDC Tool, select all components and make sure the destination folder looks as shown in *Fig. 5*.
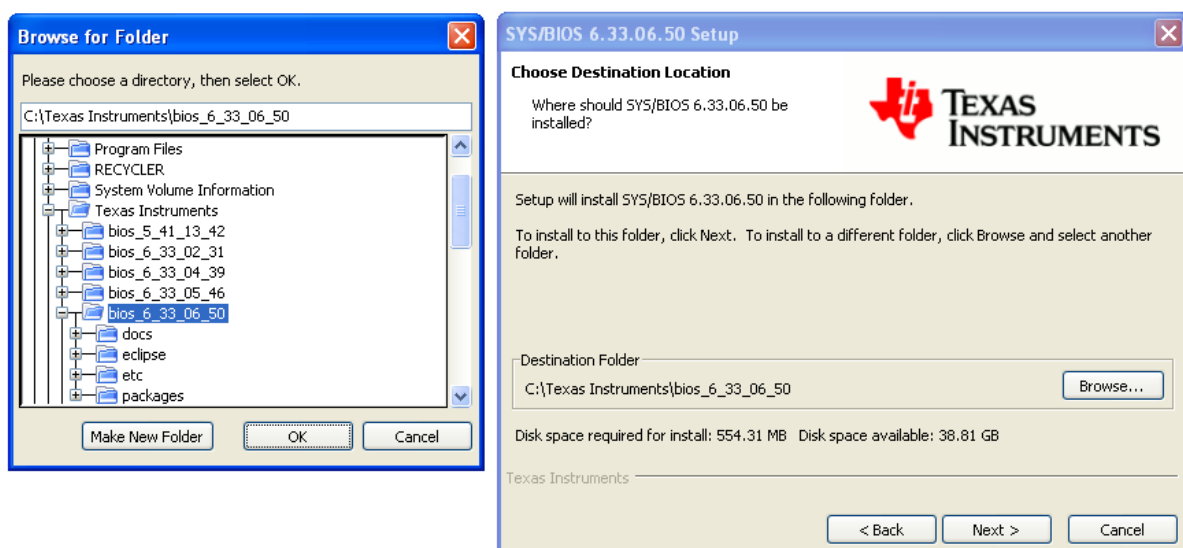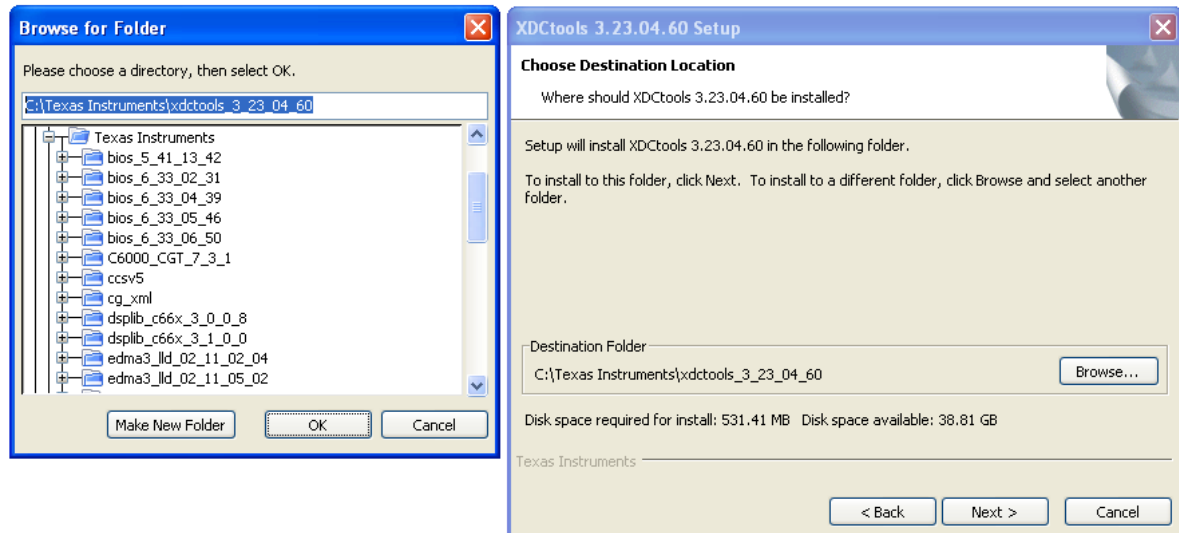

Fig 4. SYSBIOS installation destination

Fig 5. XDC Tool installation destination

Step 4 Installation of the Code Generation Tools:

Install the Code Generation Tool (*ti_cgt_c6000_7.3.1_setup_win32.exe*) from the folder *4. Code Generation Tools*. The latest version can be found here: https://www-a.ti.com/downloads/sds_support/TICodegenerationTools/download.htm. Make sure to select all components available and leave the destination folder as shown in Fig 6. This step is **crucial** since the debugging platform of the FFT demo can only be recognised by CFT_7_3_1 revision.
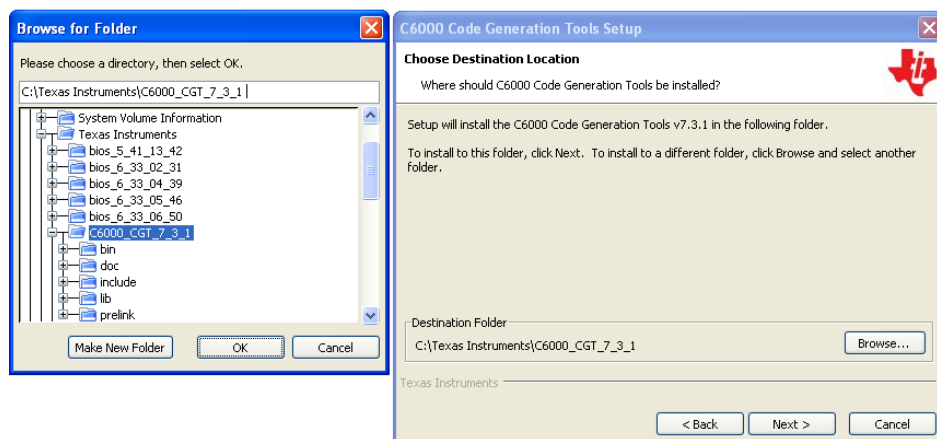

Fig 6. Code Generation Tools installation destination

Step 5 Configuration of the CCS:

Launch the CCS5. Go to help -> Check for update, to download and install all the available patches and updates. During updating, CCS5 will undergo several restarts.
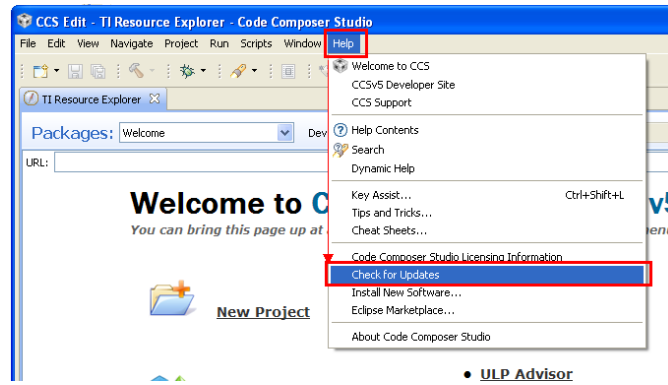
Fig 7. Update CCS5

When the CCS5 and all relevant software are installed in the correct place, the installation directory should look as shown in *Fig 8*.
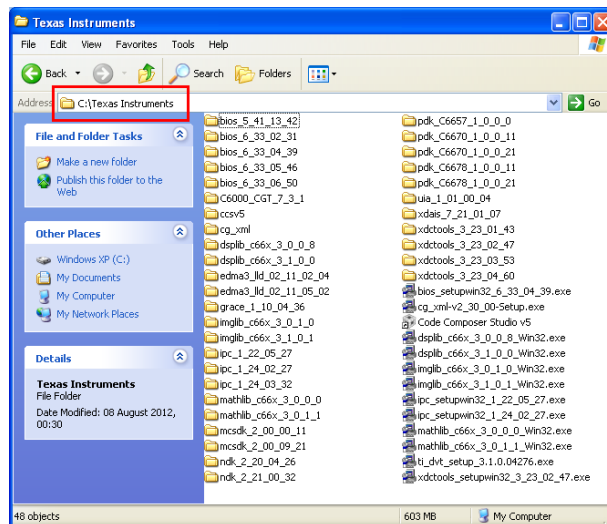

Fig 8. Final look of installation directory

Step 6 Installation of the vlfft Demo:

The very large FFT demo software can be found in folder *Demo*. Unzip the all file and place the entire vlfft folder under *C:\Texas Instruments\mcsdk_2_00_00_11\demos* directory (as shown in Fig 9.). This is due to the fact that the demo is developed under MCSDK_2_00_00_11 environment.
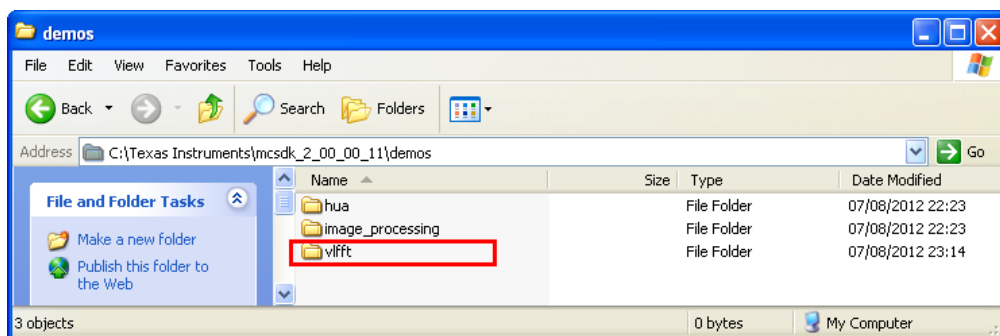

Fig 9. vlfft directory

Step 7 Setup the Environment Variable

To define a windows system environment variable, right click My computer - > Properties - > Advanced -> Environment Variables as illustrated in *Fig 10*.
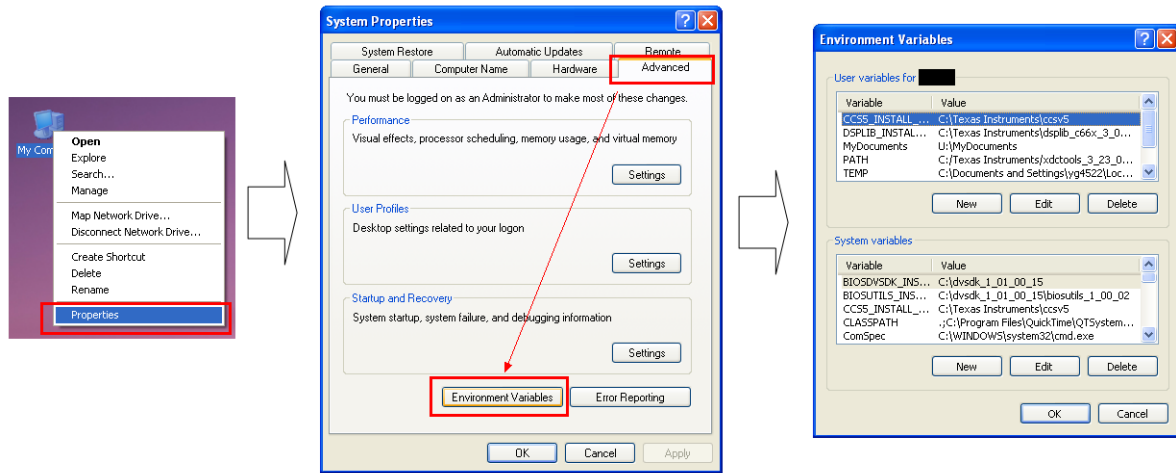

Fig 10. Defining Environment Variables

Add New System variables with variable name: PATH, and variable value (in this example): C:\Texas Instruments\mcsdk_2_00_00_11.

Step 8 Importing the Demo:

Launch the CCS5 and import the demo project. To do this, go to Project-> Import Existing CCS Eclipse Project. In the Import window, browse the directory where the demo folder is placed, in our case, C:*\Texas Instruments\mcsdk_2_00_00_11\demos\vlfft*. This is shown in *Fig. 11*. In this example, we choose the *vlfft_evmc6678l*.
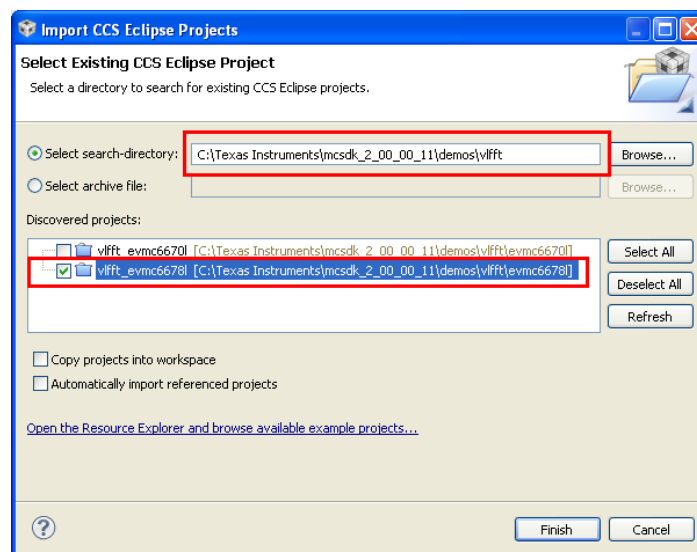

Fig 11. Importing the Demo Project

Step 9 Project Properties Configuration.

If the project is successfully imported, it should be seen in Project Explorer window. To open the window, go to view->Project Explorer. Right click on the project name *vlfft_emc6678l* and then select Properties. With the project property window open, go to *general* and make sure the compiler version in advanced setting has been set to **TI v7.3.1.** The whole process is shown in *Fig 12*.
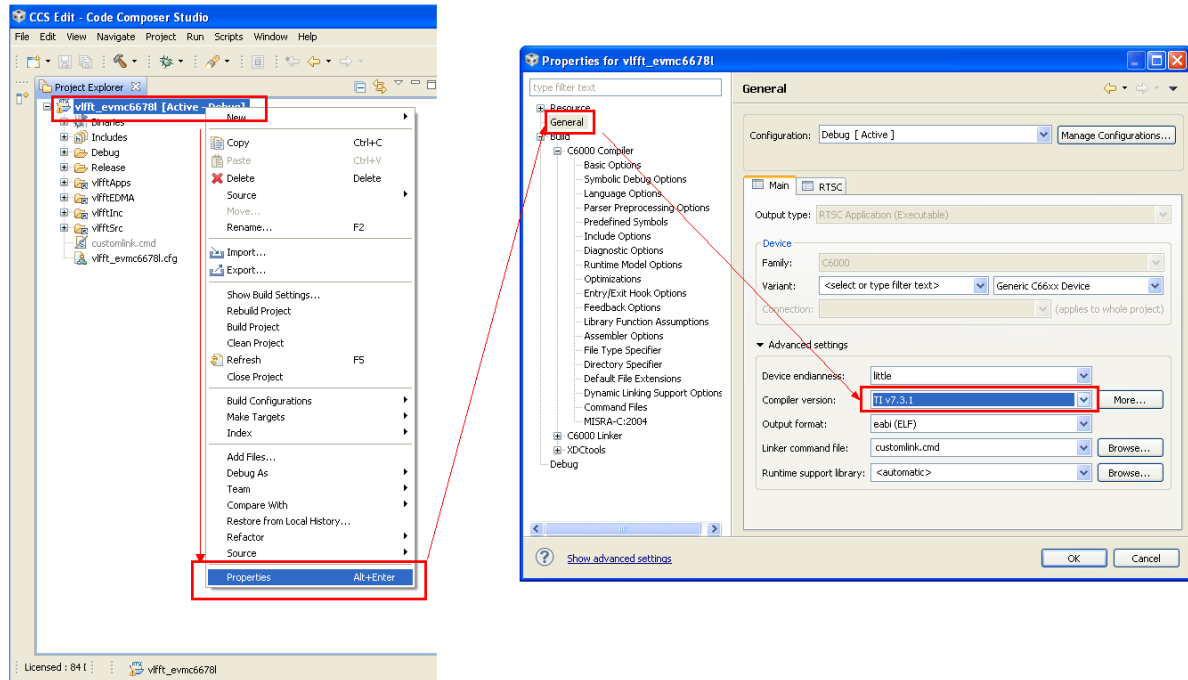

Fig 12. Importing the Demo Project and Setting up the General project properties.

Step 10, RTSC Configuration:

In the RTSC tab, select the appropriate option according to *Fig.13*. Make sure the XDCtools version is set correctly in the first place as well as the Platform. All option should be available if installation steps where correctly carried out. Make sure all Repositories shown in *Fig.13* are included.
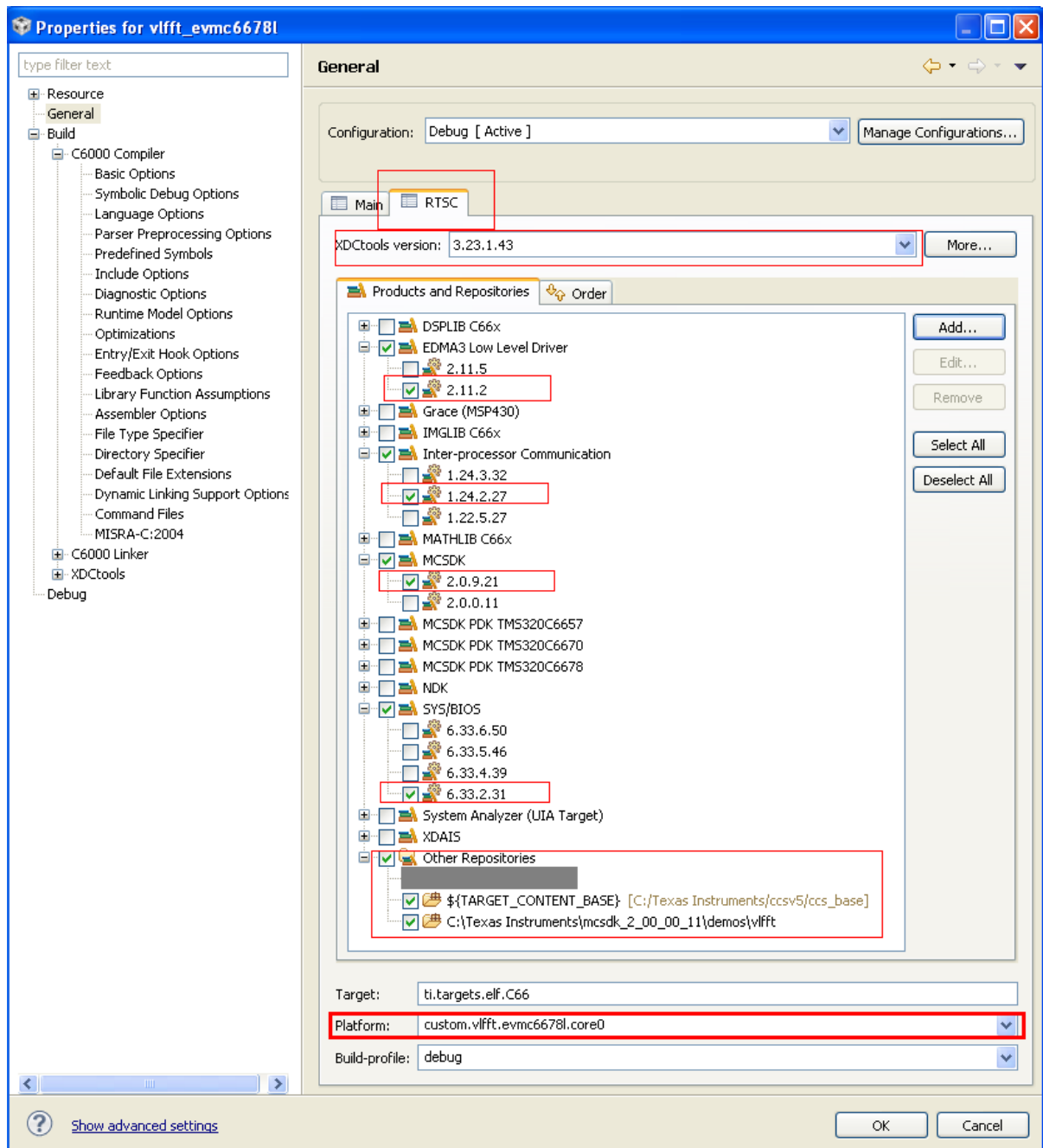
Fig 13. RTSC Configuration.

Step 11 Building the Project:

Go to Project => Clean then let CCS5 do the rest. It should give one or few minor warning but no error. Once `'Finished building target: vlfft_evmc6678l.out'` is shown in the Console log. , the project has been successfully configured and ready to be downloaded onto the target.

The output on the console can be found in:

.. /Docs/Build of configuration Debug for project vlfft.pdf