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## TouchGFX Customerization

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## Revision history

<b>Date</b>	<b>Revision</b>	<b>Changes</b>
15th March 2016	1	Initial release.

First, download an evaluation copy of TouchGFX from the web site at <http://touchgfx.com/>. The only difference between an evaluation version with a paid license is the watermark appearing from time to time on the display.

At time of writing, the latest version is 4.5.0.

Demo in this guide uses version 4.4.1.

After download and extract to somewhere you find it convenient. In my case, I have extracted it to D:\projects\touchgfx-release-4.4.1-eval.

TouchGFX is a graphical framework much more sophisticated than those free/royalty free libraries in the market (in my opinion). The philosophy is that TouchGFX allows a developer to design from a stand point as a graphic designer. Simulation in Windows Visual Studio Express is possible for preview and deployment to real hardware afterwards.

From an embedded point of view, rendering is done via a frame buffer allocated in external SDRAM or internal SRAM. In our case of a 240x240 MIPI display, it is possible to use either external SDRAM on STM32F429I-disco board or, simply internal SRAM of STM32F429I MCU which has a 256KB SRAM (240\*240\*2 byte frame buffer = 115,200Byte for frame buffer).

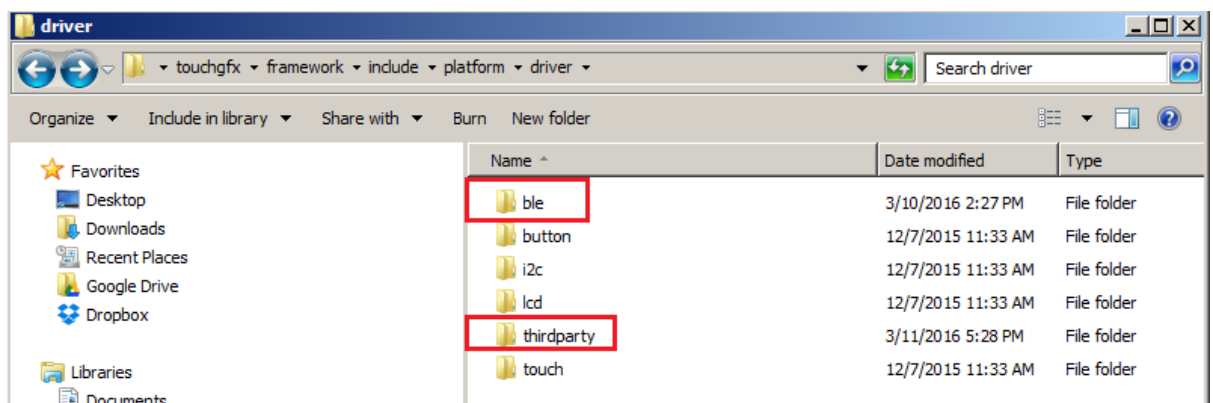
Once you have extracted the code for TouchGFX, it is required to copy the driver code for SSD2805, SSD2541, nRF8001, and a new BoardConfiguration.cpp file.

Path to download these folders at :

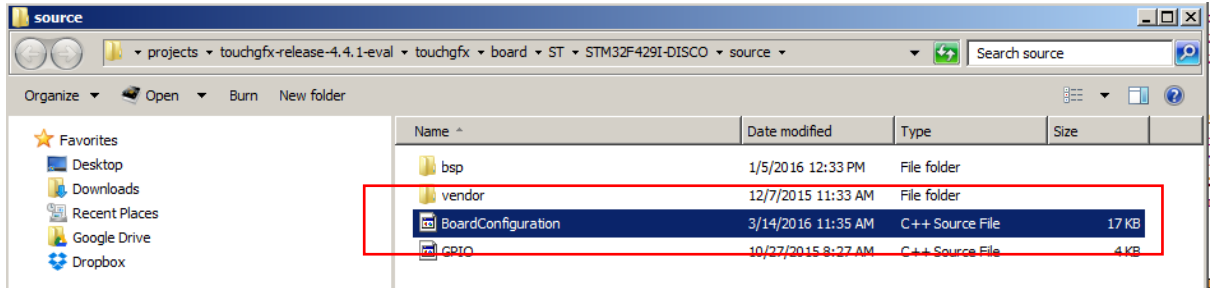
<http://www.techtoys.com.hk/Displays/SSD2805EvalRelease3/Firmware/TouchGFX/driver.rar>

Manually copy the 'ble' and 'thirdparty' folders to the path ..\framework\include\platform\driver.

In my case, the folders are located at D:\projects\touchgfx-release-4.4.1-eval\touchgfx\framework\include\platform\driver.

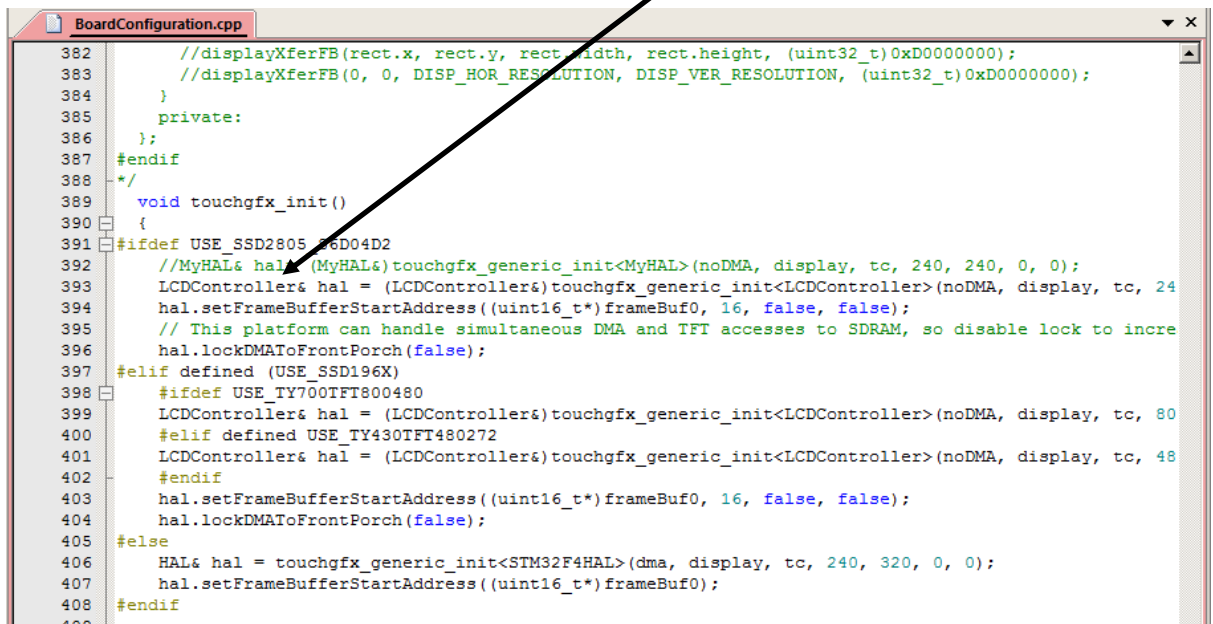


Next manually copy the file BoardConfiguration.cpp to replace the original one at .. \touchgfx\board\ST\STM32F429I-DISCO\source. It is advised to backup the old one prior to replacing it.



This step is very important because this BoardConfiguration.cpp file contains the code to direct TouchGFX framework to use the new MIPI display instead of the onboard 320x240 LCD.

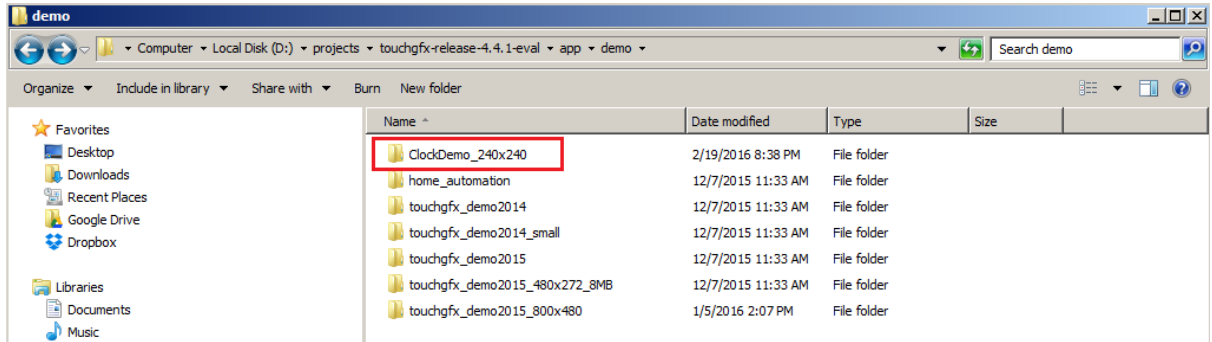
In the function touchgfx\_init( ) you will find LCDController& hal referencing a new class defined in LCDControllerS6D04D2.hpp.



The final step is to copy the source code of swipe analog clock demo 240x240 to the path D:\projects\touchgfx-release-4.4.1-eval\app\demo.

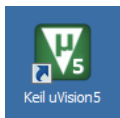
Path to download this demo at:

[http://www.techtoys.com.hk/Displays/SSD2805EvalRelease3/Firmware/TouchGFX/ClockDemo\\_240x240.rar](http://www.techtoys.com.hk/Displays/SSD2805EvalRelease3/Firmware/TouchGFX/ClockDemo_240x240.rar)

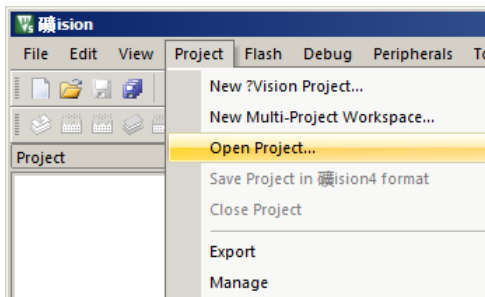


Finally, make sure you have access to Keil uVision5. You may download a trial MDK-Professional Trial License from <http://www2.keil.com/mdk5/install/>.

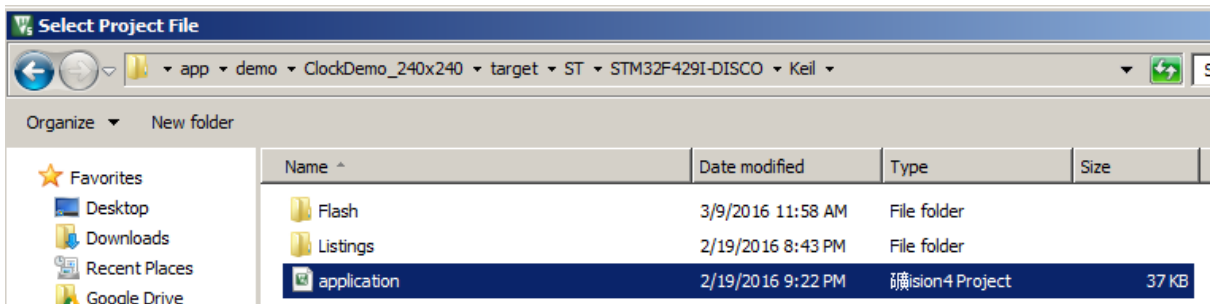
Go straight to installation and launch Keil uVision 5.



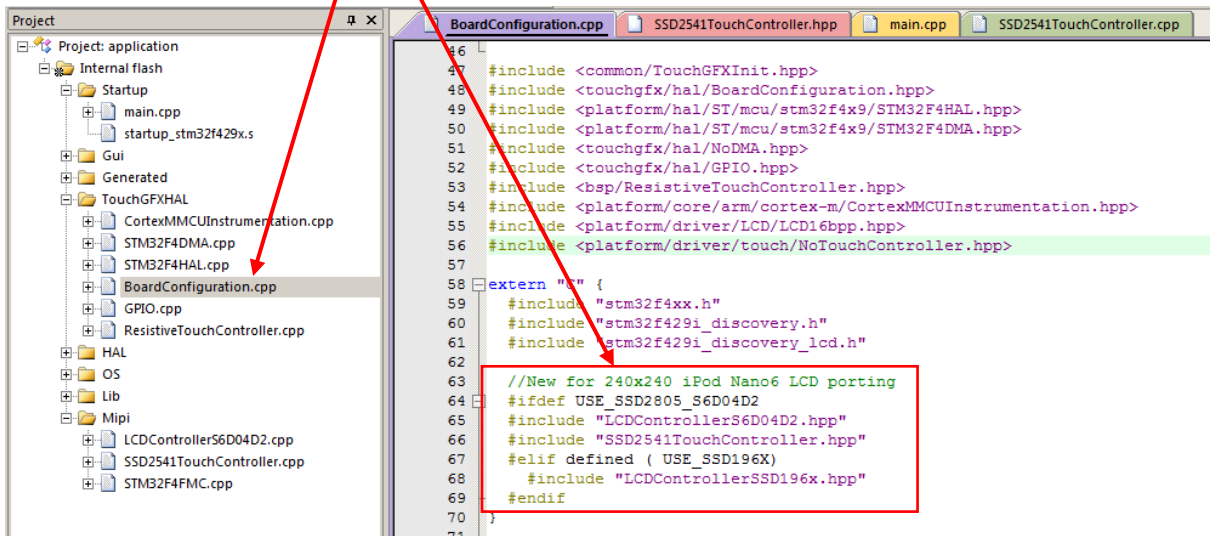
From Project→Open Project.



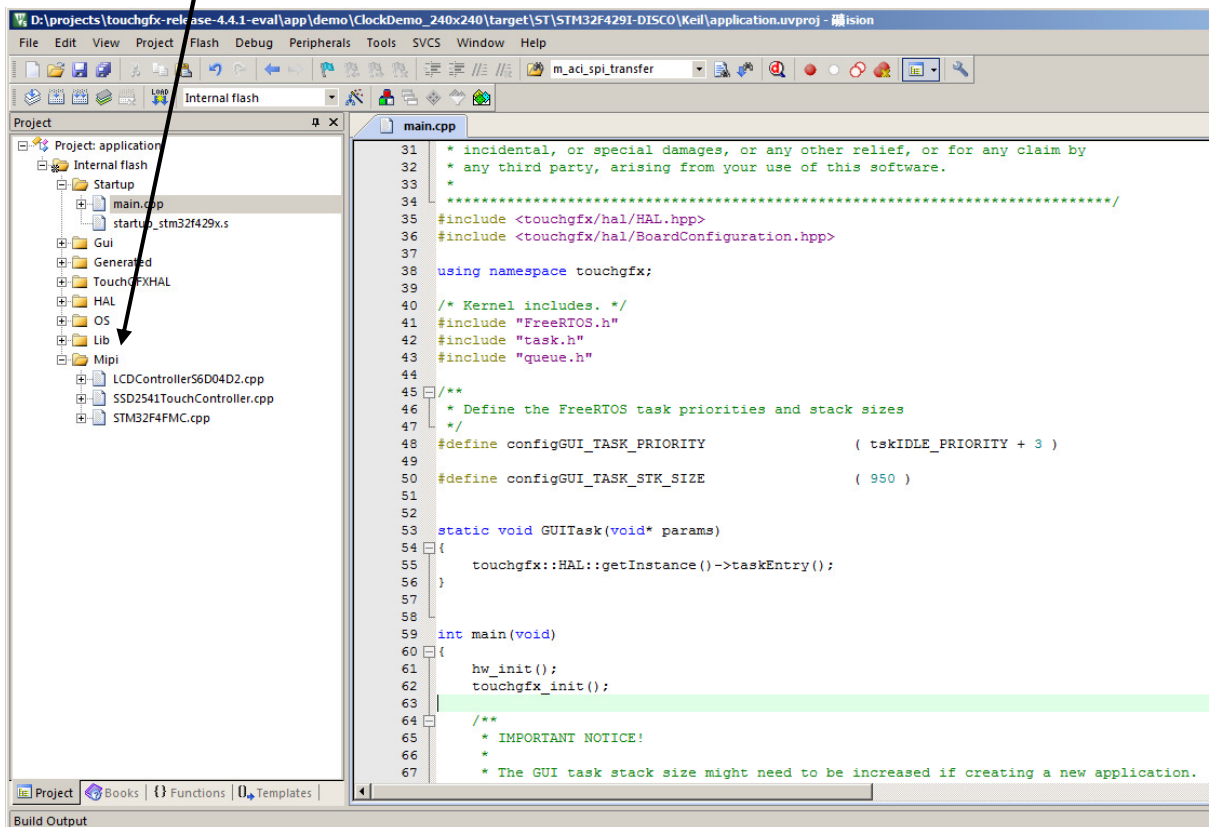
Browse to application.uvprojx at ...\app\demo\ClockDemo\_240x240\target\ST\STM32F429I-DISCO\Keil



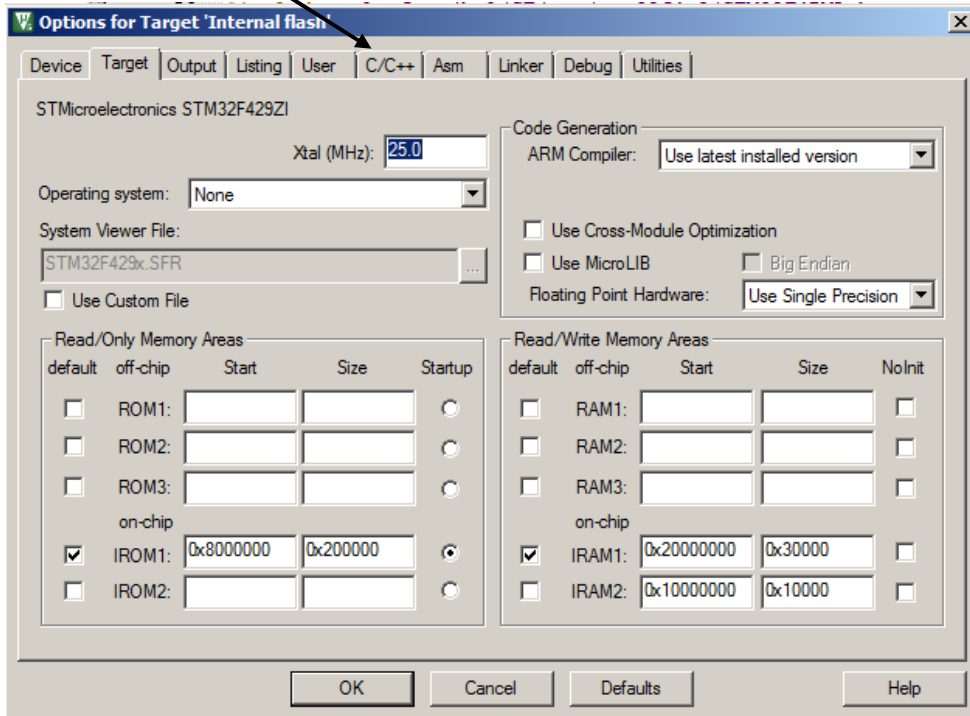
Make sure **BoardConfiguration.cpp** includes support for 1.54" MIPI LCD with signature as below:



Project view as follow. The source code for SSD2541 & SSD2805 can be seen under the Mipi folder. Make sure it is available from the project workspace.



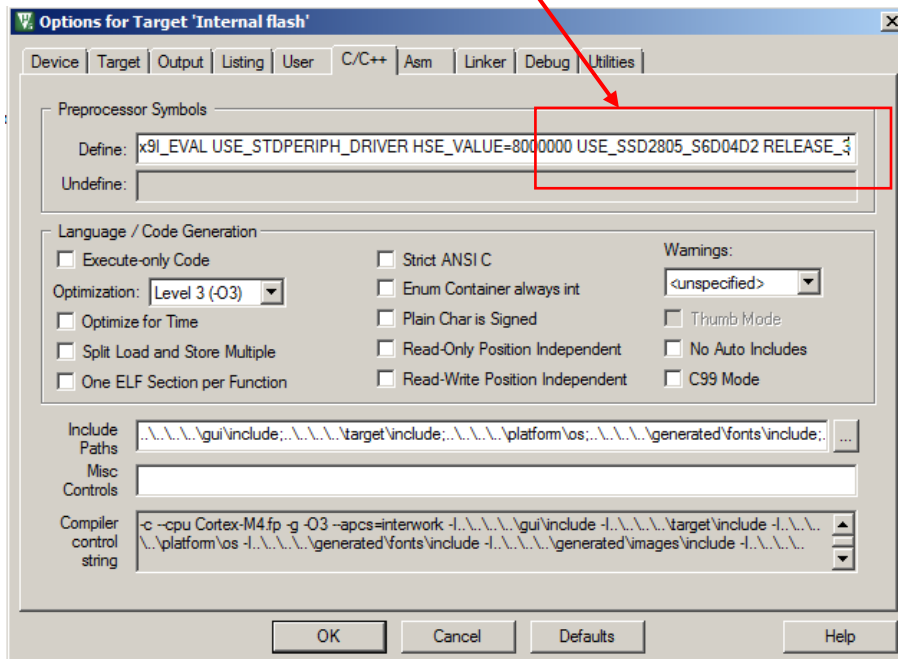
Next highlight on the project title with a right mouse click.  
Go to 'Options for Target 'Internal flash''.  
Select C/C++ tab.



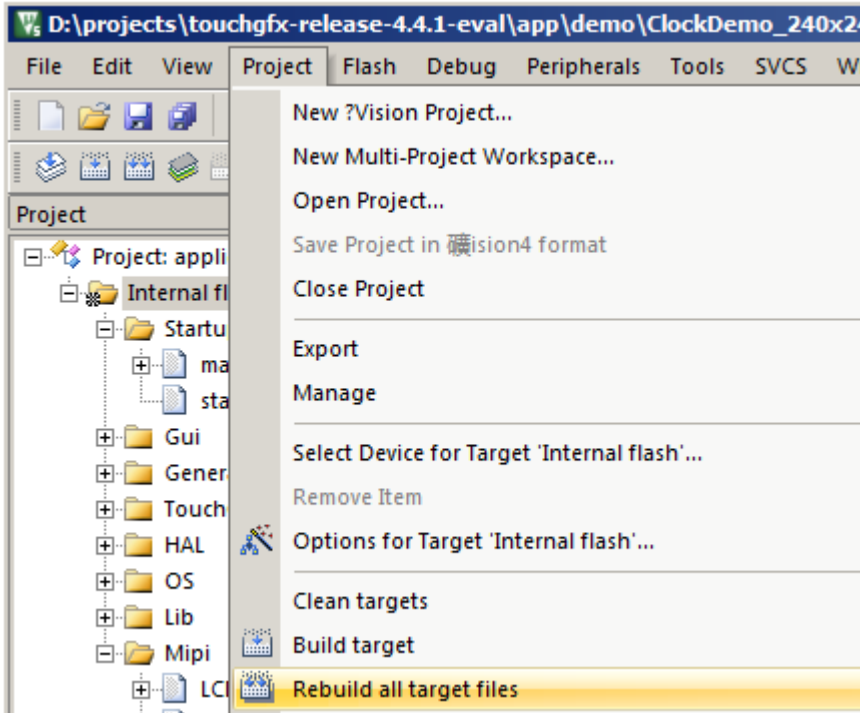
From Preprocessor Symbols under Define. Add two directives:

*USE\_SSD2805\_S6D04D2\_RELEASE\_3*

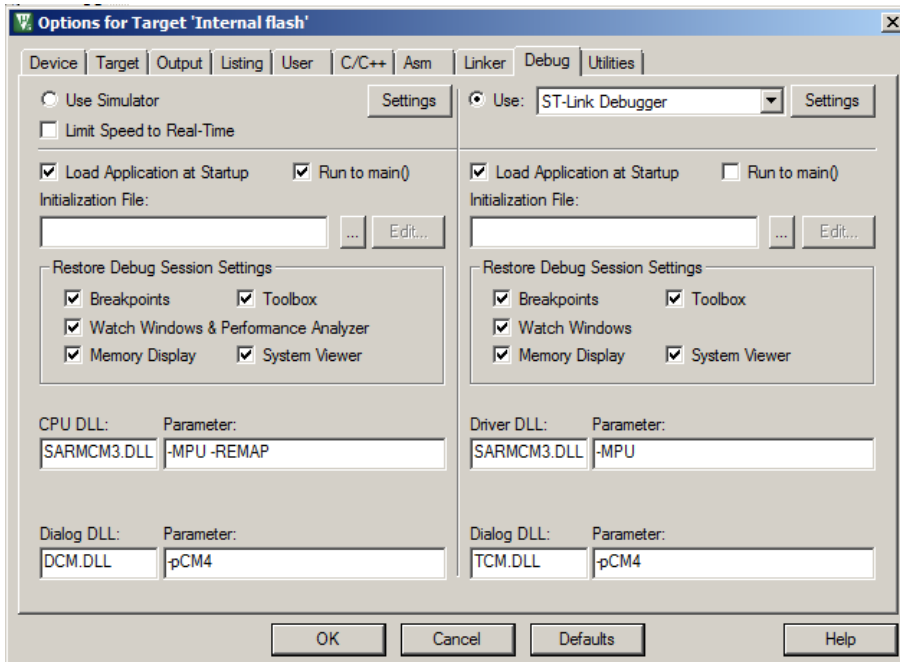
This is to "let Keil know" you are using a different LCD from the onboard 320x240 TFT onboard of STM32F429i-disco.



From Project→Rebuild all target files to build all.



Connect STM32F429i-disco to the PC. Highlight on the project title and select 'Options for target-...' to bring up this user interface. From Debug tab make sure ST-Link Debugger has been selected.



Click OK to exit.



From Debug→Start/Stop Debug Session (Ctrl+F5) to start development.

