<Ex3>: Importing new project.

Objective: Write a program to Blink 4 user LEDs on EPB_C5515 target board

After reading this section you will be able to,

- Import project for TMS320C5515 in Code Compose Studio V5.3 IDE
- Build/ Compile your project
- Run/Execute your project and observer the output
- Know hardware connection to the CPU
- Configure your system to get ready to work with EPB_C5515
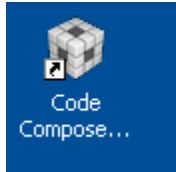
Part List:

- PC
- Code Composer Studio
- +5v DC Power supply
- EPB_C5515
- Emulator + Emulator cable (USB A to Mini-A Cable, 14 pin FRC Flat cable)

List of Files Required:

- uled_test.c (uLED routine file)
- main.c (Program application main.c file)
- lnkx.cmd (Command file)
- usbstk5515bsl.lib (Library file)

Steps for importing new project:

Open *CCS V5.3* from desktop shortcut
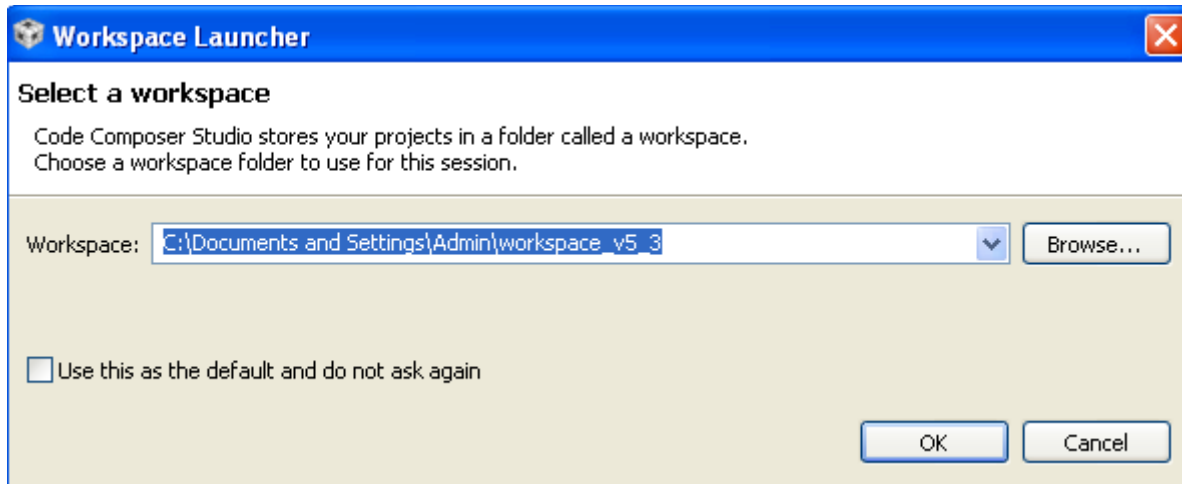

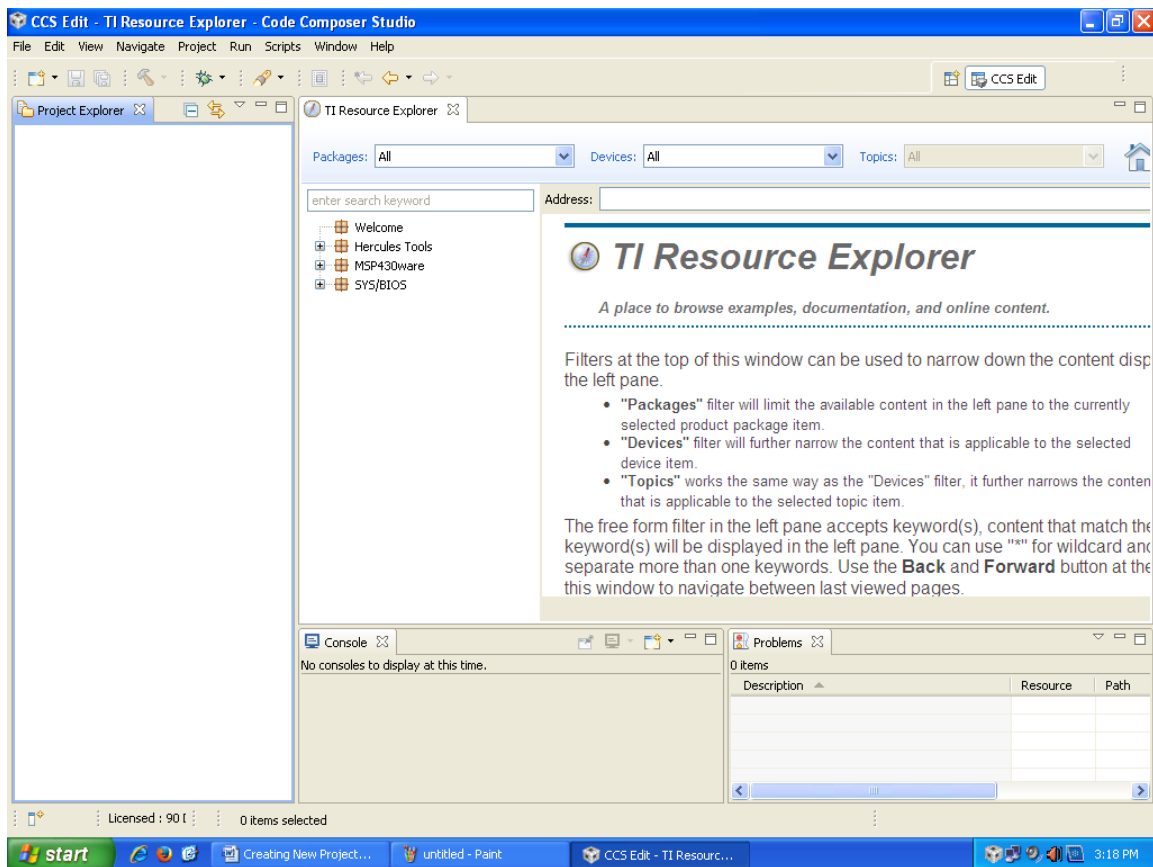It will open default *CCS V5* screen.

Then it will ask for workspace path
Select path "*C:\Documents and Settings\<User Name>\workspace_v5_3*" for
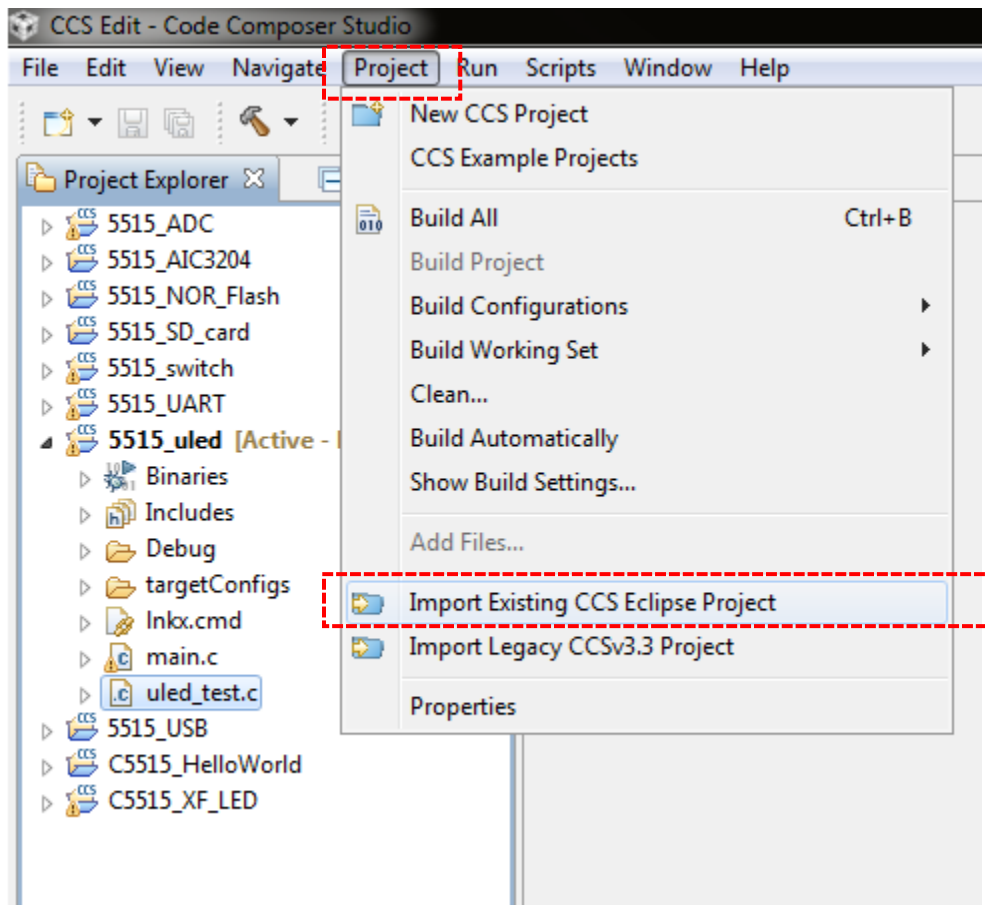windows XP OS
Select path "*C:\Users\<User Name>\workspace_v5_3*" for windows7 OS

Then it will open Default CCS5 screen as shown below

Click "*Project -> Import Existing CCS Eclipse Project*" menu.

It will open the following screen as shown here. Copy the project path and paste it to "Select search-directory" location and press enter. Or you can browse the path also by clicking browse.

Select project "5515_uled" and also select "Copy projects into workspace" and **Finish**
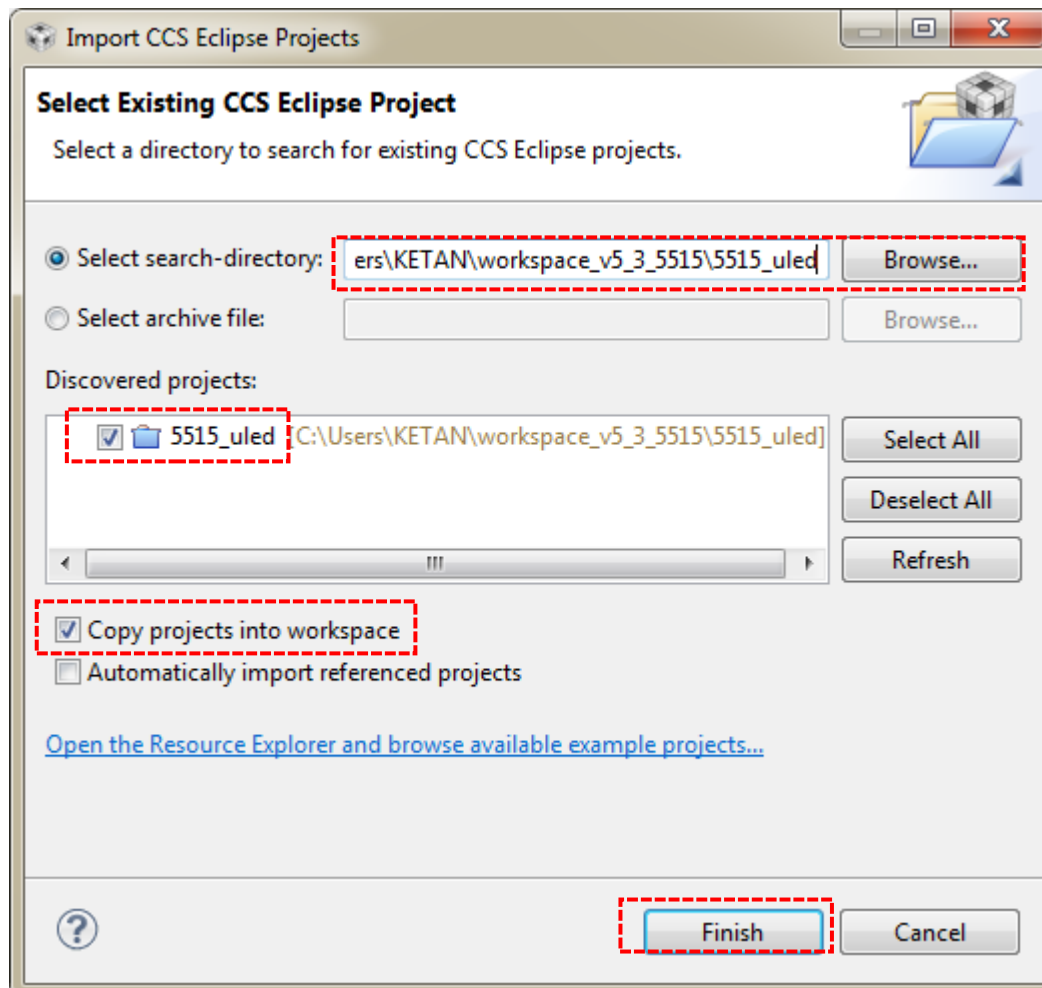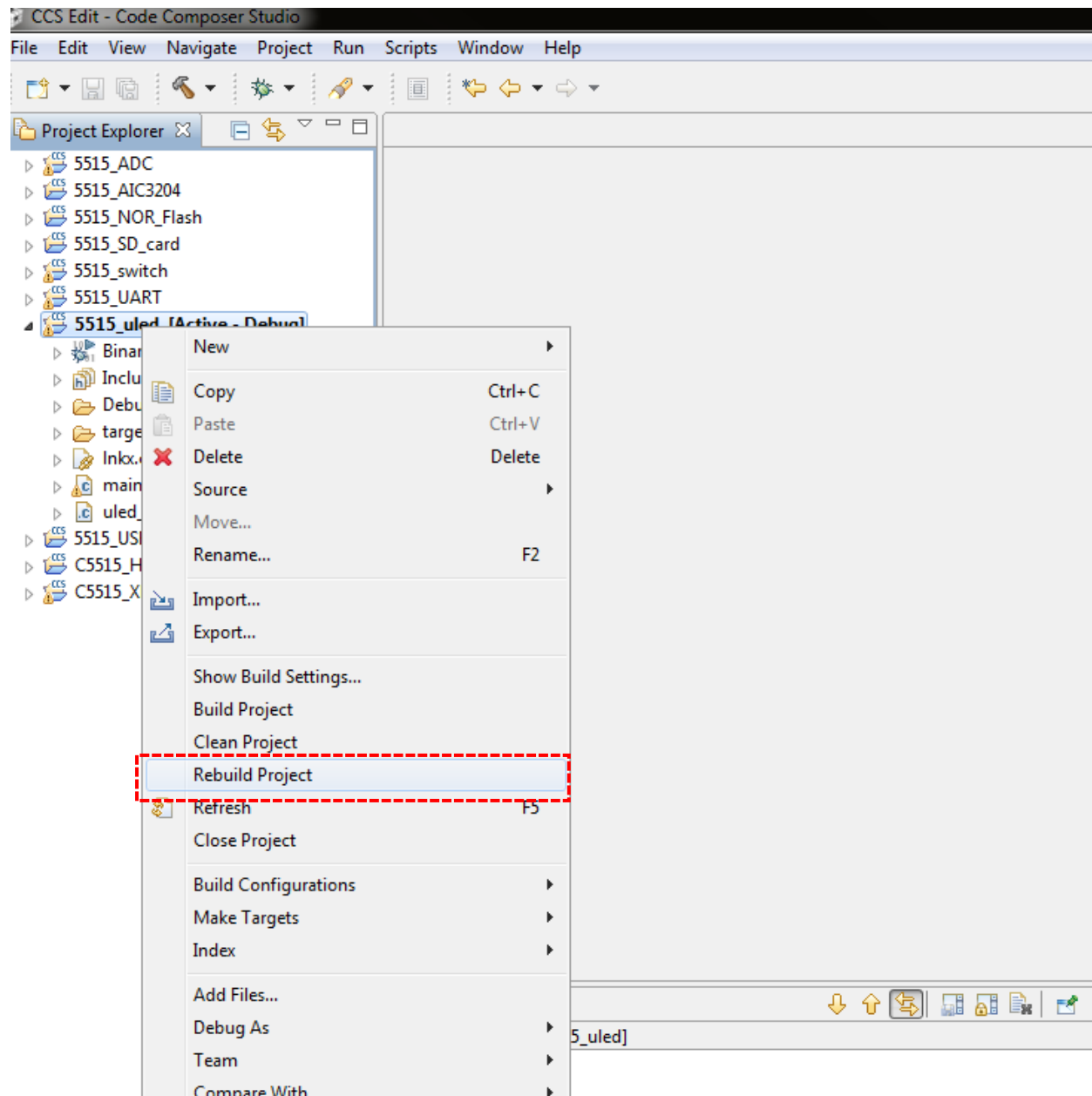
It will open screen as shown here. Here project is already imported and it can be seen from "**project explorer**"
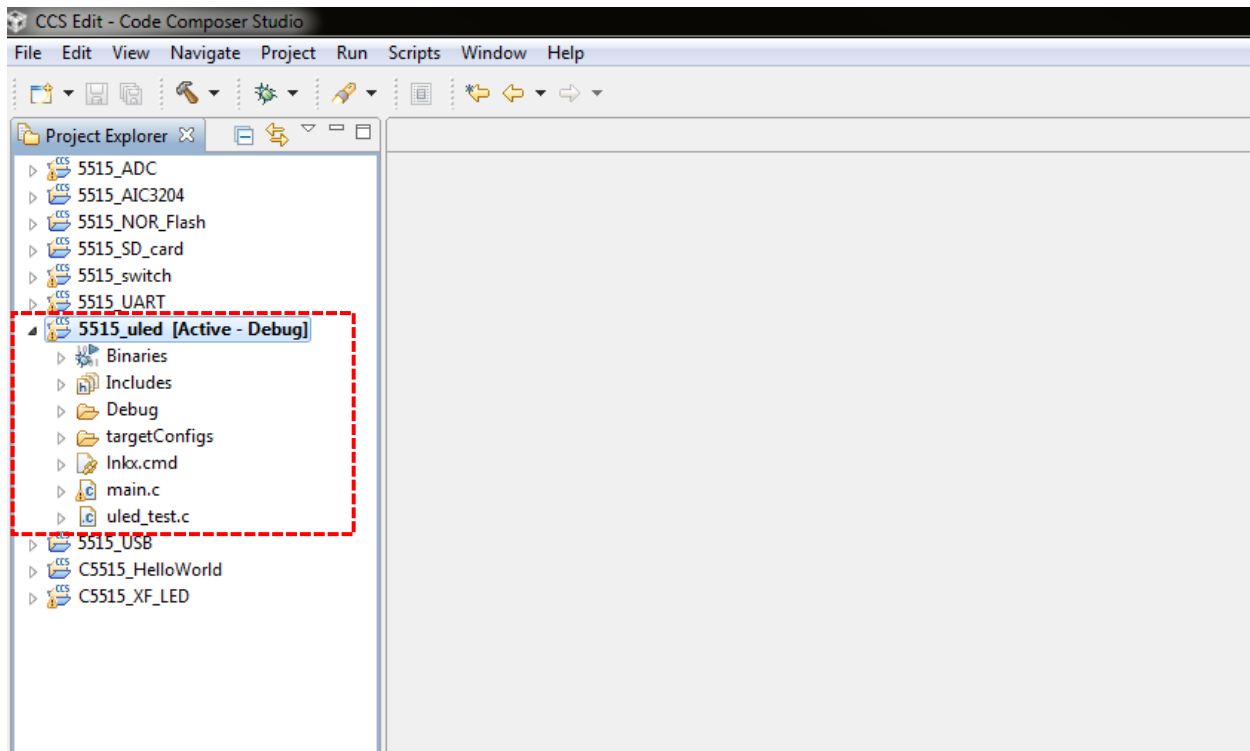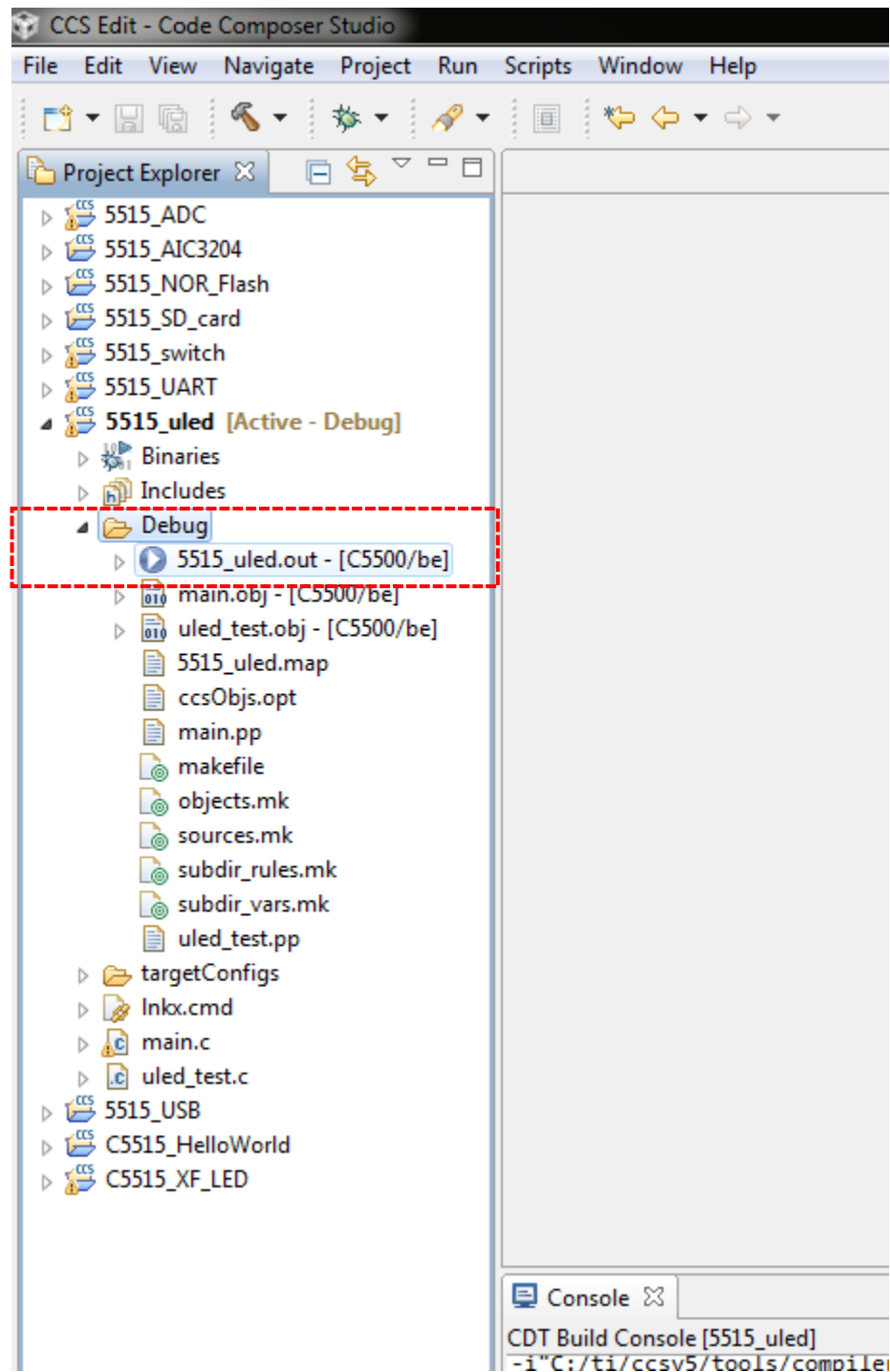
Steps to Build/Compile Project:

Compile the program by "*right click-> build project*" or "*right click-> rebuild project*" as shown. It will generate "C5515_uled.*out*" file in "*debug*" folder.

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Steps to run program:

Hardware connection:

- Power on EPB_C5515 hardware using +5V Power supply or USB A-to-B cable
- Connect XDS100V2 with EPB_C5515 using USB A-to-miniA cable with CPU
- Reset CPU

Steps to run/Debug program:

Now to debug the program click "**debug**" as shown in the screen from home screen icon **OR** from "**run->debug**" menu.
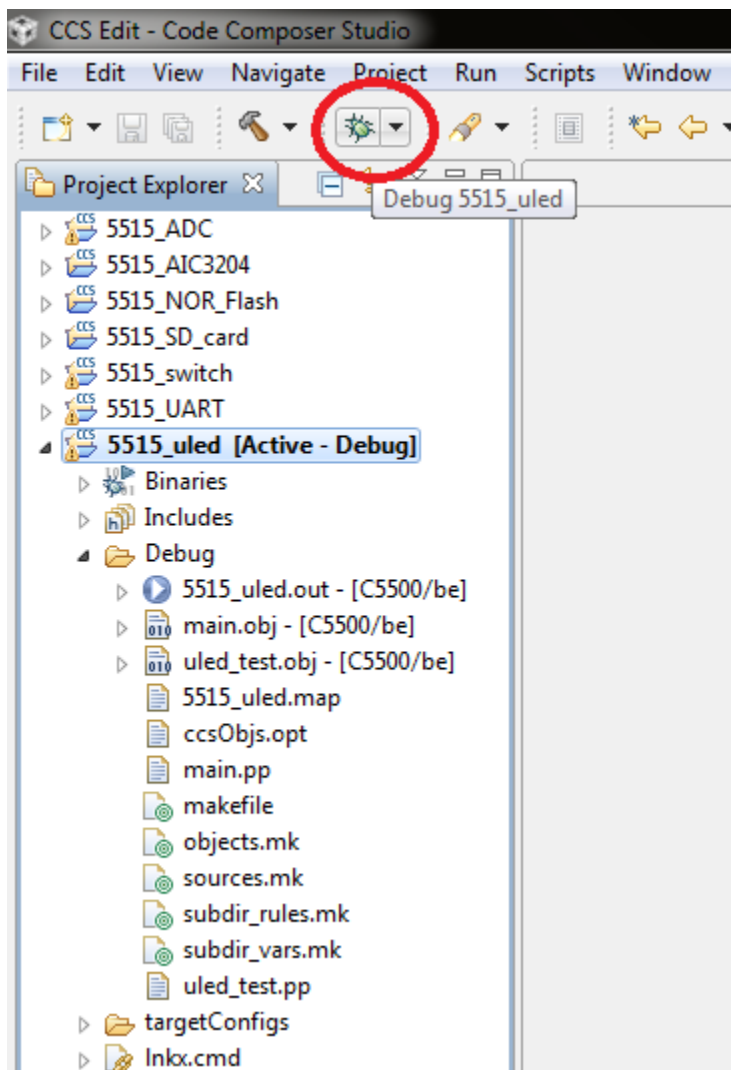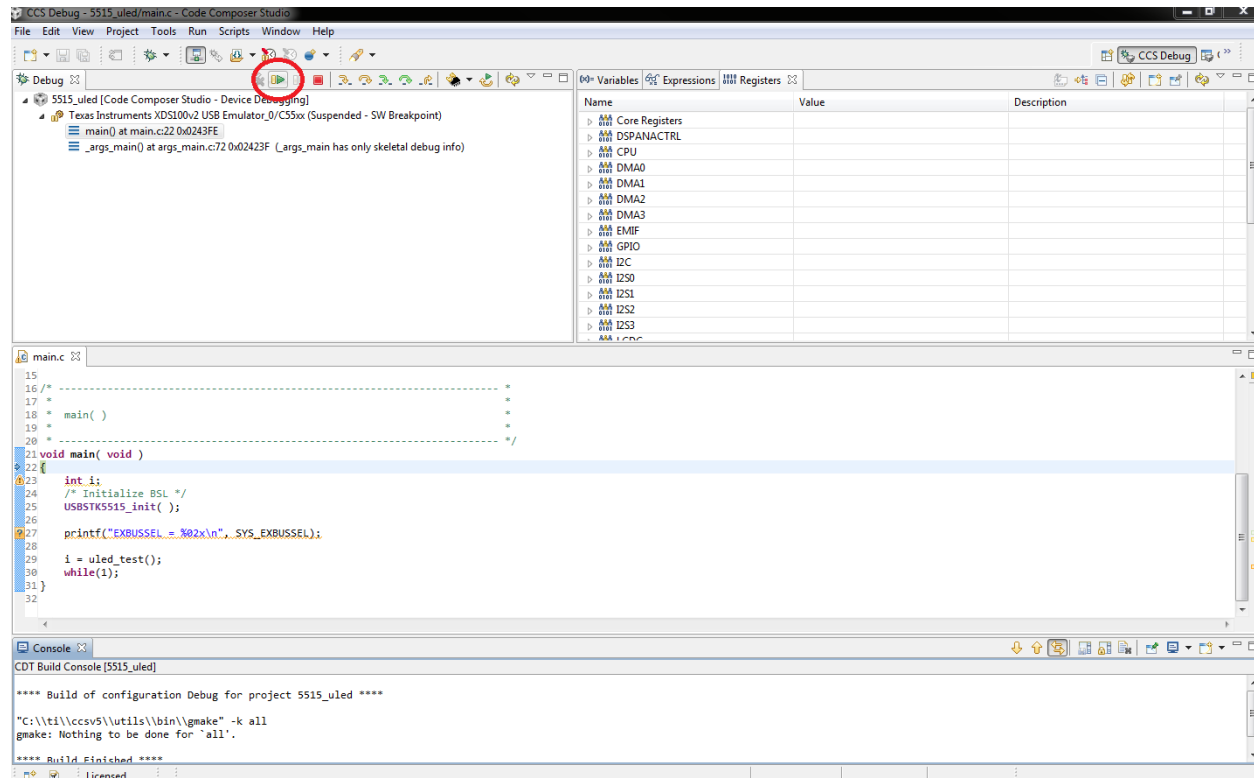
It will configure/connect EPB_C5515 kit with the CCSV5 using XDS100V2 and download the program in C5515 CPU. It will be automatically.
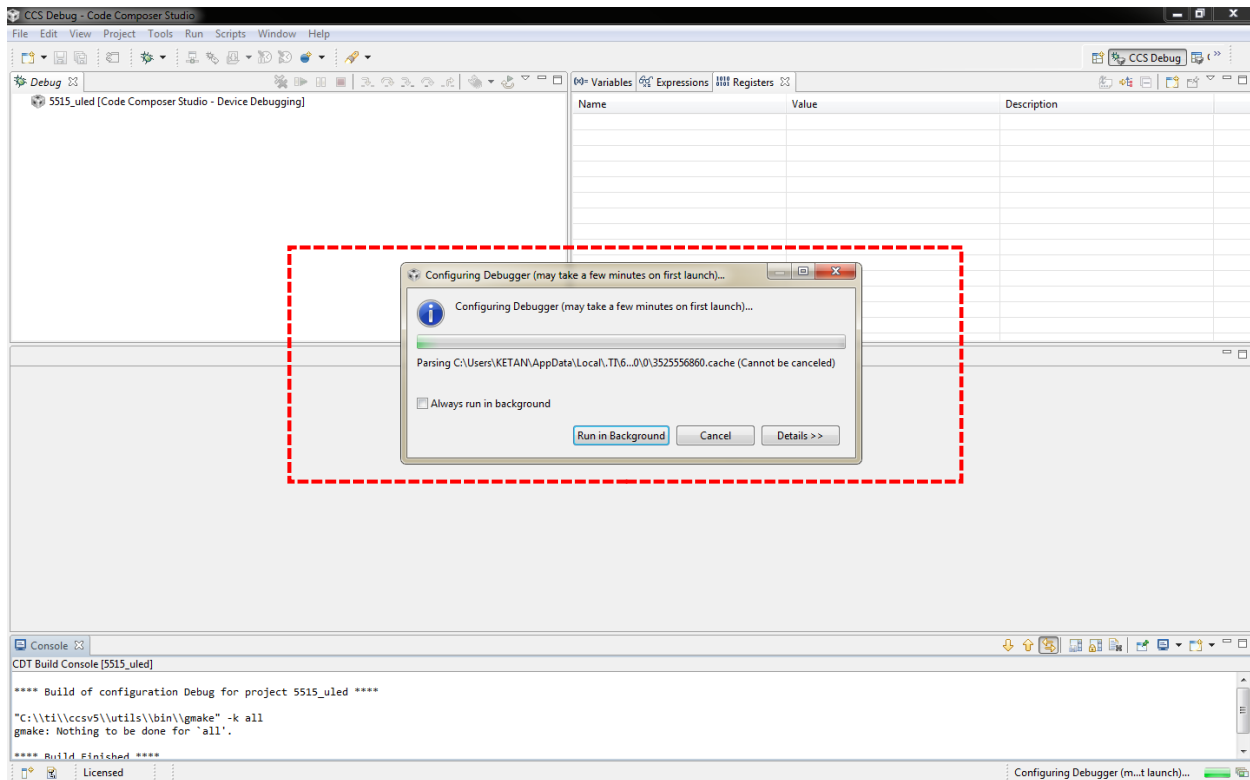
Step to Execute Program:

Once program is loaded click "*resume*". It will execute the program and give output on consol window

Steps to View Output:

Check output on EPB_C5515 Target board. LED6 to LED9 will start blinking alternately in night-rider pattern

Learning Checkpoints

All the following tasks need to be shown to your **"TA/Lab in-charge"** to get full credit for this lab session.
1. Delete the "C5515_XF_LED" project from the workspace and again import it to the CCS. But, this time show the compiler errors you get to your **"TA/Lab in-charge"** after setting each of the linker/compiler options. Finally, build and run the project on the kit and get it verified with the **"**TA/Lab in-charge".
2. Create and run the sample "uLED" project from the path Install
3. Disconnect the device, re-connect it and run the "C5515_XF_LED" project again.
4. Set the "uLED" project as the active project and run it on the device

Debugging Tools

Breakpoints for Debugging

One of the main crucial steps in coding is Debugging. CCS supports a wide range of debugging tools. This section will describe adding breakpoints to a particular piece of code.

- First identify where you have to put the break point in uLED Project.
- After this, build the active project, notice that a .out file is created.
- Load the program onto the board by clicking to DEBUG
- Now double click on the left hand side in the margin at a point of the code where breakpoint has to be added. (line 29 of main.c)
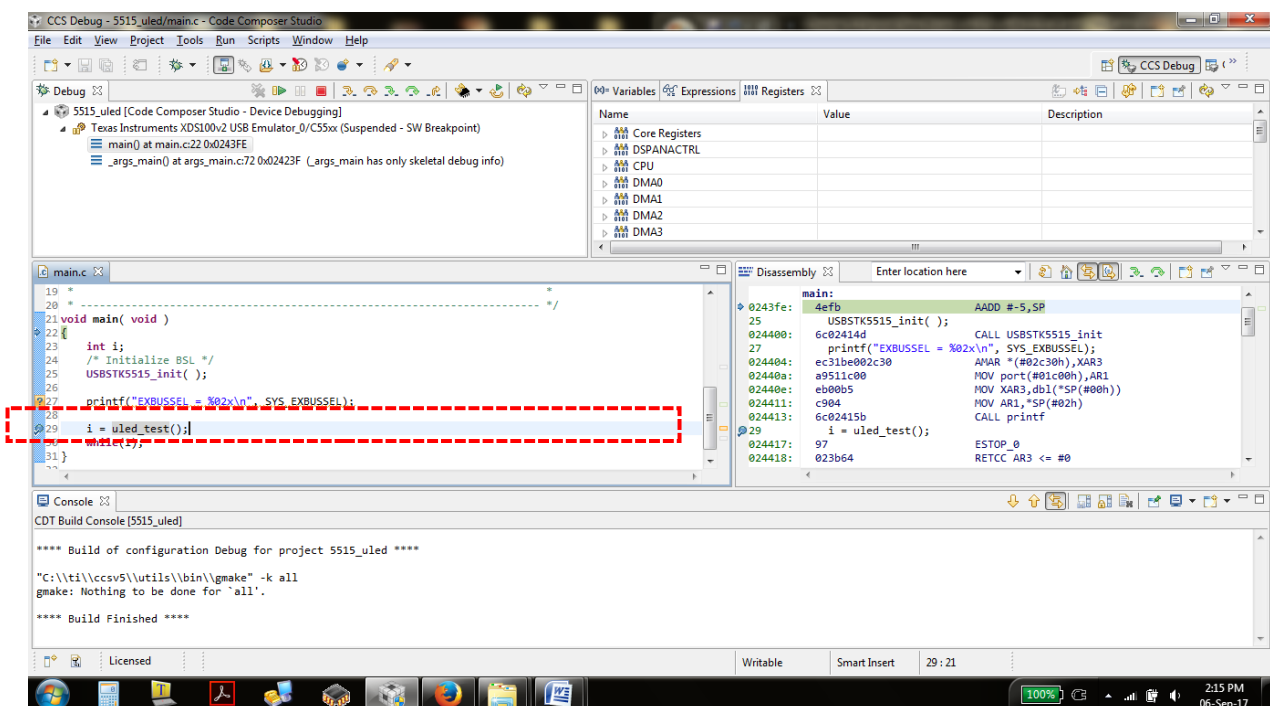
- Notice a blue circle has appeared on the left hand side. Right click on this breakpoint to change various properties associated with this breakpoint.
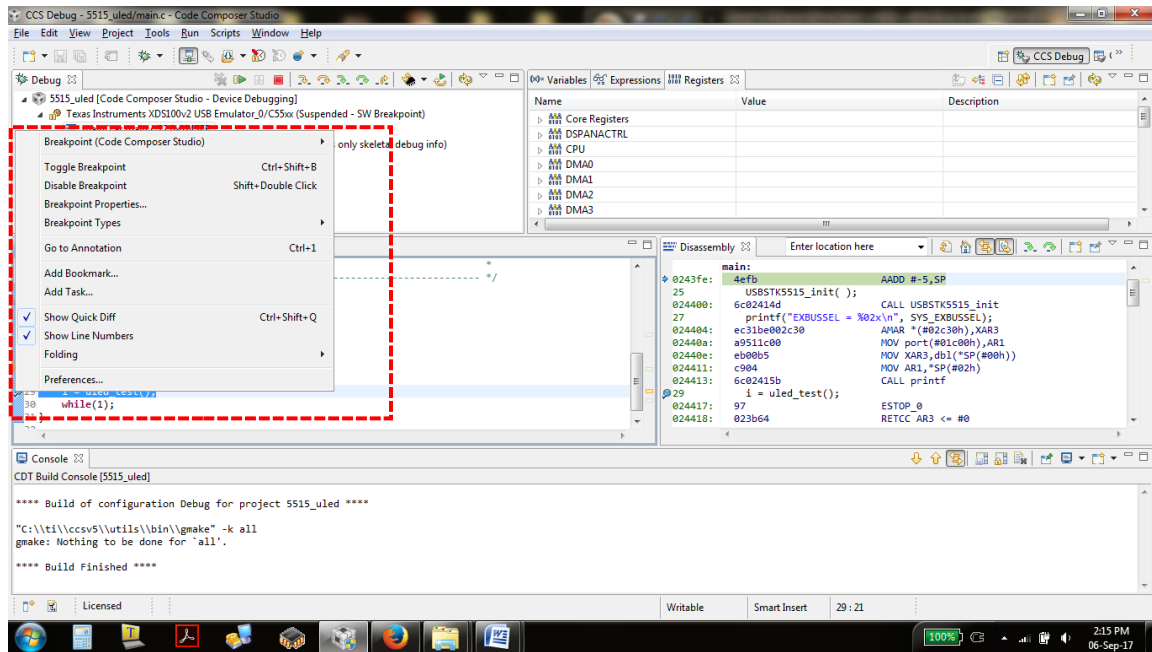

- Now run the code by pressing F8. The code will reach the point till the breakpoint and an arrow will appear.
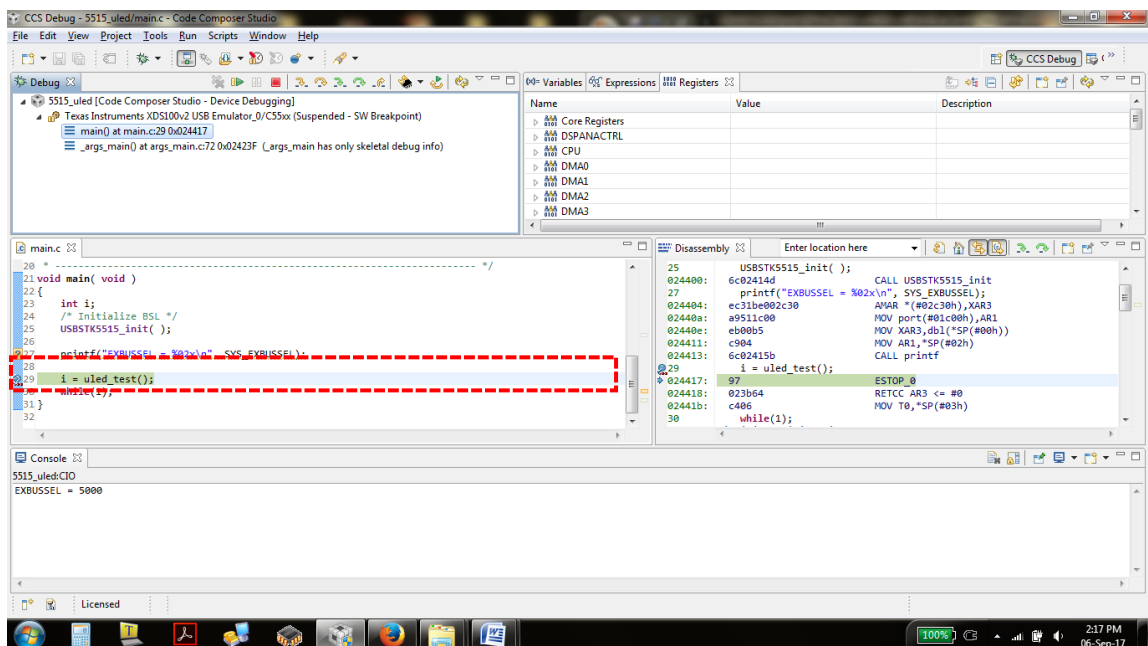
- Step into the code by pressing F5 and step over by pressing F6.

Watch Window and Memory/Register view

- In addition to viewing the memory register as well as the watch window, there is a provision to see both the C code as well as the Assembly code simultaneously in the Disassembly window which can be opened from the View tab.

- In order to view the variables, open the Watch window from View tab and then Watch. Now select a variable or an array and right click on the variable and click Add to Watch Expression.
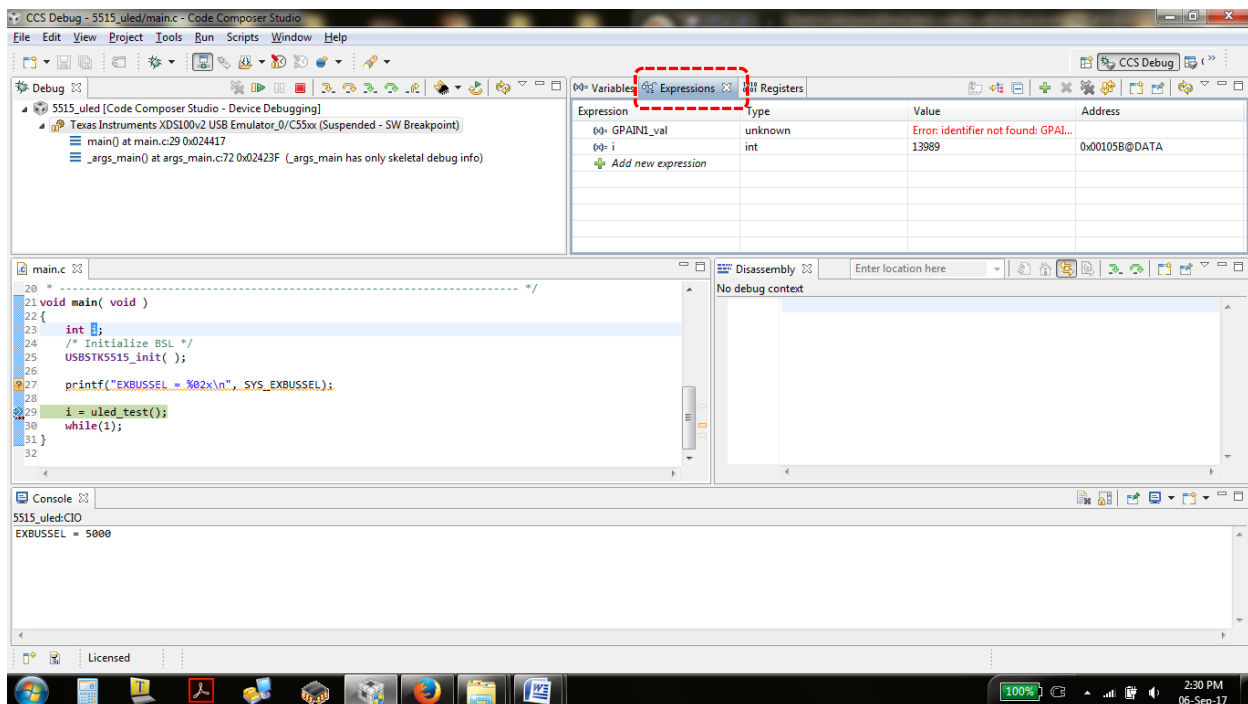
- Follow the steps as given in break point addition and press F5 and start observing changes in the Watch window. The address of each variable is located along with the value of the variable.

Learning Checkpoints for Debugging

1. Set a breakpoint in the uLED project and step through the code.
2. Debug the program from the uLED project.

Enjoy…!