<Ex6>:

Objective: Plotting Graph to the CCS Graph window for the read data from the PC to the buffer.

Workflows you learned in the **previous lab**

- Connecting your DSP kit EPB_C5515 to CCS5.3
- Creating a new project or copying an existing project into the workspace
- Configuring the linker options and file-search paths
- Building/Compiling and running/Executing a project on the kit EPB_C5515
- Making use of breakpoints for debugging the code and using watch window to track variable values.
- Storing the data read from PC to the buffer in the CCS5.3 and view buffer data runtime.

The above workflows will be frequently required in this and all the other lab-sessions.
If you get stuck somewhere while performing them, go back to Lab 1 manual. (Chapter 5.1 to chapter 5.3) and Lab 2 manual (Chapter 5.4 and Chapter 5.5)

After reading **this section** you will be able to,

- Generate .dat file from .m file for the square wave program.
- Plot the graph in Graph window of CCS5.3 using TMS320C5515 and PC.

Hardware Part List:

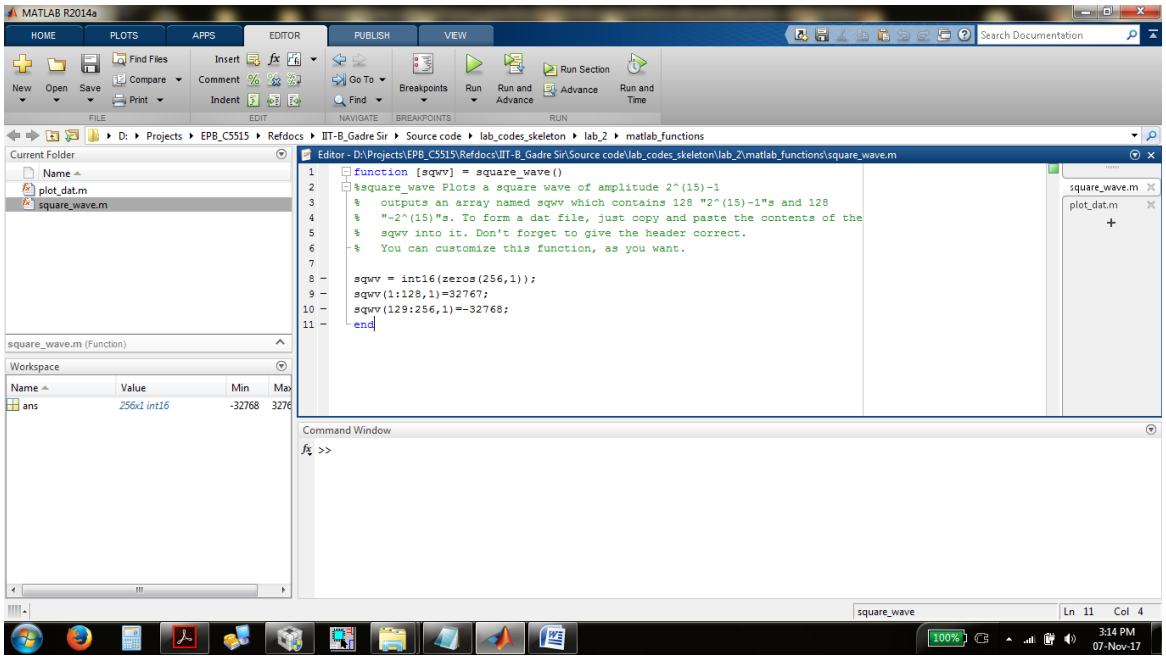
- PC
- Code Composer Studio v5.3
- +5v DC Power supply
- EPB_C5515
- Emulator + Emulator cable (USB A to Mini-A Cable, 14 pin FRC Flat cable)

List of Files Required:

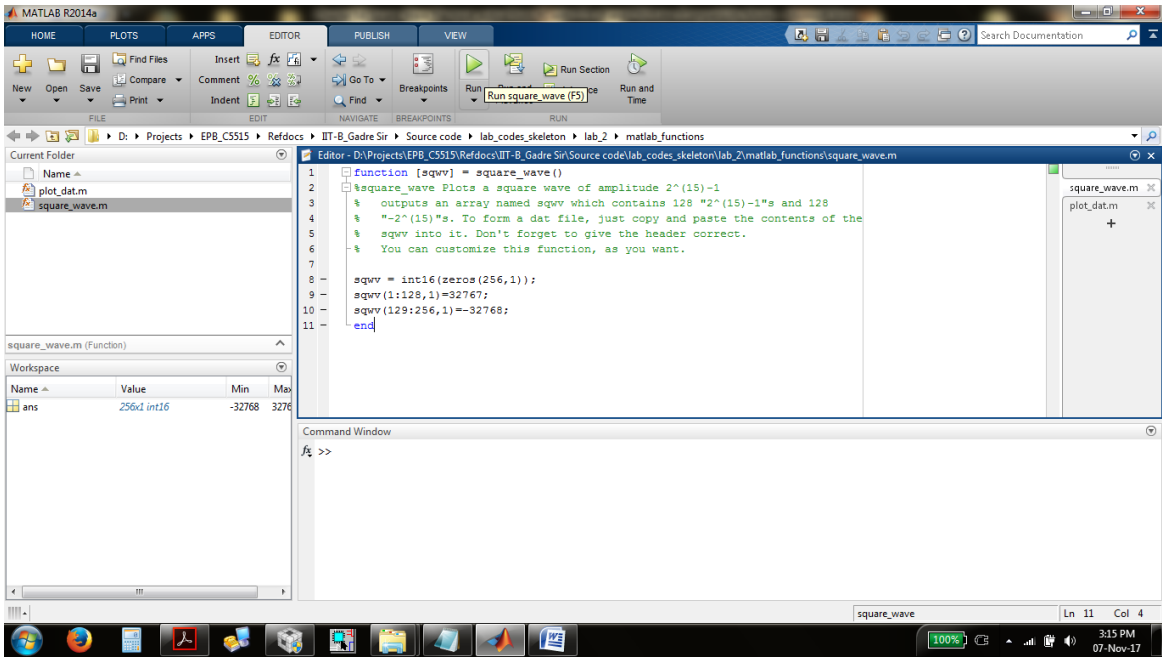
- squarewv.c (Program application file)
- square_wave.dat (sine database file to take input from PC)
- lnkx.cmd (Command file)
- usbstk5515bsl.lib (Library file)

Steps for Plotting Graph:

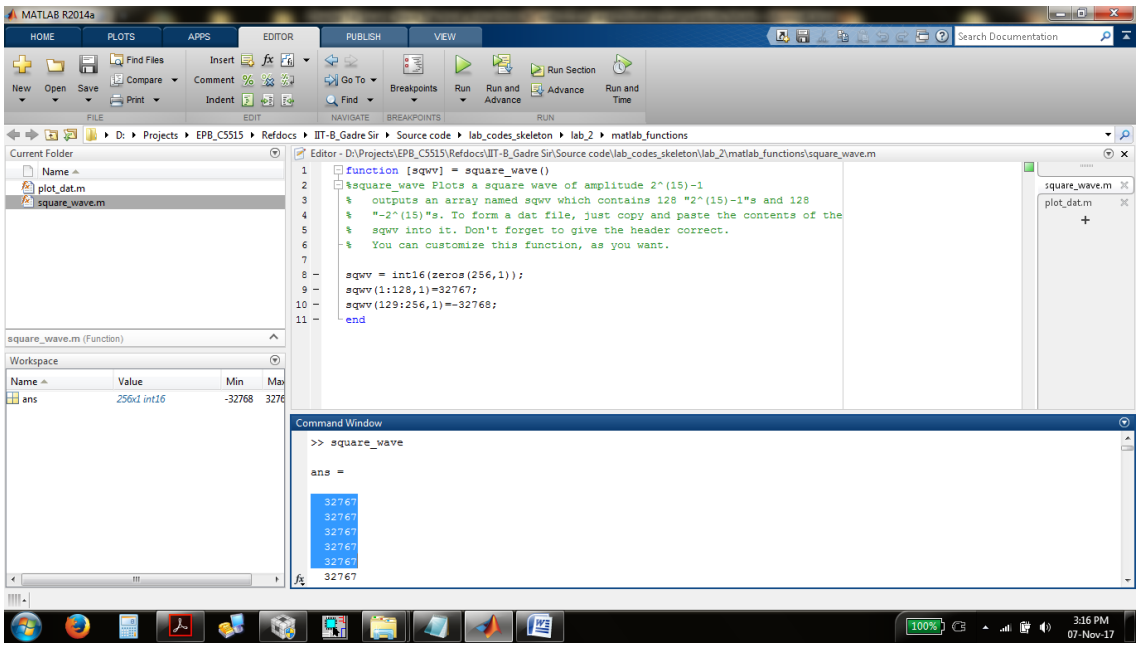
- Perform “chapter 5.4”. Make a copy of IIT_LAB2.1 and rename it by IIT_LAB2.2
- Now Generate square_wave.dat file from the square_wave.m file
    - Open file in “square_wave.m” in matlab window.



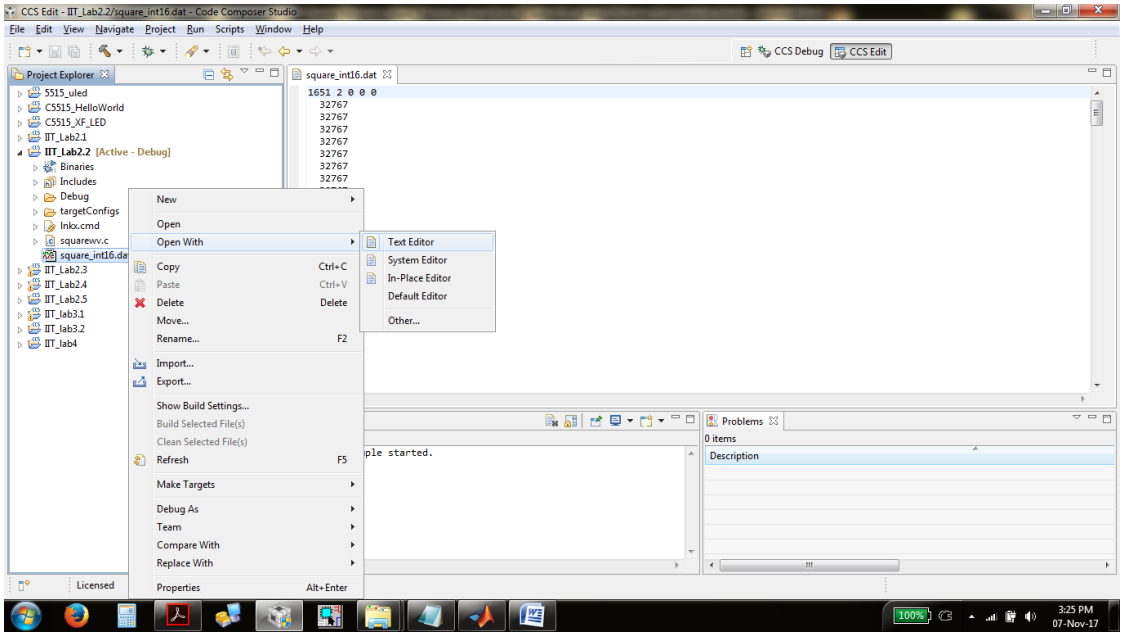
- Click “Run” icon



- It will generate the .dat file's values as shown here in command window.

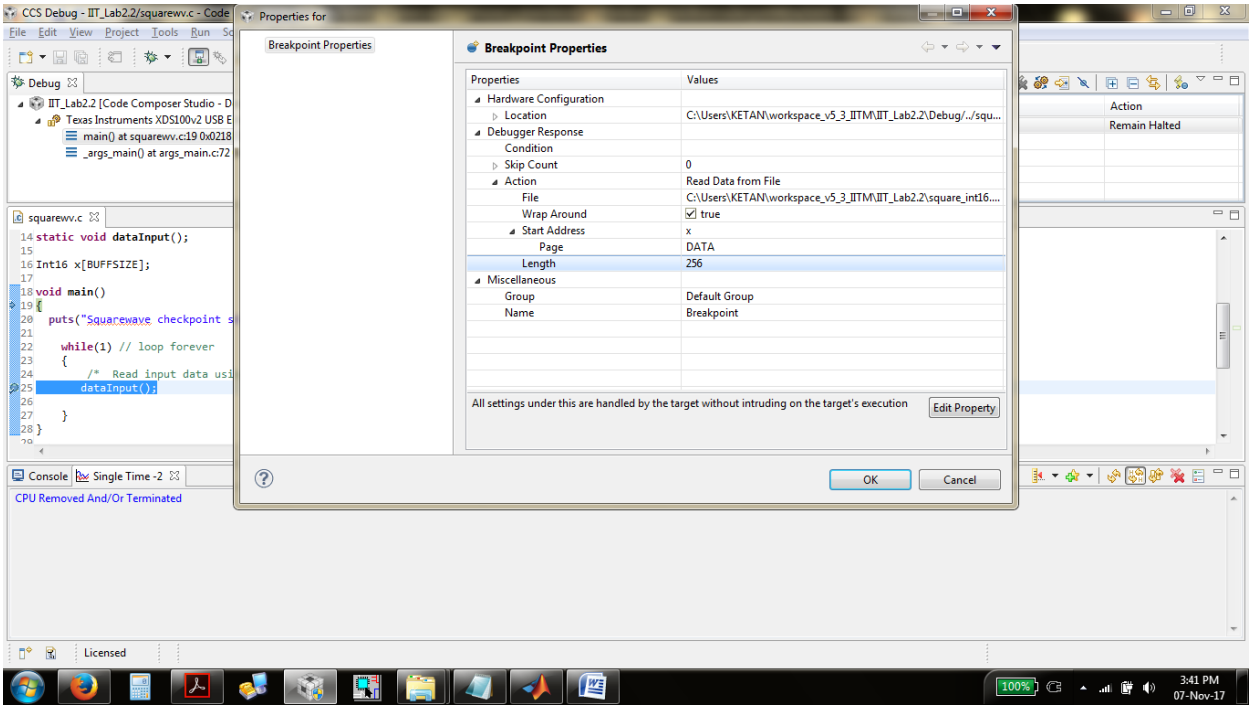


- Now copy paste "sine_int16.dat" from IIT_lab2.1 to IIT_lab2.2 and rename it by "squre_int16.dat" file and edit this file.
- To edit "squre_int16.dat" file right click on this file and click ""open with-> Text editor"

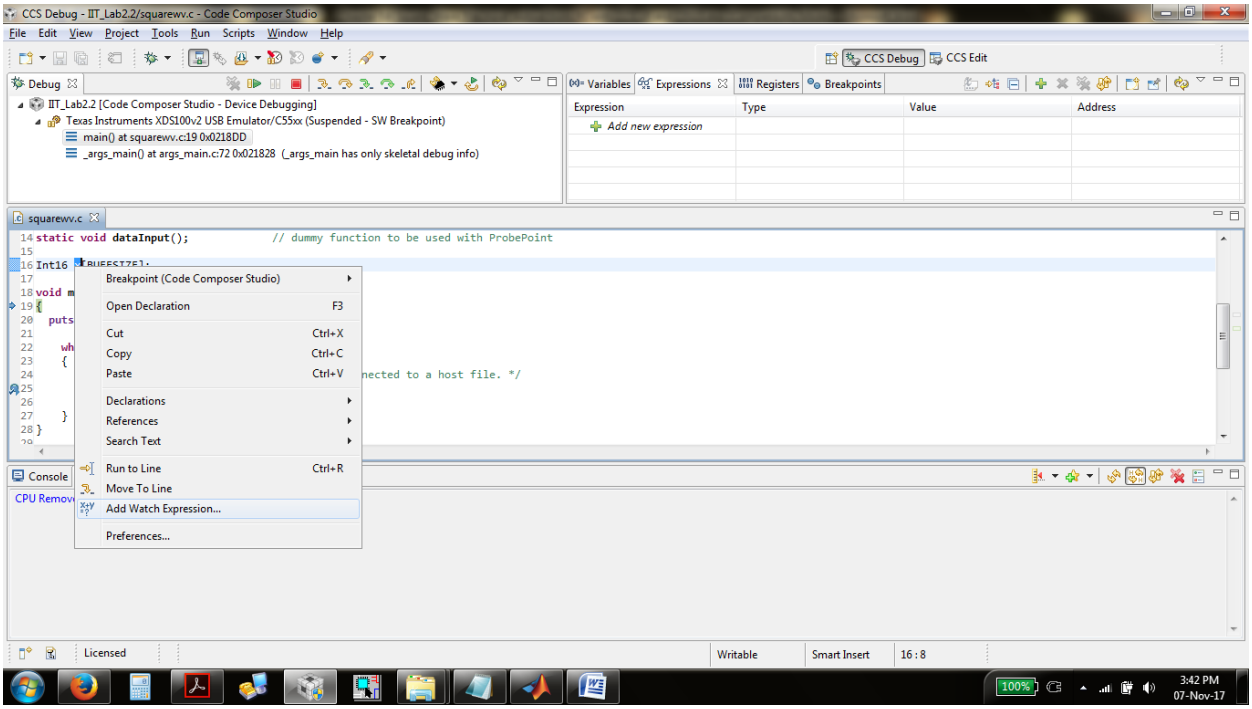


- Now keep the first line header as it is. And change all the value except first header line and save file. (Take all the other value from MATLAB command window)

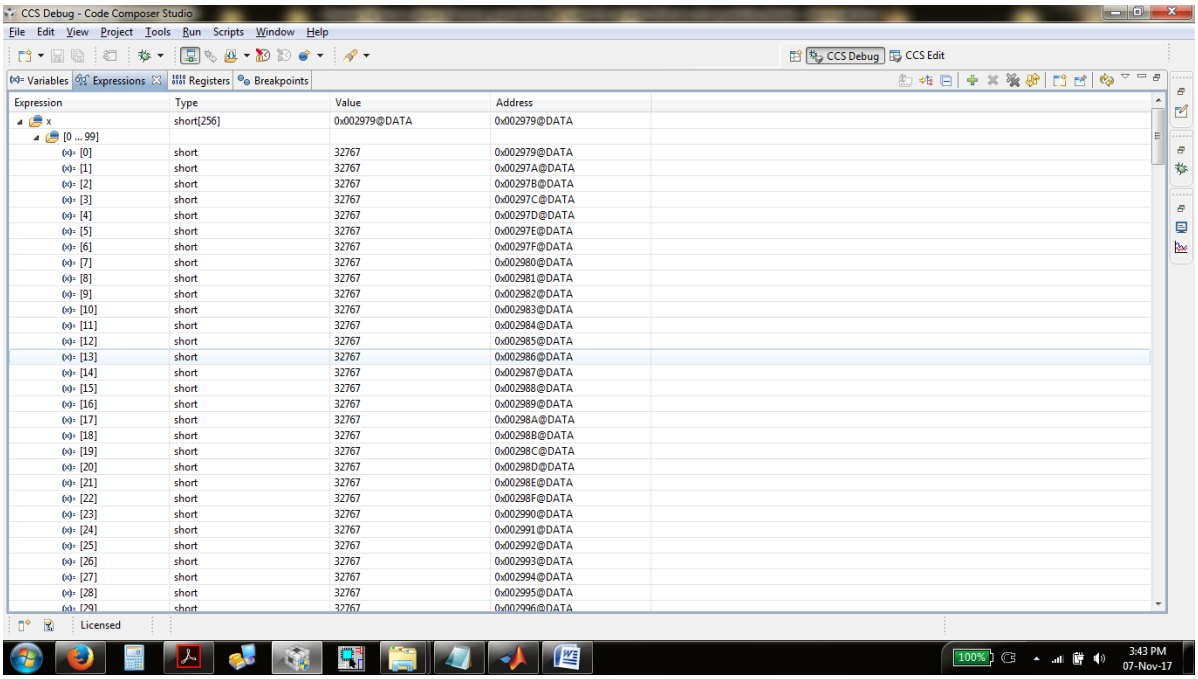
- Delete sine.c file from the project folder
- Copy-paste squarewv.c file from the IIT_Lab2.2 folder to the current CCS project.
- Now apply steps for execution for the program as per chapter 5.4 and chapter 5.5. as shown here.
- Debug the program and create breakpoint at **datainput();** in main() program. And apply below changes for breakpoint properties. Select square_wave16.dat file as file input from IIT_lab2.2.

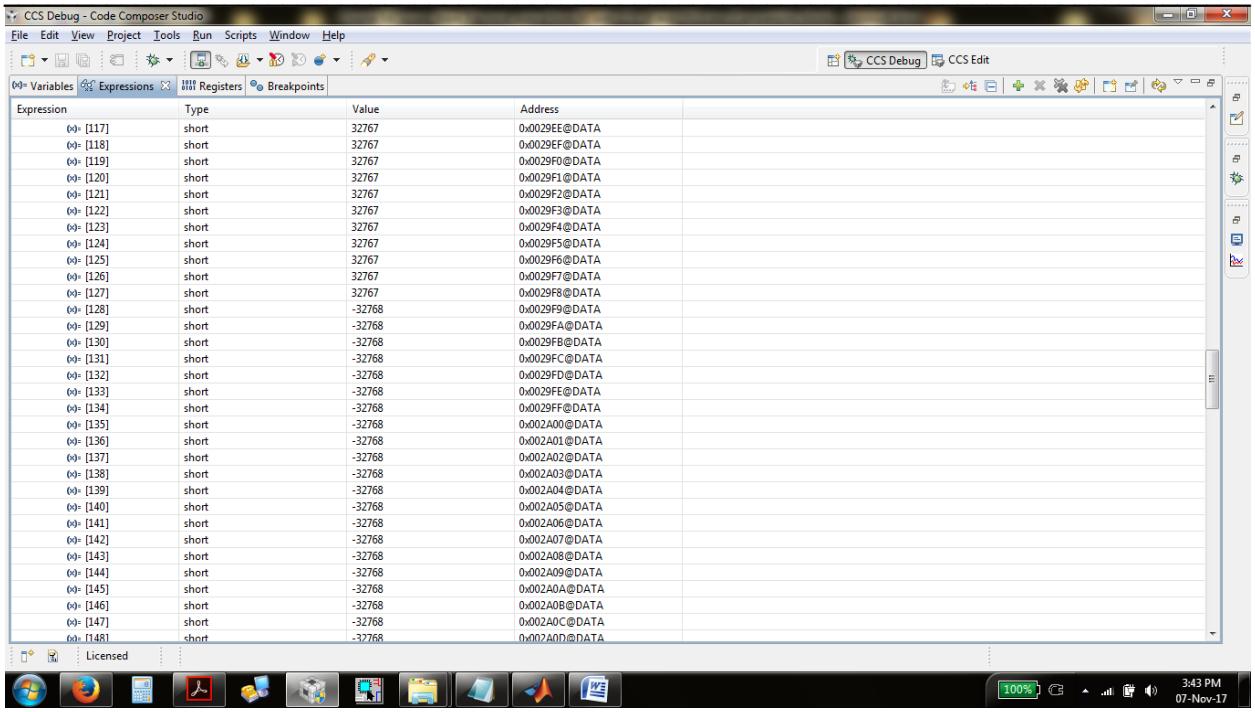


- Now, add variable “x” to the watch expression and check its value after executing program.



- **Now run program and check value of variable “x” at expression window as shown here**




CCS Debug - Code Composer Studio
File Edit View Project Tools Run Scripts Window Help
CCS Debug
CCS Edit
Variables
Expressions
Registers
Breakpoints
Expression
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Address
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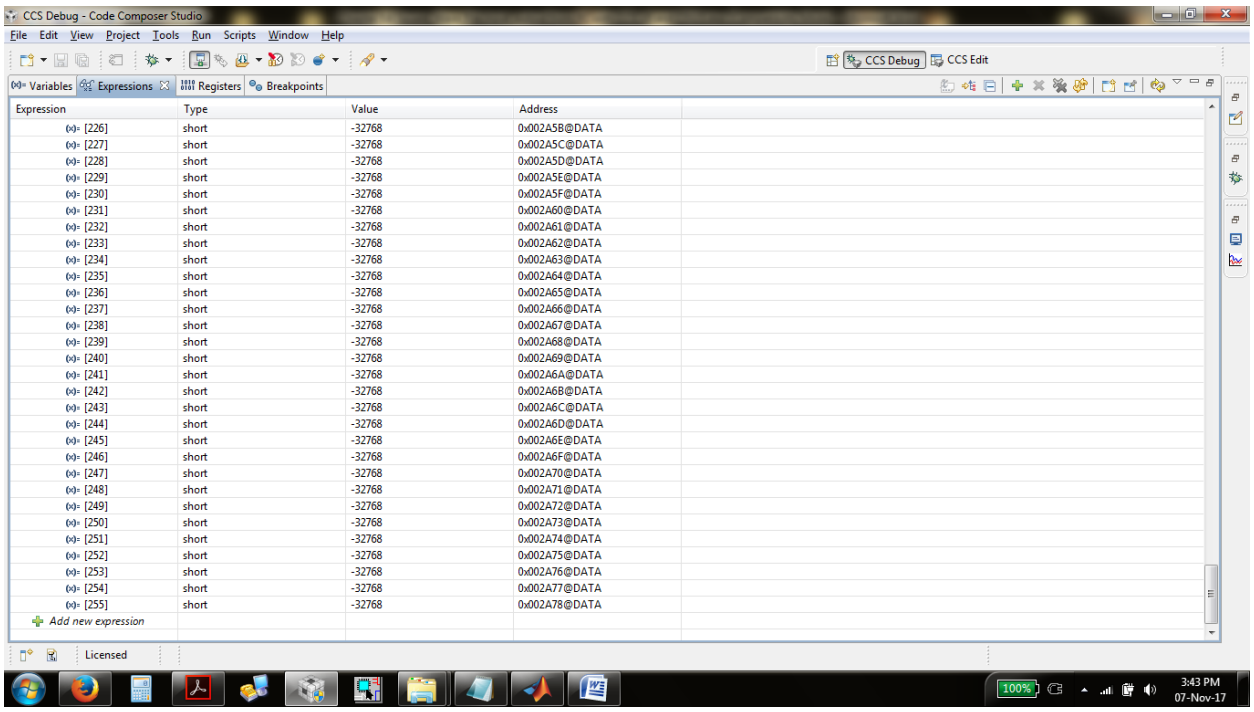
CCS Debug - Code Composer Studio
File Edit View Project Tools Run Scripts Window Help
CCS Debug
CCS Edit
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[254] short -32768 0x002A77@DATA
[255] short -32768 0x002A78@DATA
Add new expression
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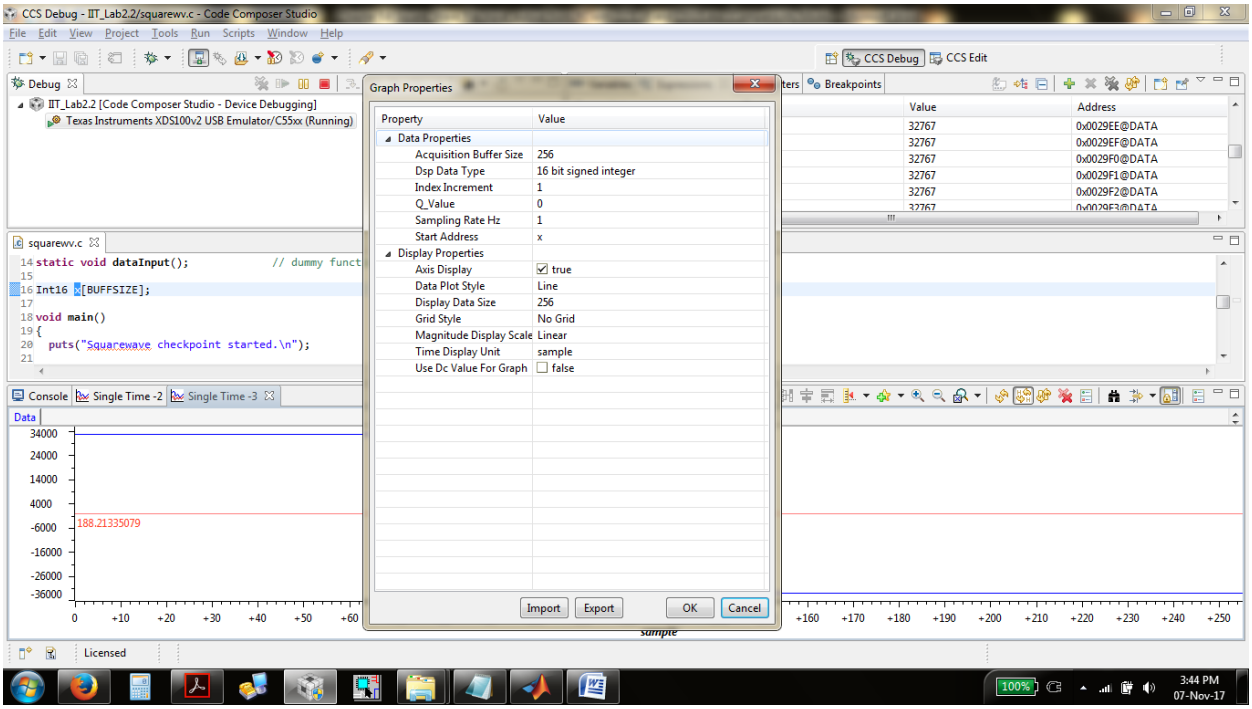
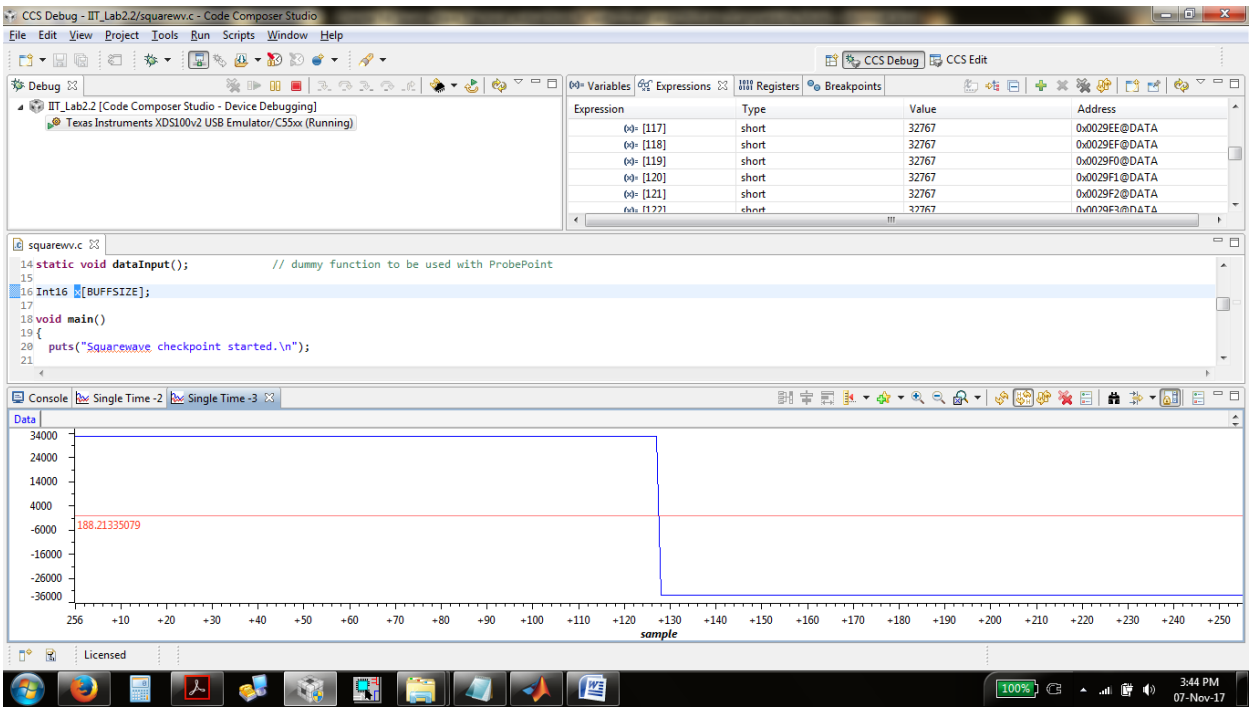
- Don’t terminate program and Open graph window in debugging mode by **“Tools->Graph->Single time”** and apply changes as shown here.



- It will generate square wave in graph window as shown here.



Enjoy…!

Note:

- If the sine wave is not observed properly in the graph, then check the header of the .dat file. The header should be consistent with the type of data in the file. The file has 16 bit signed integer data.