Name: _____ CM: _____ Start Date: Monday, August 16, 2021

Due Date: Tuesday, August 17, 2021

Software and Hardware Co-Design with Zybo, Summer 2021 HUST
Lab #5 Private Timer and Debugging

This is an individual lab. Each student must perform it and demonstrate parts 2 of this lab to obtain credit for it. Late lab submission will be accepted with a grade reduction of 10% for each day that it is late.

I. Objectives

- *Follow the pdf file of Lab 5 from Xilinx University Program on Advanced Embedded System Design on Zynq using Vivado.*

  Lab #5: ZYNQ Lab 5 *Use Vivado to Build Embedded Systems, pages ZYNQ5-1 to ZYNQ5-11.*

II. Deliverables

Submit a one-page memo on this lab in pdf to include screen captures as well as brief description of your work and experience.

II.1 Demonstrate Lab #5 your Zybo Board

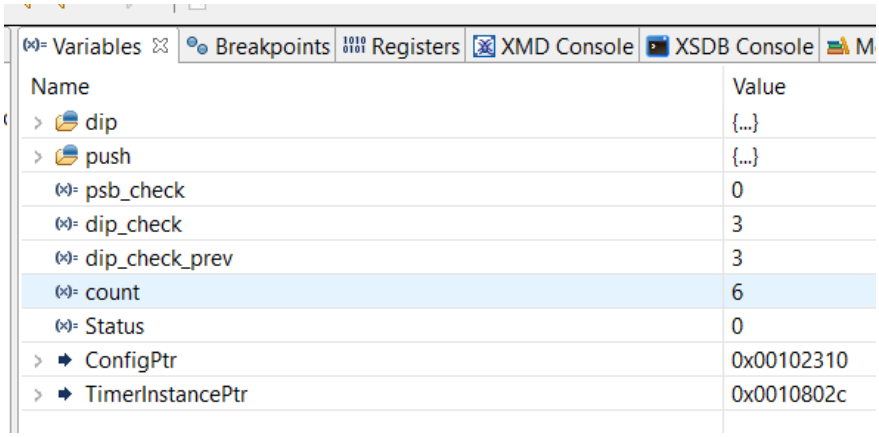
The four LEDs should behavior like a 4-bit counter and its counting speed can be altered by the slide switches such that the counting interval is equal to N*0.1seconds where N is the number on the slide switches.

II.2 Capture some screen captures from the debugging session

Get the following screen captures as you step through your code under debugger.

(a) **Variable tab to show count value to be 10.**

Here is an example of variable tab that shows count to be 6.

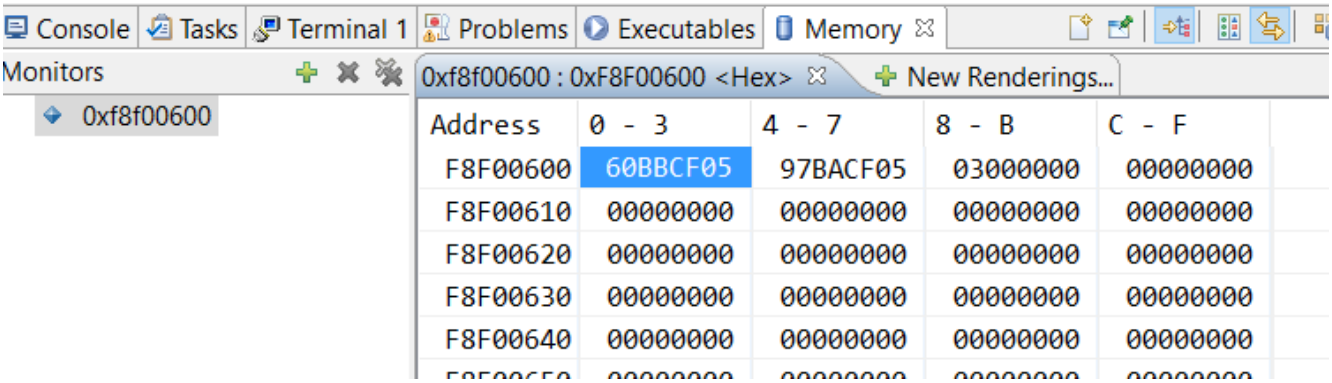


(b) **Screen capture of timer register content**

Open Window->Show View->Memory to open memory monitor. Click + to add address 0xF8F00600 to show memory contents from that address.

Include at least three screen captures of memory content of timer register and calculate the actual delay times from these timer register values. Show how you have calculated the actual delay time for each timer register screen capture.

Here is on example screen capture that shows timer register content of 0x60BBCF05. The load value is therefore 0x05CFBB60=97,500,000=3x32,500,000.



III. Submit a one-page memo on this lab

Please submit a one-page memo on Lab #6SoC Software Writing for Timer and Debugging to explain what you have done, how you have calculated the timer settings. Include the screen captures and your comment on them, and what you have learnt from this lab.

Your memo should have the title of the lab, your name, and date, etc. in a memo style.

IV. Appendix: Switching between Debug Mode and Project Manager Mode (C/C++)

An easy way to switch between Debugging mode and project manager mode is to click on C/C++ for Project Manager or Debug for debugging, which are at the upper right corner of SDK.