Programming in C and Interrupts (Code in BRAM)

SUMMARY

- 1. Compile the Software using KEIL MDK ARM and generate code.hex file
- 2. Open FPGA project under Vivado and implement the design
- 3. Use Vivado hardware manager to download the .bit file
- 4. Communicate with the board using HyperTerminal (or any other serial terminal)

SOFTWARE COMPILATION

- 1. Open the software project lab/software/code.uvproj
- 2. Right click on Target and press "Build Target"



3. Check code.hex get generated inside software folder

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SYNTHESIZE AND IMPLEMENT THE HARDWARE DESIGN

- 1. Open the Vivado project given in lab-BRAM/FPGA/Nexys4/Nexys4.xpr
- 2. Analyze the top level of the design AHBLITE_SYS.v
- 3. Implement the design and generate bit stream
- 4. Once the bit stream is generated follow the steps from the previous lab to download the bit

stream using hardware manager

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- 5. Once the hardware is loaded onto FPGA, the CMO in the design starts to execute the program loaded in the internal memory
- 6. Send characters through the UART terminal and see the LED behavior onboard. (See next step to setup serial terminal)

Below I have sent these characters "Welcome to AUP-XUP Joint Workshop"





7. If everything is working fine you should see something like below,



SETTING HYPERTERMINAL

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- 1. Go to the tools directory and open HyperTerminal.exe (or you can use any serial terminal)
- 2. Set the serial terminal with the following setting



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<u>P</u> arity:	None		
<u>S</u> top bits:	1		
Flow control:	Hardware		
	<u>R</u> estore Defaults		
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