

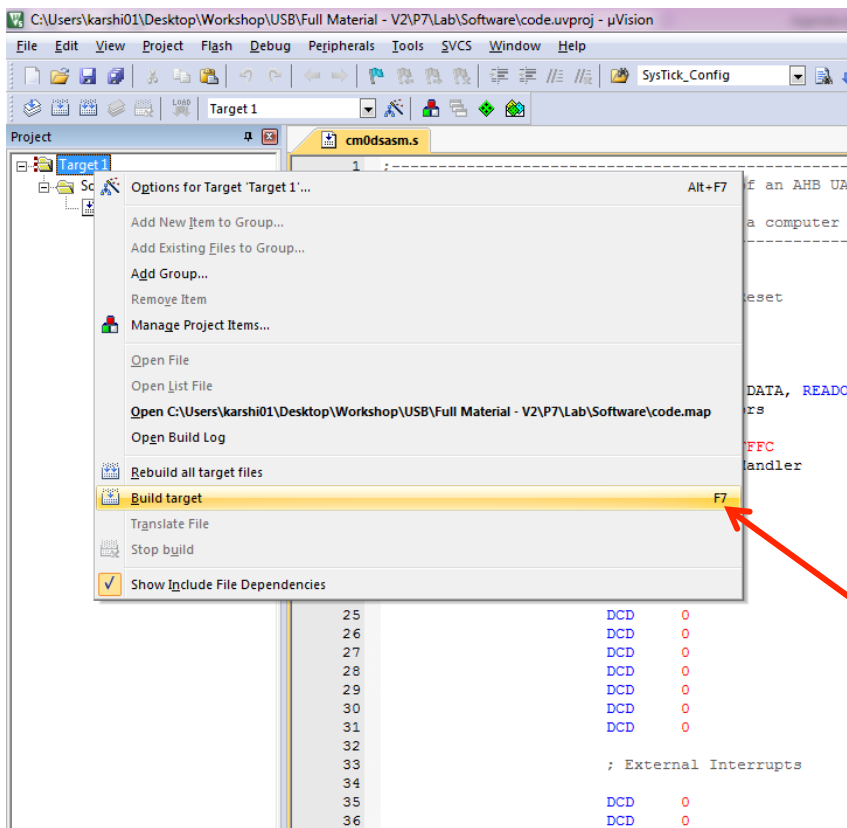
# Programming in C and Interrupts (Code in BRAM)

## 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

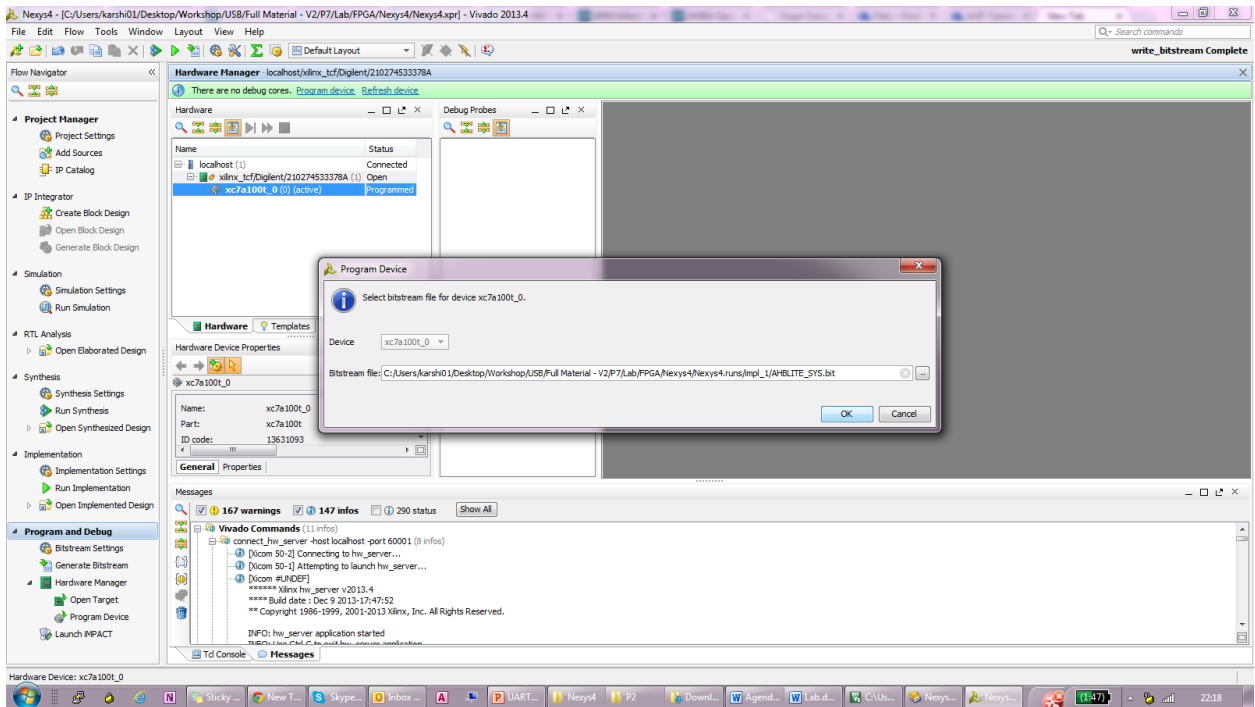
1. Open the software project lab/software/code.uvproj
2. Right click on Target and press “Build Target”



3. Check code.hex get generated inside software folder

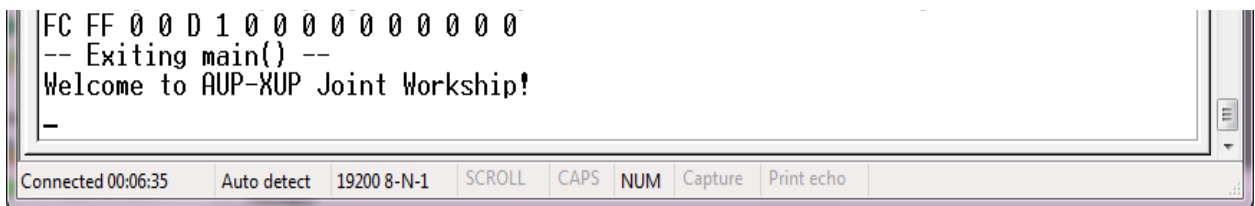
## SYNTHESIZE AND IMPLEMENT THE HARDWARE DESIGN

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

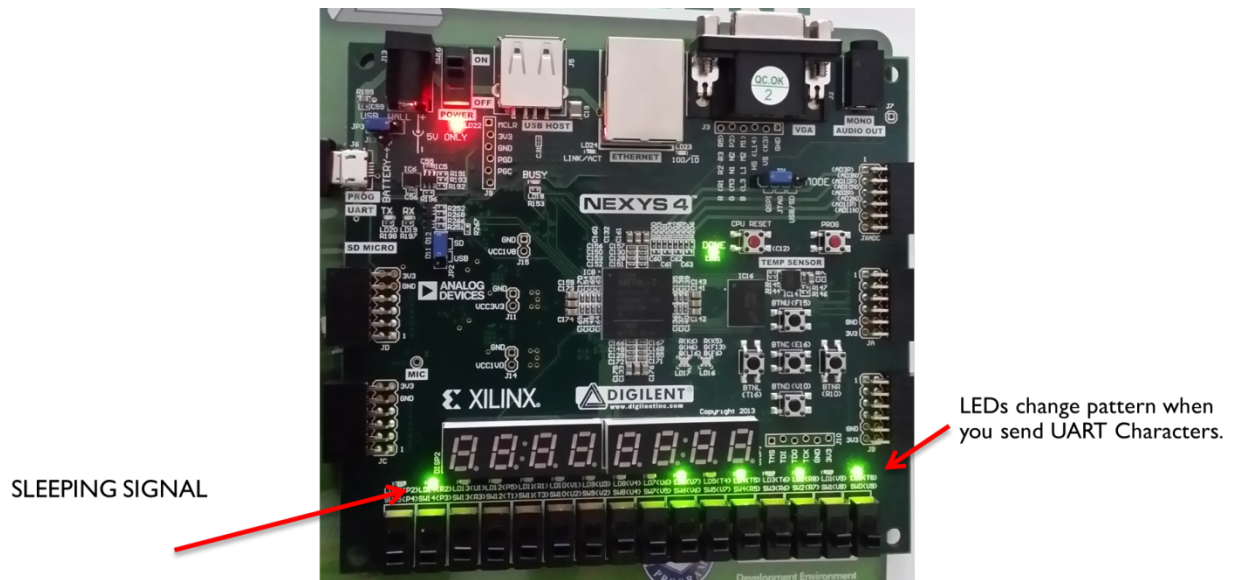


5. Once the hardware is loaded onto FPGA, the CM0 in the design starts to execute the program loaded in the internal memory
6. Send characters through the UART terminal and see the LED behavior onboard. (See next step to setup serial terminal)

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

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

