

Lab Report 5
'Hello World!' Module on Zynq Linux System
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ECEN 449 - 504

Purpose/Introduction

- This lab is intended to guide students through the process of running a simple 'Hello World!' kernel module on the FPGA. It will build off the last lab, where first we will need to get Linux running on the board. The Linux kernel will be used to allow dynamic loading of kernel modules.

Procedure

- We use the contents of lab 4 which includes the Linux kernel source and boot Linux on the board to read and write files to it and test out the mount operation on the SD card.
- The next step was to cross-compile a kernel module on CentOS and load it onto the SD card.
- The last step was to create a Makefile listing all of the dependencies of our individual object files. We will take our hello.ko and load it onto the SD to be mounted on the FPGA.

Results

- After cross-compiling and instantiating the Hello World kernel module I was able to see the printk statement. Lastly, running lsmod showed that the 'hello' module was running.

Conclusion

- In this lab, I was able to get a simple Linux kernel module up and running on the ZYBO board. I was guided through the process of creating a module whose purpose was to print a statement on the screen by instantiating it using the PICOCOM terminal.

Questions

- Since the mounting directory we created was stored in RAM, we would need to recreate the directory if we were to reset the ZYBO board at that point.
- The mount point for the SD card on the CentOS machine is media/cpadilla/1AAD-BD58
- In the Makefile, everywhere we see hello.o we would need to change to whatever we renamed the file (keeping the .o extension). Unless you did the same procedure the lab 4 directory, you would not be able to see what the SD card has since the kernel support is not present.