

CMPE 443 PRINCIPLES OF EMBEDDED SYSTEMS DESIGN

LAB #003 “Introduction to General purpose I/O (GPIO) programming”

1) Preparation for Using Keil and QEMU

(10 minutes)

This part will not be graded. It will enable you to get ready for the prelab.

You have already generated the **.axf** file from the Keil in PreLab #003. You can directly use this file on the QEMU environment.

- Open the Keil.
- Open the project you did on the PRELAB #003.
- Open Qemu Environment.

Observe that everything works as it did in the Prelab #003.

2) GPIO

(40 minutes) - 6 pts

This part will be graded.

a. Coding Part

In Moodle there is a quiz for this lab. You will use these pins as output. There will be four LEDs and the sequence will be LED1 - LED2 - LED3 - LED4 - LED1 ... The turning on conditions for these LEDs are also given on the moodle quiz. Update the code you wrote on PRELAB #003.

b. Circuit Part

You should build the circuits for the LEDs. (Be careful about the on/off condition)

You will submit three files:

6 pts

LAB<exp num>_<StudentID1>.axf (This will be generated **.axf** file)

LAB<exp num>_<StudentID1>.lpc_vcf (This will be exported circuit file)

LAB<exp num>_<StudentID1>.zip (This will be source files of project, not the whole project)