

ECE353 In-Class Exercise

GPIO Pins - Outputs

Problem Objectives

- Configure GPIO Pins as outputs
- Add new file(s) to a Keil uVision project.

1. Add a new file to a Keil uVision Project

- a. A new file can be added to a Keil uVision project by right clicking on a folder in the Project pane and selecting “Add New Item to Group”.
- b. Select the file type C File
- c. Give the file a name of **gpioPortF.c**
- d. Make sure to include **gpioPortF.h** in the **gpioPortF.c**. Note: Do NOT not modify gpioPortF.h. All your code will be written in **gpioPortF.c** and **main.c**.
- e. Open **gpioPortF.h** and copy the function descriptions and declarations into **gpioPortF.c**.
- f. Make sure to remove the semi colon after each function declaration.
- g. Complete each function based on the description given.

2. Modify main.c

- a. Create three #defines for RED, GREEN, and BLUE. These #defines should be set to the pin number connected to the LED.

```
// Red is connected to PF.1 (Port F, pin 1)
#define RED    (1 << 1)
```

You can determine the pins used on PortF by examining the [Launchpad User's Manual](#) found under the Data Sheets link on the course website.

- b. In the **main** function, call the three functions that you completed to configure the GPIO ports. Make sure to pass the correct bits mask for the 3 GPIO pins controlling the LEDs on the Launchpad.
- c. Complete the switch statement in **user_input** to turn the specified LEDs ON/OFF.

3. Open a Serial Debug Interface @ 115200.

- Follow the prompts given from the serial debug interface.
- Toggle all three LEDs on and off to verify that your GPIO pins are configured correctly.

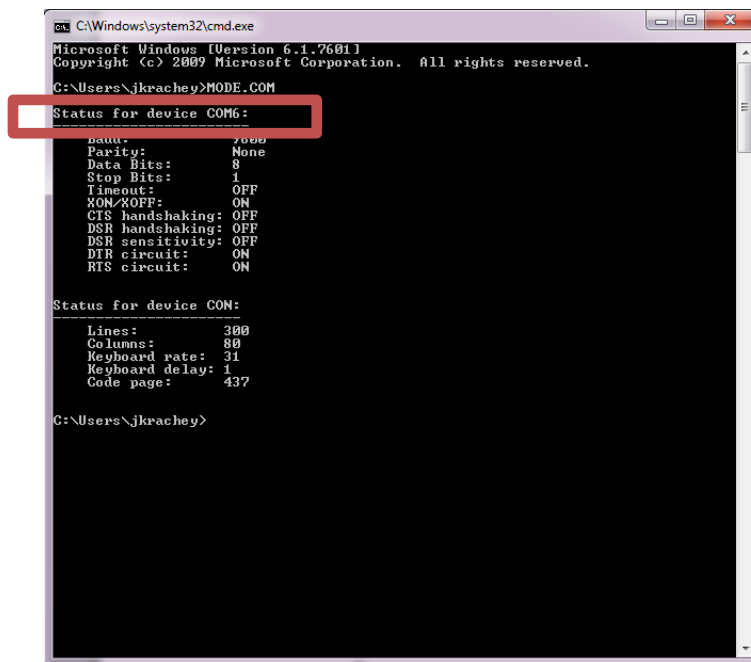
4. What to Turn In

Turn in `gpioPortF.h` to the dropbox on the course website.

Setting Up Serial Debug Port

We will use the serial debug port on the Tiva Launchpad so that you can use `printf` statements to display information to the user. In order to use the serial debug port, you will need to determine which COM port your Tiva Launchpad has been assigned by Windows.

Open a windows command prompt issue the command `MODE .COM`. In the example below, we see that the Launchpad is connected to COM6. Your Launchpad will show up as a COM port greater than 3.




```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
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C:\Users\jkrachey>MODE .COM

Status for device COM6:
-----
Baudr.:          76800
Parity:          None
Data Bits:       8
Stop Bits:       1
Timeout:         OFF
XON/XOFF:        ON
CTS handshaking: OFF
DSR handshaking: OFF
DSR sensitivity: OFF
DTR circuit:     ON
RTS circuit:     ON

Status for device COM:
-----
Lines:          300
Columns:         80
Keyboard rate:   31
Keyboard delay:  1
Code page:      437

C:\Users\jkrachey>
```

Now that you have determined your COM port, open Putty. Click the Windows Start button , then type “putty” into the search box.

In Putty, click on the serial radio button, enter the COM port above, and set the baud rate to 115200.

