Lab 5(a) Introduction to serial communications.

Introduction

This lab looks at the fundamentals of serial communications. In this lab you will:

- see how ascii characters are transmitted to a “dumb” terminal via the serial port(UART) of the microcontroller (MCU).
- modify a program so that it responds to serial communications “commands” from the dumb terminal connected to the receive pin of the MCU serial port.
- use button presses to control data transmission via the serial port.
- see serial communications waveforms on an oscilloscope.
- you will use the serial communication port to communicate with another microcontroller.

Instructions

Download the support files for this lab, build and test.

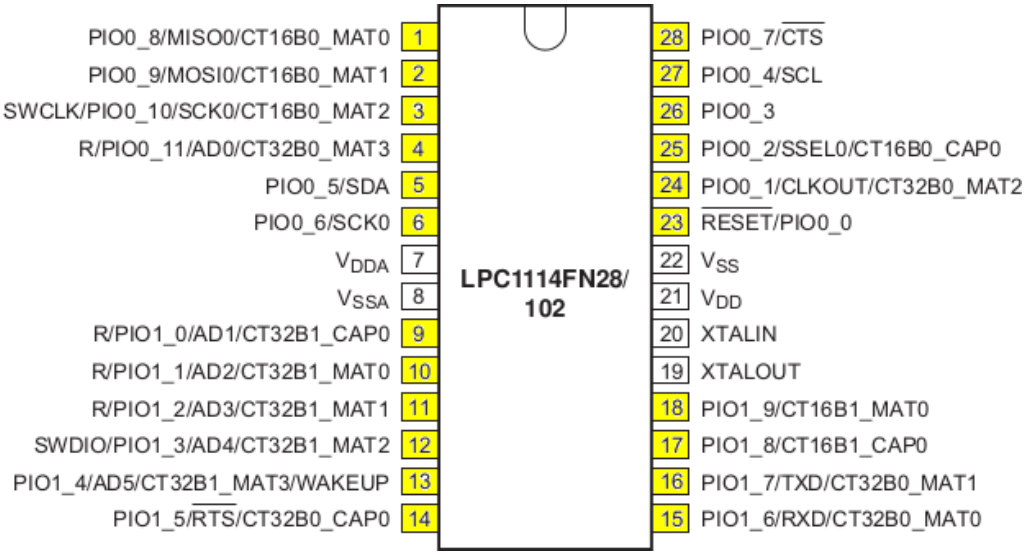
Study the various functions included in the file. Pay particular attention to the functions related to serial I/O.

You should notice that the LED turns on when you press L and off when you press M.

Add the following functions.

```
void WaitForBtnPress()
        {
        while ( (GPIO0DATA & BIT1) != 0);
        }
void WaitForBtnRelease()
        {
        while ((GPIO0DATA & BIT1)==0);
        }
```

Using these functions, modify the code so that it outputs 'L' and 'M' alternately when the user pushes the button - the button in question is the one beside the MCU. Partner up with another student. Run the new version of the program on your MCU and the original version on theirs. Connect the TX from your MCU to the RX of theirs. You should now be able to toggle their LED with button presses on your board. Additional instructions regarding this will be given in the laboratory.


LPC1114FN28/
102
1 PIO0_8/MISO0/CT16B0_MAT0
2 PIO0_9/MOSI0/CT16B0_MAT1
3 SWCLK/PIO0_10/SCK0/CT16B0_MAT2
4 R/PIO0_11/AD0/CT32B0_MAT3
5 PIO0_5/SDA
6 PIO0_6/SCK0
7 VDDA
8 VSSA
9 R/PIO1_0/AD1/CT32B1_CAP0
10 R/PIO1_1/AD2/CT32B1_MAT0
11 R/PIO1_2/AD3/CT32B1_MAT1
12 SWDIO/PIO1_3/AD4/CT32B1_MAT2
13 PIO1_4/AD5/CT32B1_MAT3/WAKEUP
14 PIO1_5/RTS/CT32B0_CAP0
28 PIO0_7/CTS
27 PIO0_4/SCL
26 PIO0_3
25 PIO0_2/SSEL0/CT16B0_CAP0
24 PIO0_1/CLKOUT/CT32B0_MAT2
23 RESET/PIO0_0
22 VSS
21 VDD
20 XTALIN
19 XTALOUT
18 PIO1_9/CT16B1_MAT0
17 PIO1_8/CT16B1_CAP0
16 PIO1_7/TXD/CT32B0_MAT1
15 PIO1_6/RXD/CT32B0_MAT0