EE2361 – Lecture 14

10/10/16

Last lecture was a C code to blink an LED

Recall last lecture 10/5/16

- Compiled a simple blink code with no optimization
- Timing based on instruction execution time

Suppose we optimize the code

Optimization level 1

→ takes more memory on the compiler host

→ omit the frame pointer and try to put variables in registers

The code at the assembly level is now smaller

⇒ faster execution time

⇒ the timing now incorrect, the LED blinks faster

For the same C-code we may have different loop times.

Use a Timer

Let's use Timer 1

The Timer at it's simplest is just a counter

⇒ Look at Timer 1

- Discuss Timer 1

- C- code that creates a 1sec delay based on Timer 1

Timer 1 is a peripheral

→ Timer 1 is discussed in section 11 of the PIC24FJ64GA002 datasheet (ds39881)

→ More detail can be found in the PIC24FJ family reference manual (ds39704) section 14.

→ Timers are discussed in chapter 5 of Lucio D. Jaio, Programming 16-bit PIC Microcontrollers in C: Learning to Fly the PIC24.