EE2361 - Lecture 33
11/28/16

- Discussion Cancelled
  28 & 29 November
  This Week

- Output Compare:
  PIC24F FRM section 16
  (DS39706A)

PIC24F – Output Compare ✓

This is the complement to Input Capture

Output Compare has 3 modes of operation

- Single output pulse
- Continuous Output pulses
- Pulse Width modulation (PWM) ✓

Fig. 16-1 in the 24F FRM

block diagram of module

Register 16-1

control register for OC

→ select timer

→ select the mode

Set this for a single event

Change the value on ~~an~~ the output pin on a compare success

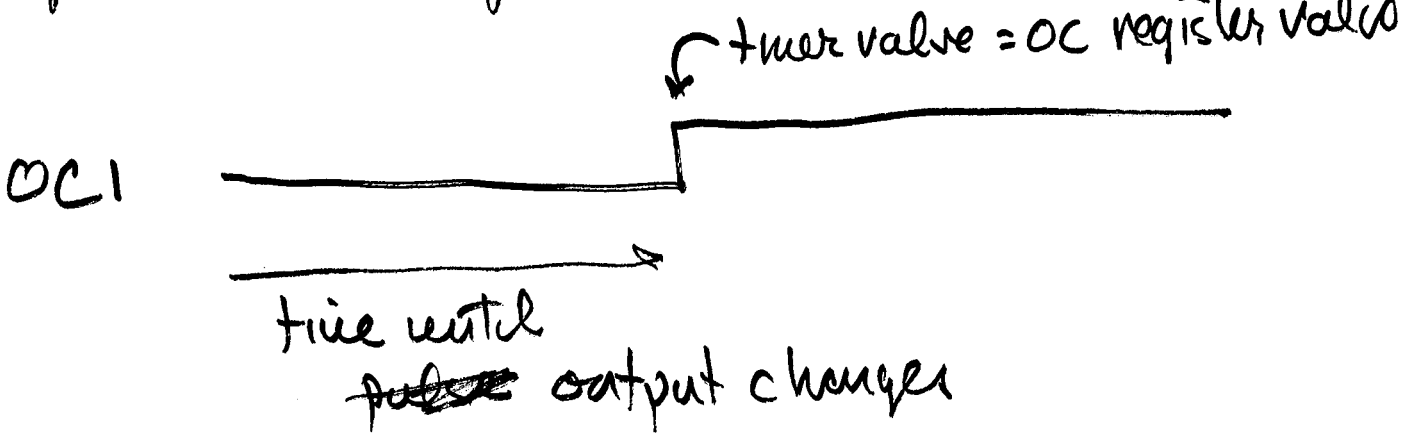
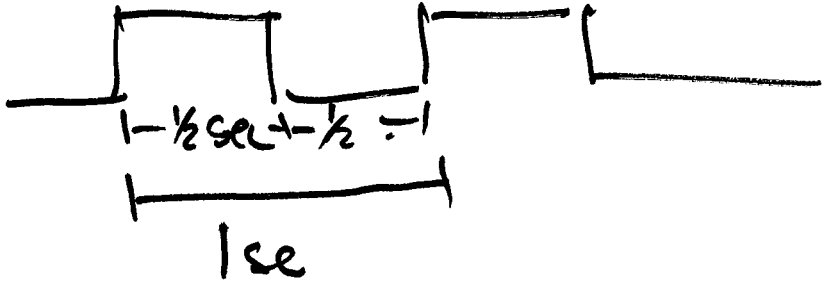


Figure in notes based on Figure 16-2 in FRM

Example with OC

Blink an LED with the output compare on/off every <u>second</u>

We can do this by toggling the output compare pin every ½ second



Look at 1:1 scaling and TMR2

$0.5\ \text{sec} = N \times 62.5\ \text{ns} \Rightarrow N = 8 \times 10^6$

this would require ~23 bits

→ combing Timer2 and Timer3 for 32 bits

→ we can slow things down by scaling TMR2

prescale of 1:256

$0.5\text{sec} = N \cdot 256 \times 62.5\text{ns} \Rightarrow N = 31250$

requires 15 bits

look at 3 cases for this

31250 corresponds to one time between successful compare TMR2, OC1R

What about PR2 ?

3 cases

PR2 < OC1R

PR2 = OC1R

PR2 > OC1R

Figures for Week 3 notes in FRM

Code Examples

This lecture is based on PIC24F FRM section 16 pages 16-1 to 16-9