1.Using a timer clock source of 8 MHz, calculate PSC and ARR values to get a 60 Hz interrupt.

• This is tricky because precisely 60 Hz is impossible with our system; instead, think

about the process and minimize the error. Many combinations of PSC and ARR values

work—not just one!

PSC = 2666

ARR = 50

I chose these values because in the lab handout it gave us the method to calculate for 20Hz since we are going to 60 that means multiplying by 3 to 20 so I decided to divide the PSC given there 7999 by 3 to compensate for that multiplication by 3 to the 20. This gave a value of 2666.3333 so rounding that down gives a value of 2666 which we can represent in binary and the register size we have. Next we plug that number into the equation below to solve for ARR and that came out to 49.99… which is very close to 50. It is closer than many other numbers I had tried so that is why I chose those two values.

ARR = $f_{CLK}/((PSC+1)*f_{TARGET})$
ARR = $(8*10^6)/((PSC+1)*60)$

2. Look through the Table 13 "STM32F072x8/xB pin definitions" in the chip datasheet and list

all pins that can have the timer 3 capture/compare channel 1 alternate function.

• If the pin is included on the LQFP64 package that we are using, list the alternate function

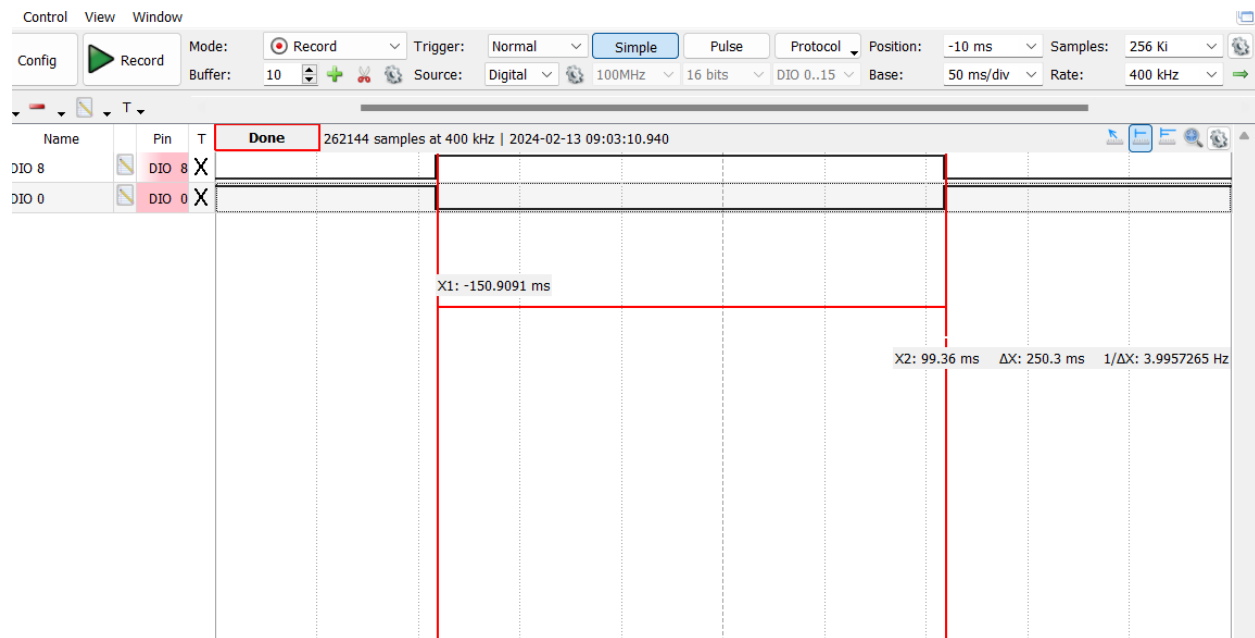number that you would use to select it.

PE3 – not included.

PA6 - AF1

PC6 – AF0

PB4 - AF1

3. List your measured value of the timer UEV interrupt period from first experiment.

250.3 ms

4. Describe what happened to the measured duty-cycle as the CCRx value increased in PWM mode 1.

The measured duty-cycle was increased as CCRx increased. This was caused because the on period was longer. This caused the blue light to become brighter as we increased CCRx.

5. Describe what happened to the measured duty-cycle as the CCRx value increased in PWM mode 2.

The measured duty-cycle was shortened as the CCRx value increased; this caused the red led to become dimmer as CCRx was increased.

channel 1 to PWM Mode 2. Which was pin 6, which was the red pin, which was bright for longer.

6. Include at least one logic analyzer screenshot of a PWM capture.
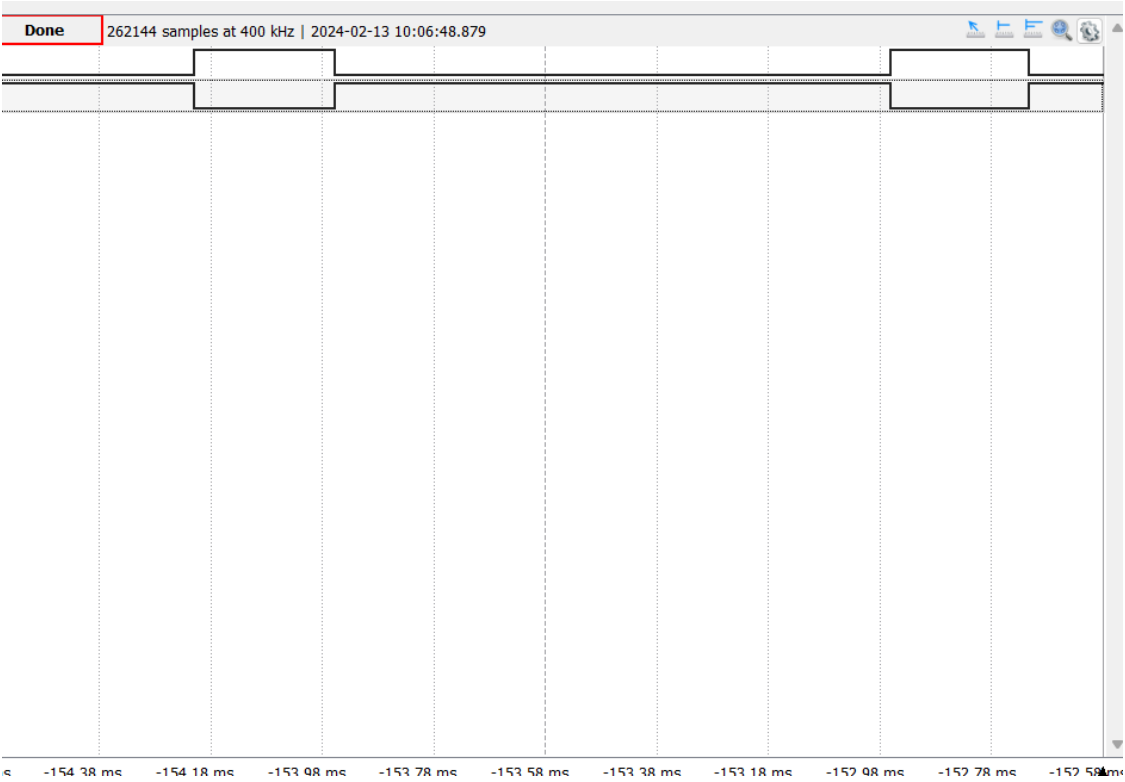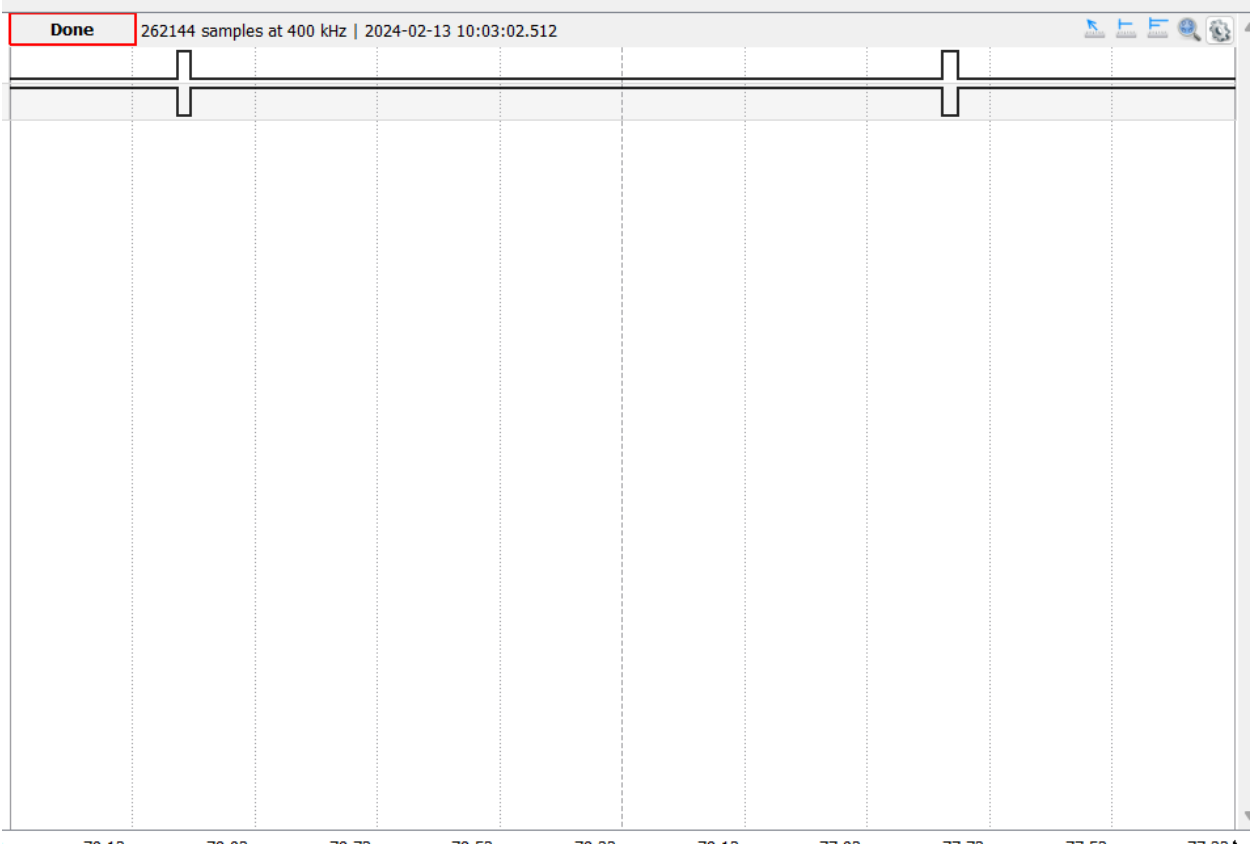
7. What PWM mode is shown in figure 3.6 of the lab manual (PWM mode 1 or 2)?

It is in PWM mode 2