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ECE-C304 Lab – Assignment # 3

(3A,3C and 3D due 6th Week)

The lab is based on the handout supplied

*Note: Always use the part no CY8C29466-24PXI*

Lab 3A-Global Output

3A-1 What is the frequency of each variable clock?

VC1\_12 MHz\_ VC2\_0.75 MHz\_ VC3**\_24\_MHz\_**

3A-2 Having set all these parameters, what is the output frequency of the PWM signal?

3A-3 How would changing the compare type from **LessThan** to **LessThanOrEqual** change the

waveform?

3A-4 Is LED1 on?

Change pulse width to 200. Is the LED brighter or dimmer now? Why?

Change the pulse width back to 32 for 3A-5 to 3A-8

3A-5 Are the readings consistent with your predictions?

Predicted Frequency = Actual frequency =

Predicted Pulse Width = Actual Pulse Width =

3A-5

Find out the registers and bits which determine VC1, VC2,VC3 clock divisors as well as those

which determine the period and pulse width of the PWM waveform. Include code in main.c

to set these values without depending on the GUI and demonstrate working. **(submit code**)

3A-6 How should these two waveforms differ?

3A-7 Does your observation confirm your prediction?

3A-8 Is this difference apparent when viewing LEDs?

Initials\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Time\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lab 3C – Global Output

3C-1 What is the frequency of VC3?

3C-2 What is the frequency of this PWM output?

3C-3 What is the frequency of this PWM output?

3C-4 At what frequency is this LED blinking? (This is not possible on the scope. Count how many times the light blinks in 10 secs on your watch and divide by 10 to get the frequency)

3C-5 Use the oscilloscope to view the output. Explain what is happening.

3C-6 How must you change the clock so that it blinks at 1 Hz rate?

3C-7 Do so by changing only the VC1, VC2 ,VC 3 parameters

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Lab 3D – Modifying PWM Pulse Width under Software Control

3D-1 Describe how this algorithm works. Replace it with the algorithm explained in class

(**Submit Code for both**)

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3D-2

LCD displaying pulse width in hex, with the modified algorithm

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