

Lab 5: Pulse Width Modulation – Phase 3

Using as reference the project provided for Phase 1, implement a program that enables software control of the brightness and color of the RGB leds using PWM.

Please check section 9.2 of the Nexys4 board reference manual available at

https://digilent.com/reference/_media/reference/programmable-logic/nexys-4/nexys4_rm.pdf.

PWM is also presented in section 15.1.

Step 1: Familiarize with the GPIO management to obtain different colors and brightness.

Step 2: Create an interrupt service routine that reacts to an interrupt generated by the timer, to timely update single chrominances according to needed color and brightness.

Step 3: Enable to choose color and brightness by setting three 8-bit values (per led) from the main, corresponding to the PWM duty cycles.

Suggested implementation scheme:

