Pulse Width Modulator (PWM) example project
2.0

Features

- PWM with 8 bit Resolution and Fixed Function Implementation mode example.

General Description

This example project demonstrates PWM Fixed Function Block performance.

Development kit configuration

1. This project is written for a 2X16 LCD display such as the one available in Cypress kit CY8CKIT-001.
2. Build the project and program the hex file on to the target device using MiniProg3.
3. Connect pins as described below and power cycle the device.
4. Observe the results on the LCD.

Project configuration

This project consists of the PWM component with digital output pins, clock, Logic Low, Control Register and Status Register components. The top design schematic is shown in Figure 1. The Clock input is used to increment or decrement the counter on each rising edge of the clock and a Control Register component is used to write a zero to kill the input. The Status register component is used to read the current status of the PWM output.

Pulse Width Modulator (PWM) example project

Procedure :

1. This project is written for a 2X16 LCD display such as the one available in Cypress kit CY8CKIT-001. It will need slight modification to run on larger displays.

2. Build the project and program the hex file on to the target device.

3. Power cycle the device and observe the results on the LCD.

Pin Mapping:
Pin_1(P0[0] of CY8CKIT-001) : TC output

LED connected to P0.0 turns on when the period counter is equal to zero

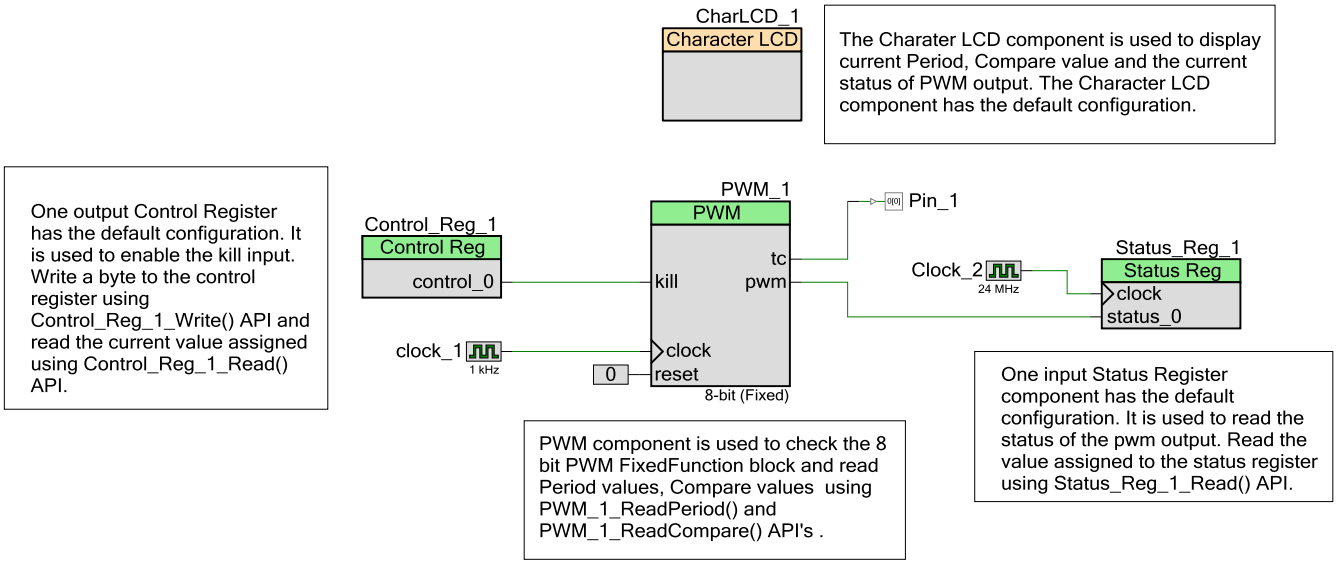

Figure 1. Top design schematic

The Character LCD Component has the default configuration. It is used to display the current Period, Compare values and the current status of the PWM output. The PWM Component configuration is shown below in Figure 2.

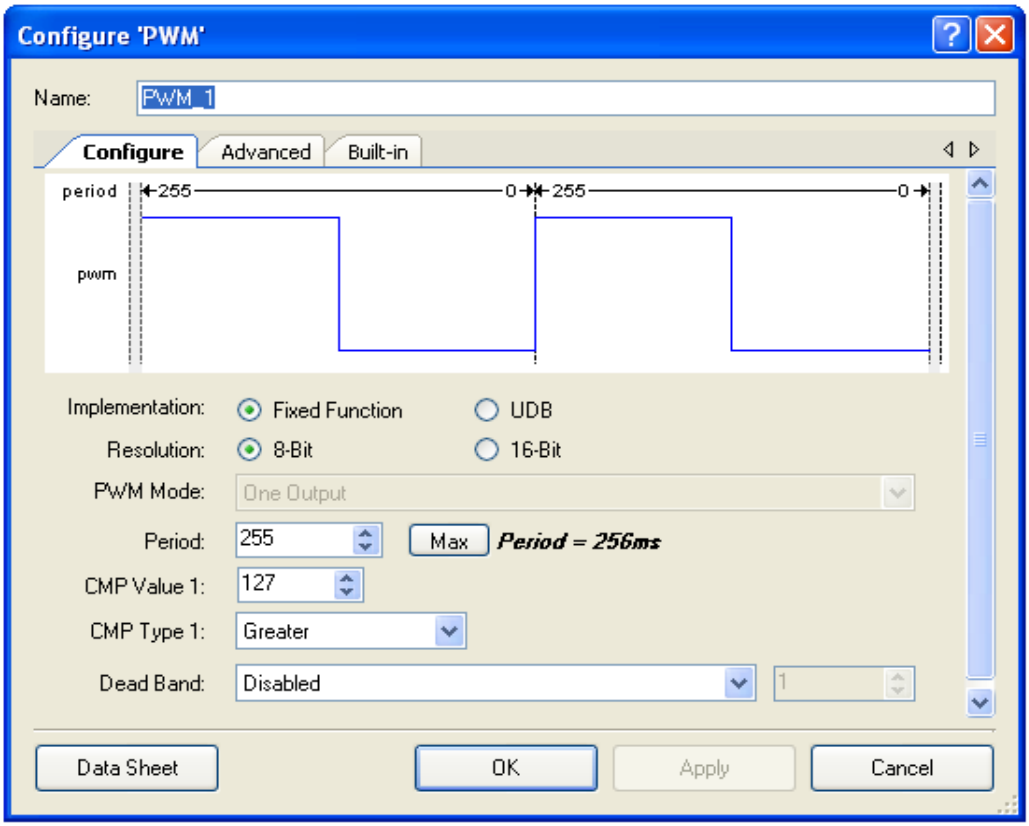

Figure 2. PWM Component configuration

Project description

This is an example to use the PWM Component with designs in PSoC Creator. The PWM component is configured to set the Period value to 255, PWM_1_ReadPeriod() function is used to find the current period value. The compare value is set to 127, PWM_1_ReadCompare() function is used to read the current compare value. The Control Register Component is used to specify the desired behavior of Kill Input. In the “Fixed Function” PWM implementation low to kill input will not kill the deadband outputs. Deadband outputs are visible only if the deadband parameter is enabled. Set the value of the Control Register output by writing to Control Register using Control_Reg_1_Write() function. The Status Register Component is used to read the current status of the PWM output using the Status_Reg_1_Read() function. On the rising edge of the clock input, the PWM starts down counting from Period value 255 to zero.

Expected results

The LED connected to P0.0 shows the TC output. It turns on when the period counter is equal to zero.

The first row of the character LCD displays the test name.
The second row of the character LCD displays the current Period, Compare value, and the current status of the PWM output.