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CE230991 – Getting Started with PSoC 4

Objective

This code example demonstrates the functionality of the TCPWM Component in PWM mode to blink LEDs using PSoC® 4.

Requirements

Tool: PSoC Creator™ 4.3

Programming Language: C (Arm® GCC 5.4.1)

Associated Parts: All PSoC 4 parts

Related Hardware: CY8CKIT-040, CY8CKIT-041-41XX, CY8CKIT-042, CY8CKIT-042-BLE, CY8CKIT-043, CY8CKIT-044, CY8CKIT-046, CY8CKIT-145, CY8CKIT-147, CY8CKIT-149

Overview

This example (as shown in AN79953) blinks two LEDs using a TCPWM Component. The TCPWM is configured in PWM mode. The two complementary outputs of this PWM control the LEDs.

Hardware Setup

This example uses the kit's default configuration. See the kit guide to ensure that the kit is configured correctly.

Note: Kit guides are available at the landing page of the corresponding kit.

Software Setup

Ensure that you have all the software tools as mentioned in Requirements section installed.

Operation

1. Plug the kit board into your computer's USB port.
2. Use the **Find Code Example** dialog to search for and open code examples installed on disk with PSoC Creator, as well as download and install code examples from the Cypress web site. Do the following:
   a. In PSoC Creator, select **Find Code Example...** on the Start page, or select **Code Example...** under the **File** menu.
   b. Select the device family (any PSoC 4 family) in which you wish to use this example. In addition, if required, select a keyword from the **Filter by** pull-down menu or type the project name ("Getting Started with PSoC 4") or other words.
   c. Select the project or workspace (*CE230991_Getting_Started_With_PSoC4*) from the list.
   d. View the documentation and/or code for the project by clicking the appropriate tab, if desired.
   e. Click either **Create Project** or **Create Workspace**, as appropriate. The New Project wizard opens to complete the project/workspace creation process. Click **Finish** to open the project.

   Note: See the PSoC Creator User guide for more details.
3. Build the project and program it into the PSoC 4 device. Choose **Debug** > **Program**. For more information on device programming, see PSoC Creator Help.
4. Observe the LED1 and LED2 toggle at 50 percent duty cycle.

Note: CY8CKIT-043 and CY8CKIT-147 have only one LED connected to P1[6] and P0[2] respectively. If you are using CY8CKIT-043, you can connect an external LED to pin P0[2] and if you are using CY8CKIT-147, you can connect an external LED to pin P0[3]. See the "My First PSoC 4 Design" section in AN79953 for more details about the operation.

Design and Implementation

See the “About the Design” section under the “My First PSoC 4 Design” chapter in AN79953 for details about the design and implementation.

Components and Settings

The “Part 1: Create the Design” section under the “My First PSoC 4 Design” chapter in AN79953 lists the PSoC Creator Components used in this example, how they are used in the design, and the non-default settings required so they function as intended. For information on the hardware resources used by a Component, see the Component datasheet.

Reusing This Example

This example is designed for the supported kit(s). To port the code example to a different device, in PSoC Creator, select **Project** > **Device Selector** and change to the target device. The pin assignments for the supported kits are provided in the “Pin Mapping Table across Pioneer Kits” and Pin Mapping Table across Prototyping Kits” tables in AN79953.

For these kits, the project includes control files to automatically assign pins with respect to the kit hardware connections during the project build. To change the pin assignments, override the control file selections in the Pin Editor of the **Design Wide Resources** by selecting the new port or pin number.

This code example can be used with all devices in the PSoC 4 family.

Note: CY8CKIT-043 requires manual assignment of pins.

Related Documents

For a comprehensive list of PSoC 4 resources, see KBA86521 in the Cypress community.

Application Notes	
AN79953 - Getting Started with PSoC 4	Describes PSoC 4 devices and shows how to build the associated code example
PSoC Creator Component Datasheets	
TCPWM	A multifunctional Component that can implement the following functionalities: PWM, Timer/Counter, and Quadrature Decoder.
General Purpose Input/ Output (GPIO)	A multifunctional Component that allows hardware resources to connect to a physical port-pin and provides access to external signals through an appropriately configured physical I/O pin.
Device Documentation	
PSoC 4 Datasheets	PSoC 4 Technical Reference Manuals
Development Kit (DVK) Documentation	
PSoC 4 Kits	
Tool Documentation	
PSoC Creator	Go to the **Downloads** tab for Quick Start and User Guides

Document History

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**	6962261	09/09/2020	New code example

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