CE220607 – PSoC 6 MCU Watchdog Timer in Interrupt Mode

Objective

This example demonstrates how to use the PSoC® 6 MCU Watchdog Timer (WDT) in interrupt mode. It blinks an LED using the WDT interrupt.

Overview

This example demonstrates how to use the PSoC 6 MCU Watchdog Timer (WDT) in interrupt mode. It blinks an LED using the WDT interrupt.

Requirements

Tool: PSoC Creator™ 4.2

Programming Language: C (Arm® GCC 5.4-2016-q2-update, Arm MDK 5.22)

Associated Parts: All PSoC 6 MCU parts

Related Hardware: CY8CKIT-062-BLE PSoC 6 BLE Pioneer Kit

Design

The design shown in Figure 1 has a PSoC Creator Global Signal Reference Component and a System Interrupt Component (WDTIsr). GlobalSignal_1 is configured to connect a WDT interrupt signal to WDTIsr. WDTIsr toggles GREEN_LED for every WDT interrupt.

Figure 1. WDT Interrupt Example Schematic

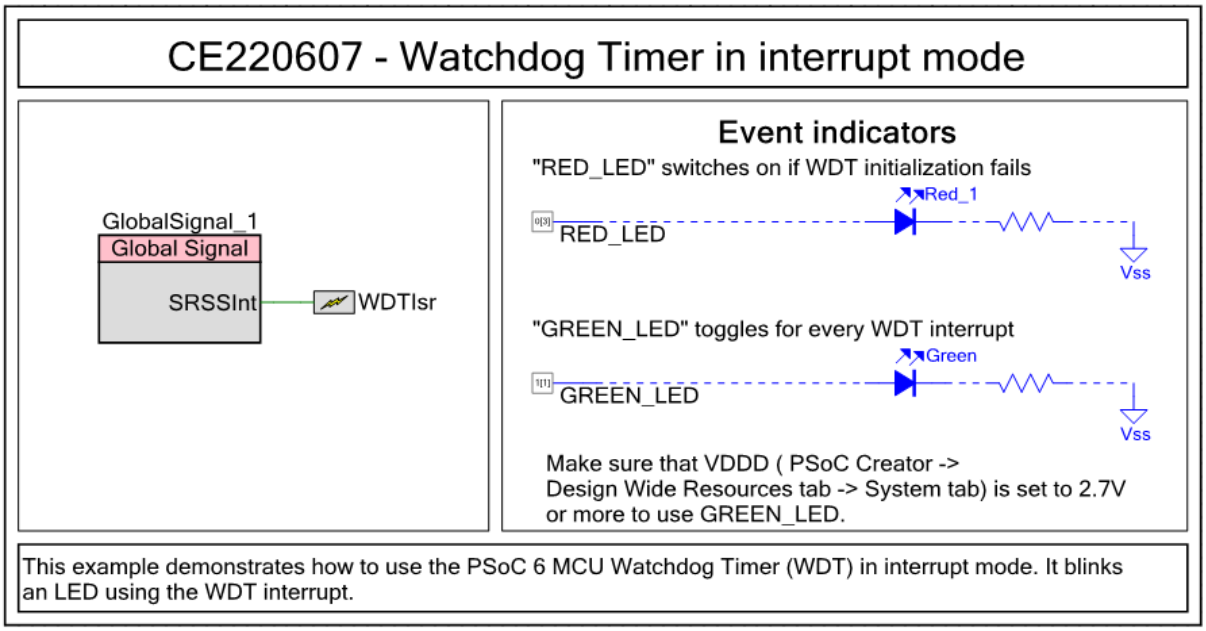
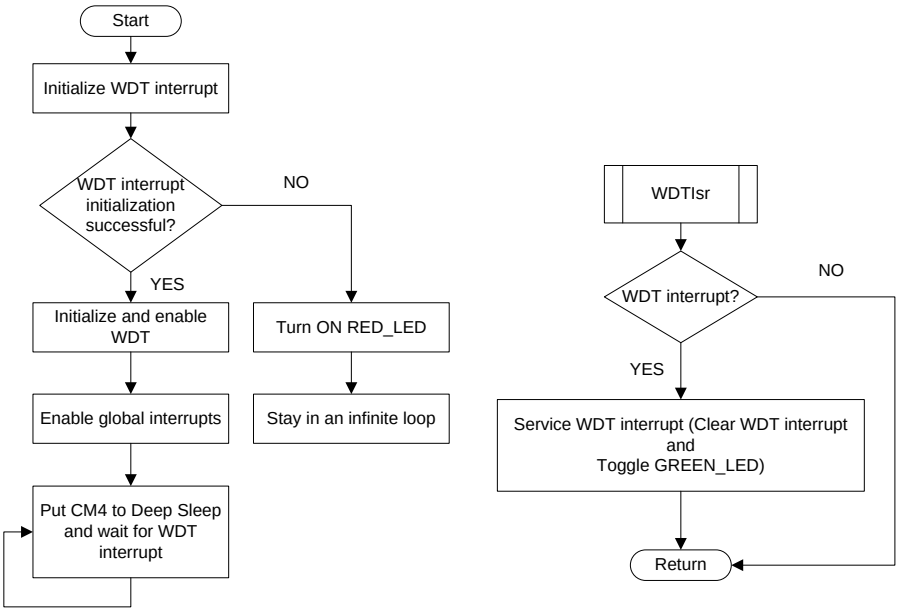


Figure 2 shows the firmware flowchart.

Figure 2. Firmware Flowchart



Design Considerations

This code example is designed to run on CY8CKIT-062-BLE with the PSoC 6 MCU. To port the design to other PSoC 6 MCU and kits, change the target device in Device Selector, and change the pin assignments in the ***cydwr*** settings. For single-core PSoC 6 MCU devices, port the code from *main_cm4.c* to *main.c* file because CM0+ CPU is not used in this code example.

Hardware Setup

The code example works with the default settings on the CY8CKIT-062-BLE PSoC 6 BLE Pioneer Kit. If the settings are different from the default values, see the “Selection Switches” table in the kit guide to reset to the default settings.

Make sure that the switch "SW5" is set to select "3.3V" as VDD on the CY8CKIT-062-BLE PSoC 6 BLE Pioneer Kit.

Operation

1. Connect CY8CKIT-062 BLE to a USB port on your PC.
2. Build and program the application into CY8CKIT-062 BLE. For more information on building a project or programming a device, see PSoC Creator Help.
3. Observe the GREEN_LED to determine the status of the WDT interrupt.

Components

Table 1 lists the PSoC Creator Components used in this example and the hardware resources used by each Component.

Table 1. PSoC Creator Components

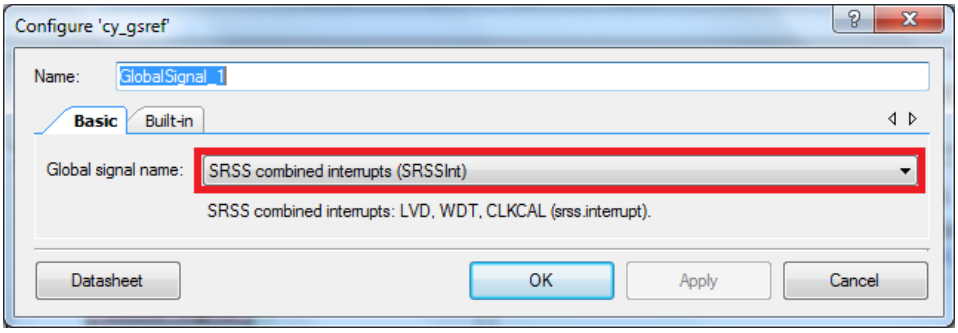
Component	Instance Name	Hardware Resources
Global Signal Reference (GSRef)	GlobalSignal_1	None
System Interrupt (SysInt)	WDTIsr	One entry in the device interrupt vector table
General Purpose Input / Output (GPIO)	RED_LED, GREEN_LED	Two physical pins

Parameter Settings

Non-default settings for each Component are outlined in red in the following figures.

Figure 3 shows the GlobalSignal_1 Component parameter settings.

Figure 3. GlobalSignal_1 Component Parameter Settings



Design-Wide Resources

Make sure that V_{DDD} (**PSoC Creator** > **Design Wide Resources** tab > **System** tab) is set to 2.7 V or more to use GREEN_LED.

Table 2 shows the pin assignment for the code example.

Table 2. Pin Names and Location

Pin Name	Location
GREEN_LED	P1[1]
RED_LED	P0[3]

Related Documents

Application Notes	
AN210781 – Getting Started with PSoC 6 MCU with Bluetooth Low Energy (BLE) Connectivity	Describes PSoC 63 with Bluetooth Low Energy (BLE) Connectivity and how to build your first PSoC Creator project
PSoC Creator Component Datasheets	
Global Signal Reference	Connections to device global signals
System Interrupt	Interrupt vectoring and control
General Purpose Input / Output	Supports Analog, Digital I/O and Bidirectional signal types
Device Documentation	
PSoC 6 MCU: PSoC 63 with BLE Datasheet	PSoC 6 MCU: PSoC 63 with BLE Architecture Technical Reference Manual
Development Kit (DVK) Documentation	
CY8CKIT-062-BLE PSoC 6 BLE Pioneer Kit	

Document History

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Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	5858252	VJYA	08/24/2017	New code example
*A	5918165	VJYA	11/03/2017	Updated project name

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