

PSoC 4 Segment LCD Example Project

1.0

Features

- Demonstrates basic operation of Segment LCD component in order to drive 4 digits 7 segment LCD glass with 3 common and 12 segment lines.

General Description

This example project demonstrates the basic operation of the PSoC 4 Segment LCD component.

Development Kit Configuration

This example project is designed to run on the CY8CKIT-042 kit from Cypress Semiconductor. A description of the kit, along with more example programs and ordering information, can be found at <http://www.cypress.com/go/cy8ckit-042>.

The project requires configuration settings changes to run on other kits from Cypress Semiconductor. Table 1 is the list of the supported kits. To switch from CY8CKIT-042 to any other kit, change the project's device with the help of Device Selector called from the project's context menu.

Table 1. Development Kits vs Parts

Development Kit	Device
CY8CKIT-042	CY8C4245AXI-483
CY8CKIT-042-BLE	CY8C4247LQI-BL483
CY8CKIT-044	CY8C4247AZI-M485
CY8CKIT-046	CY8C4248BZI-L489
CY8CKIT-048	CY8C4A45LQI-483

The pin assignments for the supported kits are in Table 2.

Table 2. Pin Assignment

Pin Name	Development Kit				
	CY8CKIT-042	CY8CKIT-042-BLE	CY8CKIT-044	CY8CKIT-046	CY8CKIT-048
Wakeup_pin	P0[7]	P2[7]	P0[7]	P0[7]	P0[3]
LowPowerOut_pin	P1[6]	P2[6]	P0[6]	P5[2]	P1[4]

The following steps should be performed to observe the project operation:

1. Build the project and program the hex file into the target device.
2. Power cycle the device and observe the results on the LCD and LED.

Project Configuration

This example project is for a demonstration purpose. It is configured for the particular 4 digits 7 segment LCD glass with 3 common and 12 segment lines. To be able to use this project with your LCD, it is necessary to hook up appropriately your Segment LCD glass. To do this, the tune Pixel mapping table on the Display helpers tab of the component Configure dialog and reassign pinouts in cydwr according to your segment LCD glass specification.

Besides the Segment LCD, the project consists of the TCPWM, Interrupt, Clock and Pins components.

The TCPWM, configured in the Timer/Counter mode, provides one second rate for an interrupt generation. The ISR code increments a counter variable and prints its value on the LCD.

Dedicated pin (Wakeup_pin) is used to enter deep sleep from the active mode and as a wakeup source to bring back the device from the deep sleep mode. Mode transition is indicated by the LowPowerOut_pin, which is cleared in the active mode and set to high in deep sleep.

Project Description

When in the active power mode, the counter value is incremented and displayed on the LCD at one second rate. To enter the low power mode from active mode, press SW (connected to Wakeup_pin – see Table 2. Pin Assignment) on the development board. Pressing the switch when the device is in the low power mode will bring the device back to the active mode. LowPowerOut_pin is cleared in the active mode and is set high in the low power mode.

Expected Results

Program the device with the project and observe that the segment LCD glass displays a new counter value at one second rate. When the device is in the low power mode, the last counter value before Deep sleep is displayed on the LCD. After wakeup, the counter value is incremented and displayed on the LCD with one second intervals.

Use wakeup switch (SW) to enter or exit the low power mode. The LED connected to LowPowerOut_pin is switched ON when the device is in the active power mode. This goes OFF if the device enters the low power mode.



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