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CE195313 – PSoC Emulated EEPROM

Objective

This example demonstrates how to use the Em_EEPROM driver and Component in PSoC® 4, PSoC 5LP, and PSoC 6 MCU devices.

Overview

In this example, a counter is read from emulated EEPROM (Em_EEPROM), printed out over UART, incremented, and written back to Em_EEPROM. This occurs at every device reset. As a result, at every device reset, UART prints out an incrementing value. There are three projects associated with this code example: one each for PSoC 4, PSoC 5LP, and PSoC 6 MCU.

Requirements

Tool: PSoC Creator™ 4.2

Programming Language: C (GCC 5.4-2016-q2-update)

Associated Parts: All PSoC 4, PSoC 5LP, and PSoC 6 MCU devices

Related Hardware: CY8CKIT-050, CY8CKIT-042, CY8CKIT-062-BLE

Design

This example consists of an Em_EEPROM Component and/or driver, and a UART Component. The code first reads data out of the Em_EEPROM Component, and then updates that value and writes it back to Em_EEPROM. The value read out of Em_EEPROM is printed to a terminal window via UART.

Hardware Setup

For CY8CKIT-042, a wire must be connected between PSoC 4 P4.0 (J3 pin 10), and PSoC 5LP P12.6 (J8 pin 9). This connects the UART TX pin to the KitProg populated on the kit.

When using other PSoC 4 kits, the UART TX pin may need to be moved and thus the wiring changed.

For CY8CKIT-050, a wire must be connected between P12.4 (p9 pin 1) and Tx (p5 pin 2).

For CY8CKIT-062-BLE, no hardware setup is required.

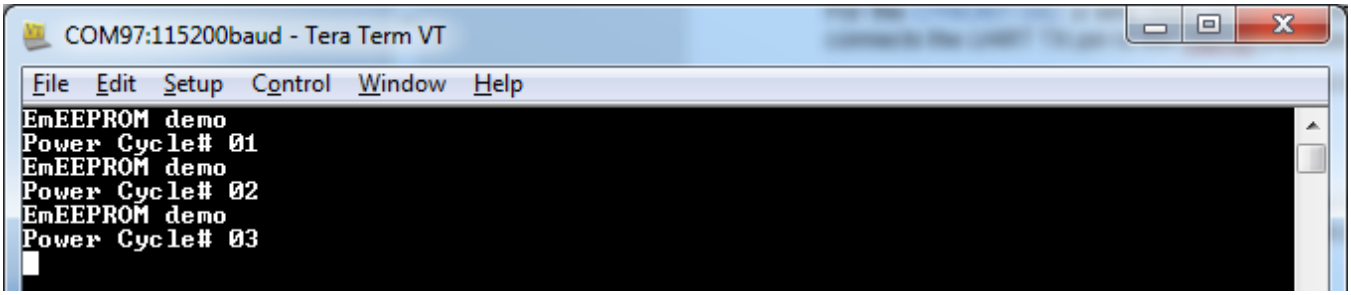
Software Setup

This example uses a UART to print data to a terminal window, so a terminal software is required. Tera Term was used for testing, with the baud rate set to 115200, 8 data bits, 1 stop bit, no parity, and no flow control.

Operation

1. Setup wires as described in Hardware Setup.
2. Plug the CY8CKIT-050, CY8CKIT-042, or CY8CKIT-062-BLE kit board into your computer's USB port. For CY8CKIT-050, use the J1 USB connector (upper right).
3. For CY8CKIT-050, connect a DB9 connector to P7 and connect the other end to your computer.
4. Open a terminal program and connect to the kit.
   a. For CY8CKIT-062-BLE, choose KitProg2 USB-UART.
   b. For CY8CKIT-042, choose KitProg USB-UART.
   c. For CY8CKIT-050, choose the COM port the DB9 connector is plugged into.

5. Build the project and program it into the desired device. Choose **Debug** > **Program**. For more information on device programming, see PSoC Creator Help.
6. Confirm that the UART prints out a message like this, based on the number of device resets.



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Components

Table 1 lists the PSoC Creator Components used in this example, as well as the hardware resources used by each.

Table 1. PSoC Creator Components

Component	Instance Name	Hardware Resources
Em_EEPROM	Em_EEPROM	Flash
UART	UART	SCB (or CPU)

Related Documents

Application Notes	
AN77759 – Getting Started with PSoC 5LP	Describes PSoC 5LP, and how to build a basic code example.
AN79953 – Getting Started with PSoC 4	Describes PSoC 4, and how to build a basic code example.
AN210781 – Getting Started with PSoC 6 MCU with Bluetooth Low Energy (BLE) Connectivity	Describes PSoC 6 MCU with BLE connectivity, and how to build a basic code example.
PSoC Creator Component Datasheets	
EM_EEPROM	Emulated EEPROM component
Device Documentation	
PSoC 5LP Datasheets	PSoC 5LP Technical Reference Manuals
PSoC 4 Datasheets	PSoC 4 Technical Reference Manuals
PSoC 6 MCU: PSoC 63 with BLE Datasheet	PSoC 6 MCU: PSoC 63 with BLE Architecture Technical Reference Manual
PSoC 6 MCU: PSoC 62 Datasheet	PSoC 6 MCU: PSoC 62 Architecture Technical Reference Manual
Development Kit (DVK) Documentation	
PSoC 4, 5LP and 6 Kits	

Document History

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**	5966262	TDU	11/29/2017	New code example

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198 Champion Court
San Jose, CA 95134-1709

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