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## 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.

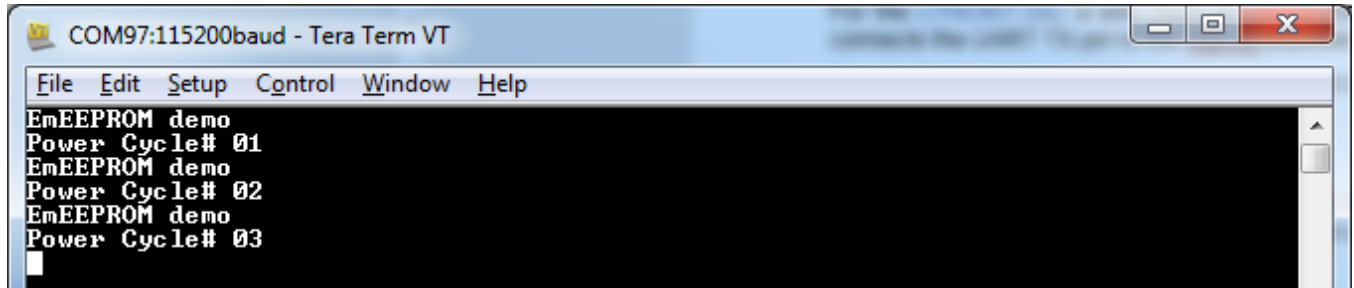
## Software Setup

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.

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



```

COM97:115200baud - Tera Term VT
File Edit Setup Control Window Help
EmEEPROM demo
Power Cycle# 01
EmEEPROM demo
Power Cycle# 02
EmEEPROM demo
Power Cycle# 03
  
```

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

## Document History

Document Title: CE195313 - PSoC Emulated EEPROM

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Revision	ECN	Orig. of Change	Submission Date	Description of Change
**	5966262	TDU	11/29/2017	New code example

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### PSoC® Solutions

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