MCF51MM256

USB bootloader

freescale semiconductor

Get to Know the TWR-MCF51MM-KIT

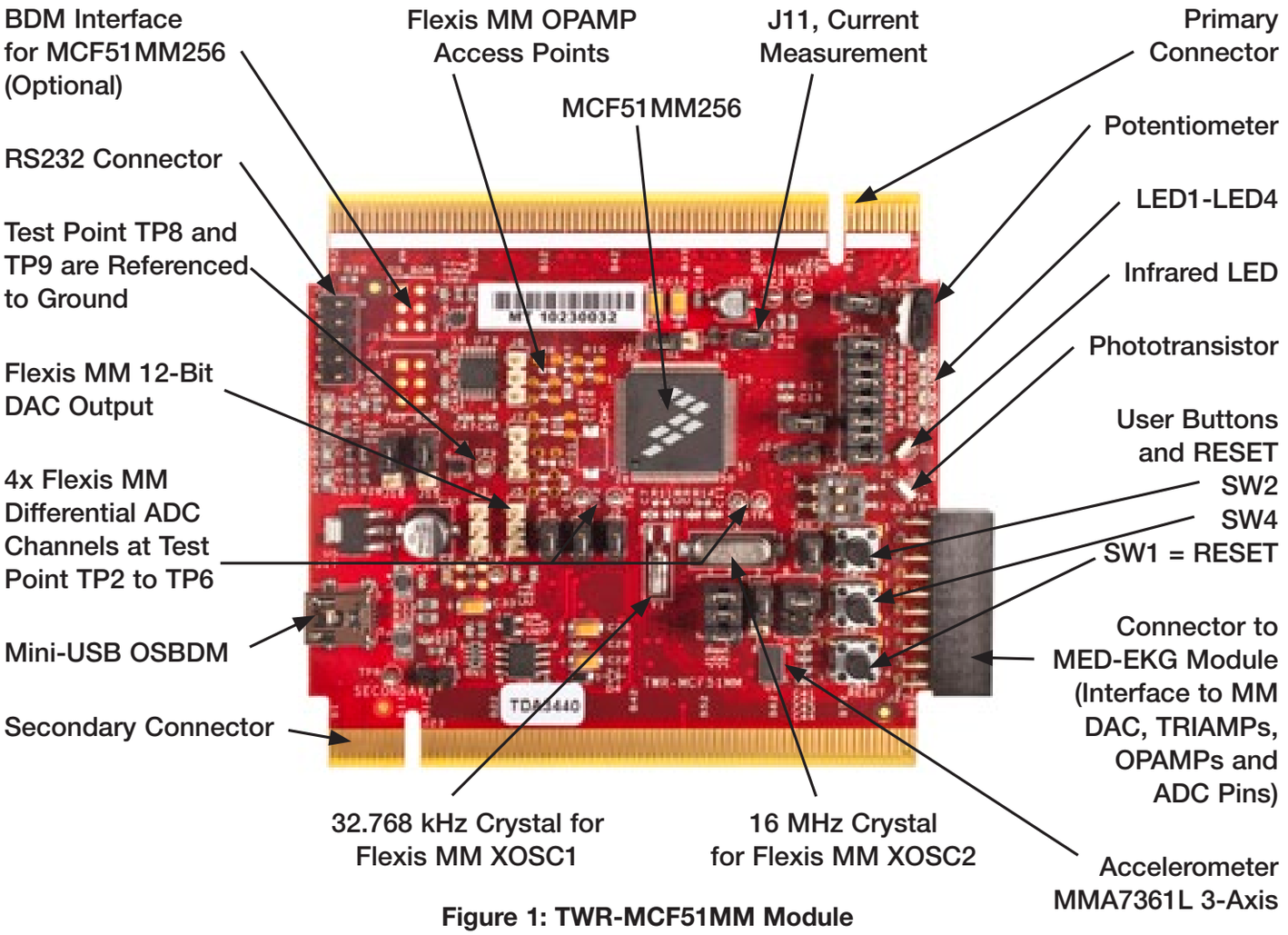
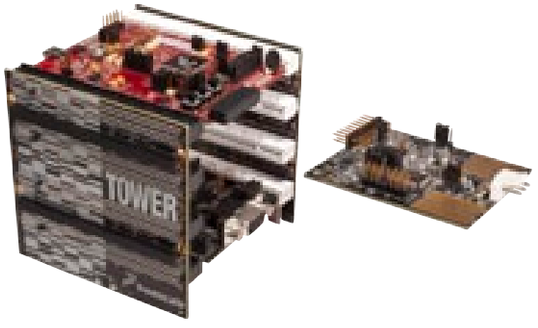


Figure 1: TWR-MCF51MM Module



TWR-MCF51MM-KIT
Freescale Tower System

The TWR-MCF51MM module is part of the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System today.

Introduction

This lab is a step-by-step guide to using a USB bootloader GUI tool to update MCF51MM256 firmware via the on-chip USB module. The MCF51MM256 series features a ROM base USB bootloader embedded with flash programming routines. This enables USB communication to the external host for programming and erasing as an alternate to using the BDC interface. The ROM base bootloader does not consume application memory.

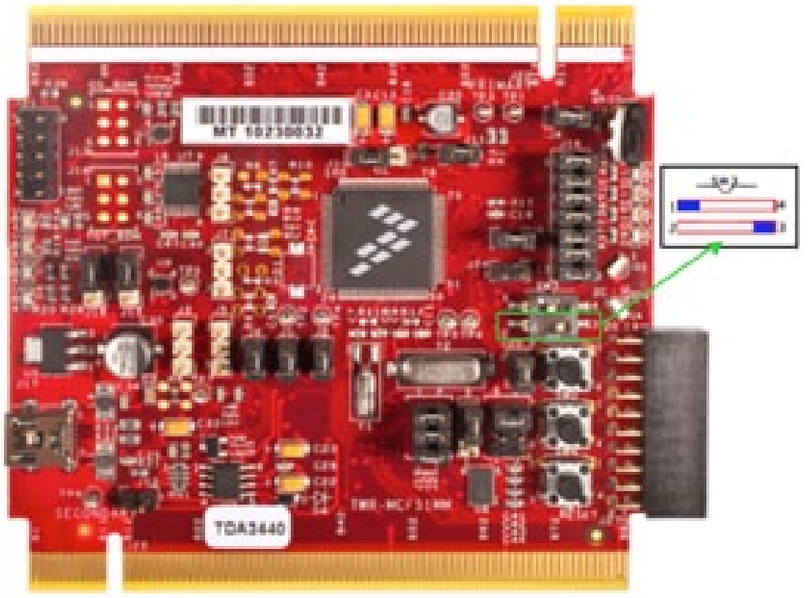
The following lab assumes the user has loaded the DVD at f:\ and has extracted all zipped files under working folder d:\work. Please replace the path if your environment is different.

LAB 6

Step-by-Step Guide

Configuring the Hardware

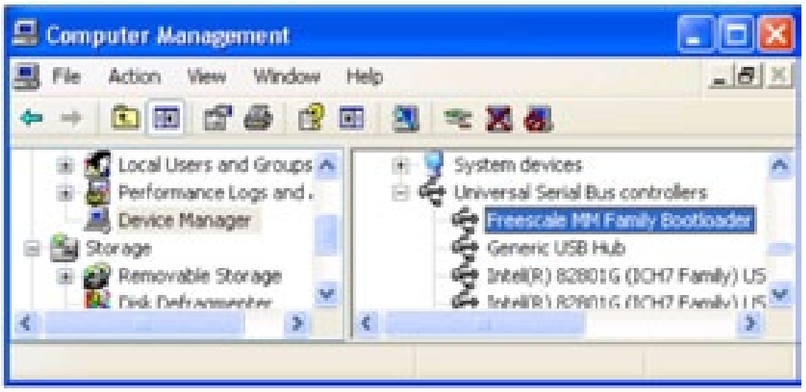
1. On the TWR-MCF51MM module, set SW3 DIP switch 2 and 3 to be at 3, as indicated below. This will allow the MCF51MM256 to run in bootloader mode.
2. Assemble the Tower System as shown in Step 2 of the Quick Start Guide (QSG), but keep the SW3 DIP switch setting as mentioned in the previous step.



Connecting to the Computer

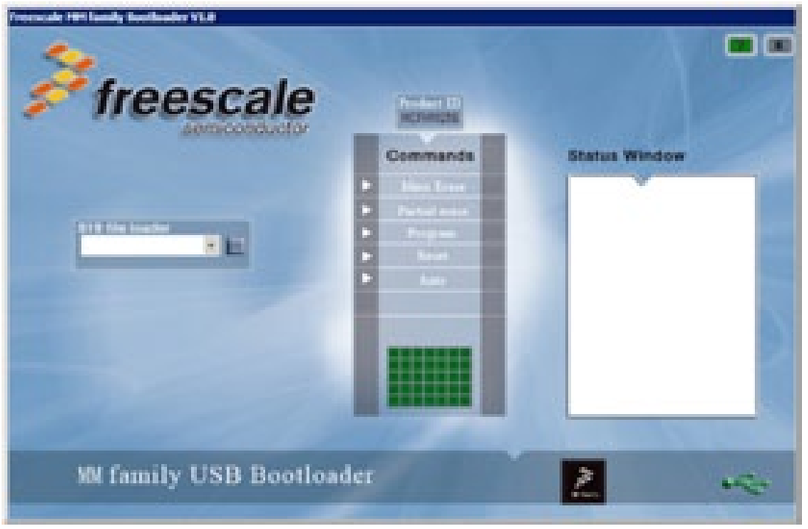
3. Install the “Flexis MM USB Bootloader GUI” located in the “Software” tab, under “Development Tools” in the DVD. Unzip the file in your working folder and execute d:\work\UsbBootloaderMM\setup.exe. If you do not have the .NET framework installed on your machine, you may be asked to install it during this process.
4. Connect the TWR-SER USB port to a USB port from your PC. This is the only USB connection required since the MCF51MM256 is being programmed via its USB interface instead of the OSBDM interface from the TWR-MCF51MM.
5. When your PC detects new hardware, the new hardware wizard window will appear. Allow it to automatically install the bootloader driver or specify the path below for the driver:

   C:\Program Files\Freescale\MM Device USB Driver\Automatic Bootloader USB Driver
6. After the USB bootloader driver is installed, you should see “Freescale MM Family Bootloader” under device manager, as indicated in the figure.



NOTE: If you see “MCF51MM256” under the device manager, then right click on MCF51MM256 > select Properties > click on Driver Tab > click on Updated Driver…> Specify the same path mentioned in Step 5 to install the driver.

7. Open the GUI tool from your Start menu > Programs > Freescale > MM Family GUI. In the GUI, you should see the product ID as MCFMM256 and the right bottom of the GUI window has a green USB logo. This indicates the device has entered USB bootloader mode, as indicated in the figure.



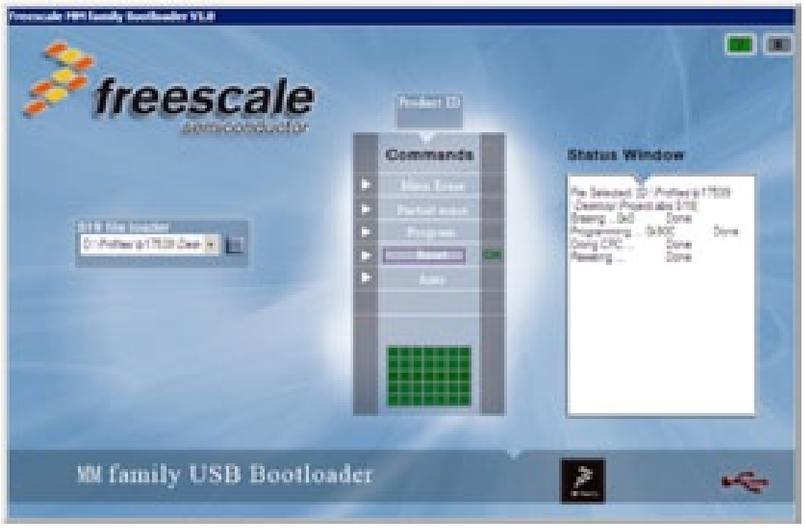
8. Look for the "LED BLINK" application, located in the "Software" tab under "Labs" in the DVD. Copy the file to your working directory and unzip it.
9. In the GUI, Click  and then select the .s19 file: d:\work\LED_Blink\MCF51MM_LED_Blink\bin\Project.abs.S19

NOTE: The S-record (.s19 file) format is an ASCII text encoding for binary data of Freescale's CodeWarrior IDE software project. This file will update every time you compile your project in the CodeWarrior IDE.

10. Click on "Mass Erase" first, then "Program" to download the application code to the MCF51MM256.

NOTE: Auto and partial erase functions are not implemented in this version of GUI.

11. Click the "Reset" command to exit the bootloader mode, as indicated in the figure.



12. Change the SW3 DIP switch from position 3 to position 2. Then disconnect and reconnect the USB cables from TWR-SER. You will see the LED_Blink demo is working. This is the same LED software that is mentioned in the QSG. The USB logo in the GUI tool is now red indicating you are no longer in bootloader mode and are in user code mode.

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To learn more about the **TWR-MCF51MM-KIT** and other Freescale medical products, please visit **freescale.com/mcf51mm**, **freescale.com/medical** and **freescale.com/tower**.

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