mCube

MC36XX

DA1458X Programming Guide

Rev.   1.0.0
Date   2019/3/29

Revision History

Version	Date	Changes/Revision History
1.0.0	2019/3/29	First edition.

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1. Introduction

This SDK6 DA14585 example shows how to communicate with a mCube accelerometer sensor through I2C interface. The sensor data gets sent over BLE with a notification. This example includes the implementation codes for sensor sniff mode for low-power application and FIFO as sensor buffer.

2. HW configuration

Please note that the SPI and I2C interfaces cannot both be active at the same time as the clock (SCK) and data (SDA) are shared between the two protocols. In this example, will only focus on the implementation of I2C and BLE notification. Introduction of SPI could be referred to MC3672 Quick Start Guide which is dedicated for Aurdino demonstration or mCube-MC36XX-Programming Guide for general platforms.

- This example runs on The DA14585/DA14586 Bluetooth Smart SoC devices.
- The Basic or pro Development kit is needed for this example.
- Connect the SCL pin of the EV3672A to pin 1-0 of the development board.
- Connect the SDA pin of the EV3672A to pin 1-2 of the development board.
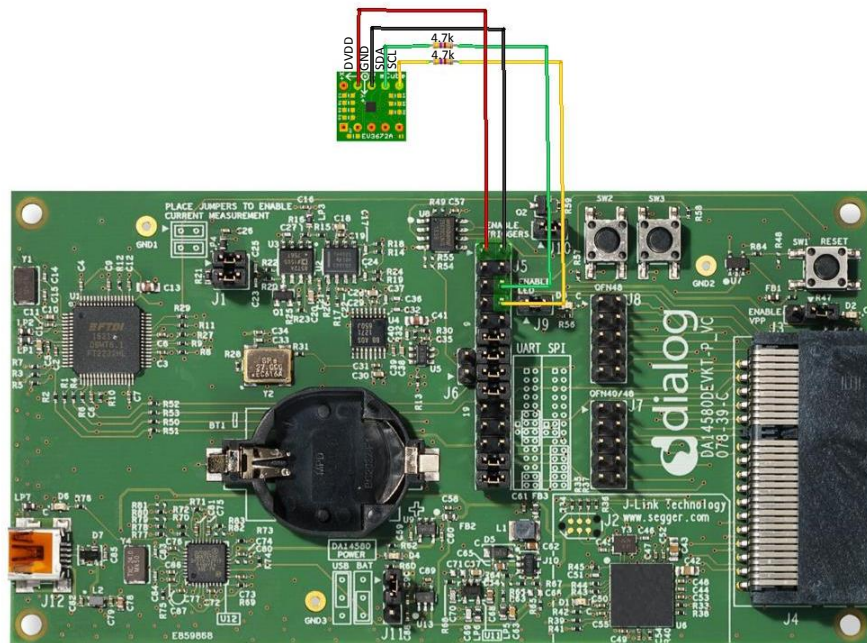- These pins are defined in the m_drv_interface.h file

Figure 1: HW configuration between EV3672A and DA14585 development kit.

3. Software Package

To begin reading sensor data, you will need to download the MC36XX MCU driver from the GitHub repository. Do this by visiting the GitHub repository and manually downloading or simply click this button the attached URL to download the zip file.

https://github.com/mcubemems/Accelerometer_mc36xx_mcu_driver

The implementation of driver is described in the mCube-MC36XX-Programming Guide includes in the repository for customer who uses mCube driver at the first time.

DEMO code for DA1458X could be found from the other GitHub repository. Sensor driver is included in this package already.

https://github.com/mcubemems/mCube_mc36xx_data_notifcation_DA14585

3.1 Environment Setup

Before user starts to load this DEMO. The environment should be prepared.

1. Keil μVision 5

2. Dialog SDK 6.0.10

3. A smartphone with a BLE scanning app (for example BLE scanner on Android or Lightblue on IOS)

4. SEGGER's J-Link tools should be downloaded and installed.

3.2 Load the DEMO

To compile and run this program, user can follow the steps below.

1. Open the project mCube_mc36xx_data_notifcation in Keil µVision 5
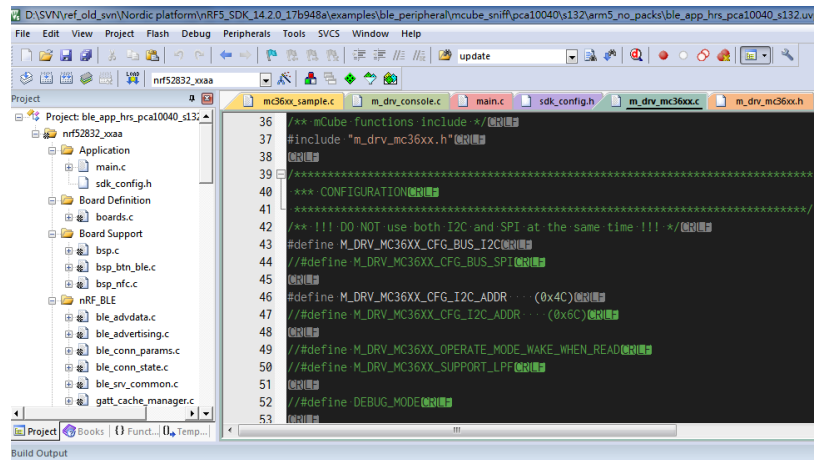
2. Optionally, change the parameters in m_drv_mc36xx.c

Figure 2: Open project in Keil µVision 5.

3. Compile and run the project

4. Open the BLE scanner app and look for DLG-ACCL

5. Connect to the device
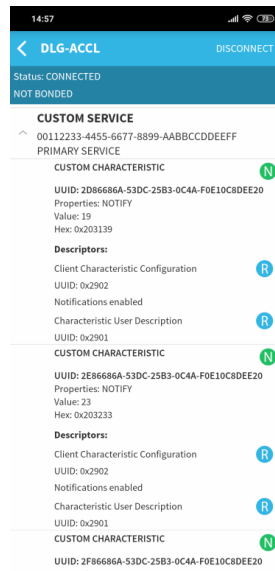
6. Subscribe to the notifications

Figure 3: Check the sensor data in BLE scanner app.

4. SNIFF and FIFO Demonstration

This demo also includes the example for FIFO and Sniff modes. Those could be enabled by modify the definition below. **These two examples must be run separately**.

```
//#define SNIFF_DEMO        //Remove this comment to show the sniff DEMO
//#define FIFO_DEMO         //Remove this comment to show the FIFO DEMO
```

Default FIFO threshold is 5 samples. FIFO size could be set to maximum 32 samples or just enable FIFO to FIFO_FULL mode.

```
#define FIFO_DEEP         32
#define FIFO_THRESHOLD    5
```

5. Downloads

MC3630 Accelerometer datasheet

http://www.mcubemems.com/product/mc3630-3-axis-accelerometer/

MC3635 Accelerometer datasheet

http://www.mcubemems.com/product/mc3635-3-axis-accelerometer/

MC3672 Accelerometer datasheet

http://www.mcubemems.com/product/mc3672-3-axis-accelerometer/

MC36XX DRIVER AT GITHUB

https://github.com/mcubemems/Accelerometer_MC36XX (Arduino)

https://github.com/mcubemems/Accelerometer_mc36xx_mcu_driver (General MCU)

ALL OTHER MCUBE DOCUMENTATION

http://www.mcubemems.com/resources-support/resources/

EXAMPLE CODE AT GITHUB

https://github.com/mcubemems/mCube_mc36xx_data_notifcation_DA14585

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