Freescale MQX Example Guide
MMA8451Q Orientation detection example

This document describes the MMA8451Q component Orientation detection example application. It shows how to work with the component and how to use API functions.

Running the example

Start a terminal application on your PC and set the serial connection for 115200 baud, 8 data bits, 1 stop bit, no parity and no flow control.

Start the MMA8451Q Orientation detection example on the target platform. For instructions about how to do that in different IDEs and for different debuggers, see the MQX documentation (<MQX installation folder>/doc/tools).

After starting the application, you will see the printed message as the following.

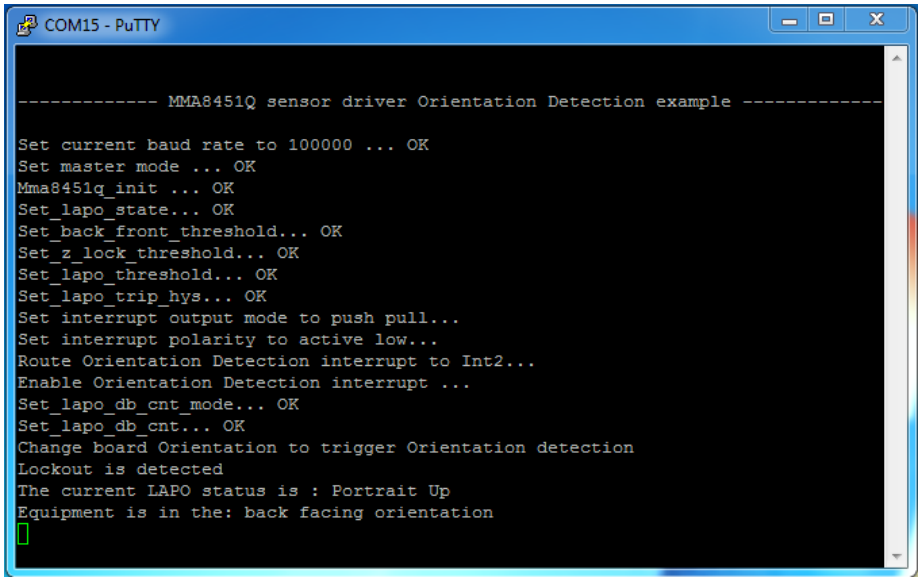

Figure1.
Example output before orientation change detected

Explanation of the example

The example code consist of just one task (main_task) and the interrupt service routine triggered by the acc_int pin(int_service_routine).
main_task:

- Allocate buffer;
- Open i2c bus, initialize its working mode and frequency;
- Create semaphore;
- Initialize the MMA8451Q with the parameters set in mma8451q_init_str structure;
- Initialize Orientation detection function;

- Initialize GPIO interrupt on acc_int pin which connected to mma8451q interrupt request pin;
- Set mma8451q interrupt output mode, output polarity and route Orientation detection to mma8451q int2 pin;
- Enable GPIO interrupt on acc_int pin;
- Switch mma8451q to active mode;
- Wait for Orientation change detection interrupt;
- Print current Orientation of the board;
- After 10 Orientation change detected, the example will switch the sensor to standby mode;
- Disable GPIO interrupt;
- Deinit MMA8451Q sensor;
- Destroy semaphore;
- Close i2c bus;
- Example finish.

int_service_routine:

- Clears interrupt flag.
- Posts semaphore.

NOTE:
The output orientation state of the senor is related to the mount direction of the sensor. **Figure 1** shows the device configuration in the 6 different orientation modes. For such reason, the output orientation may not match the orientation of your board.

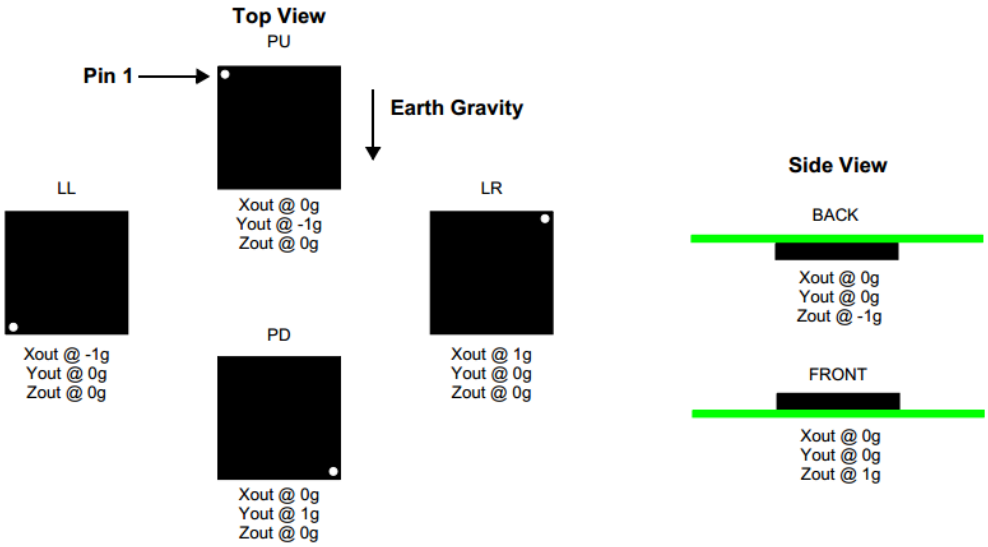

Figure2. Landscape/Portrait Orientation