

Freescale MQX Example Guide

MMA8451Q Pulse detection example

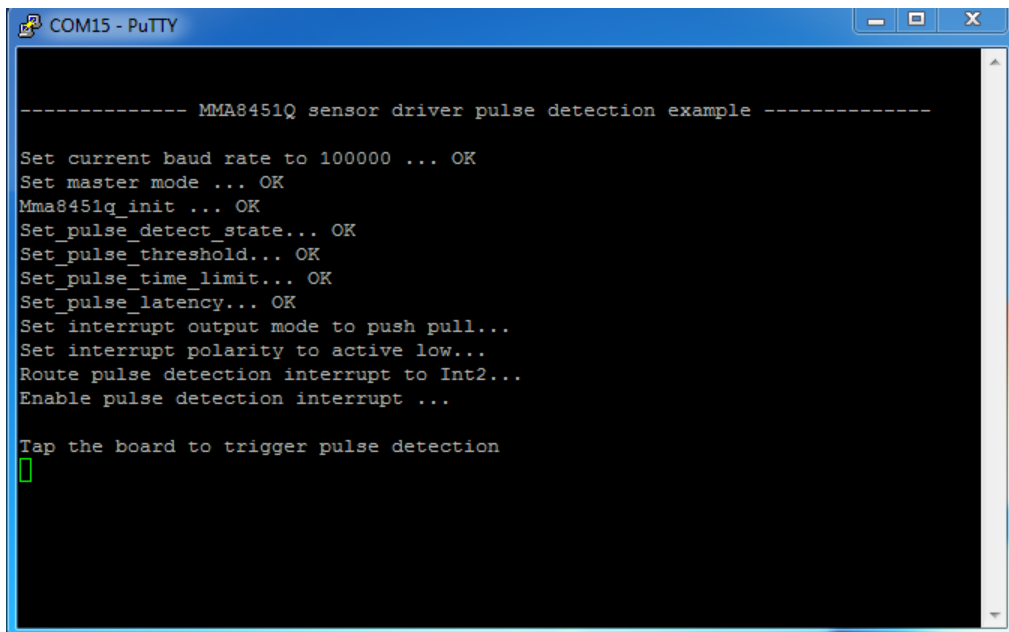
This document describes the MMA8451Q component Pulse detection example application. It shows how to work with the component and how to use API functions.

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 Pulse 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.



```
COM15 - PuTTY

----- MMA8451Q sensor driver pulse detection example -----

Set current baud rate to 100000 ... OK
Set master mode ... OK
Mma8451q_init ... OK
Set_pulse_detect_state... OK
Set_pulse_threshold... OK
Set_pulse_time_limit... OK
Set_pulse_latency... OK
Set interrupt output mode to push pull...
Set interrupt polarity to active low...
Route pulse detection interrupt to Int2...
Enable pulse detection interrupt ...

Tap the board to trigger pulse detection
█
```

Figure1.

Example output before pulse 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 Pulse detection function on z-axis;
- Initialize GPIO interrupt on `acc_int` pin which connected to `mma8451q` interrupt request pin;
- Set `mma8451q` interrupt output mode, output polarity and route Pulse detection to `mma8451q int2` pin;
- Enable GPIO interrupt on `acc_int` pin;
- Switch `mma8451q` to active mode;
- Wait for Pulse detection interrupt;
- Print Pulse detected on which axis;
- After 10 Pulse 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.