Embedded Motion Driver for ICM20648/ICM20948 on ST Discovery board, 1.3.0 Release Notes

OVERVIEW

This release note document explains all the relevant information regarding the Embedded Motion Driver for ICM20648/ICM20948 on ST Discovery board, 1.3.0 software release.
This document explains the new features and changes that are introduced in this release.

Software Modules included:
    MCU Sample code based on ST Discovery dev board.
    IAR project for sample code
    Embedded Driver
    DMP Image for ICM20648/20948

Supported Features:

    ICM20648/20948
        Data output:
            Raw Gyro
            Calibrated Gyro
            Calibrated Accel
            Raw Compass
            Calibrated Compass
            Game Rotation Vector
            Rotation Vector
            Linear Acceleration
            Orientation
            Gravity
        DMP features:
            Gyro calibration
            Accel calibration
            Compass calibration
            Step Counter
            Step Detector
            Significant Motion
            Basic Activity Classifier
            Tilt detection
            Pickup detection
        Other:
            Self-test

InvenSense reserves the right to change the detail specifications as may be required to permit improvements in the design of its products.

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CONTENTS

TEST SW PLATFORM

- Terminal software
- Python Script (motion-driver-client.py)

TEST HARDWARE PLATFORM

- ST Discovery (stm32f407) SDK + MSB + ICM 20648 daughtercard + AKM 9912 daughtercard
- ST Discovery (stm32f407) SDK + MSB + ICM 20948 daughtercard

TEST HARDWARE SENSORS

The following InvenSense devices were tested in the combinations shown below:

INVENSENSE DEVICE	3rd PARTY DEVICES ON PRIMARY I2C BUS	3rd PARTY DEVICES ON SECONDARY I2C BUS	STATUS
ICM20648 (Accel + Gyro)	N/A	AK09912 compass	Completed
ICM20948 (Accel + Gyro + Compass)	N/A	(AK09916 compass) **internal	Completed

1.2.1 BUG FIXES AND FEATURES

Additional features since 1.2.1:

1. ICM20648 offset register configuration example after self-test

Bug fixes:

Subject
ICM20648 delay_es_shadow (I2C_MST_DELAY_CTRL) should be set
[20648] Example to configure offset registers
[20648] ODR change triggers junk compass bias
[20648] Calibrated Compass off stops uncalibrated compass output
[20648] Update rate disruption when 2 sensors are enabled
Serial hook function should be called only in transport layer
I2C address configuration should be one place
[20648] gyro bias set to DMP not effective
[20648] Unstable after self-test
BAC not work after toggling accel
ODR changed by enable another sensor
Timestamp intervals when 102/112Hz
Inconsistent SMPLRT_DIV control for RV and GRV
Missing SMPLRT_DIV and BAC_RATE control for BAC

1.2.1 OPEN ISSUES TO DO
None

1.2.1 KNOWN ISSUES
None

REVISION HISTORY

REVISION DATE	REVISION NUMBER	DESCRIPTION
3/3/2016	1.0	Initial Release(1.1.0)
5/20/2016	1.1	Release v 1.2.0 with new DMP for ICM20648
5/24/2016	1.2	Release v 1.2.1 with updated comments
10/4/2016	1.3	Release v 1.3.0 - ICM20608D support - Accumulated bug fixes

COMPLIANCE DECLARATION DISCLAIMER

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