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6DOF IMU 2 click

6DOF IMU 2 click is a mikroBUS™ add-on board with Bosch's BMI160 low power inertial measurement unit (IMU). The BMI160 is capable of precise acceleration and angular rate (gyroscopic) measurement.

The IMU consists of a state-of-the-art 3-axis, low-g accelerometer, and a low-power 3-axis gyroscope, designed for 6-axis and 9-axis applications. The BTI160 also includes built-in power management unit (PMU) for advanced power management and power-saving modes, as well as allocated FIFO buffer of 1024 bytes for handling external sensor data.

6DOF IMU 2 click communicates with the target MCU through the I2C or SPI bus (user-selectable), with additional functionality provided by the INT pin (for enhanced autonomous motion detection).

The board is designed to use a 3.3 power supply only.

Technical Specifications

Applications

Game controllers, remote controls and pointing devices.

Key features

- Interrupts for motion detection
- I2C and SPI Interface
- 3.3V power supply

Key Benefits

- Capable of handling external sensor data
- Very small footprint
- Android Lollipop compatible
- Very low-power consumption



mikroBUS™ is specially designed pinout standard with SPI, I2C, Analog, UART, Interrupt, PWM, Reset and Power

Features and usage notes

- 3.3V Power supply
- 2.5 × 3.0 × 0.83 mm 3 LGA package
- Integrated 1024 byte FIFO buffer
- Fast start-up mode
- Additional secondary high speed interface for OIS applications
- Hardware sensor time-stamps for accurate sensor data fusion
- Motion detection and tap or double tap sensing
- I2C and SPI interfaces
- Very low power consumption: typ. 925 µA

Programming

Code snippet demonstrates initialization of the 6DOF IMU 2, reading gyro and accel data, and printing them out on TFT.

```
1 void main()
2 {
3
4   Display_Init();
5   I2C1_Init();
6   dof6_hal_init(BMI160_I2C_ADDRESS );
7   dof6_sensor_config(accel_normal , gyro_normal);
8
9   while (1)
10  {
11     acc_x=dof6_get_acc_x();
12     acc_y=dof6_get_acc_y();
13     acc_z=dof6_get_acc_z();
14     gyro_x=dof6_get_gyr_x();
15     gyro_y=dof6_get_gyr_y();
16     gyro_z=dof6_get_gyr_z();
17     display_data();
18     Delay_ms(50);
19  }
20 }
```

Code examples that demonstrate the usage of 6DOF IMU 2 click with MikroElektronika hardware, written for mikroC for ARM, FT90 and PIC is available on Libstock.

MIKROE-2337

6DOF IMU 2 click