OVERVIEW

This is a 24-bit high precision barometric pressure sensor, which allows accurate altitude tracing, as well as barometric pressure / temperature measuring. It supports both I2C and SPI interfaces, also is compatible with 3.3V/5V voltage levels.

Due to its ultra-small form factor, low power consumption, low noise and high precision, the BMP388 Barometric Pressure Sensor is suited for applications such as drones, accurate altimeter, environment monitoring, and IoT projects, and so on.

FEATURES

- Supports I2C (default) / SPI interface
- Onboard voltage level translator, compatible with 3.3V/5V operating voltage
- Comes with development resources and manual (examples for Raspberry Pi/Arduino/STM32)

SPECIFICATION

- Operating voltage: 3.3V/5V
- Communication interface: I2C/SPI
- Barometric pressure operation range: 300~1250hPa
- Barometric pressure absolute accuracy: \( \pm 0.40 \text{hPa} @900~1100\text{hPa}, 25~40\degree\text{C} \)
- Barometric pressure relative accuracy: \( \pm 0.08 \text{hPa} @900~1100\text{hPa}, 25~40\degree\text{C} \)
- Temperature coefficient offset: \( \pm 0.75\text{Pa}/\text{K} @700~1100\text{hPa}, -20~65\degree\text{C} \)
● Temperature absolute accuracy: ±0.5℃ (0~65℃)

● Possible resolution: 0.016Pa (high precision mode)

● Possible sampling rate: 200Hz

● Operating voltage: -40~85℃

● Dimension: 32mm × 20mm

● Mounting hole size: 2.0mm

PINOUTS

<table>
<thead>
<tr>
<th>PIN</th>
<th>I2C</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC</td>
<td>3.3V/5V power supply</td>
</tr>
<tr>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>SDA</td>
<td>I2C data</td>
</tr>
<tr>
<td>SCL</td>
<td>I2C clock</td>
</tr>
<tr>
<td>INT</td>
<td>Interrupt output, can be connected to I/O</td>
</tr>
</tbody>
</table>

WORKIGN WITH RASPBERRY PI

INSTALL LIBRARIES.

To run the demo codes successfully, you need to first install necessary libraries. Open Terminal of Raspberry Pi and connect it to network.

Install wiringpi libraries:

```
cd

git clone git://git.drogon.net/wiringPi
```
Python libraries:

cd

sudo apt-get install python-smbus

**SETTING AND RUNNING CODES**

**Hardware connection:**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Pi</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC</td>
<td>3.3V</td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>SDA</td>
<td>SDA</td>
</tr>
<tr>
<td>SCL</td>
<td>SCL</td>
</tr>
<tr>
<td>INT</td>
<td>Not Connected</td>
</tr>
</tbody>
</table>

**Software setting:**

Enable I2C interface of Raspberry Pi as below:

```
sudo raspi-config
```

Choose Interfacing Options->I2C->Yes

**Python Codes:**

Enter the folder of python demo code, execute command to run the code:

```
sudo python bmp388Demo.py
```

The data are printed as below:
If data are display abnormally, please check the hardware connection, software setting

and if the device address are correct.

**wiringpi Codes:**

Enter folder of wiringpi demo codes, compile and run the codes as below:

```
make
```

```
sudo ./bmp388Demo
```

After running, the data will be printed as below:
WORKING WITH ARDUINO

Hardware connection:

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Arduino</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC</td>
<td>5V</td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>SDA</td>
<td>SDA</td>
</tr>
<tr>
<td>SCL</td>
<td>SCL</td>
</tr>
<tr>
<td>INT</td>
<td>Not Connected</td>
</tr>
</tbody>
</table>

Check the hardware connection and devices address. Compile and download the code to your Arduino board.

Open Serial monitor, set the baud rate to 115200:

If data are display abnormally, please check the hardware connection, software setting and if the device address are correct.
WORKIGN WITH STM32

Open the STM32 project, which located in STM32->open103V->bmp388_HAL->MDK-ARM->project

The demo codes is based on STM32F103VET6.

**Hardware connection:**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>STM32</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCC</td>
<td>5V</td>
</tr>
<tr>
<td>GND</td>
<td>GND</td>
</tr>
<tr>
<td>SDA</td>
<td>PB7</td>
</tr>
<tr>
<td>SCL</td>
<td>PB6</td>
</tr>
<tr>
<td>INT</td>
<td>No Connected</td>
</tr>
</tbody>
</table>

**Programming:**

Compile the codes and program it to STM32 board. USART2 is used to print sensor data. You need to connect USART2 interface of STM32 board to PC by TTL to USB module, open serial assistance software, set the serial port to 115200, 8N1: