BMP180 (Prespsure sensor)

The **BMP180** works as a **barometric pressure and temperature sensor** that communicates using the **I²C protocol** to send data to a microcontroller like an **STM32**. Here's how the BMP180 operates and interfaces with the STM32:

How BMP180 Works

1. **Sensor Functionality:**
    - **Pressure Measurement:**
        - It measures atmospheric pressure using a piezo-resistive pressure sensor.
        - The measured pressure is compensated for temperature to provide accurate readings.
    - **Temperature Measurement:**
        - The sensor has an onboard temperature measurement feature to calculate temperature-compensated pressure.
    - Outputs raw pressure and temperature data, which needs to be processed using its compensation algorithm to derive the correct values.
2. **Internal Algorithm:**
    - The BMP180 includes a set of calibration coefficients stored in its internal EEPROM.
    - These coefficients are used in the software to convert raw data into actual pressure (in Pa) and temperature (in °C).
3. **Communication Protocol:**
    - Uses **I²C** (Inter-Integrated Circuit) communication.
    - The STM32 (or other microcontroller) acts as the **master** and the BMP180 as the **slave**.
    - The sensor has a fixed 7-bit I2C address of **0x77** (default).