

Functional Test Record

Marshall Taylor

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HW version v02

Testing with I2C mode

Test the I2C Addressing

Procedure:

1. Use ReadAllData sketch with default HW
2. Test default condition
3. Switch address jumper
4. Change address in code
5. Test alternate address

Criteria:

1. Did the modes work? **YES**
2. Does the silkscreen match the operation? **YES**

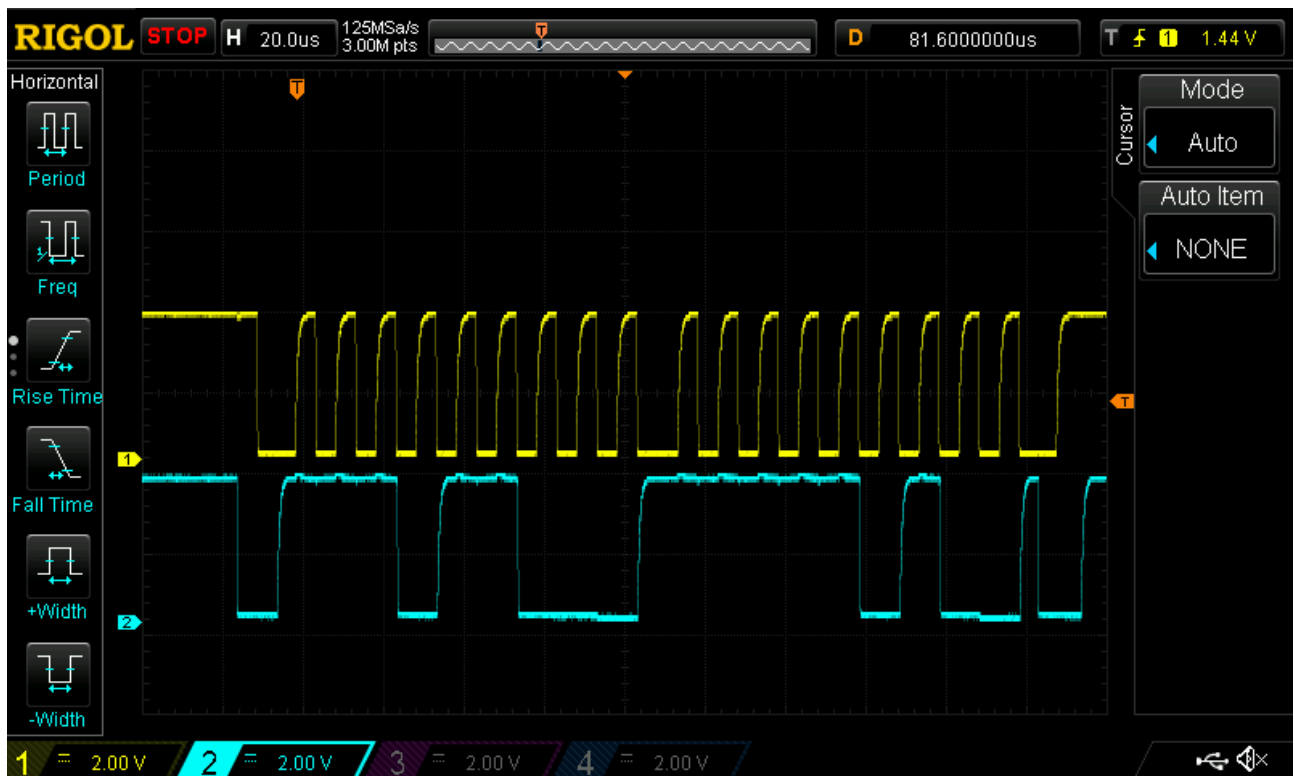
Signal Integrity of I2C lines

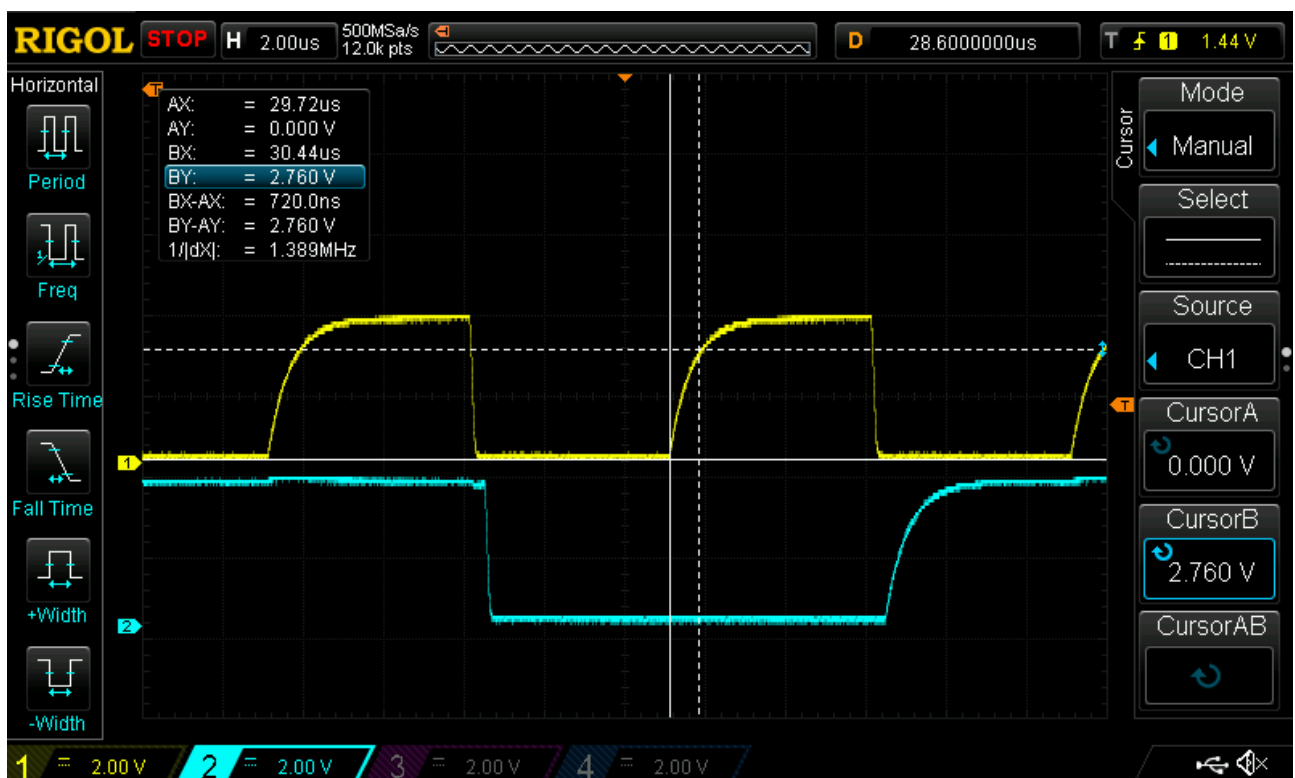
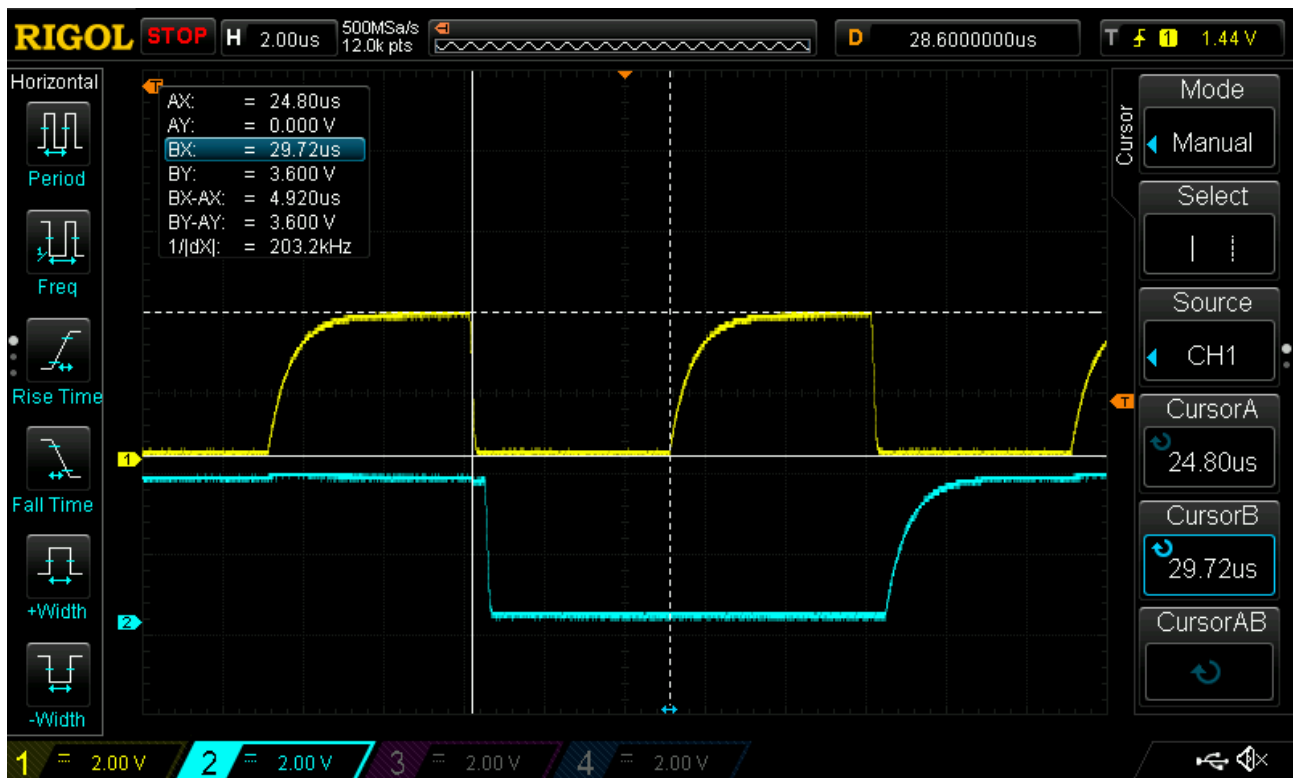
Procedure:

1. Attach scope probes to SDA and SCL with the shortest wire possible
2. Capture a full operation
3. Capture a zoom of 3 consecutively toggling SDA bits

Criteria:

1. Are I2C interface rise times are far below clk pulse high width?
2. Record the pullup resistor value as measured:
 - 1: **4.692 kOhm**
 - 2: **4.698 kOhm**



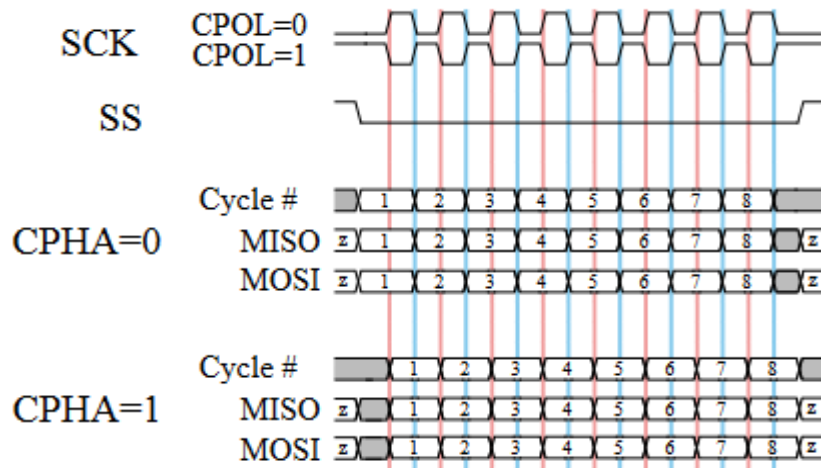


Testing with SPI mode

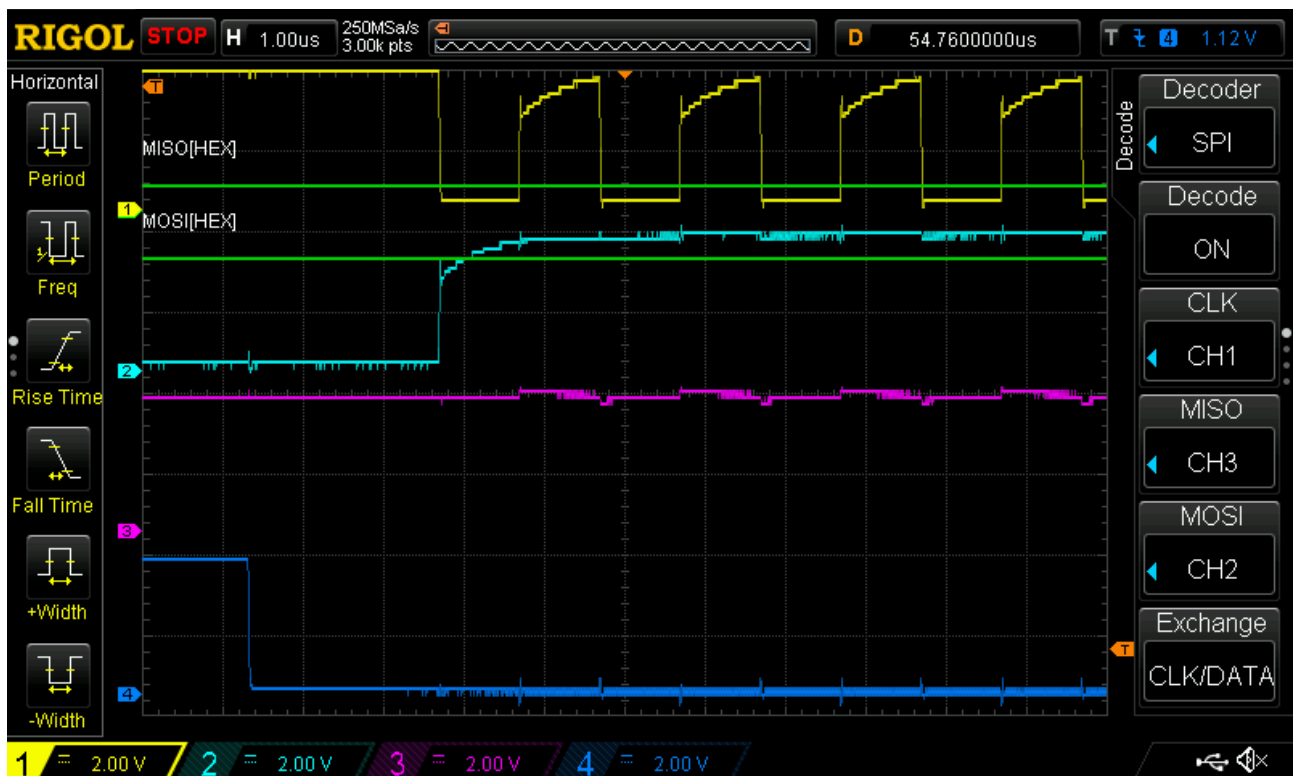
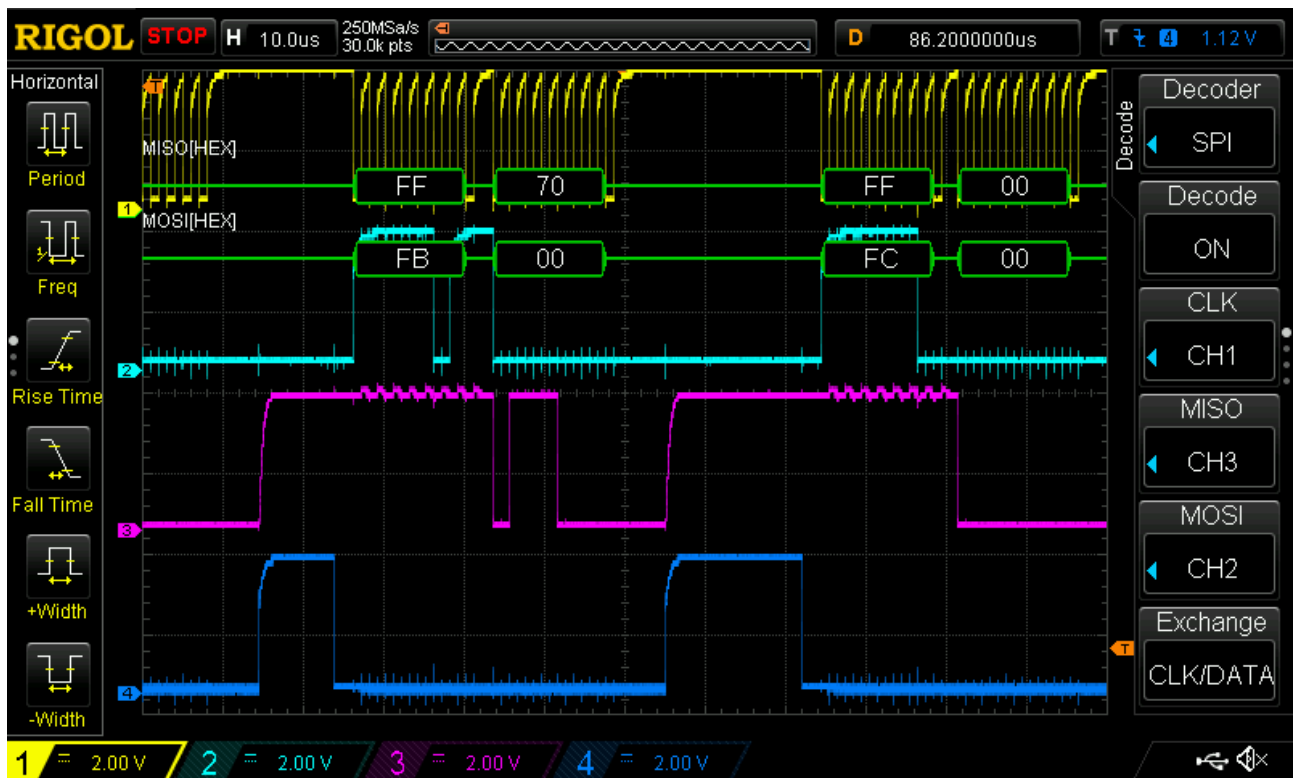
Procedure:

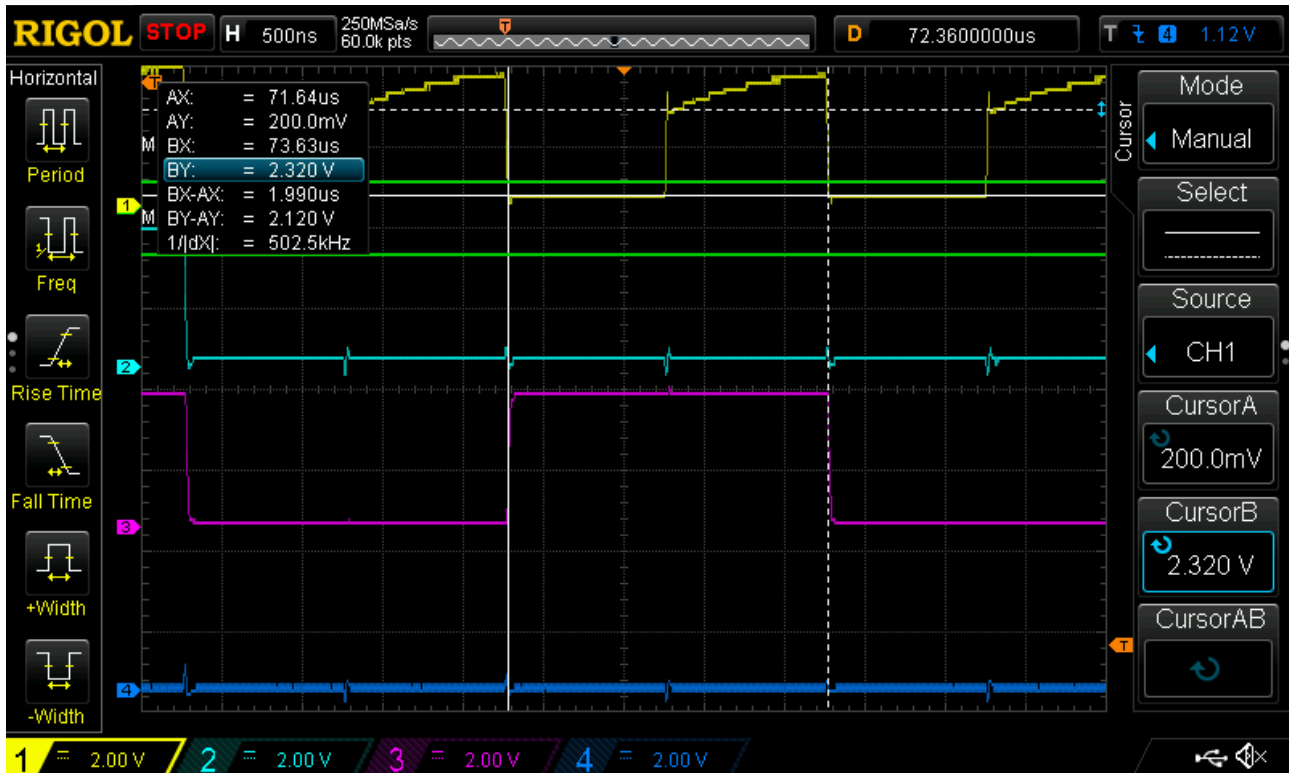
1. Connect the BME280 to an arduino through the level shifter
2. Attach scope probes to MOSI, MISO, CS, and CLK on the BME280 side
3. Capture a full operation
4. Capture a zoom of 3 consecutively toggling data bits for MISO
5. Capture a zoom of 3 consecutively toggling data bits for MOSI

Criteria:



1. Does the clock phase and polarity match the datasheets? **YES, phase defined by clk state after SS goes low**
2. Include the captures.





Power Consumption

Procedure:

1. Measure the current draw before the IC is configured
2. Configure and spam read the data
3. Measure the current draw during spam read

Criteria:

1. Are both numbers below 5mA?
 - Idle: **~1.5mA**
 - Max: **~2.0mA**
2. Record both currents