AdafruitCAP1188 Library Documentation

Release 1.0

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CircuitPython driver for the CAP1188 8-Key Capacitive Touch Sensor Breakout.

CHAPTER 1

Dependencies

This driver depends on:

- Adafruit CircuitPython
- Bus Device

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the Adafruit library and driver bundle.

CHAPTER 2

Usage Example

See usage examples in the examples folder.

CHAPTER 3

Contributing

Contributions are welcome! Please read our Code of Conduct before contributing to help this project stay welcoming.

CHAPTER 4

Building locally

4.1 Zip release files

To build this library locally you'll need to install the circuitpython-build-tools package.

```
python3 -m venv .env
source .env/bin/activate
pip install circuitpython-build-tools
```

Once installed, make sure you are in the virtual environment:

```
source .env/bin/activate
```

Then run the build:

```
circuitpython-build-bundles --filename_prefix adafruit-circuitpython-cap1188 --
↪library_location .
```

4.2 Sphinx documentation

Sphinx is used to build the documentation based on rST files and comments in the code. First, install dependencies (feel free to reuse the virtual environment from above):

```
python3 -m venv .env
source .env/bin/activate
pip install Sphinx sphinx-rtd-theme
```

Now, once you have the virtual environment activated:

```
cd docs
sphinx-build -E -W -b html . _build/html
```

This will output the documentation to `docs/_build/html`. Open the index.html in your browser to view them. It will also (due to -W) error out on any warning like Travis will. This is a good way to locally verify it will pass.

CHAPTER 5

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5.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/cap1188_simpletest.py

```
import board
import busio

# I2C setup
from adafruit_cap1188.i2c import CAP1188_I2C
i2c = busio.I2C(board.SCL, board.SDA)
cap = CAP1188_I2C(i2c)

# SPI setup
# from digitalio import DigitalInOut, Direction
# from adafruit_cap1188.spi import CAP1188_SPI
# spi = busio.SPI(board.SCK, board.MOSI, board.MISO)
# cs = DigitalInOut(board.D5)
# cap = CAP1188_SPI(spi, cs)

while True:
    for i in range(1, 9):
        if cap[i].value:
            print("Pin {} touched!".format(i))
```

5.2 adafruit_cap1188.cap1188

CircuitPython driver for the CAP1188 8-Key Capacitive Touch Sensor Breakout.

- Author(s): Carter Nelson

5.2.1 Implementation Notes

Hardware:

- CAP1188 - 8-Key Capacitive Touch Sensor Breakout

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases
- Adafruit's Bus Device library: https://github.com/adafruit/Adafruit_CircuitPython_BusDevice

class `adafruit_cap1188.cap1188.`**`CAP1188`**

CAP1188 driver base, must be extended for I2C/SPI interfacing.

`delta_count`(*pin*)

Return the 8 bit delta count value for the channel.

`recalibrate`()

Perform a self recalibration on all the pins.

`recalibrate_pins`(*mask*)

Recalibrate pins specified by bit mask.

`sensitivity`

The sensitvity of touch detections. Range is 1 (least) to 128 (most).

`threshold_values`()

Return tuple of touch threshold values for all channels.

`thresholds`

Touch threshold value for all channels.

`touched`()

Return 8 bit value representing touch state of all pins.

`touched_pins`

A tuple of touched state for all pins.

class `adafruit_cap1188.cap1188.`**`CAP1188_Channel`**(*cap1188*, *pin*)

Helper class to represent a touch channel on the CAP1188. Not meant to be used directly.

`raw_value`

The raw touch measurement.

`recalibrate`()

Perform a self recalibration.

`threshold`

The touch threshold value.

`value`

Whether the pin is being touched or not.

5.3 `adafruit_cap1188.i2c`

CircuitPython I2C driver for the CAP1188 8-Key Capacitive Touch Sensor Breakout.

- Author(s): Carter Nelson

5.3.1 Implementation Notes

Hardware:

- CAP1188 - 8-Key Capacitive Touch Sensor Breakout

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases
- Adafruit's Bus Device library: https://github.com/adafruit/Adafruit_CircuitPython_BusDevice

class `adafruit_cap1188.i2c.`**`CAP1188_I2C`**(*i2c*, *address=41*)
Driver for the CAP1188 connected over I2C.

5.4 `adafruit_cap1188.spi`

CircuitPython SPI driver for the CAP1188 8-Key Capacitive Touch Sensor Breakout.

- Author(s): Carter Nelson

5.4.1 Implementation Notes

Hardware:

- CAP1188 - 8-Key Capacitive Touch Sensor Breakout

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases
- Adafruit's Bus Device library: https://github.com/adafruit/Adafruit_CircuitPython_BusDevice

class `adafruit_cap1188.spi.`**`CAP1188_SPI`**(*spi*, *cs*)
Driver for the CAP1188 connected over SPI.

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