AdafruitTCA9548A Library Documentation

Release 1.0

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Contents

CircuitPython driver for the TCA9548A I2C Multiplexer.

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

Installing from PyPI

On supported GNU/Linux systems like the Raspberry Pi, you can install the driver locally from PyPI. To install for current user:

```
pip3 install adafruit-circuitpython-tca9548a
```

To install system-wide (this may be required in some cases):

```
sudo pip3 install adafruit-circuitpython-tca9548a
```

To install in a virtual environment in your current project:

```
mkdir project-name && cd project-name
python3 -m venv .env
source .env/bin/activate
pip3 install adafruit-circuitpython-tca9548a
```

CHAPTER 3

Usage Example

```
# This example shows using TCA9548A to perform a simple scan for connected devices
import board
import adafruit_tca9548a

# Create I2C bus as normal
i2c = board.I2C()  # uses board.SCL and board.SDA

# Create the TCA9548A object and give it the I2C bus
tca = adafruit_tca9548a.TCA9548A(i2c)

for channel in range(8):
    if tca[channel].try_lock():
        print("Channel {}:".format(channel), end="")
        addresses = tca[channel].scan()
        print([hex(address) for address in addresses if address != 0x70])
        tca[channel].unlock()
```

CHAPTER 4

Contributing

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

CHAPTER 5

Documentation

For information on building library documentation, please check out this guide.

CHAPTER 6

Table of Contents

6.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/tca9548a_simpletest.py

```
# SPDX-FileCopyrightText: 2021 Carter Nelson for Adafruit Industries
# SPDX-License-Identifier: MIT

# This example shows using TCA9548A to perform a simple scan for connected devices
import board
import adafruit_tca9548a

# Create I2C bus as normal
i2c = board.I2C()  # uses board.SCL and board.SDA

# Create the TCA9548A object and give it the I2C bus
tca = adafruit_tca9548a.TCA9548A(i2c)

for channel in range(8):
    if tca[channel].try_lock():
        print("Channel {}:".format(channel), end="")
        addresses = tca[channel].scan()
        print([hex(address) for address in addresses if address != 0x70])
        tca[channel].unlock()
```

6.2 Multisensor test

Shows how to use the I2C Multiplexer with two sensors

Listing 2: examples/tca9548a_multisensor.py

```
# SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
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# This example shows using two TSL2491 light sensors attached to TCA9548A channels 0 and 1.
# Use with other I2C sensors would be similar.
import time
import board
import adafruit_tsl2591
import adafruit_tca9548a

# Create I2C bus as normal
i2c = board.I2C()  # uses board.SCL and board.SDA

# Create the TCA9548A object and give it the I2C bus
tca = adafruit_tca9548a.TCA9548A(i2c)

# For each sensor, create it using the TCA9548A channel instead of the I2C object
tsl1 = adafruit_tsl2591.TSL2591(tca[0])
tsl2 = adafruit_tsl2591.TSL2591(tca[1])

# After initial setup, can just use sensors as normal.
while True:
    print(tsl1.lux, tsl2.lux)
    time.sleep(0.1)
```

6.3 adafruit_tca9548a

CircuitPython driver for the TCA9548A I2C Multiplexer.

- Author(s): Carter Nelson

6.3.1 Implementation Notes

Hardware:

- TCA9548A I2C Multiplexer (Product ID: 2717)

Software and Dependencies:

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

class adafruit_tca9548a.**TCA9548A_Channel**(*tca*, *channel*)

Helper class to represent an output channel on the TCA9548A and take care of the necessary I2C commands for channel switching. This class needs to behave like an I2CDevice.

try_lock()

Pass through for try_lock.

unlock()

Pass through for unlock.

readfrom_into(*address*, *buffer*, ***kwargs*)
Pass through for readfrom_into.

writeto(*address*, *buffer*, ***kwargs*)
Pass through for writeto.

writeto_then_readfrom(*address*, *buffer_out*, *buffer_in*, ***kwargs*)
Pass through for writeto_then_readfrom.

scan()
Perform an I2C Device Scan

class adafruit_tca9548a.**TCA9548A**(*i2c*, *address=112*)
Class which provides interface to TCA9548A I2C multiplexer.

CHAPTER 7

Indices and tables

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- modindex
- search

Python Module Index

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