# RX63N/RX631 MicroPython

2018/12/09

BY KSGADGET

# MicroPython for RX63N/RX631

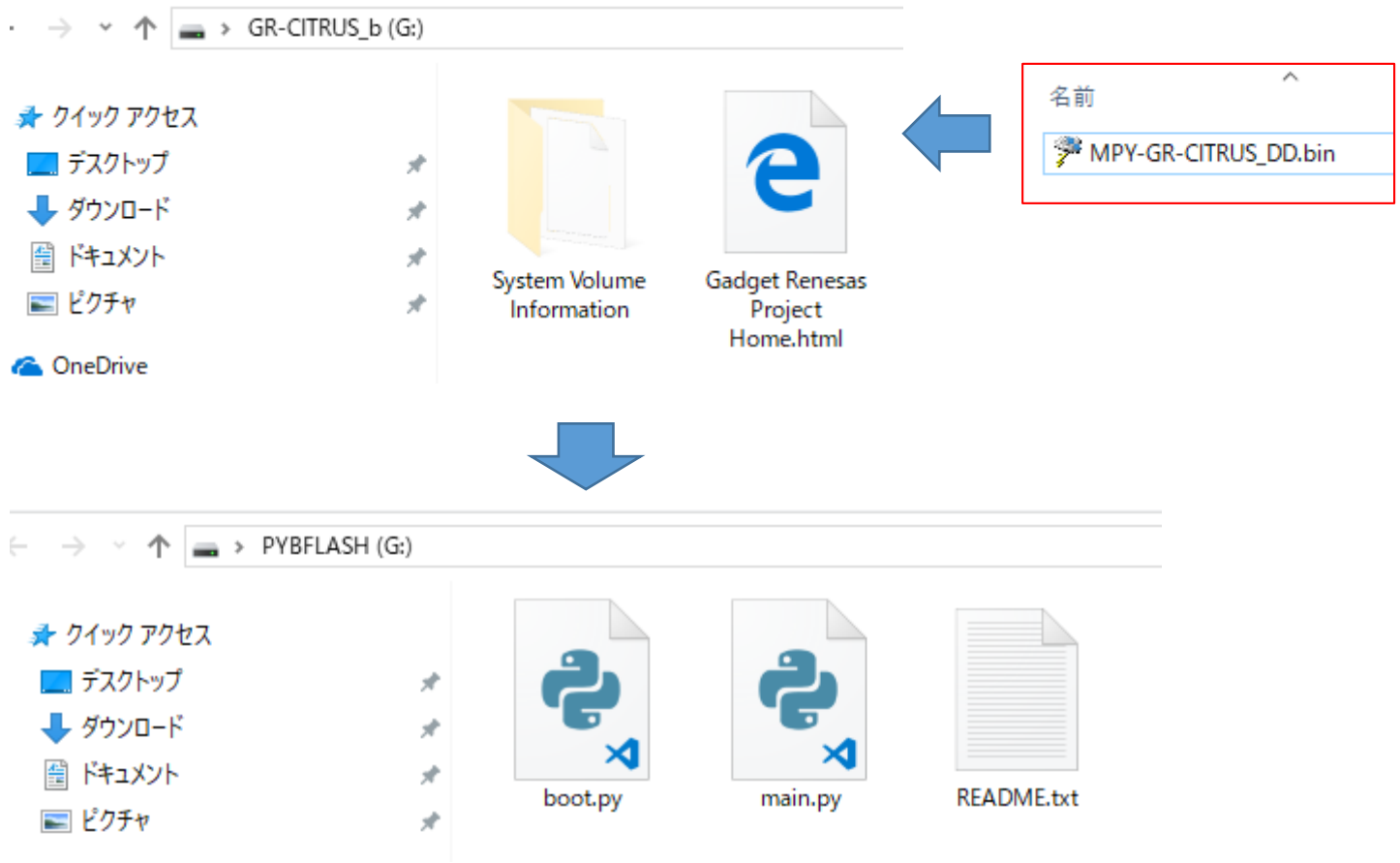
- MicroPython STM32 RX63N/RX631
- GR-CITRUS GR-SAKURA 2
- STM32 (pyboard)
  - pyboard (https://docs.micropython.org/en/latest/ )
  - CAN WDT
  - Pyboard
  - ESP8266 ESP32

RX63N RX631

- Windows 10 PC
  - ( Tera Term )
- GR-CITRUS ( GR-SAKURA)
-
  -
  - MAX7129 8x8 LED Matrix
  - NeoPixel Ring 12
  - SPI LCD 240x320 (ILI9340 )

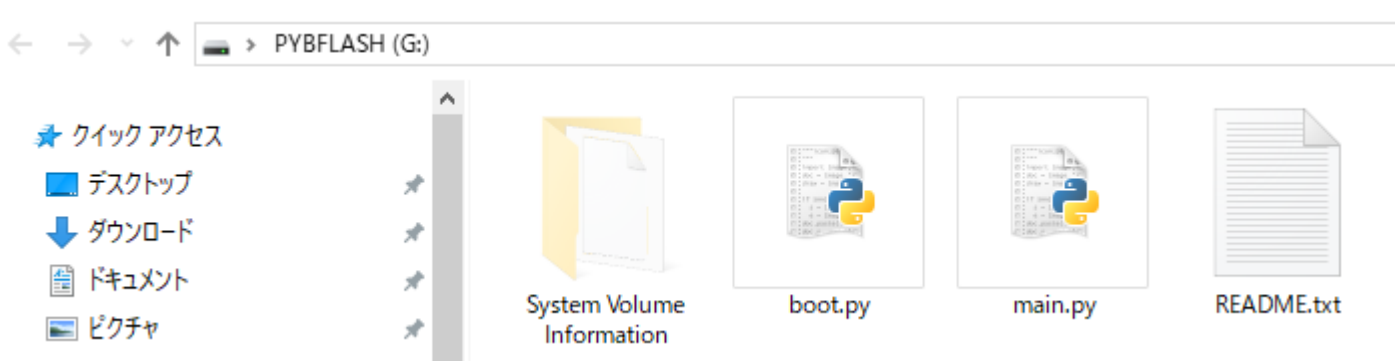
- URL GR-CITRUS MicroPython (MPY-GR_CITRUS_DD.bin MPY-GR_SAKURA_DD.bin)
- GR-CITRUS USB Reset
- GR-CITRUS Drag & Drop
- LED 5
- LED

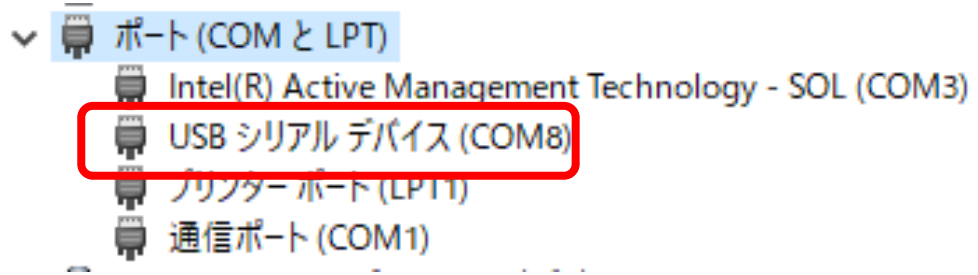
https://github.com/ksekimoto/micropython/raw/rx/rx_releases/gr_citrus/latest/MPY_GR_CITRUS_DD.bin
https://github.com/ksekimoto/micropython/raw/rx/rx_releases/gr_sakura/latest/MPY-GR_SAKURA_DD.bin



# – GR-CITRUS

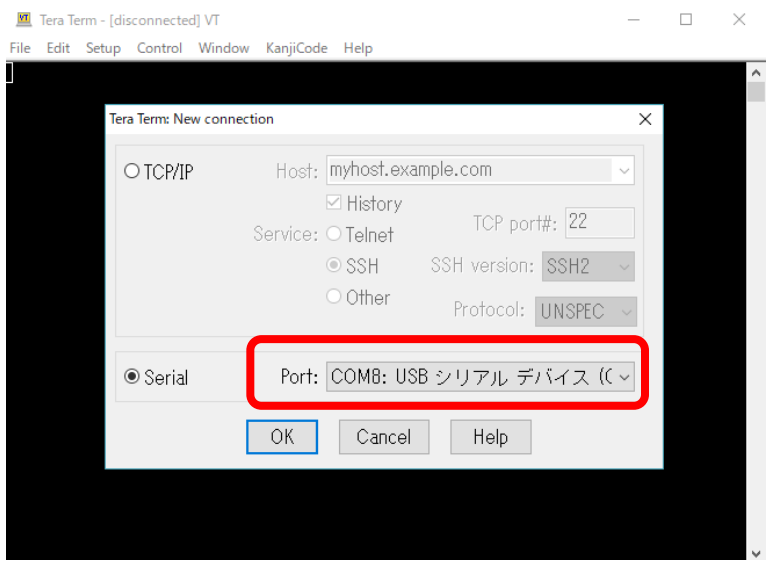
- GR-CITRUS USB Window 10 PC USB
- GR-CITRUS RX631 CPU Flash
  ( )
- USB

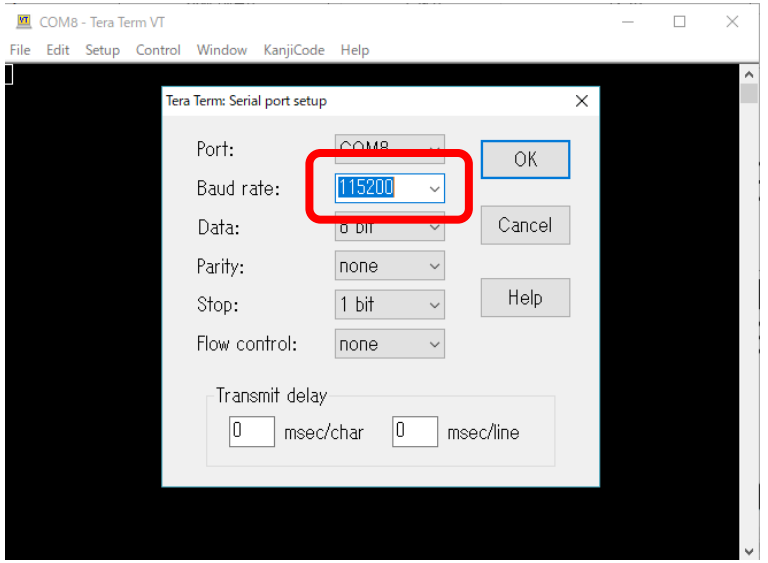


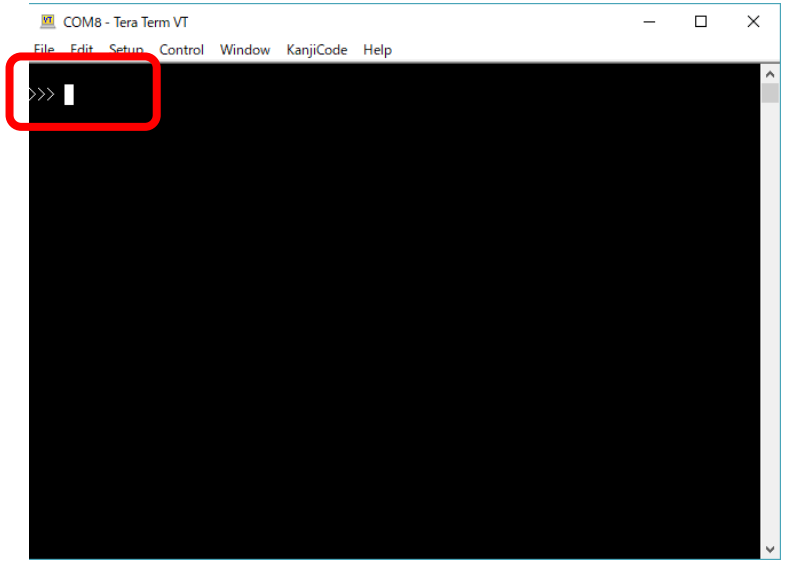



# – GR-CITRUS

- Tera Term COM Setup – Serial port Baud rate 115200 Enter
  >> MicroPython REPL
- MicroPython



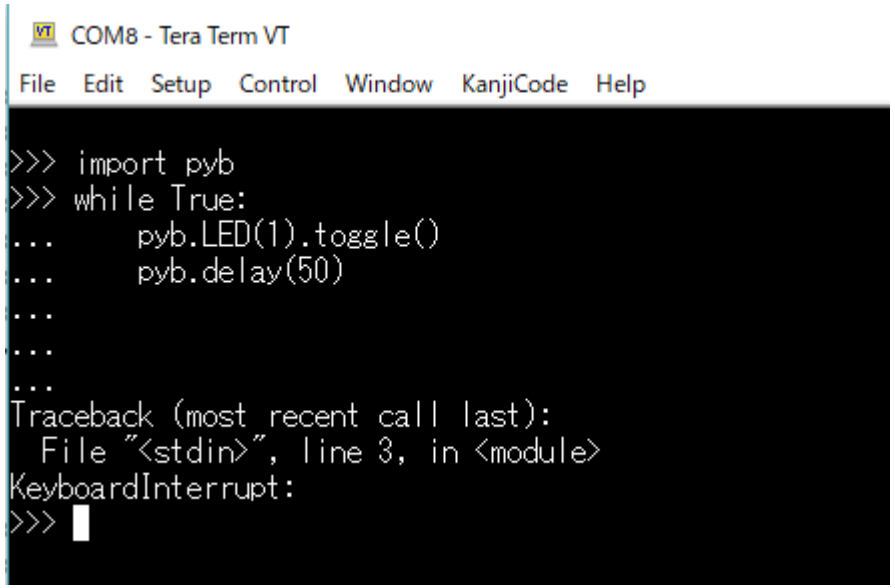



# L

- GR-CITRUS LED
-
- Enter
- Ctrl-C

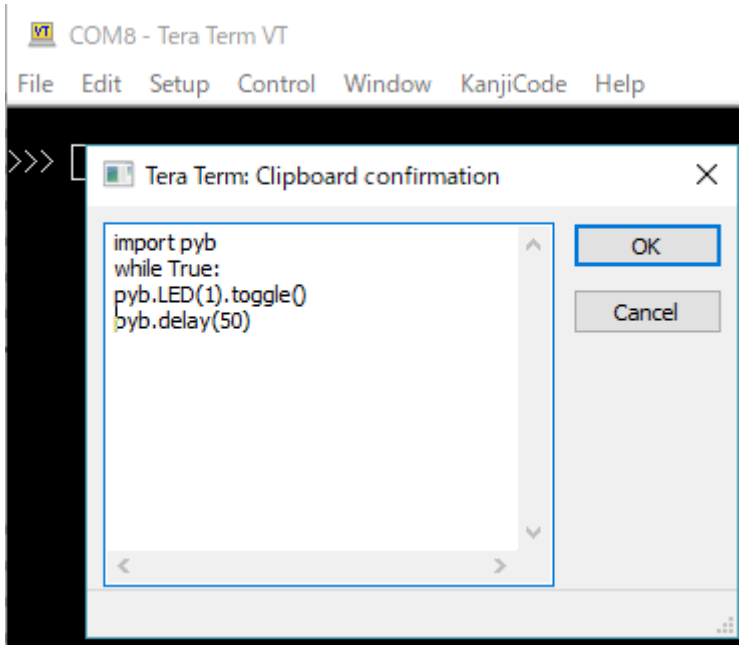
```
import pyb
while True:
    pyb.LED(1).toggle()
    pyb.delay(50)
```



# REPL

- REPL
- Ctrl-D

Cut&Paste




```
>>>
PYB: sync filesystems
PYB: soft reboot
icroPython v1.9.4-515-g5ee643622-dirty on 2018-12-02; GR-CITRUS with RX631
Type "help()" for more information.
>>>
```

- (256KB) boot.py, main.py
  README.txt
- MicroPython (SD-CARD )
  boot.py main.py
- main.py
  PC Drag&Drop

boot.py

```
1  # boot.py -- run on boot-up
2  # can run arbitrary Python, but best to keep it minimal
3
4  import machine
5  import pyb
6  #pyb.main('main.py') # main script to run after this one
7
```

main.py

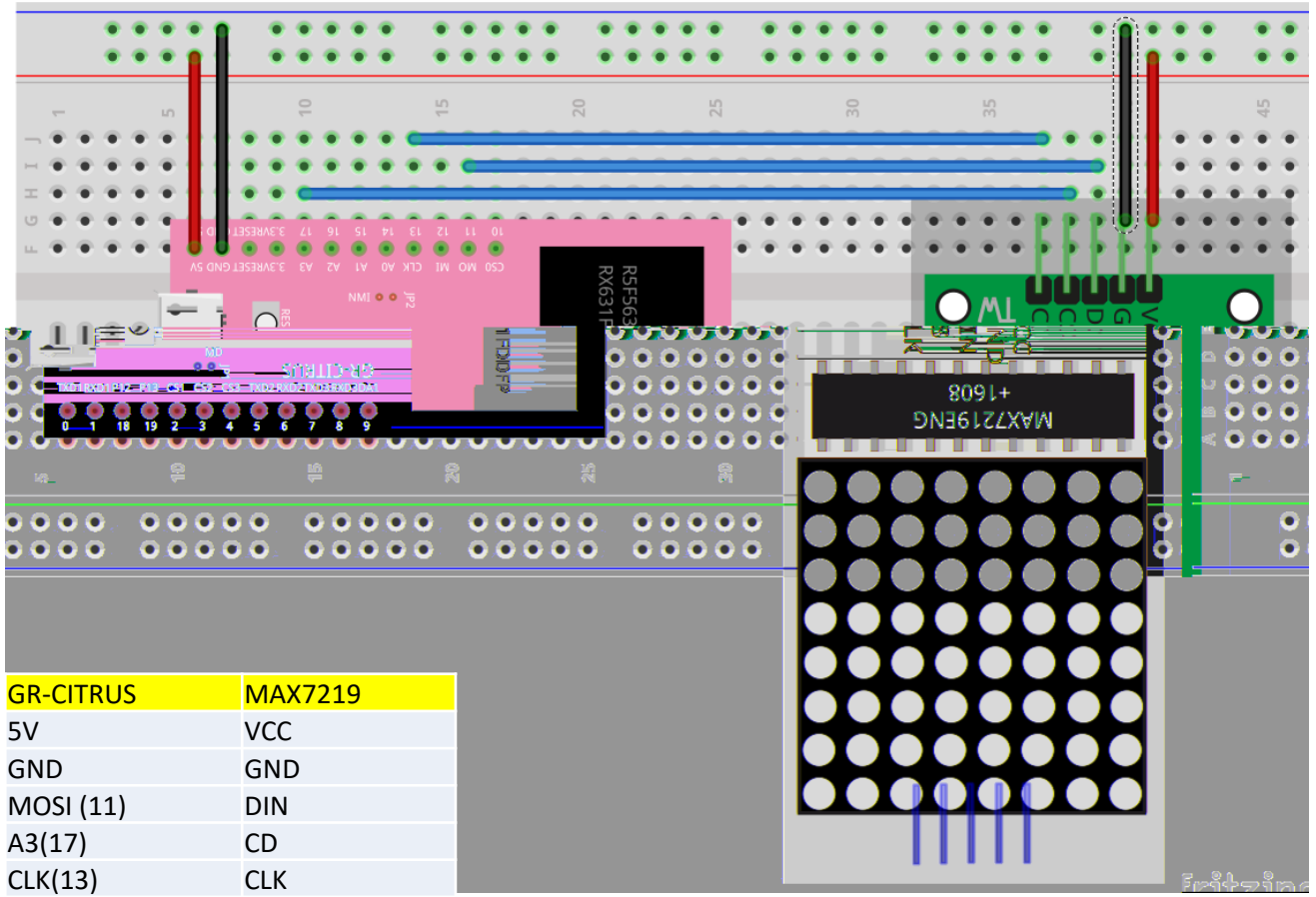
```
1  # main.py -- put your code here!
2
```

machine pyb

8KB

# - MAX7219 8x8 LED Matrix

- GR-CITRUS MAX7219
- MAX7219 (max7219.py)
  Github rx_releases
- https://github.com/mcauser/micropython-max7219/blob/master/max7219.py
-




| GR-CITRUS | MAX7219 |
|---|---|
| 5V | VCC |
| GND | GND |
| MOSI (11) | DIN |
| A3(17) | CD |
| CLK(13) | CLK |

Aitendo: 8x8 8x8 [M7SEGX1R-7219]
http://www.aitendo.com/product/10241

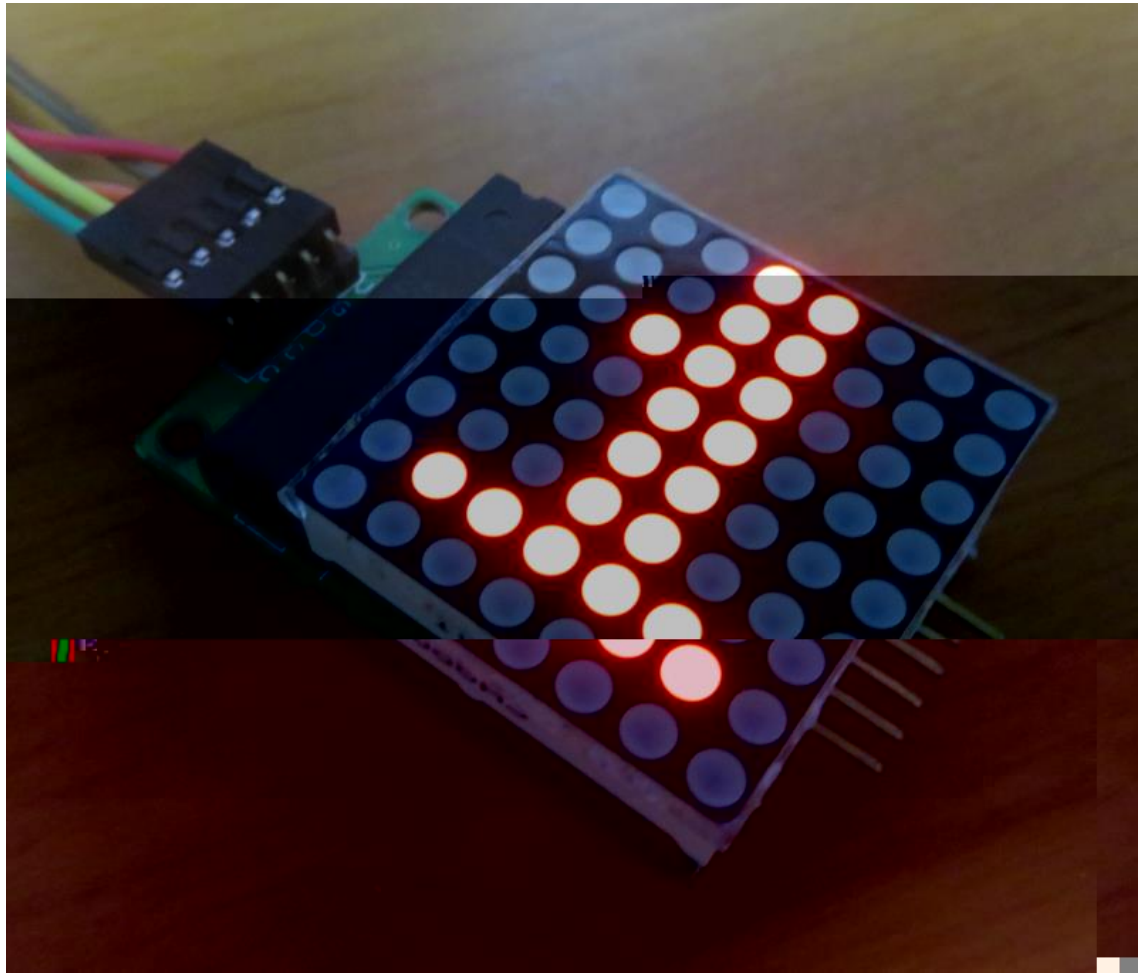
: [SKU-20-111-978]
http://akizukidenshi.com/catalog/g/gM-09984/

# - MAX7219 8x8 LED Matrix

```
import max7219
from machine import Pin, SPI
spi = SPI(1)
cs = Pin.cpu.P43
cs.init(cs.OUT, True)
display = max7219.Matrix8x8(spi, cs, 1)
display.text('1',0,0,1)
display.show()

display.fill(0)
display.show()
display.text('A',0,0,0)
display.show()

display.pixel(0,0,1)
display.pixel(1,1,1)
display.hline(0,4,8,1)
display.vline(4,0,8,1)
display.show()
```



: NeoPixel Ring - 12 LED
https://www.switch-science.com/catalog/1593/

# – NeoPixel

- GR-CITRUS NeoPixel
- NeoPixel (ws2812.py)
  Github rx_releases
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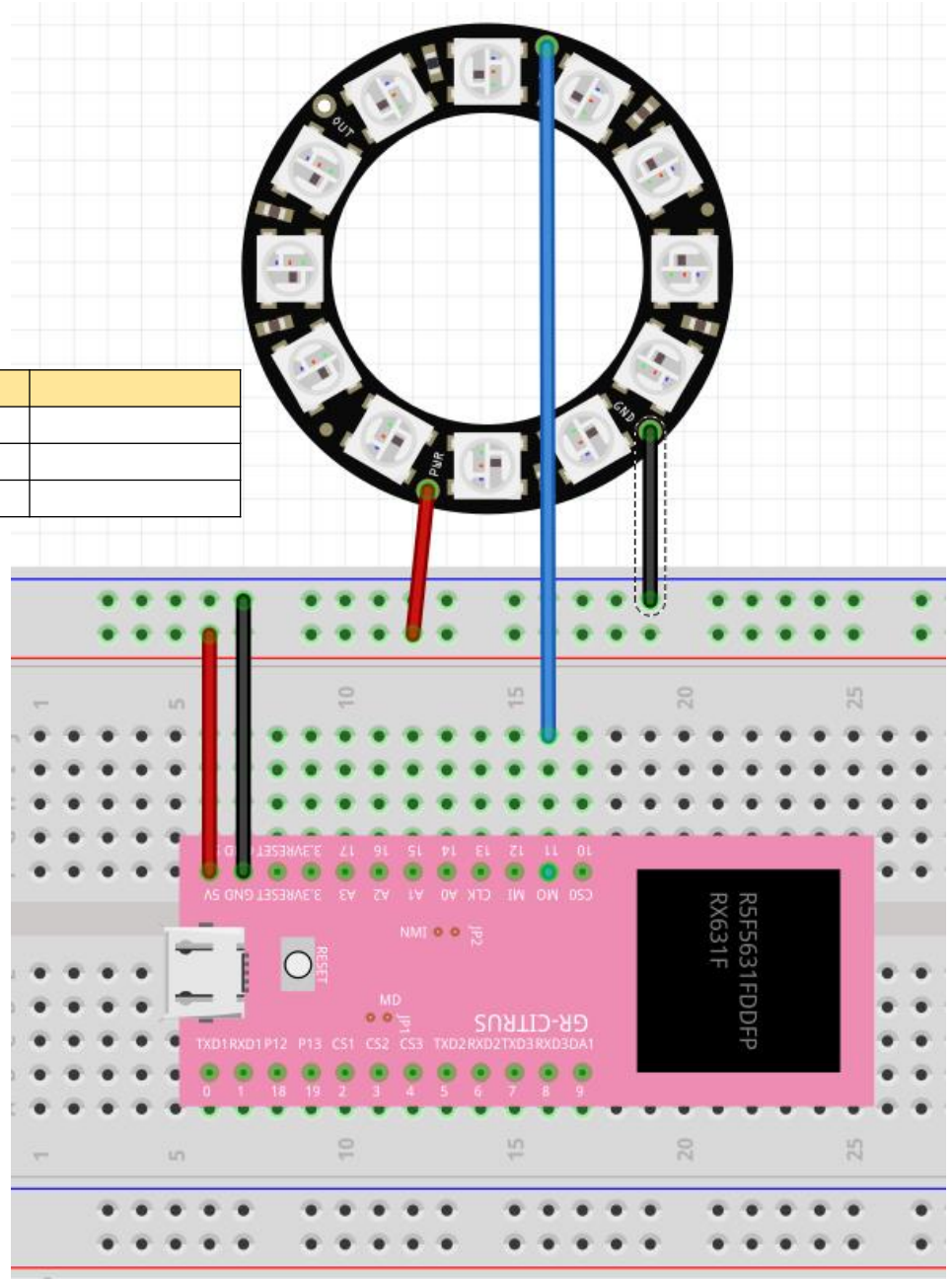
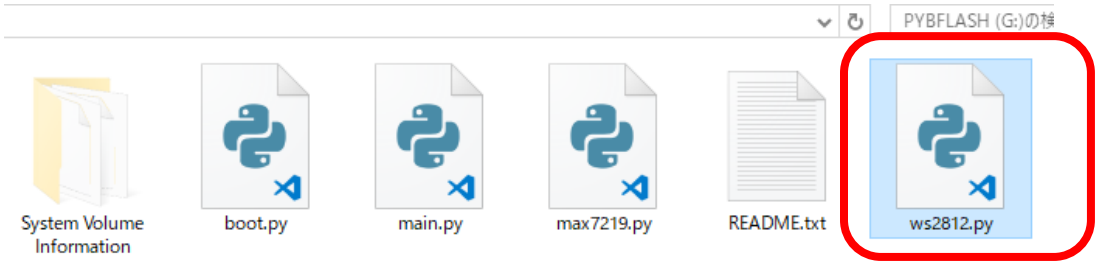
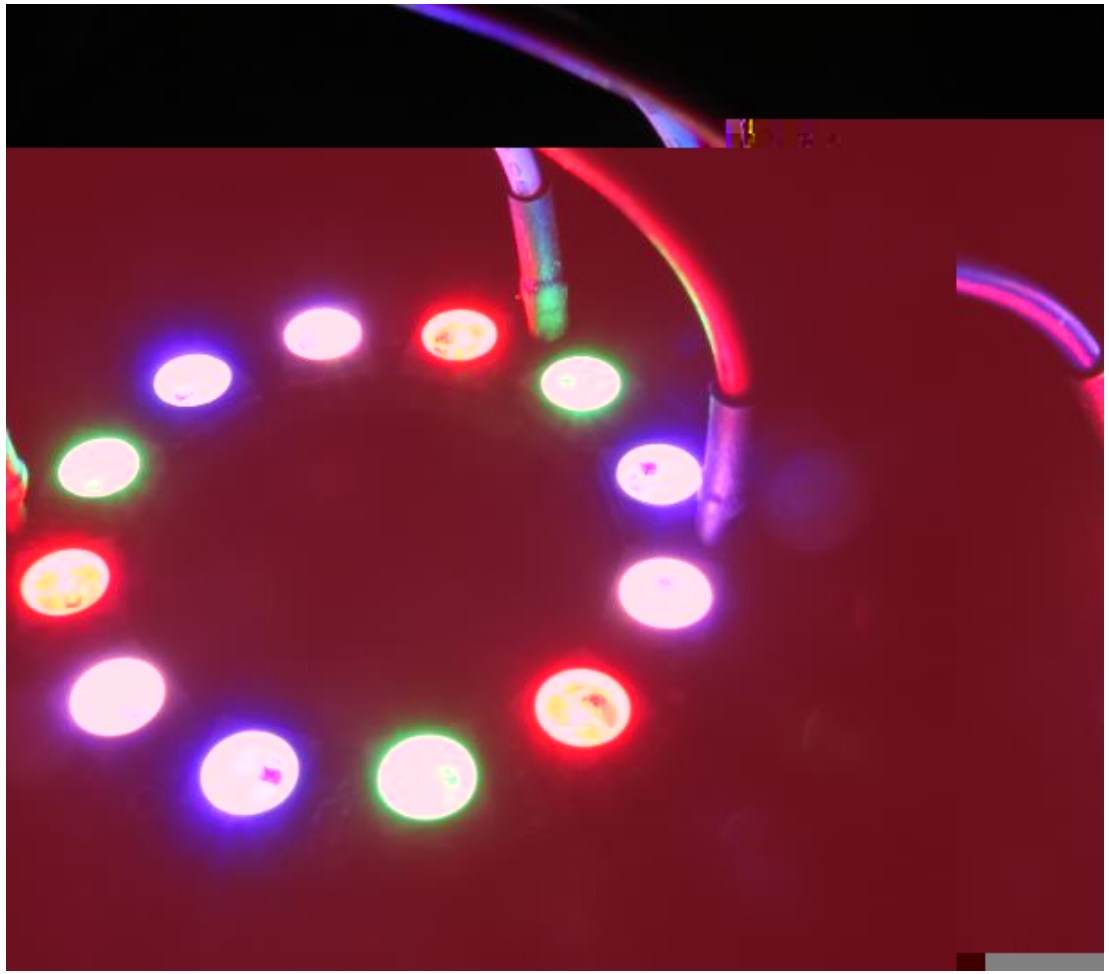


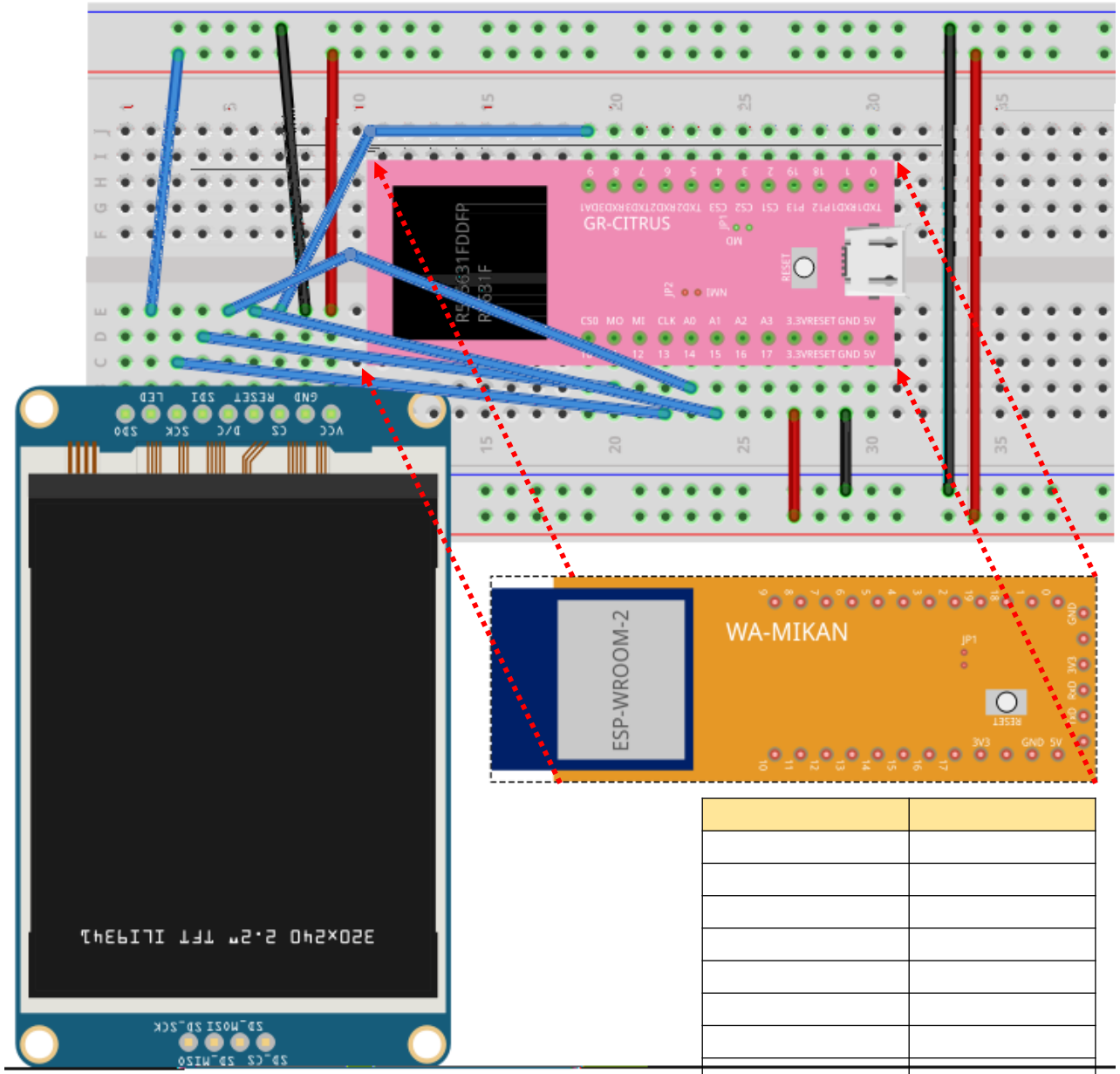
# – NeoPixel

```
from ws2812 import WS2812
chain = WS2812(spi_bus=1, led_count=12)
data = [
(255, 0, 0),    # red
(0, 255, 0),    # green
(0, 0, 255),    # blue
(85, 85, 85),   # white
(255, 0, 0),    # red
(0, 255, 0),    # green
(0, 0, 255),    # blue
(85, 85, 85),   # white
(255, 0, 0),    # red
(0, 255, 0),    # green
(0, 0, 255),    # blue
(85, 85, 85),   # white
]
chain.show(data)
```



# – SPI LCD

- GR-CITRUS SPI LCD 240x320
- Hardware SPI
- 
- WA-MIKAN SD-CARD BMP JPEG

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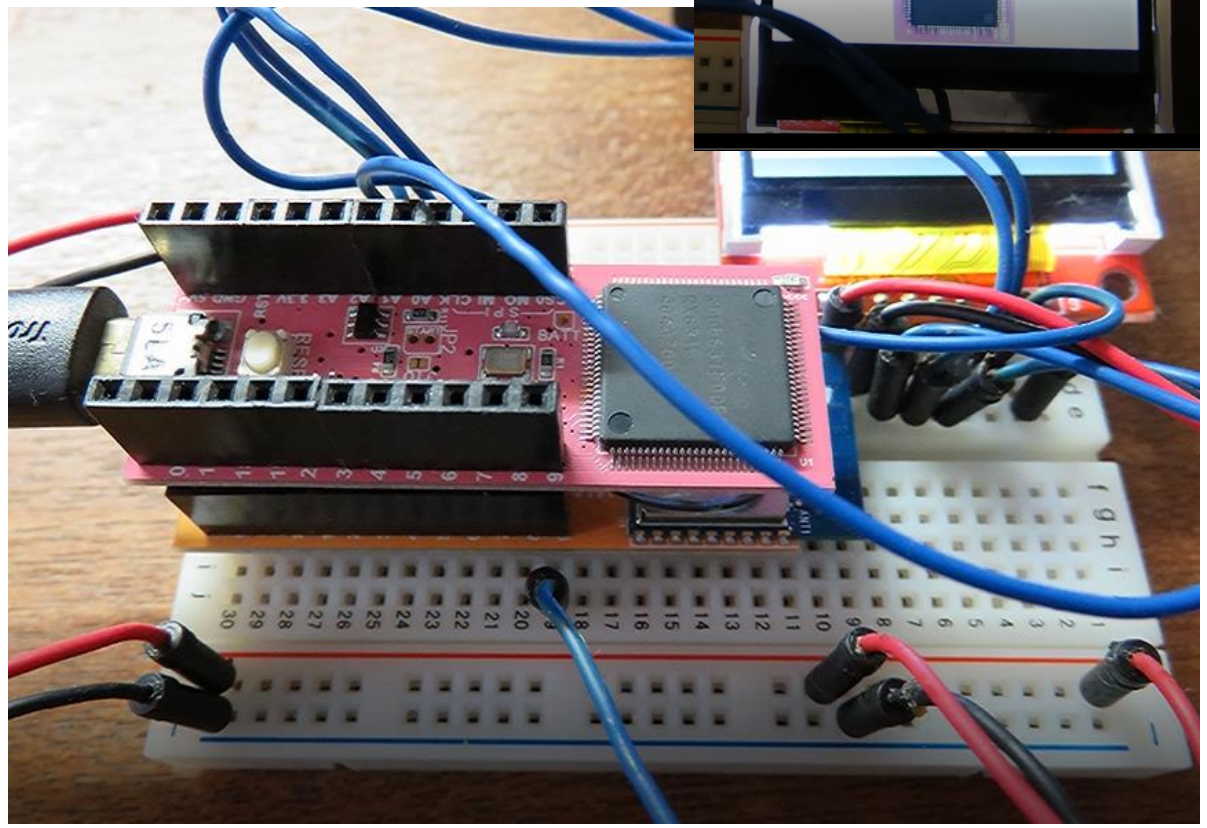
# – SPI LCD

```
from pyb import LCDSPI, Pin
c=LCDSPI(lcd_id=3,font_id=1,spi_id=0,baud=24000000,cs=Pin.cpu.P05,clk=Pin.cpu.PC5,dout=Pin.cpu.PC6, rs=Pin.cpu.P40, reset=Pin.cpu.P41, din=Pin.cpu.P42)
c
c.puts("============================¥r¥n")
c.puts("===== 320x240 LCD Demo =====¥r¥n")
c.puts("============================¥r¥n")

# WA-MIKAN    SD
c.disp_jpeg_sd(0,50,'CITRUS00.JPG')
c.disp_bmp_sd(0,100,’CITRUS00.BMP’)
```




- Lcd_id  0-3  3  SPI LCD240x320
- Font_id  0-3  0: 8x8, 1:6x12, 2: 8x8 Unicode, 3:6x12 Unicode
- Spi_id  -1, 0-2  -1: Software SPI, 0-2: Hardware SPI CH

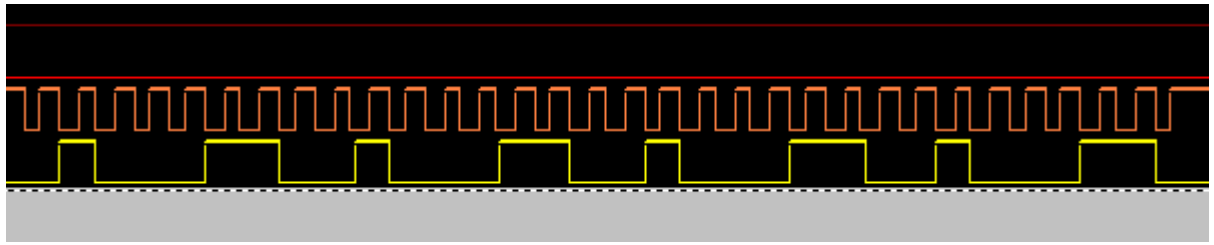
- MicroPython
  - https://docs.micropython.org/en/latest/
- Github rx
  - https://github.com/ksekimoto/micropython
  - git clone https://github.com/ksekimoto/micropython -b rx
  - rx_release

# Backup

- Github readme.md
  - Boards¥GR_CITRUS_DD GR_SAKURA_DD USB
  - Boards¥GR_CITRUS GR_SAKURA E1
- REPL
- CPU USB
  boot.py, main.py
- GR-CITRUS 0-5 6 1024 GR-SAKURA 0-3
  512
- STM32 MicroPython
-
- print

# NeoPixel

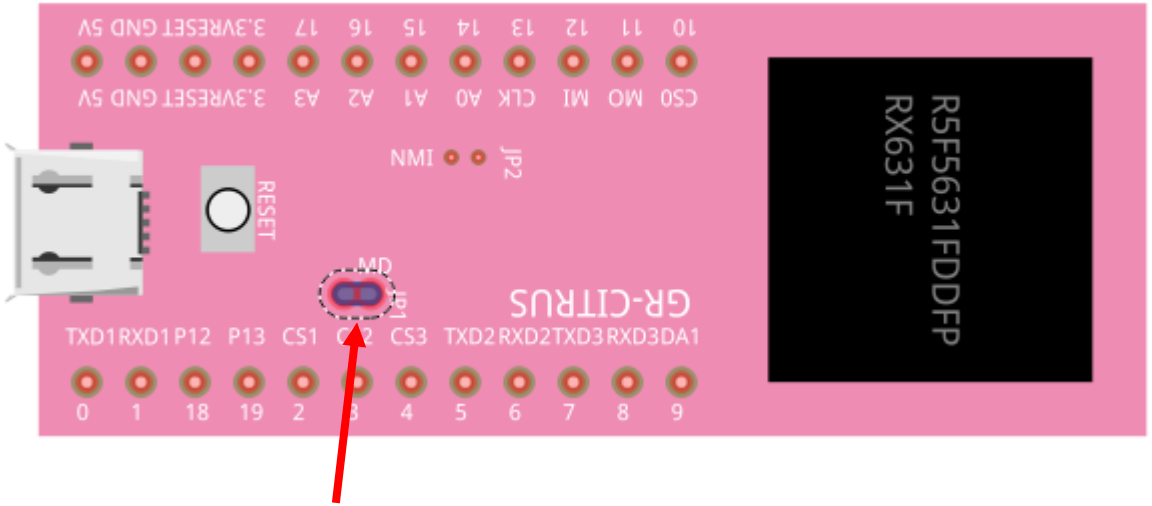
- https://github.com/JanBednarik/micropython-ws2812
- SPI 1 NeoPixel Low 2 High 4
  DMA
- DMA SPI



- 01010101

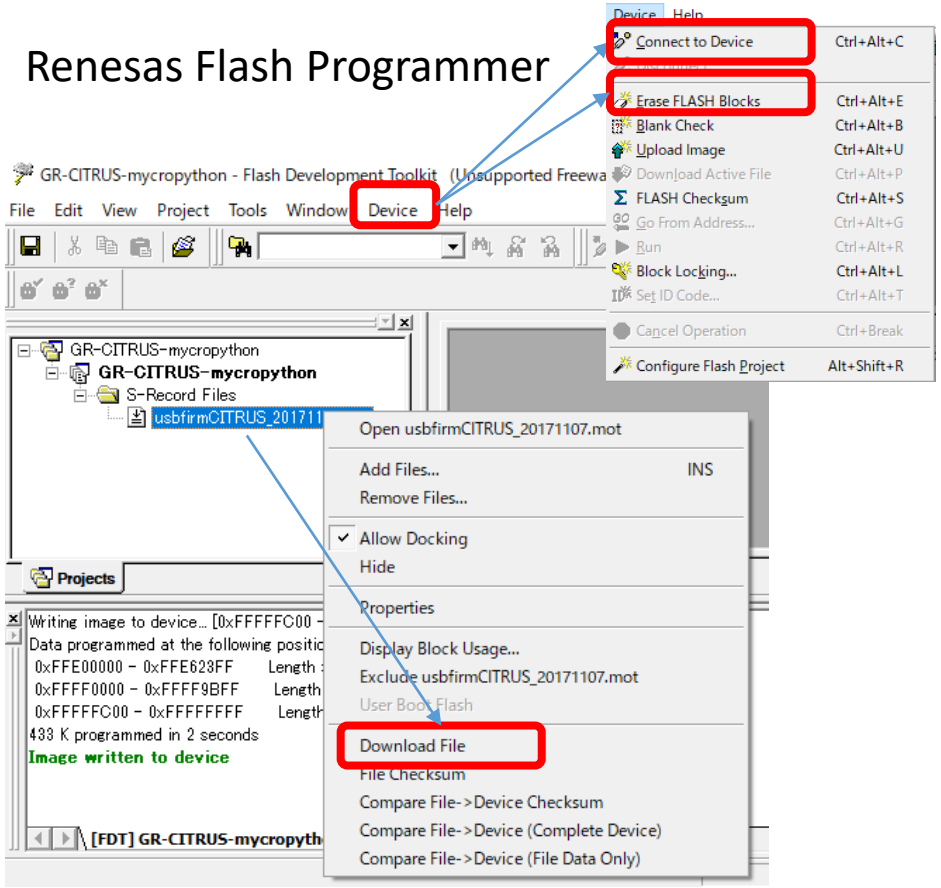
# GR-CITRUS USB

- URL
  - http://gadget.renesas.com/ja/product/citrus.html




MD
Renesas USB Development Tools


Renesas Flash Programmer




Device GR-CITRUS S-Record Files Download File