

*****Draft*****

Testing Pico running freertos an pshell

06/06/22

*****Draft*****

All of the code was developed on the Raspberry Pi 4 B with 8Gb

openocd050322-610f137 is used to download the execrable to the pico.

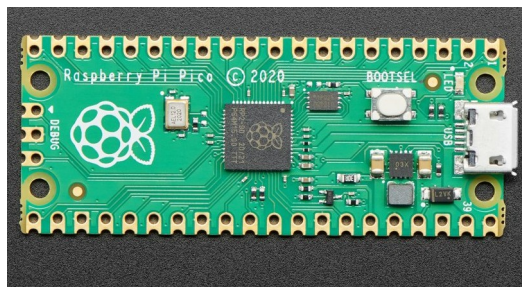
<https://github.com/develone/pico-sdk>

23 authors [SDK 1.3.0 release](#)
[2062372](#)

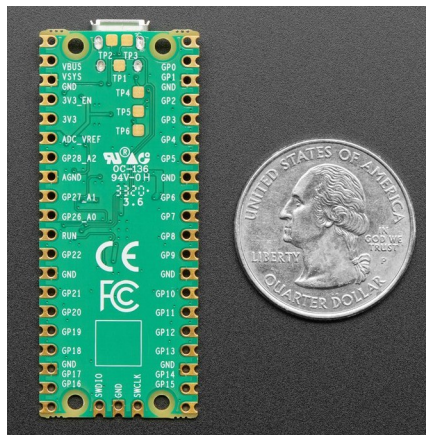
Raspberry Pi 4



Raspberry Pico.



Back



Raspberry Pi Pico RP2040

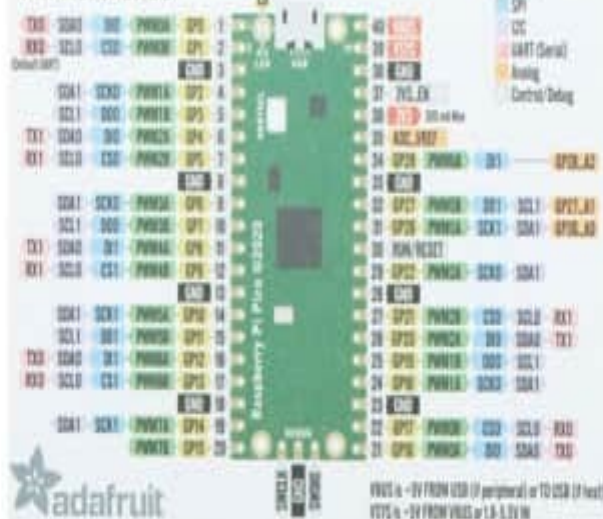
Product ID: 4864

\$4.00

- 21 mm × 51 mm form factor
- RP2040 microcontroller chip designed by Raspberry Pi in the UK
- Dual-core Arm Cortex-M0+ processor, flexible clock running up to 133 MHz
- 264KB on-chip SRAM
- 2MB on-board QSPI Flash
- 26 multifunction GPIO pins, including 3 analogue inputs
- 2 × UART, 2 × SPI controllers, 2 × I2C controllers, 16 × PWM channels

- 1 × USB 1.1 controller and PHY, with host and device support
- 8 × Programmable I/O (PIO) state machines for custom peripheral support
- Supported input power 1.8–5.5V DC
- Operating temperature -20°C to +85°C
- Castellated module allows soldering direct to carrier boards
- Drag-and-drop programming using mass storage over USB
- Low-power sleep and dormant modes
- Accurate on-chip clock
- Temperature sensor
- Accelerated integer and floating-point libraries on-chip

Raspberry Pi Pico Pin Reference



“git clone --recursive [git@github.com:develone/rp2040-freertos-project](https://github.com/develone/rp2040-freertos-project) -b dev”

“cd rp2040-freertos-project”

“mkdir build”

“cd build”

“cmake ..”

“make”

lsusb

Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub

Bus 001 Device 006: ID 046d:c534 Logitech, Inc. Unifying Receiver

Bus 001 Device 005: ID 0403:6001 Future Technology Devices International, Ltd FT232 Serial (UART) IC

Bus 001 Device 004: ID 058f:6254 Alcor Micro Corp. USB Hub

Bus 001 Device 003: ID 2e8a:000a Raspberry Pi Pico

Bus 001 Device 002: ID 2109:3431 VIA Labs, Inc. Hub

Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

Note: The picotool command needs to be run with sudo or as root. Also export PICOTOOL=/home/devel/picotool/build/ This can be setup with “. Ultibo_Projects/picoultibo.sh”

picotool info --bus 1 --address 3 -f -a

The device was asked to reboot into BOOTSEL mode so the command can be executed.

Program Information

name: test-read-crc16

features: UART stdin / stdout

USB stdin / stdout

binary start: 0x10000000

binary end: 0x1002662c

Fixed Pin Information

0: UART0 TX

1: UART0 RX

Build Information

sdk version: 1.3.0

pico_board: pico

boot2_name: boot2_w25q080

build date: Jun 3 2022

build attributes: Release

Device Information

flash size: 2048K

ROM version: 2

The device was asked to reboot back into application mode.

Programmed the pico with the following command.

**openocd -f interface/raspberrypi-swd.cfg -f target/rp2040.cfg -c "program
test-read-crc16/test-read-crc16.elf verify reset exit"**

In a shell running "minicom -s"

```
devel@pi4-27: ~
File Edit Tabs Help

+-----+
| A -   Serial Device       : /dev/ttyUSB0 |
| B - Lockfile Location    : /var/lock     |
| C -   Callin Program      :              |
| D -   Callout Program     :              |
| E -   Bps/Par/Bits        : 115200 8N1   |
| F - Hardware Flow Control : No           |
| G - Software Flow Control : No           |
| H -   RS485 Enable        : No           |
| I -   RS485 Rts On Send   : No           |
| J -   RS485 Rts After Send : No          |
| K -   RS485 Rx During Tx  : No          |
| L -   RS485 Terminate Bus : No          |
| M - RS485 Delay Rts Before: 0            |
| N - RS485 Delay Rts After : 0            |
|                                     |
|   Change which setting?  |
+-----+
```

The help menu

```
File Edit Tabs Help
This is free software, and you are welcome to redistribute it
under certain conditions. See LICENSE file for details.

console on UART (detected 24 rows, 80 columns)

enter command, hit return for help

32 /:
    cd - change directory
    cp - copy file
format - format the filesystem
    get - get file (xmodem)
    ls - list directory
mkdir - create directory
mount - mount filesystem
    mv - rename file or directory
    put - put file (xmodem)
    q - quit
    rm - remove file or directory
status - filesystem status
unmount - unmount filesystem
    vi - vi editor

/:
```

/: mount
6 mount mount filesystem
mounted
/:

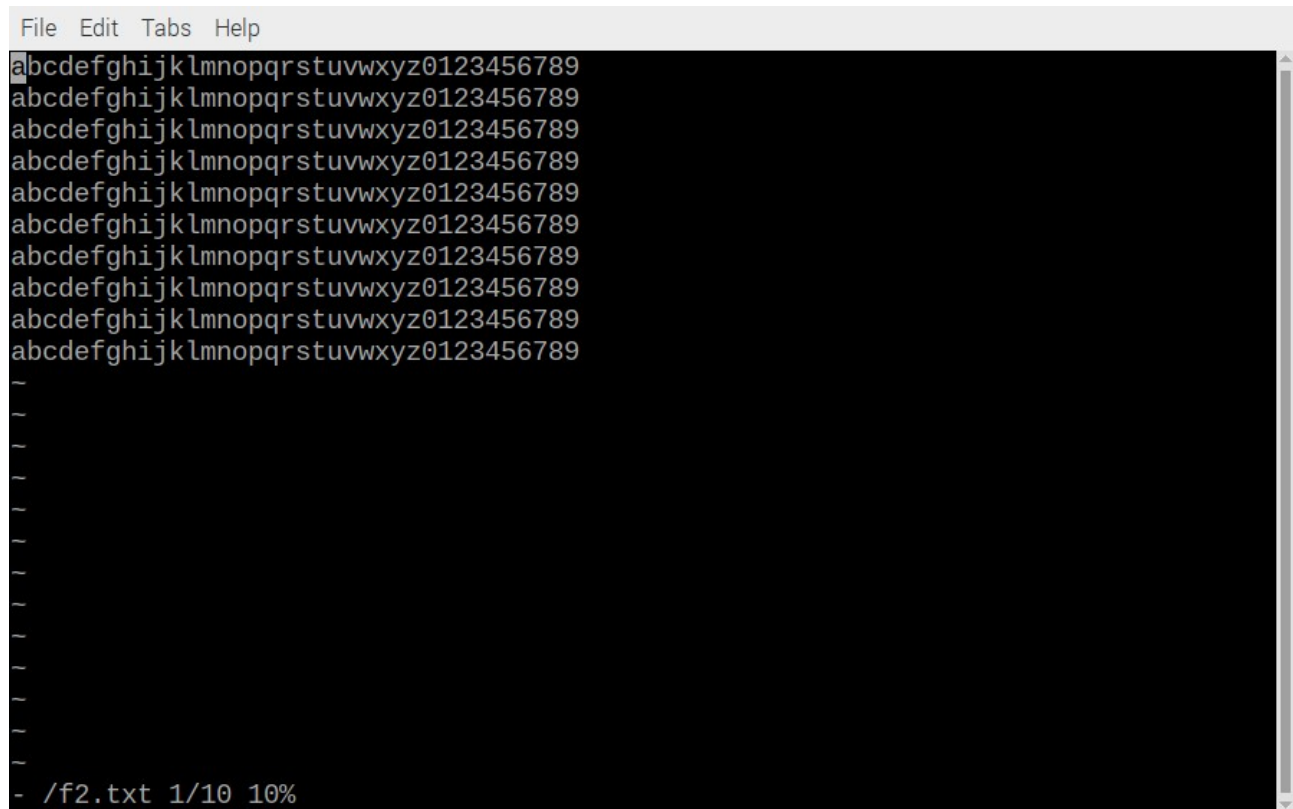
vi f1.txt

Using mousepad on RPi4B 8Gb wrote 5 lines of text

```
File Edit Tabs Help
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
```

This was pasted in a vi f1.txt

Using mousepad on RPi4B 8Gb wrote 10 lines of text
This was pasted in a vi f2.txt

A screenshot of a vi editor window. The title bar at the top shows 'File Edit Tabs Help'. The editor area contains 10 lines of text, each consisting of the lowercase alphabet 'a' through 'z' followed by the digits '0' through '9'. Below these 10 lines, there are several lines of tilde '~' characters, indicating that the text has been padded. At the bottom of the editor, a status line shows '- /f2.txt 1/10 10%'.

```
File Edit Tabs Help
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
abcdefghijklmnopqrstuvwxyz0123456789
~
~
~
~
~
~
~
~
~
~
- /f2.txt 1/10 10%
```

Esc :

w

Esc :

q

370 f2.txt

-rw-r--r-- 1 devel devel 369 Jun 4 07:29 /home/devel/o2.txt

get f2.txt

CtrlAS

The download loaded is padded after the 10 lines of text.

[illegible]