

Zynthian second try: adding encoders

jean-claude.feltes@education.lu

1. The version hell

As with all software related projects there is a problem of finding the right version. This was not easy: informations are scattered over web pages, Github repositories and forum.

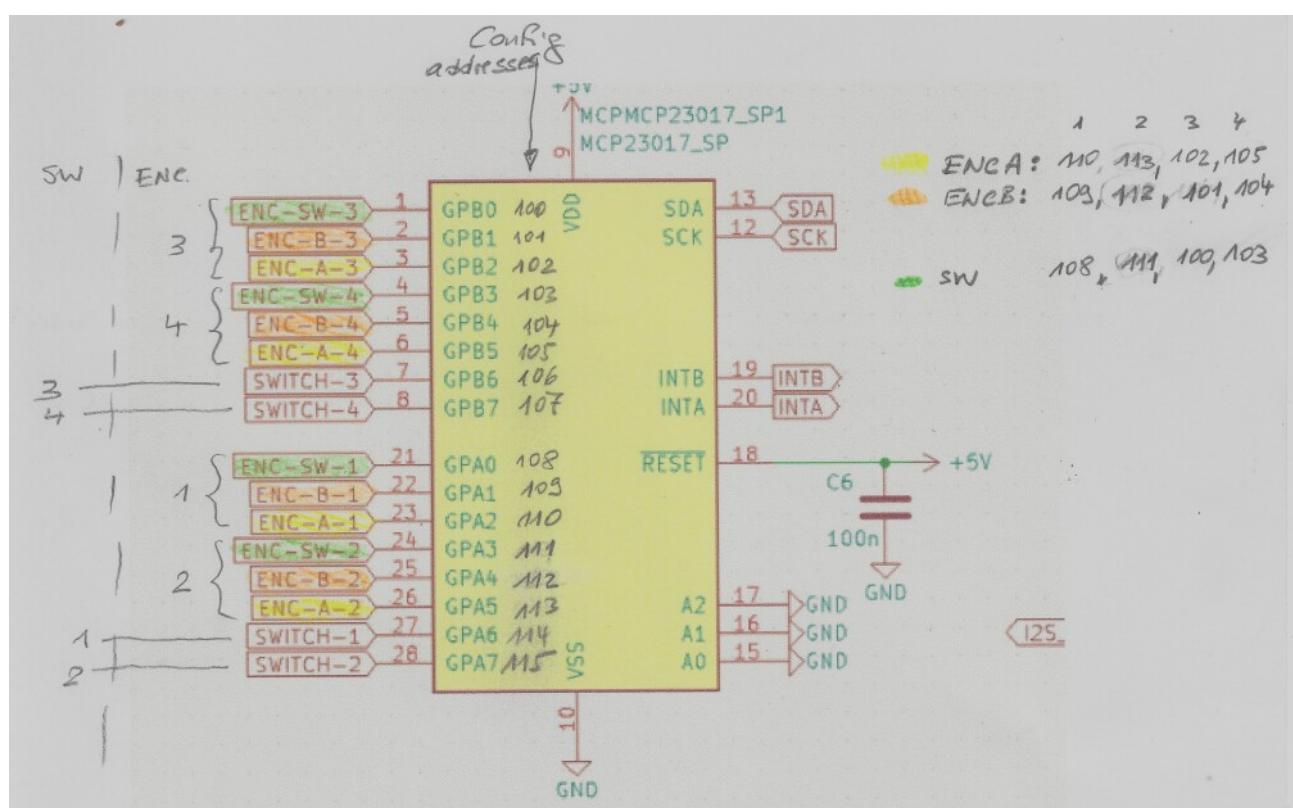
You can read about my odyssey here:

<https://discourse.zynthian.org/t/config-info-for-custom-wiring/12654/17>

Today (january 2026) one should **use V5, regardless of using a Raspi 4 or Raspi 5. (I used Raspi 4).**

2. Build with MCP23017 with 4 encoders → V5 custom config

Connections MCP23017 (hardware)



Connections to the Raspi:

SDA = GPIO2 (pin 3)

SCL = GPIO3 (pin 5)

INTA = GPIO16 (pin 36, WPi 27)

INTB = GPIO26 (pin 37, WPi 25)

+3.3V = pin 1
GND = pin 9

Encoders: A = CLK B = DT

My encoders have pullups and a +VCC pin. This is connected to +3.3V

The MCP20317 runs on +3.3V, not 5V.

Web config:

Mcp23017 Encoders V5Touch

Encoders A: 102,105,110,113

Encoders B: 101,104,109,112

Switches: -1,-1....-1,100,103,108,111 (20x -1 for virtual buttons)

I2C address: 0x20

Important:

Addresses of the MCP23017 GPIOs are in the range 100...107 for port A, and 108...115 for port B.
(If a second MCP is used they start at 200.)

No more errors

SHOW DEBUG LOGGING

```
Jan 04 10:55:33 zynthian startx[869]: ZynCore: Setting-up zyncoder in pins (102, 101)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore: Setting-up zyncoder in pins (105, 104)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore: Setting-up zyncoder in pins (110, 109)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore: Setting-up zyncoder in pins (113, 112)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore: Setting-up 4x Zynpots (zyncoders)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore->gpiod_start_callbacks: Callback thread created successfully
Jan 04 10:55:35 zynthian startx[869]: Started libzynaudioplayer using libsndfile-1.2.0
Jan 04 10:55:35 zynthian startx[869]: Started libzynmixer
Jan 04 10:55:35 zynthian startx[869]: Started libzynseq
Jan 04 10:55:35 zynthian startx[869]: Started libzynsmf
```

3. Debugging (if necessary)

Testing encoders and switches

(thanks Josepho!)

There is a command line tool to test encoders and switches.

It's in the zyncoder's library build dir:

`/zynthian/zyncoder/build/zyncoder_test`

To use it, you must be sure that zynthian service is stopped:

`sudo systemctl stop zynthian`

0. Stop zynthian service and work from zyncoder's library dir:

```
sudo systemctl stop zynthian
cd /zynthian/zyncoder
```

1. Edit the configuration in `/zynthian/config/zynthian_envvars.sh`. For instance:

`nano /zynthian/config/zynthian_envvars.sh`

2. Load the new config with:

`source /zynthian/config/zynthian_envvars.sh`

3. Test the configuration with the command line tool:

`./build/zyncoder_test`

Iterate from 1 ...