

Zynthian second try: adding encoders

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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.

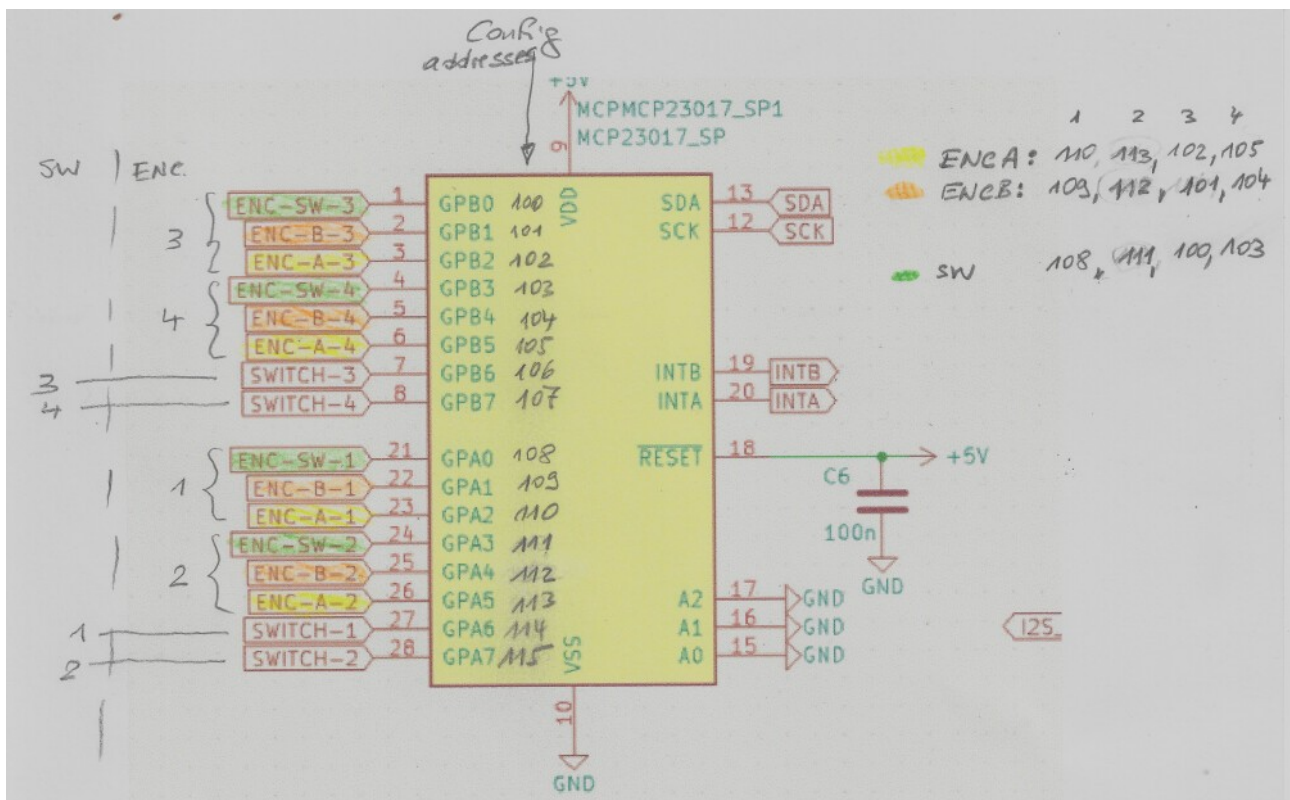
You can read about my odyssey here:

<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.)

Wiring Layout		
Mcp23017 Encoders V5Touch		
Encoders A-pins	Encoders B-pins	Switches Pins
102,105,110,113	101,104,109,112	-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1
MCP23017 I2C Address	MCP23017 INT-A Pin	MCP23017 INT-B Pin
0X20	WPI-GPIO 27 (pin 36)	WPI-GPIO 25 (pin 37)
Zynaptik Config	ADS1115 I2C Address	MCP4728 I2C Address
Num. of Distance Sensors		
0		
Customization Profile		
Jc4		
		+ Save as ... Delete

swiches pins: -1,100,103,108,111

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 4 x Zynpots (zyncoders)...
Jan 04 10:55:33 zynthian startx[869]: ZynCore->gpod_start_callbacks: Callback thread created successfully
Jan 04 10:55:35 zynthian startx[869]: Started libzynaudiooplayer 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:

```
systemctl stop zynthian
```

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

```
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 ...