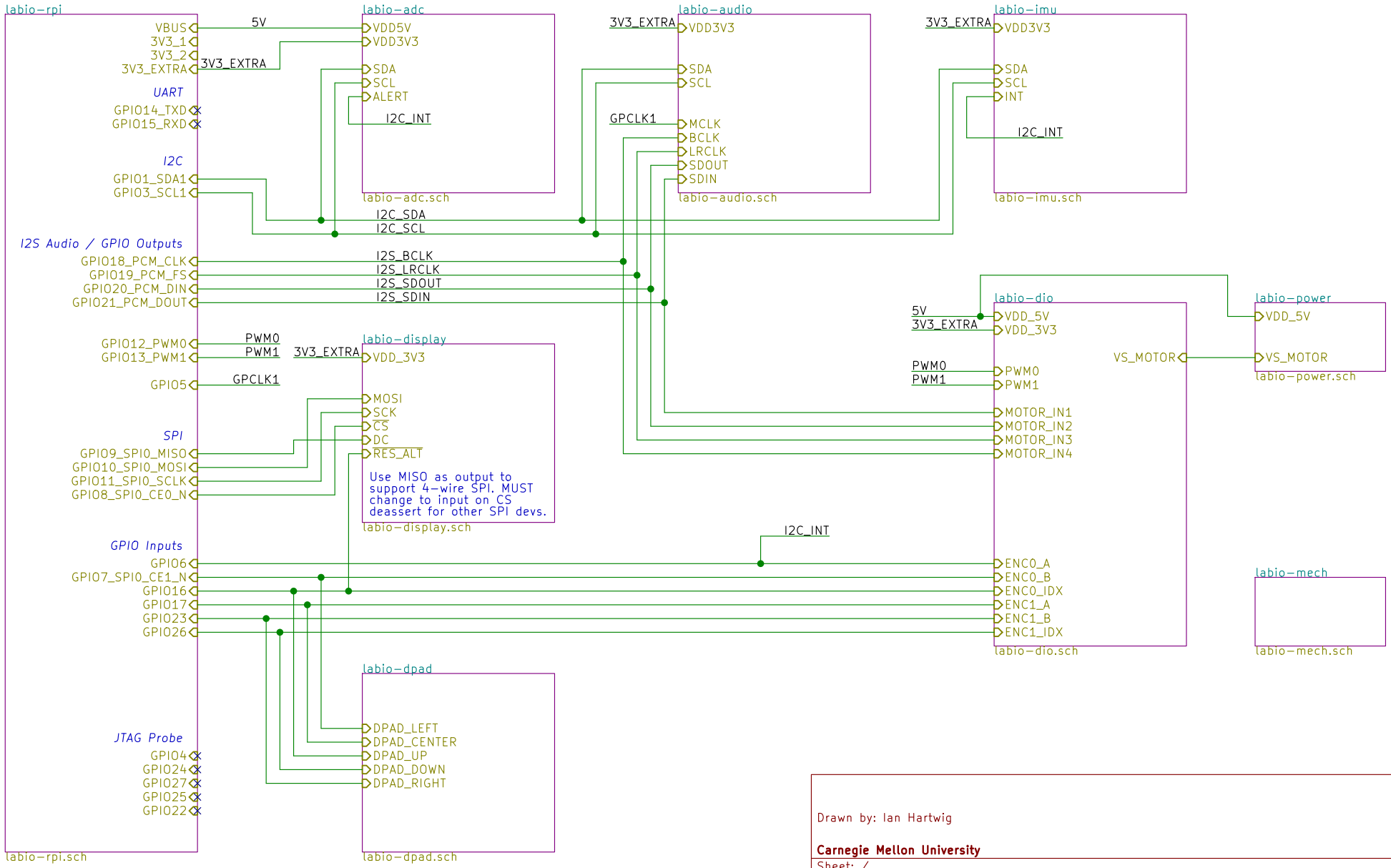

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Sheet: /
File: labio.sch

Title: Raspberry Pi Embedded Lab I/O

Size: A4	Date:	**Rev: 1.2.0**
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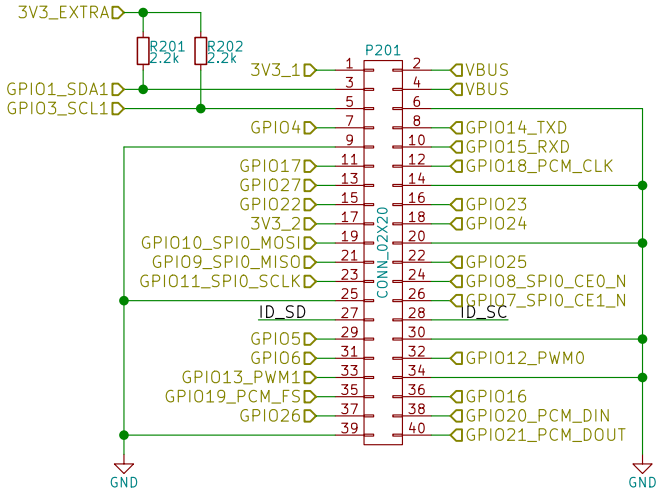

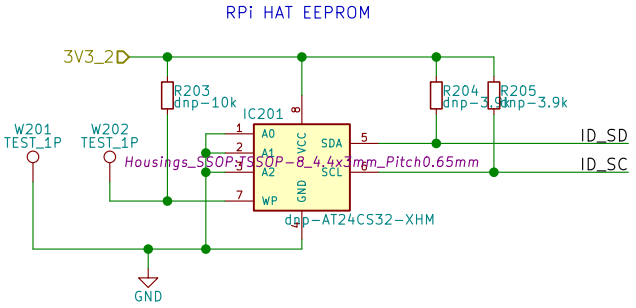

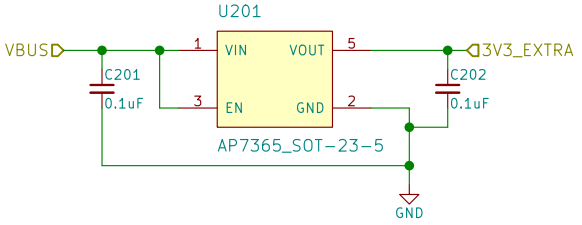

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Sheet: /labio-rpi/
File: labio-rpi.sch

Title: Raspberry Pi Embedded Lab I/O

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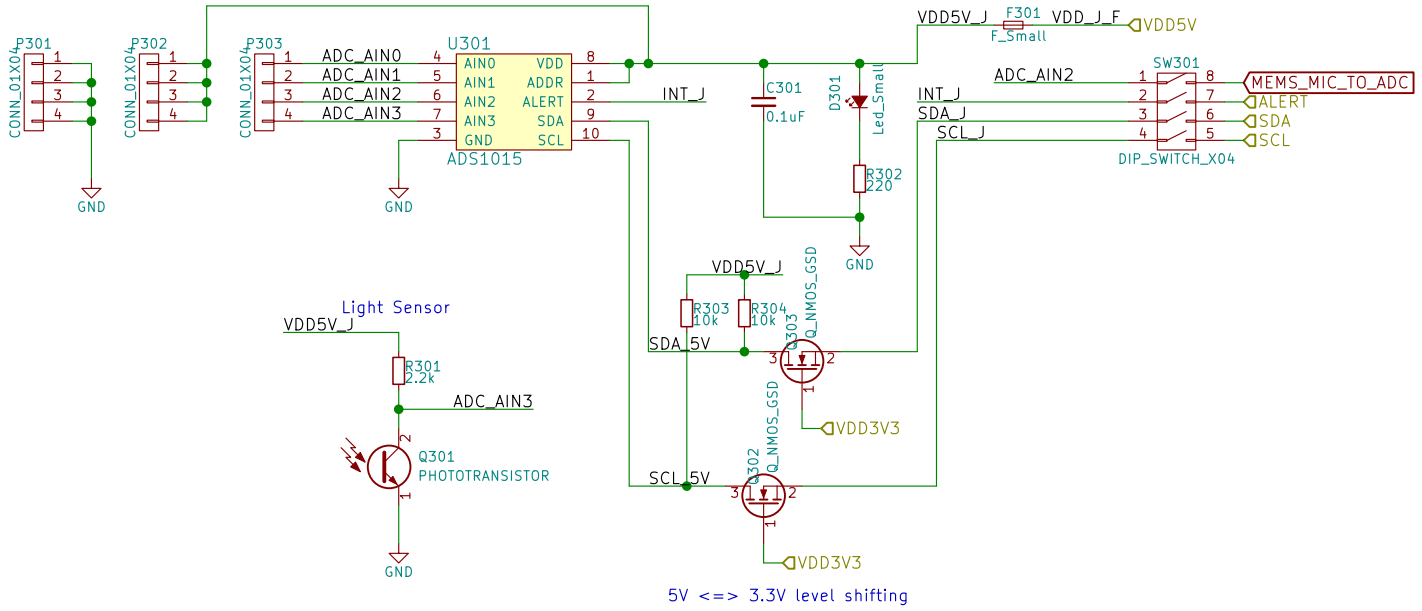
12-bit (ADS1015) or 16-bit (ADS1115) ADC
with differential PGA and 4-channel mux.

7-bit addr: 0x73

5V VDD to safely sample RPi VBUS.



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Sheet: /labio-adc/
File: labio-adc.sch

Title: Raspberry Pi Embedded Lab I/O

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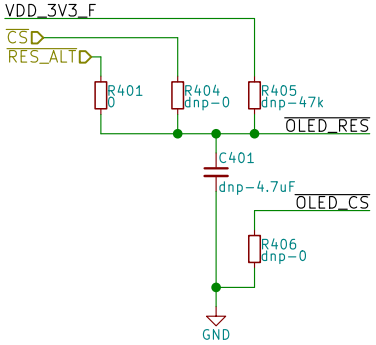
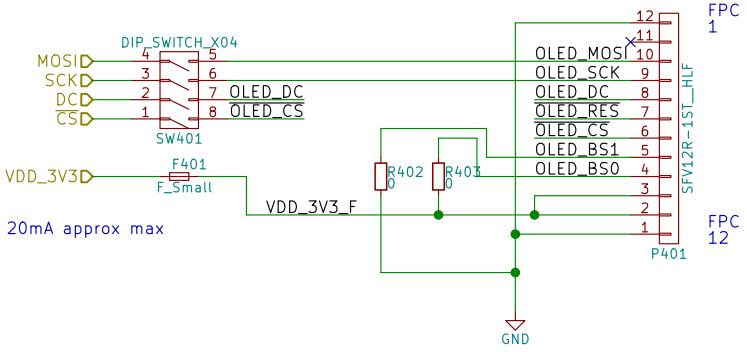
Backup options for OLED reset line

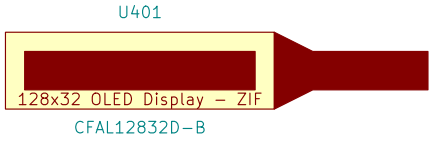
GPIO control on CS or alt or driven
from VDD with an RC delay > 110ms.



CFAL12832D-B* OLED Display
3-wire SPI mode.

Note: top side ZIF connector has pins reversed from FPC.





	Interface			
Pin No	Sym	3 Wire SPI	4 Wire SPI	I2C
1	GND	**GND**	**GND**	**GND**
2	D2	NC	NC	SDA*
3	D1	SDA	SDA	SDA*
4	D0	CLK	SCLK	SCL
5	D/C#	NC	D/C	**Vcc**
6	RES#	RESET	RESET	RESET
7	CS#	**GND**	**GND**	**GND**
8	BS1	**GND**	**GND**	**Vcc**
9	BS0	**Vcc**	**GND**	**GND**
10	Vdd	**Vcc****	**Vcc****	**Vcc****
11	Vbat	**Vcc****	**Vcc****	**Vcc****
12	GND	**GND**	**GND**	**GND**

Microcontroller	Control lines defined by layout / code
+3.3v	Supply voltage
Ground	Supply ground

Notes:

*	Tie D2 and D1 together
**	Okay to Tie Vdd and Vbat together

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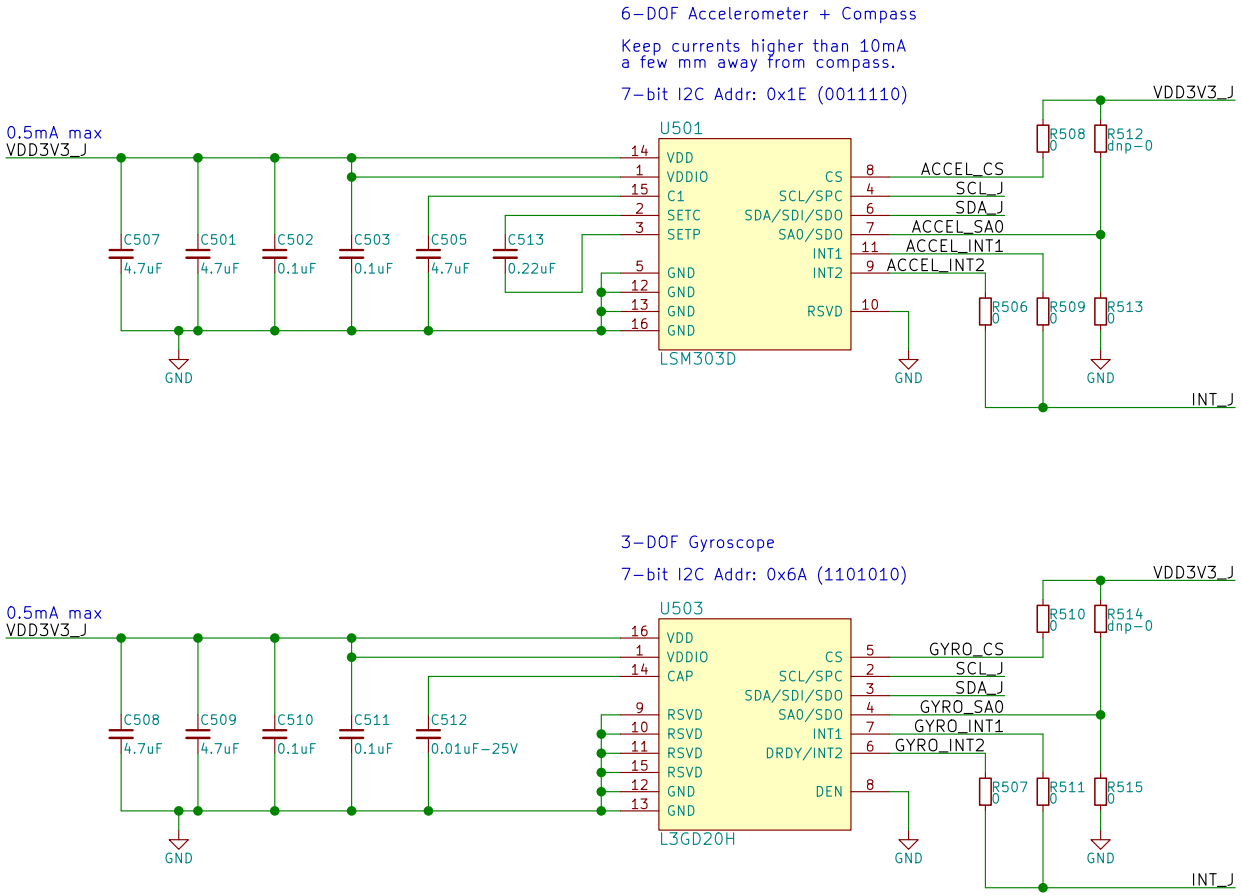

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File: labio-imu.sch

Title: Raspberry Pi Embedded Lab I/O

Size: A4	Date:	**Rev: 1.2.0**
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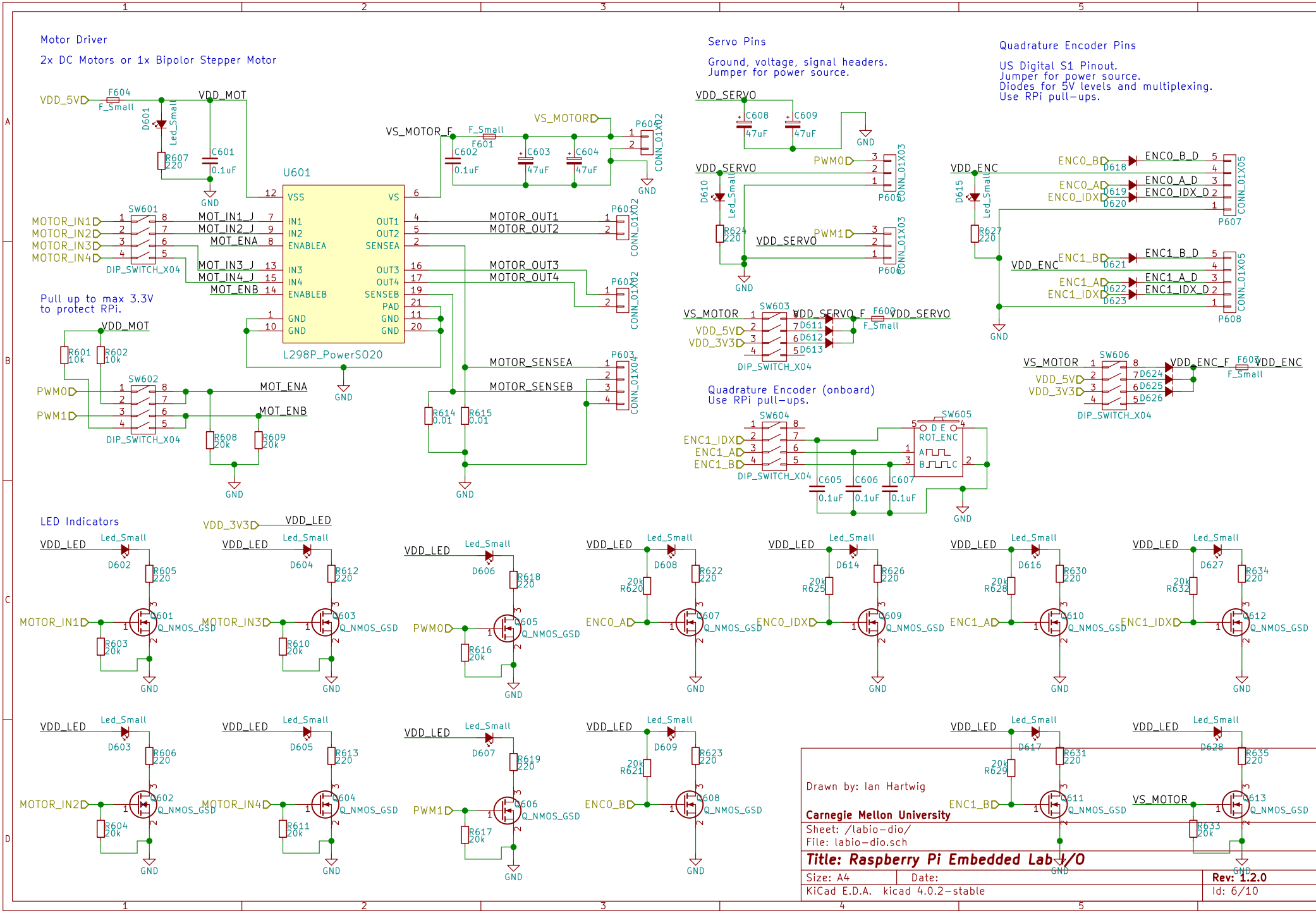
Motor Driver
2x DC Motors or 1x Bipolor Stepper Motor
Servo Pins
Ground, voltage, signal headers.
Jumper for power source.
Quadrature Encoder Pins
US Digital S1 Pinout.
Jumper for power source.
Diodes for 5V levels and multiplexing.
Use RPi pull-ups.
Pull up to max 3.3V
to protect RPi.
Quadrature Encoder (onboard)
Use RPi pull-ups.
LED Indicators
U601
L298P_PowerSO20
VDD_5V
VDD_MOT
VS_MOTOR
VS_MOTOR_F
VDD_SERVO
VDD_ENC
VDD_3V3
VDD_LED
GND
MOTOR_IN1
MOTOR_IN2
MOTOR_IN3
MOTOR_IN4
MOT_IN1_J
MOT_IN2_J
MOT_IN3_J
MOT_IN4_J
MOT_ENA
MOT_ENB
MOTOR_OUT1
MOTOR_OUT2
MOTOR_OUT3
MOTOR_OUT4
MOTOR_SENSEA
MOTOR_SENSEB
PWM0
PWM1
ENC0_A
ENC0_B
ENC0_IDX
ENC1_A
ENC1_B
ENC1_IDX
ENC0_A_D
ENC0_B_D
ENC0_IDX_D
ENC1_A_D
ENC1_B_D
ENC1_IDX_D
VDD_SERVO_F
VDD_ENC_F
ROT_ENC
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Sheet: /labio-dio/
File: labio-dio.sch
Title: Raspberry Pi Embedded Lab I/O
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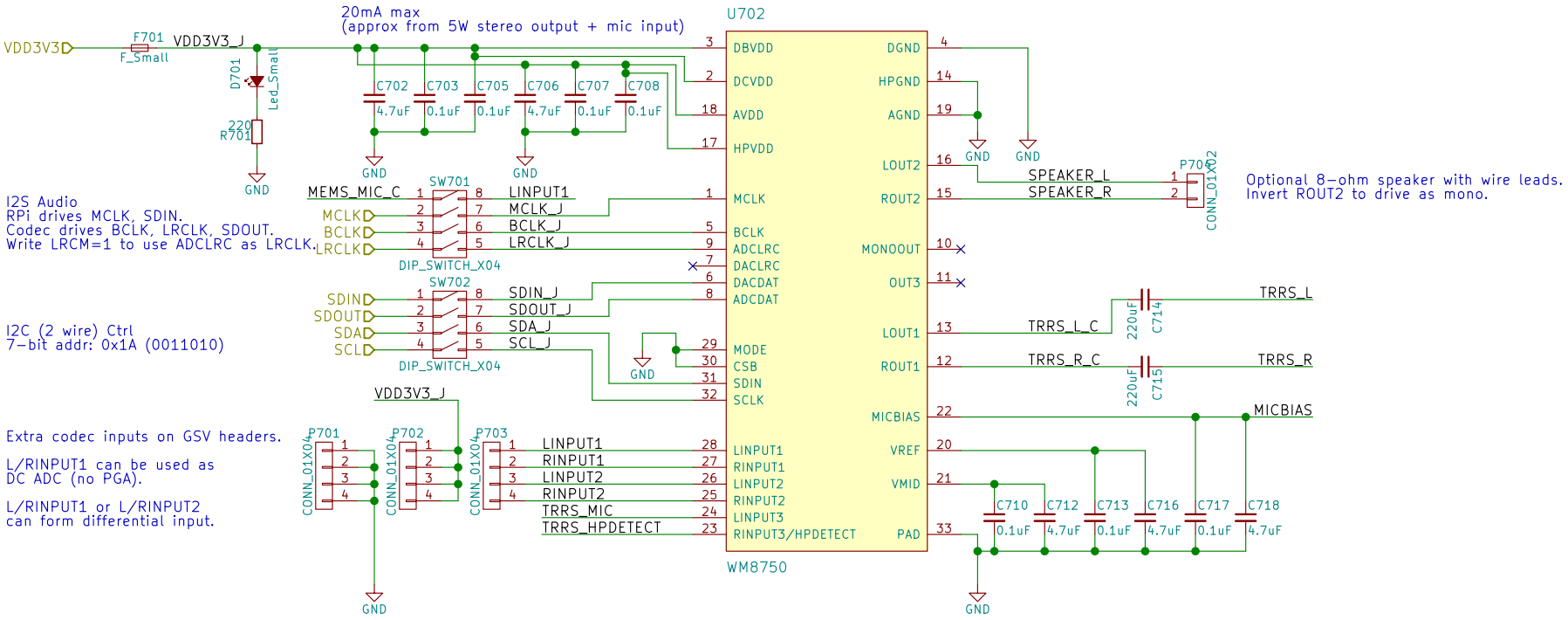

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Sheet: /labio-audio/
File: labio-audio.sch

Title: Raspberry Pi Embedded Lab I/O

Size: A4	Date:	**Rev: 1.2.0**
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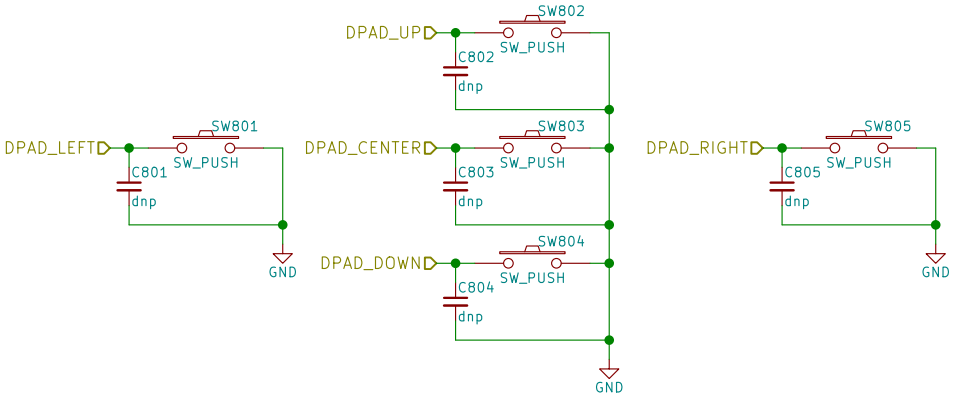
D-Pad

Use RPi pull-ups.
Optional C for decoupling.
Individual IO lines for interrupts.



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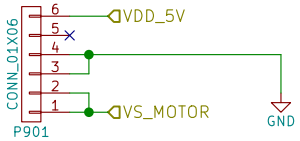
Sheet: /labio-dpad/
File: labio-dpad.sch

Title: Raspberry Pi Embedded Lab I/O

Size: A4	Date:	**Rev: 1.2.0**
KiCad E.D.A. kicad 4.0.2-stable		Id: 8/10

External Power (Future)

Provides logic and motor power from power supply or
battery pack with possible charging from USB (rpi) power.
2x motor power for current rating.



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Sheet: /labio-power/
File: labio-power.sch

Title: Raspberry Pi Embedded Lab I/O

Size: A4	Date:	**Rev: 1.2.0**
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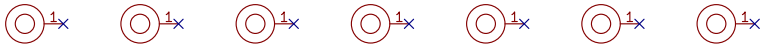
RPi-like Mounting Holes

M3 for M3/no 4/M2.5 hardware.

H1001 H1003 H1004 H1005 H1007 H1008 H1009



hole hole hole hole hole hole hole

Heatsink Mounting

25x25mm with 30x30mm M3 holes

H1002 H1006

hole hole

WiSE Lab

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WiSE Lab

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