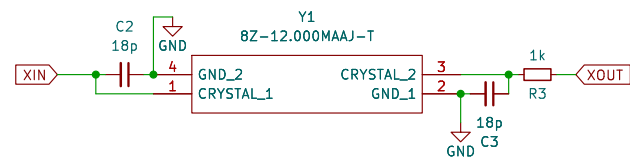


The schematic diagram illustrates the connections for the MCU RP2040. Key components and connections include:

- Power Supply:** +1V1 and +3V3 rails. Decoupling capacitors C1 through C13 are shown, including 100nF capacitors (C6-C13) and a 1uF capacitor (C12).
- MCU Pin Connections:**
 - GPIOs:** GPIO0 through GPIO25 are connected to various external components like UART_TX, UART_RX, I2C_SDA, I2C_SCL, nSLEEP, nFAULT, DRV0FF, and current sensors (R61, R81, R71).
 - QSPI:** QSPI_SS, QSPI_SD0 through QSPI_SD3, and QSPI_CLK are connected to external memory or storage.
 - Other Pins:** RUN, USB_DP, USB_DM, XIN, XOUT, SWCLK, SWD, TESTEN, and VREG_VOUT are connected to their respective external components or ground.
- Crystal:** A crystal Y1 (8Z-12.000MAAJ-T) is connected to GND_2 and CRYSTAL_1, with a 18pF capacitor C2 and a 1k resistor R3.

[illegible]

Connectors

Power 12–30V

J6 XT30PB

1 2

1 2 VM

AO3401A

D S

Q1

Reverse polarity protection

ALIM

GND

Testing points

H6 3V3_BUCK Test_point_buck

H7 DRV_BUCK_OUT Test_point_DRV_buck

J2 68021-412HLF

GPIO9 12

GPIO3 10

GPIO2 8

GPIO20 6

GPIO21 4

GND 2

GPIO22 11

GPIO24 9

GPIO25 7

V_US8 5

+3V3 3

I/O

J3 LED OUT

SWCLK 2 SWD 1

J4 UART

RX 2 TX 1

J5 LED OUT

DOUT 2 GND 1

Motor Driver

U5 DRV8316RQRGFRQ1

Current_A

Current_B

Current_C

Current_A

Current_B

Current_C

Decoupling current sensor

Pull-up nFAULT

+3V3

nFAULT

R16

100R

Magnetic encoder

The diagram illustrates the wiring for a magnetic encoder (U6: AS5600L-ASOM) on an Arduino Uno. The encoder is powered by a +3V3 supply through a 100nF decoupling capacitor (C30) and a 10uF capacitor (C32). Its pins are connected as follows: VDD5V to +3V3, VDD3V3 to +3V3, OUT to PWM_Out, and GND to GND. The I2C interface is connected to pins 8 (DIR to DIR_Pin), 7 (SCL to I2C_SCL), 6 (SDA to I2C_SDA), and 5 (PGO, which is crossed out). Pull-up resistors R14 (4.7k) and R15 (4.7k) are connected to the I2C lines from the +3V3 supply.

[illegible]

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