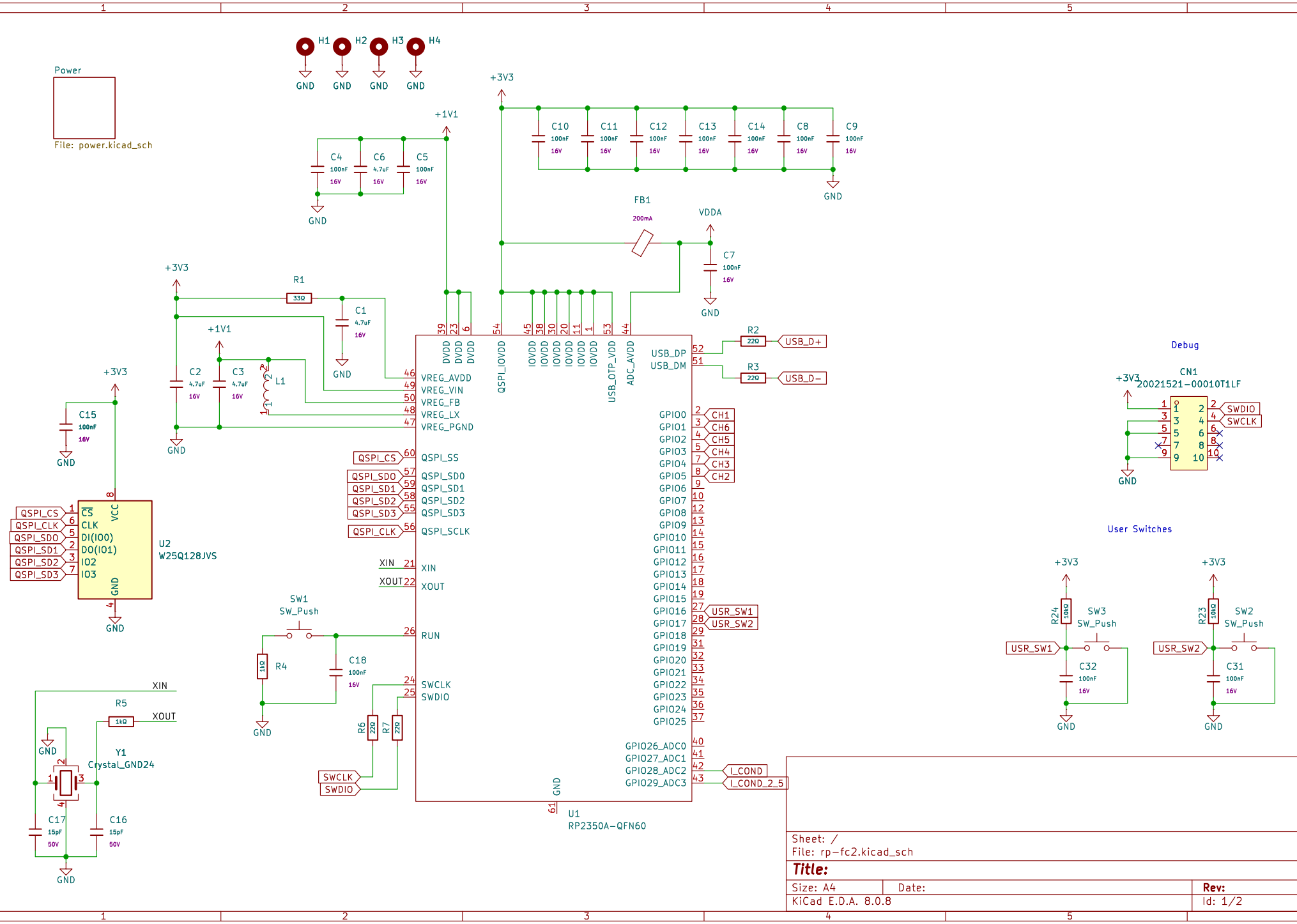
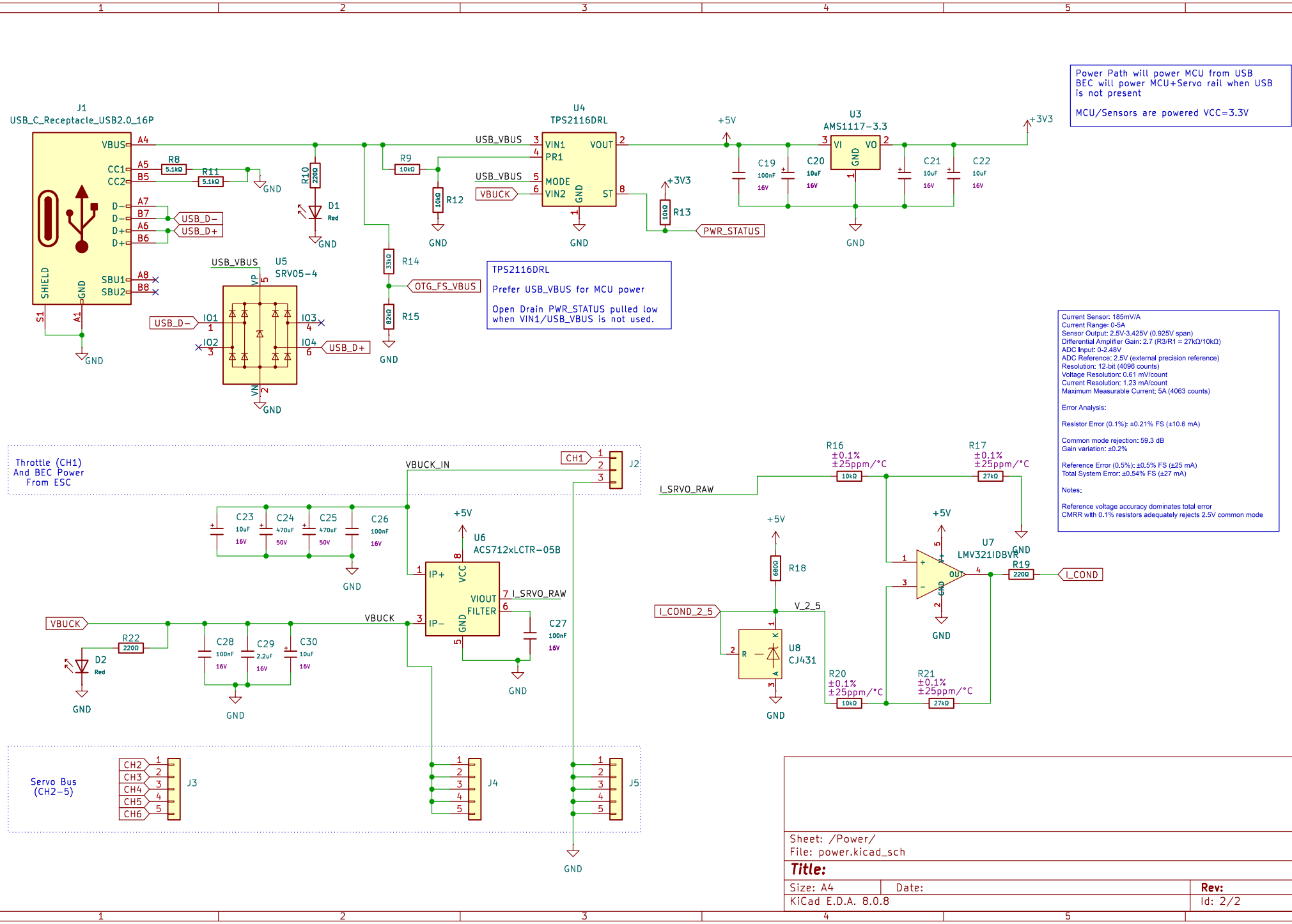

Power
File: power.kicad_sch
H1
H2
H3
H4
GND
+3V3
+1V1
C10
C11
C12
C13
C14
C8
C9
100nF
16V
C4
C6
C5
4.7uF
FB1
200mA
VDDA
C7
R1
33Ω
C1
C2
C3
L1
C15
U2
W25Q128JVS
CS
CLK
DI(IO0)
DO(IO1)
IO2
IO3
VCC
QSPI_CS
QSPI_CLK
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
U1
RP2350A-QFN60
DVDD
QSPI_IOVDD
IOVDD
USB_OTP_VDD
ADC_AVDD
USB_DP
USB_DM
R2
R3
22Ω
USB_D+
USB_D-
VREG_AVDD
VREG_VIN
VREG_FB
VREG_LX
VREG_PGND
QSPI_SS
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
QSPI_SCLK
XIN
XOUT
RUN
SWCLK
SWDIO
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
GPIO26_ADC0
GPIO27_ADC1
GPIO28_ADC2
GPIO29_ADC3
CH1
CH6
CH5
CH4
CH3
CH2
USR_SW1
USR_SW2
I_COND
I_COND_2_5
SW1
SW_Push
R4
1kΩ
C18
R6
R7
R5
Y1
Crystal_GND24
C17
C16
15pF
50V
Debug
CN1
20021521-00010T1LF
User Switches
SW3
SW2
R24
R23
10kΩ
C32
C31
Sheet: /
File: rp-fc2.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 8.0.8
Id: 1/2


Power Path will power MCU from USB
BEC will power MCU+Servo rail when USB is not present
MCU/Sensors are powered VCC=3.3V
J1
USB_C_Receptacle_USB2.0_16P
U4
TPS2116DRL
U3
AMS1117-3.3
+5V
+3V3
TPS2116DRL
Prefer USB_VBUS for MCU power
Open Drain PWR_STATUS pulled low when VIN1/USB_VBUS is not used.
U5
SRV05-4
OTG_FS_VBUS
PWR_STATUS
Current Sensor: 185mV/A
Current Range: 0-5A
Sensor Output: 2.5V-3.425V (0.925V span)
Differential Amplifier Gain: 2.7 (R3/R1 = 27kΩ/10kΩ)
ADC Input: 0-2.48V
ADC Reference: 2.5V (external precision reference)
Resolution: 12-bit (4096 counts)
Voltage Resolution: 0.61 mV/count
Current Resolution: 1.23 mA/count
Maximum Measurable Current: 5A (4063 counts)
Error Analysis:
Resistor Error (0.1%): ±0.21% FS (±10.6 mA)
Common mode rejection: 59.3 dB
Gain variation: ±0.2%
Reference Error (0.5%): ±0.5% FS (±25 mA)
Total System Error: ±0.54% FS (±27 mA)
Notes:
Reference voltage accuracy dominates total error
CMRR with 0.1% resistors adequately rejects 2.5V common mode
Throttle (CH1)
And BEC Power
From ESC
VBUCK_IN
U6
ACS712xLCTR-05B
I_SRVO_RAW
U7
LMV321IDBVR
U8
CJ431
I_COND
I_COND_2_5
V_2_5
Servo Bus
(CH2-5)
Sheet: /Power/
File: power.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 8.0.8
Id: 2/2