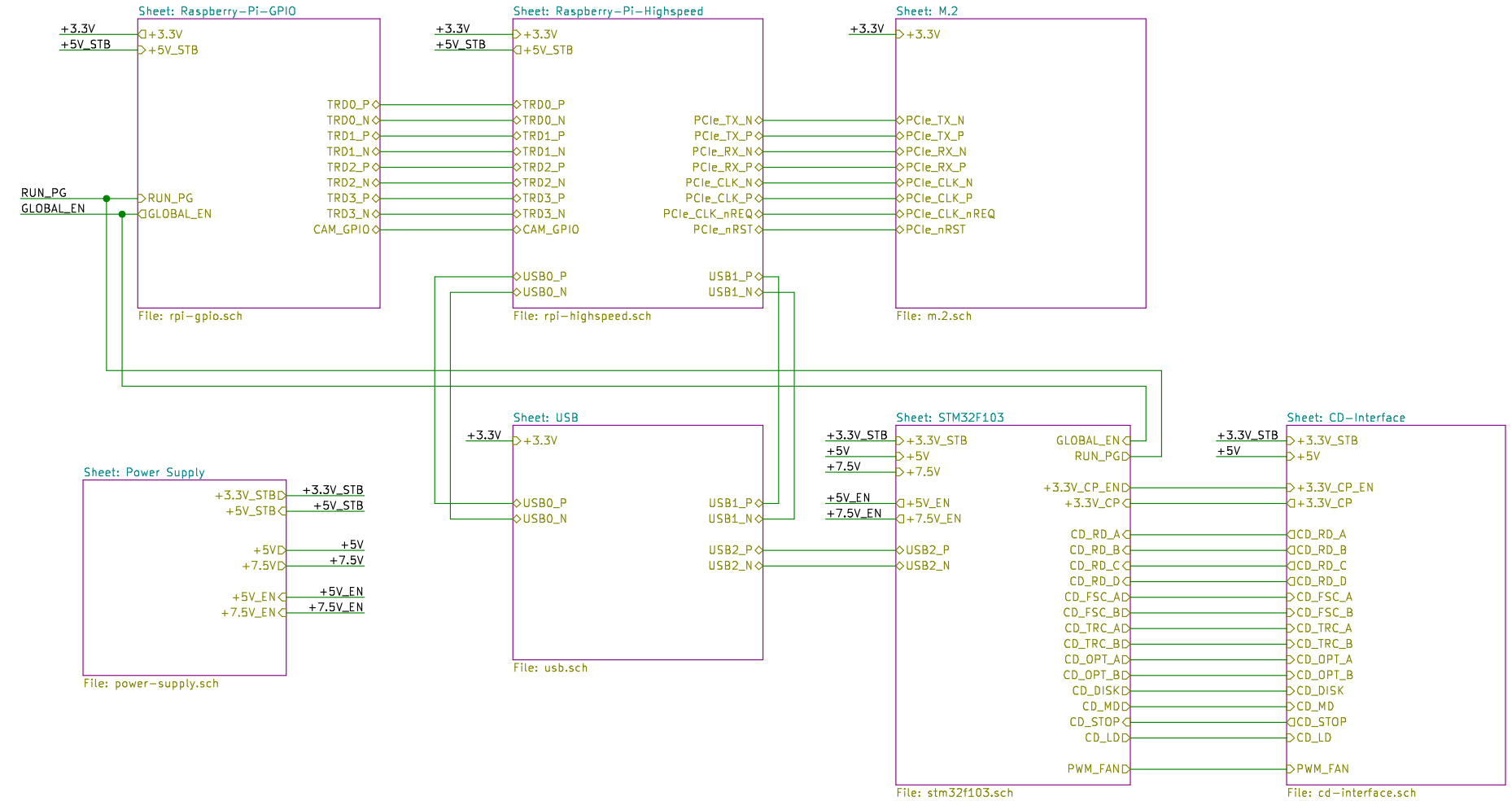

Sheet: Raspberry-Pi-GPIO
+3.3V
+5V_STB
+3.3V
+5V_STB
TRD0_P
TRD0_N
TRD1_P
TRD1_N
TRD2_P
TRD2_N
TRD3_P
TRD3_N
CAM_GPIO
RUN_PG
GLOBAL_EN
RUN_PG
GLOBAL_EN
File: rpi-gpio.sch
Sheet: Raspberry-Pi-Highspeed
+3.3V
+5V_STB
+3.3V
+5V_STB
TRD0_P
TRD0_N
TRD1_P
TRD1_N
TRD2_P
TRD2_N
TRD3_P
TRD3_N
CAM_GPIO
PCIe_TX_N
PCIe_TX_P
PCIe_RX_N
PCIe_RX_P
PCIe_CLK_N
PCIe_CLK_P
PCIe_CLK_nREQ
PCIe_nRST
USB0_P
USB0_N
USB1_P
USB1_N
File: rpi-highspeed.sch
Sheet: M.2
+3.3V
+3.3V
PCIe_TX_N
PCIe_TX_P
PCIe_RX_N
PCIe_RX_P
PCIe_CLK_N
PCIe_CLK_P
PCIe_CLK_nREQ
PCIe_nRST
File: m.2.sch
Sheet: USB
+3.3V
+3.3V
USB0_P
USB0_N
USB1_P
USB1_N
USB2_P
USB2_N
File: usb.sch
Sheet: Power Supply
+3.3V_STB
+5V_STB
+5V
+7.5V
+5V_EN
+7.5V_EN
+3.3V_STB
+5V_STB
+5V
+7.5V
+5V_EN
+7.5V_EN
File: power-supply.sch
Sheet: STM32F103
+3.3V_STB
+5V
+7.5V
+5V_EN
+7.5V_EN
+3.3V_STB
+5V
+7.5V
+5V_EN
+7.5V_EN
USB2_P
USB2_N
GLOBAL_EN
RUN_PG
+3.3V_CP_EN
+3.3V_CP
CD_RD_A
CD_RD_B
CD_RD_C
CD_RD_D
CD_FSC_A
CD_FSC_B
CD_TRC_A
CD_TRC_B
CD_OPT_A
CD_OPT_B
CD_DISK
CD_MD
CD_STOP
CD_LD
PWM_FAN
File: stm32f103.sch
Sheet: CD-Interface
+3.3V_STB
+5V
+3.3V_STB
+5V
+3.3V_CP_EN
+3.3V_CP
CD_RD_A
CD_RD_B
CD_RD_C
CD_RD_D
CD_FSC_A
CD_FSC_B
CD_TRC_A
CD_TRC_B
CD_OPT_A
CD_OPT_B
CD_DISK
CD_MD
CD_STOP
CD_LD
PWM_FAN
File: cd-interface.sch


LAYOUT1
PSOne-Board-Layout

Standby power:

+3.3V_STB → +3.3V_STB

+5V_STB → +5V_STB

PSOne peripheral power (controlled by STM32):

+5V → +5V

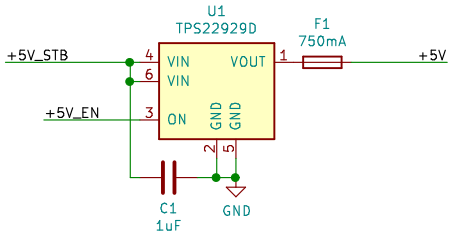
+7.5V → +7.5V

Control inputs from STM32

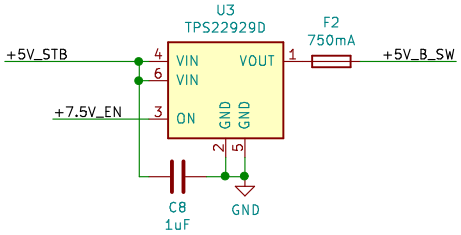
+5V_EN → +5V_EN

+7.5V_EN → +7.5V_EN

+5V power switch for PSOne peripherals

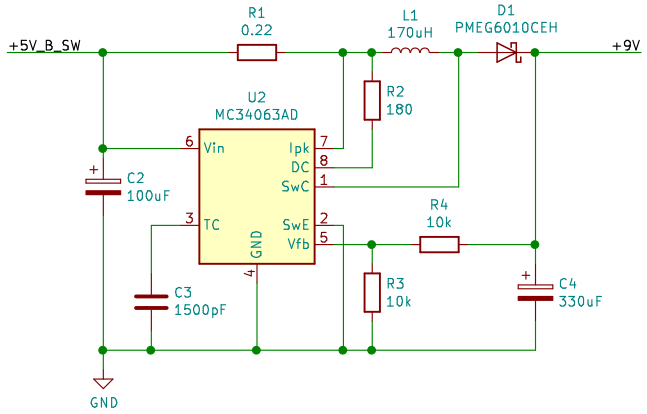


+5V power switch to +7.5V boost converter for cd drive and rumble



+9V boost converter

TODO: R3, R4 and output should be changed for 7.5V (Playstation 1 uses 9V, PSOne only 7.5V)

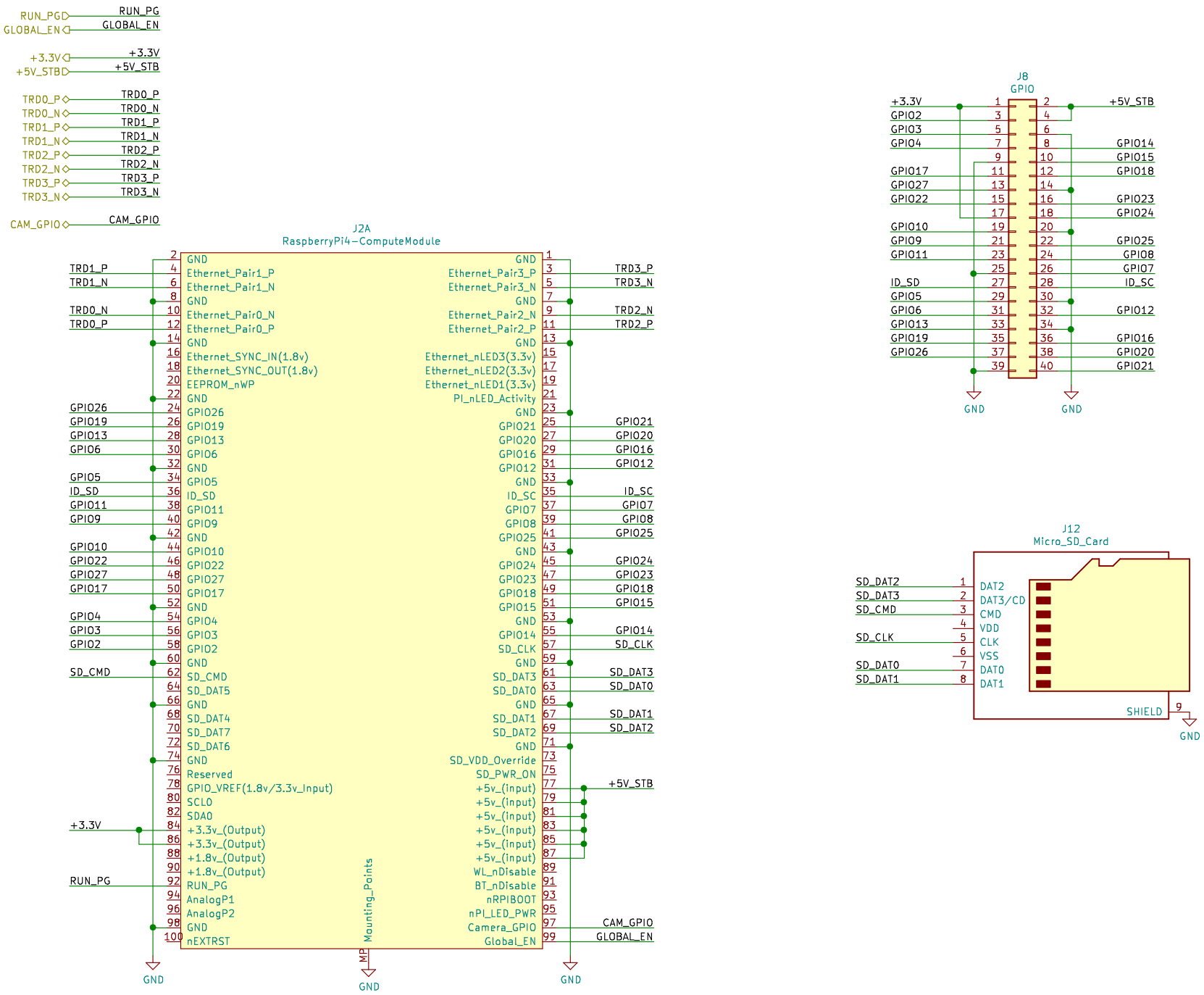


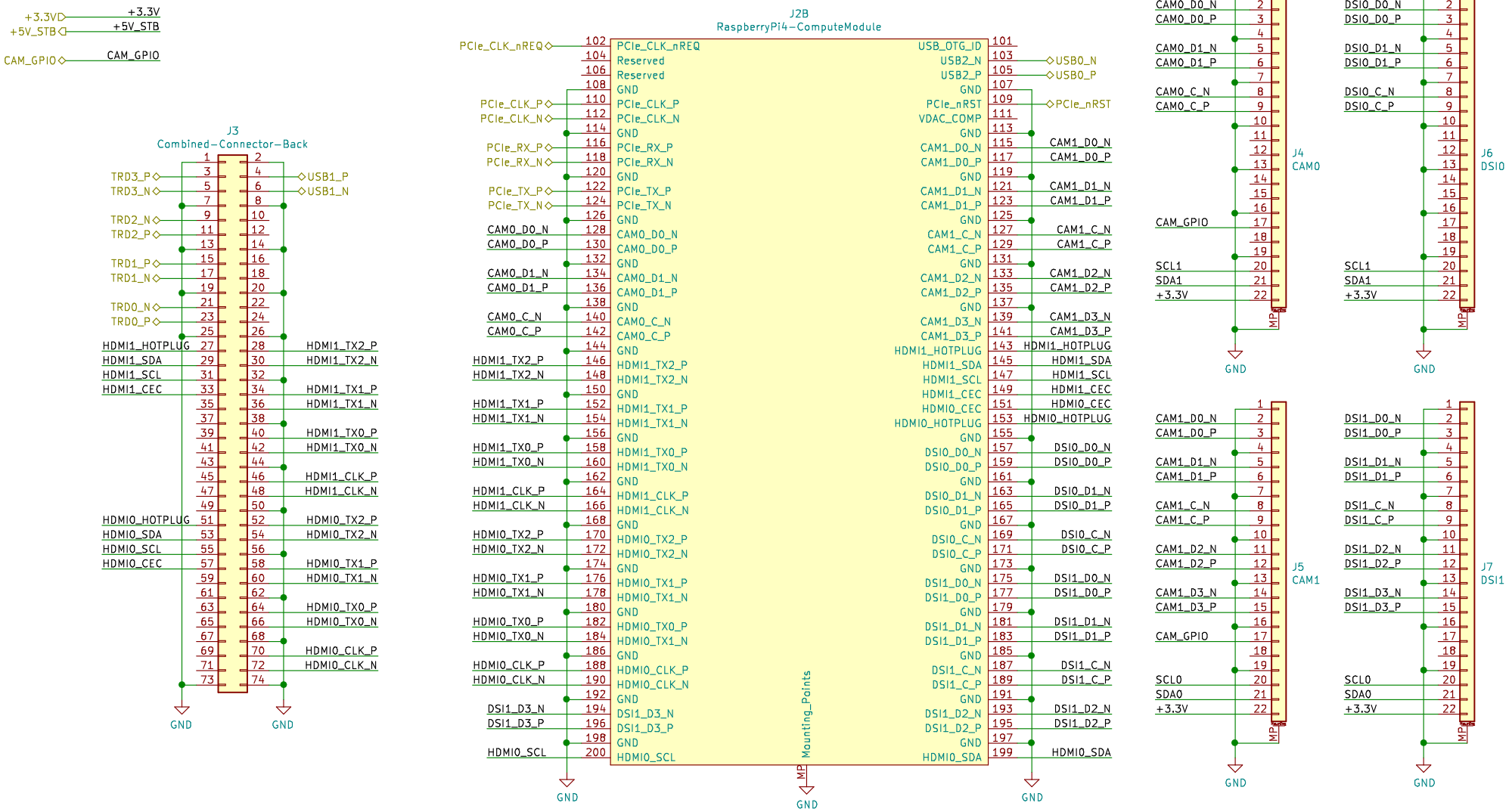
TODO: +5V_STB to +3.3V_STB converter for STM32F103 and eventually M.2

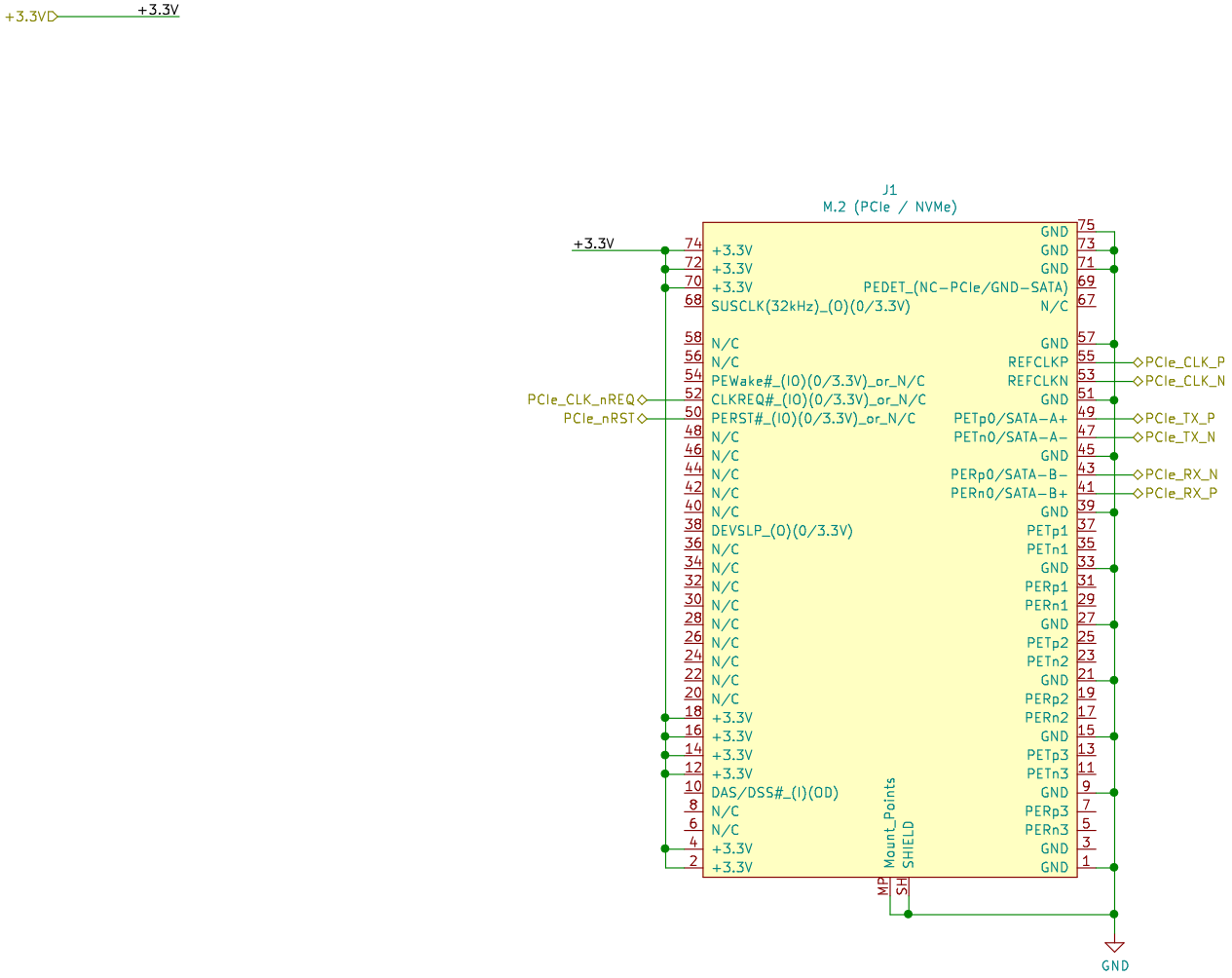
Or use the +3.3V from the Compute Module?

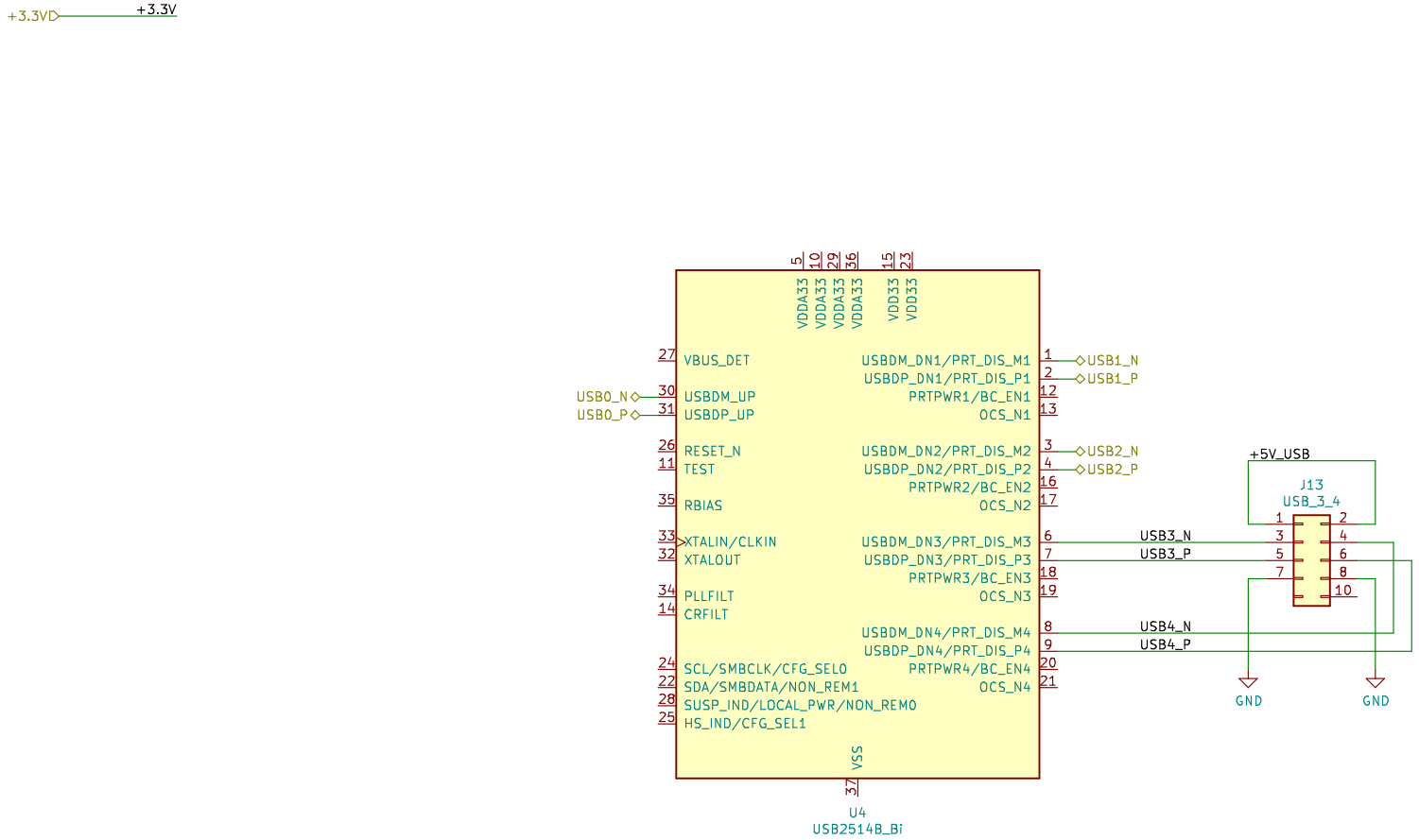
+5V_STB

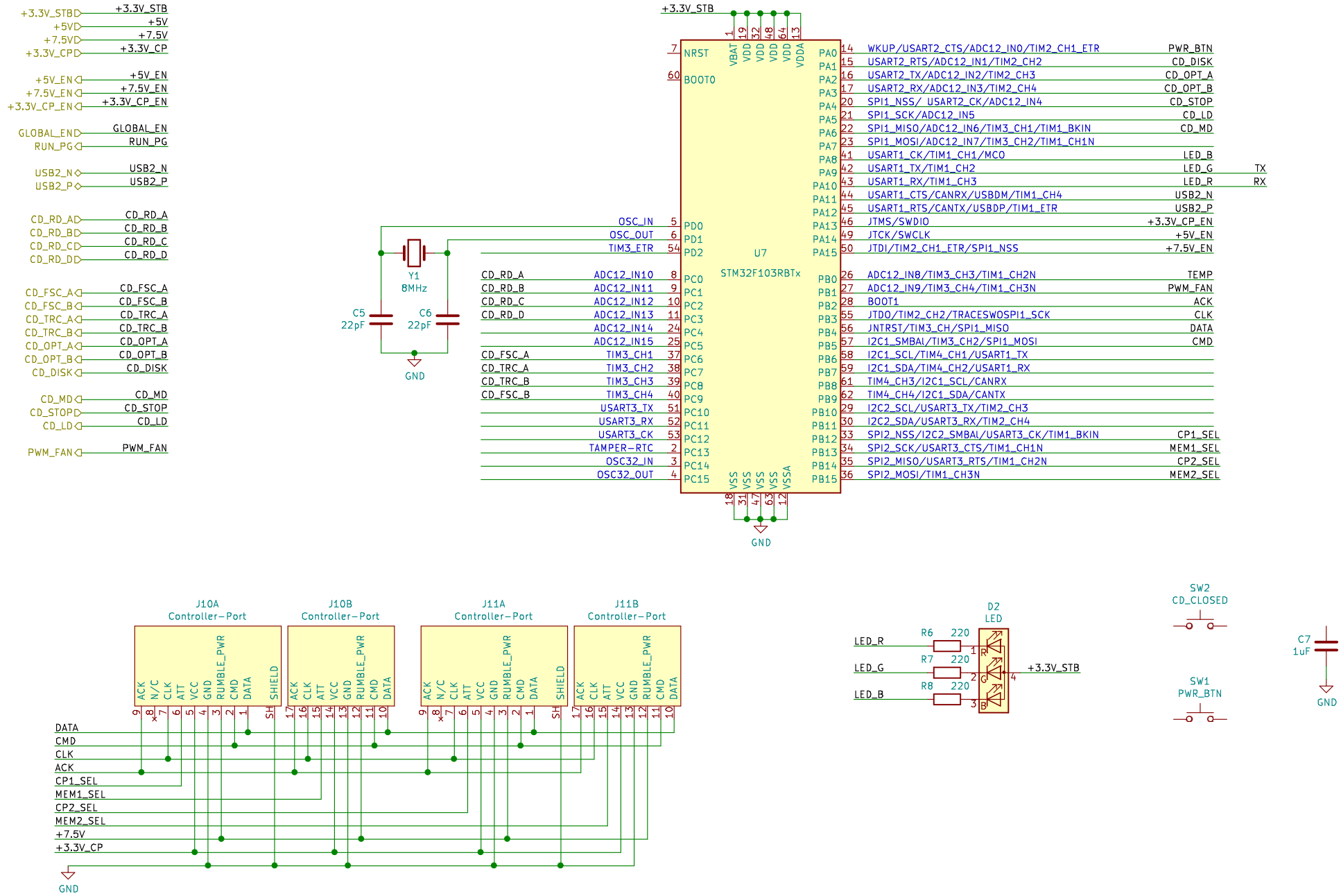
+3.3V_STB

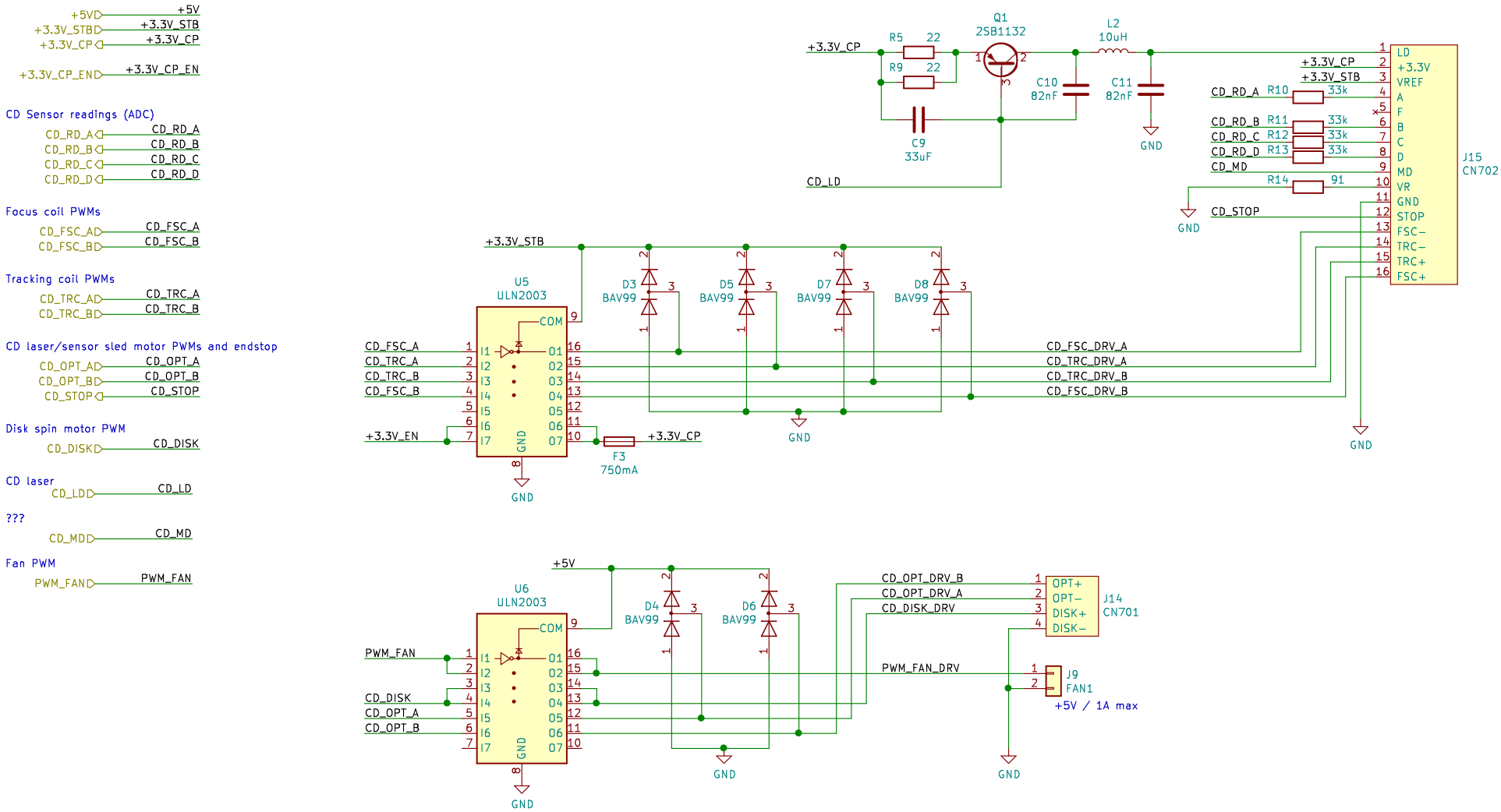

RUN_PG
GLOBAL_EN
+3.3V
+5V_STB
TRD0_P
TRD0_N
TRD1_P
TRD1_N
TRD2_P
TRD2_N
TRD3_P
TRD3_N
CAM_GPIO
J2A
RaspberryPi4-ComputeModule
GND
Ethernet_Pair1_P
Ethernet_Pair1_N
Ethernet_Pair0_N
Ethernet_Pair0_P
Ethernet_SYNC_IN(1.8v)
Ethernet_SYNC_OUT(1.8v)
EEPROM_nWP
GPIO26
GPIO19
GPIO13
GPIO6
GPIO5
ID_SD
GPIO11
GPIO9
GPIO10
GPIO22
GPIO27
GPIO17
GPIO4
GPIO3
GPIO2
SD_CMD
SD_DAT5
SD_DAT4
SD_DAT7
SD_DAT6
Reserved
GPIO_VREF(1.8v/3.3v_Input)
SCL0
SDA0
+3.3v_(Output)
+1.8v_(Output)
RUN_PG
AnalogP1
AnalogP2
nEXTRST
Ethernet_Pair3_P
Ethernet_Pair3_N
Ethernet_Pair2_N
Ethernet_Pair2_P
Ethernet_nLED3(3.3v)
Ethernet_nLED2(3.3v)
Ethernet_nLED1(3.3v)
PI_nLED_Activity
GPIO21
GPIO20
GPIO16
GPIO12
ID_SC
GPIO7
GPIO8
GPIO25
GPIO24
GPIO23
GPIO18
GPIO15
GPIO14
SD_CLK
SD_DAT3
SD_DAT0
SD_DAT1
SD_DAT2
SD_VDD_Override
SD_PWR_ON
+5v_(input)
WL_nDisable
BT_nDisable
nRPIBOOT
nPI_LED_PWR
Camera_GPIO
Global_EN
Mounting_Points
MP
J8
GPIO
+3.3V
+5V_STB
GPIO2
GPIO3
GPIO4
GPIO14
GPIO15
GPIO17
GPIO18
GPIO27
GPIO23
GPIO22
GPIO24
GPIO10
GPIO25
GPIO9
GPIO8
GPIO11
GPIO7
ID_SD
ID_SC
GPIO5
GPIO12
GPIO6
GPIO13
GPIO16
GPIO19
GPIO20
GPIO26
GPIO21
J12
Micro_SD_Card
SD_DAT2
SD_DAT3
SD_CMD
SD_CLK
SD_DAT0
SD_DAT1
DAT2
DAT3/CD
CMD
VDD
CLK
VSS
DAT0
DAT1
SHIELD
GND


+3.3V
+5V_STB
CAM_GPIO
J3
Combined-Connector-Back
TRD3_P
TRD3_N
TRD2_N
TRD2_P
TRD1_P
TRD1_N
TRD0_N
TRD0_P
USB1_P
USB1_N
HDMI1_HOTPLUG
HDMI1_SDA
HDMI1_SCL
HDMI1_CEC
HDMI1_TX2_P
HDMI1_TX2_N
HDMI1_TX1_P
HDMI1_TX1_N
HDMI1_TX0_P
HDMI1_TX0_N
HDMI1_CLK_P
HDMI1_CLK_N
HDMI0_HOTPLUG
HDMI0_SDA
HDMI0_SCL
HDMI0_CEC
HDMI0_TX2_P
HDMI0_TX2_N
HDMI0_TX1_P
HDMI0_TX1_N
HDMI0_TX0_P
HDMI0_TX0_N
HDMI0_CLK_P
HDMI0_CLK_N
GND
GND
J2B
RaspberryPi4-ComputeModule
PCIe_CLK_nREQ
PCIe_CLK_P
PCIe_CLK_N
PCIe_RX_P
PCIe_RX_N
PCIe_TX_P
PCIe_TX_N
CAM0_D0_N
CAM0_D0_P
CAM0_D1_N
CAM0_D1_P
CAM0_C_N
CAM0_C_P
DSI1_D3_N
DSI1_D3_P
HDMI0_SCL
Reserved
Reserved
USB_OTG_ID
USB2_N
USB2_P
PCIe_nRST
VDAC_COMP
CAM1_D0_N
CAM1_D0_P
CAM1_D1_N
CAM1_D1_P
CAM1_C_N
CAM1_C_P
CAM1_D2_N
CAM1_D2_P
CAM1_D3_N
CAM1_D3_P
HDMI1_HOTPLUG
HDMI1_SDA
HDMI1_SCL
HDMI1_CEC
HDMI0_CEC
HDMI0_HOTPLUG
DSI0_D0_N
DSI0_D0_P
DSI0_D1_N
DSI0_D1_P
DSI0_C_N
DSI0_C_P
DSI1_D0_N
DSI1_D0_P
DSI1_D1_N
DSI1_D1_P
DSI1_C_N
DSI1_C_P
DSI1_D2_N
DSI1_D2_P
HDMI0_SDA
USB0_N
USB0_P
PCIe_nRST
Mounting_Points
MP
GND
GND
GND
J4
CAM0
CAM0_D0_N
CAM0_D0_P
CAM0_D1_N
CAM0_D1_P
CAM0_C_N
CAM0_C_P
CAM_GPIO
SCL1
SDA1
+3.3V
J6
DSI0
DSI0_D0_N
DSI0_D0_P
DSI0_D1_N
DSI0_D1_P
DSI0_C_N
DSI0_C_P
SCL1
SDA1
+3.3V
J5
CAM1
CAM1_D0_N
CAM1_D0_P
CAM1_D1_N
CAM1_D1_P
CAM1_C_N
CAM1_C_P
CAM1_D2_N
CAM1_D2_P
CAM1_D3_N
CAM1_D3_P
CAM_GPIO
SCL0
SDA0
+3.3V
J7
DSI1
DSI1_D0_N
DSI1_D0_P
DSI1_D1_N
DSI1_D1_P
DSI1_C_N
DSI1_C_P
DSI1_D2_N
DSI1_D2_P
DSI1_D3_N
DSI1_D3_P
SCL0
SDA0
+3.3V


+3.3V
+3.3V
J1
M.2 (PCIe / NVMe)
+3.3V
PCIe_CLK_nREQ
PCIe_nRST
PCIe_CLK_P
PCIe_CLK_N
PCIe_TX_P
PCIe_TX_N
PCIe_RX_N
PCIe_RX_P
GND
Mount_Points
SHIELD
MP
SH


+3.3VD
+3.3V
5
10
29
36
15
23
VDDA33
VDDA33
VDDA33
VDDA33
VDD33
VDD33
27
VBUS_DET
30
USBDM_UP
31
USBDP_UP
26
RESET_N
11
TEST
35
RBIAS
33
XTALIN/CLKIN
32
XTALOUT
34
PLLFILT
14
CRFILT
24
SCL/SMBCLK/CFG_SEL0
22
SDA/SMBDATA/NON_REM1
28
SUSP_IND/LOCAL_PWR/NON_REMO
25
HS_IND/CFG_SEL1
37
VSS
USB0_N
USB0_P
USBDM_DN1/PRT_DIS_M1
USBDP_DN1/PRT_DIS_P1
PRTPWR1/BC_EN1
OCS_N1
USBDM_DN2/PRT_DIS_M2
USBDP_DN2/PRT_DIS_P2
PRTPWR2/BC_EN2
OCS_N2
USBDM_DN3/PRT_DIS_M3
USBDP_DN3/PRT_DIS_P3
PRTPWR3/BC_EN3
OCS_N3
USBDM_DN4/PRT_DIS_M4
USBDP_DN4/PRT_DIS_P4
PRTPWR4/BC_EN4
OCS_N4
1
2
12
13
3
4
16
17
6
7
18
19
8
9
20
21
USB1_N
USB1_P
USB2_N
USB2_P
USB3_N
USB3_P
USB4_N
USB4_P
U4
USB2514B_Bi
+5V_USB
J13
USB_3_4
1
2
3
4
5
6
7
8
10
GND
GND


+3.3V_STB
+5V
+7.5V
+3.3V_CP
+5V_EN
+7.5V_EN
+3.3V_CP_EN
GLOBAL_EN
RUN_PG
USB2_N
USB2_P
CD_RD_A
CD_RD_B
CD_RD_C
CD_RD_D
CD_FSC_A
CD_FSC_B
CD_TRC_A
CD_TRC_B
CD_OPT_A
CD_OPT_B
CD_DISK
CD_MD
CD_STOP
CD_LD
PWM_FAN
U7
STM32F103RBTx
NRST
BOOT0
VBAT
VDD
VSS
VDDA
PA0 WKUP/USART2_CTS/ADC12_IN0/TIM2_CH1_ETR PWR_BTN
PA1 USART2_RTS/ADC12_IN1/TIM2_CH2 CD_DISK
PA2 USART2_TX/ADC12_IN2/TIM2_CH3 CD_OPT_A
PA3 USART2_RX/ADC12_IN3/TIM2_CH4 CD_OPT_B
PA4 SPI1_NSS/ USART2_CK/ADC12_IN4 CD_STOP
PA5 SPI1_SCK/ADC12_IN5 CD_LD
PA6 SPI1_MISO/ADC12_IN6/TIM3_CH1/TIM1_BKIN CD_MD
PA7 SPI1_MOSI/ADC12_IN7/TIM3_CH2/TIM1_CH1N
PA8 USART1_CK/TIM1_CH1/MCO LED_B
PA9 USART1_TX/TIM1_CH2 LED_G TX
PA10 USART1_RX/TIM1_CH3 LED_R RX
PA11 USART1_CTS/CANRX/USBDM/TIM1_CH4 USB2_N
PA12 USART1_RTS/CANTX/USBDP/TIM1_ETR USB2_P
PA13 JTMS/SWDIO +3.3V_CP_EN
PA14 JTCK/SWCLK +5V_EN
PA15 JTDI/TIM2_CH1_ETR/SPI1_NSS +7.5V_EN
PB0 ADC12_IN8/TIM3_CH3/TIM1_CH2N TEMP
PB1 ADC12_IN9/TIM3_CH4/TIM1_CH3N PWM_FAN
PB2 BOOT1 ACK
PB3 JTDO/TIM2_CH2/TRACESWOSPI1_SCK CLK
PB4 JNTRST/TIM3_CH/SPI1_MISO DATA
PB5 I2C1_SMBAI/TIM3_CH2/SPI1_MOSI CMD
PB6 I2C1_SCL/TIM4_CH1/USART1_TX
PB7 I2C1_SDA/TIM4_CH2/USART1_RX
PB8 TIM4_CH3/I2C1_SCL/CANRX
PB9 TIM4_CH4/I2C1_SDA/CANTX
PB10 I2C2_SCL/USART3_TX/TIM2_CH3
PB11 I2C2_SDA/USART3_RX/TIM2_CH4
PB12 SPI2_NSS/I2C2_SMBAI/USART3_CK/TIM1_BKIN CP1_SEL
PB13 SPI2_SCK/USART3_CTS/TIM1_CH1N MEM1_SEL
PB14 SPI2_MISO/USART3_RTS/TIM1_CH2N CP2_SEL
PB15 SPI2_MOSI/TIM1_CH3N MEM2_SEL
OSC_IN
OSC_OUT
TIM3_ETR
ADC12_IN10
ADC12_IN11
ADC12_IN12
ADC12_IN13
ADC12_IN14
ADC12_IN15
TIM3_CH1
TIM3_CH2
TIM3_CH3
TIM3_CH4
USART3_TX
USART3_RX
USART3_CK
TAMPER-RTC
OSC32_IN
OSC32_OUT
Y1
8MHz
C5
22pF
C6
22pF
GND
J10A
J10B
J11A
J11B
Controller-Port
ACK
N/C
CLK
ATT
VCC
GND
RUMBLE_PWR
CMD
DATA
SHIELD
DATA
CMD
CLK
ACK
CP1_SEL
MEM1_SEL
CP2_SEL
MEM2_SEL
+7.5V
+3.3V_CP
D2
LED
R6 220
R7 220
R8 220
LED_R
LED_G
LED_B
SW2
CD_CLOSED
SW1
PWR_BTN
C7
1uF


+5V
+3.3V_STB
+3.3V_CP
+3.3V_CP_EN
CD Sensor readings (ADC)
CD_RD_A
CD_RD_B
CD_RD_C
CD_RD_D
Focus coil PWMs
CD_FSC_A
CD_FSC_B
Tracking coil PWMs
CD_TRC_A
CD_TRC_B
CD laser/sensor sled motor PWMs and endstop
CD_OPT_A
CD_OPT_B
CD_STOP
Disk spin motor PWM
CD_DISK
CD laser
CD_LD
???
CD_MD
Fan PWM
PWM_FAN
Q1
2SB1132
R5
22
R9
22
C9
33uF
L2
10uH
C10
82nF
C11
82nF
GND
CD_LD
R10
R11
R12
R13
R14
33k
91
J15
CN702
LD
+3.3V
VREF
A
F
B
C
D
MD
VR
GND
STOP
FSC−
TRC−
TRC+
FSC+
CD_STOP
U5
ULN2003
COM
GND
D3
D5
D7
D8
BAV99
F3
750mA
CD_FSC_DRV_A
CD_TRC_DRV_A
CD_TRC_DRV_B
CD_FSC_DRV_B
U6
ULN2003
D4
D6
CD_OPT_DRV_B
CD_OPT_DRV_A
CD_DISK_DRV
PWM_FAN_DRV
J14
CN701
OPT+
OPT−
DISK+
DISK−
J9
FAN1
+5V / 1A max