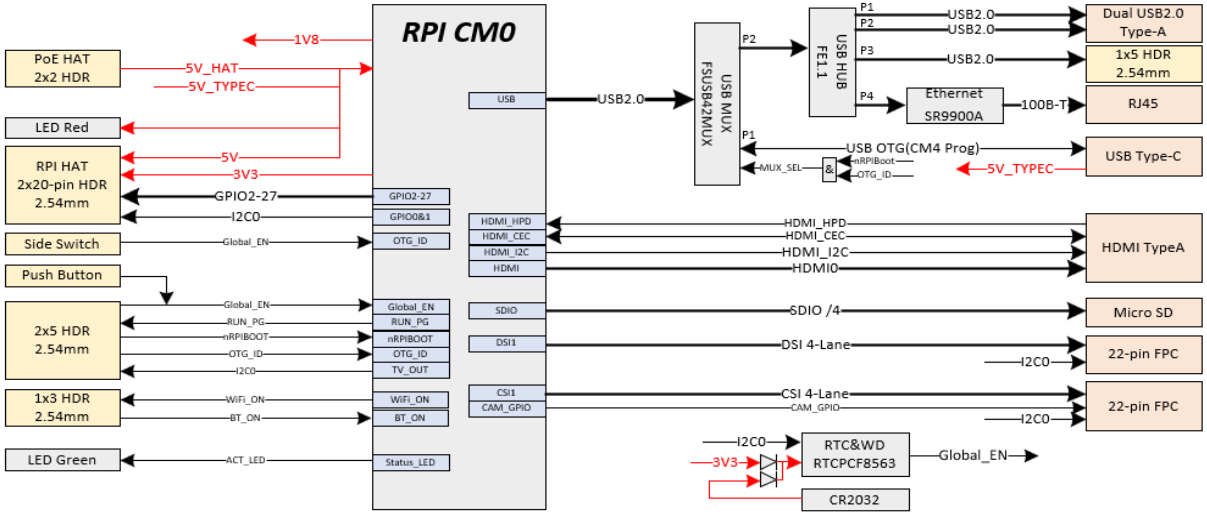
ED-CM0NANO (CM0 based IO board)
Rev001

Revision History

Rev000	2025-05-20	Freeman	Initial release
Rev000	2025-08-25	Freeman	Update design for chassis. Adjust connector position and type. Fix bugs in Redmine.

CM0_IO Block Diagram Rev001

Freeman
Sept 5, 2025



Block Definition
- Electro Parts
- Internal HDR
- Connector
- RSVD

Master to slave
- Bus
- Single Net

Bi-directional

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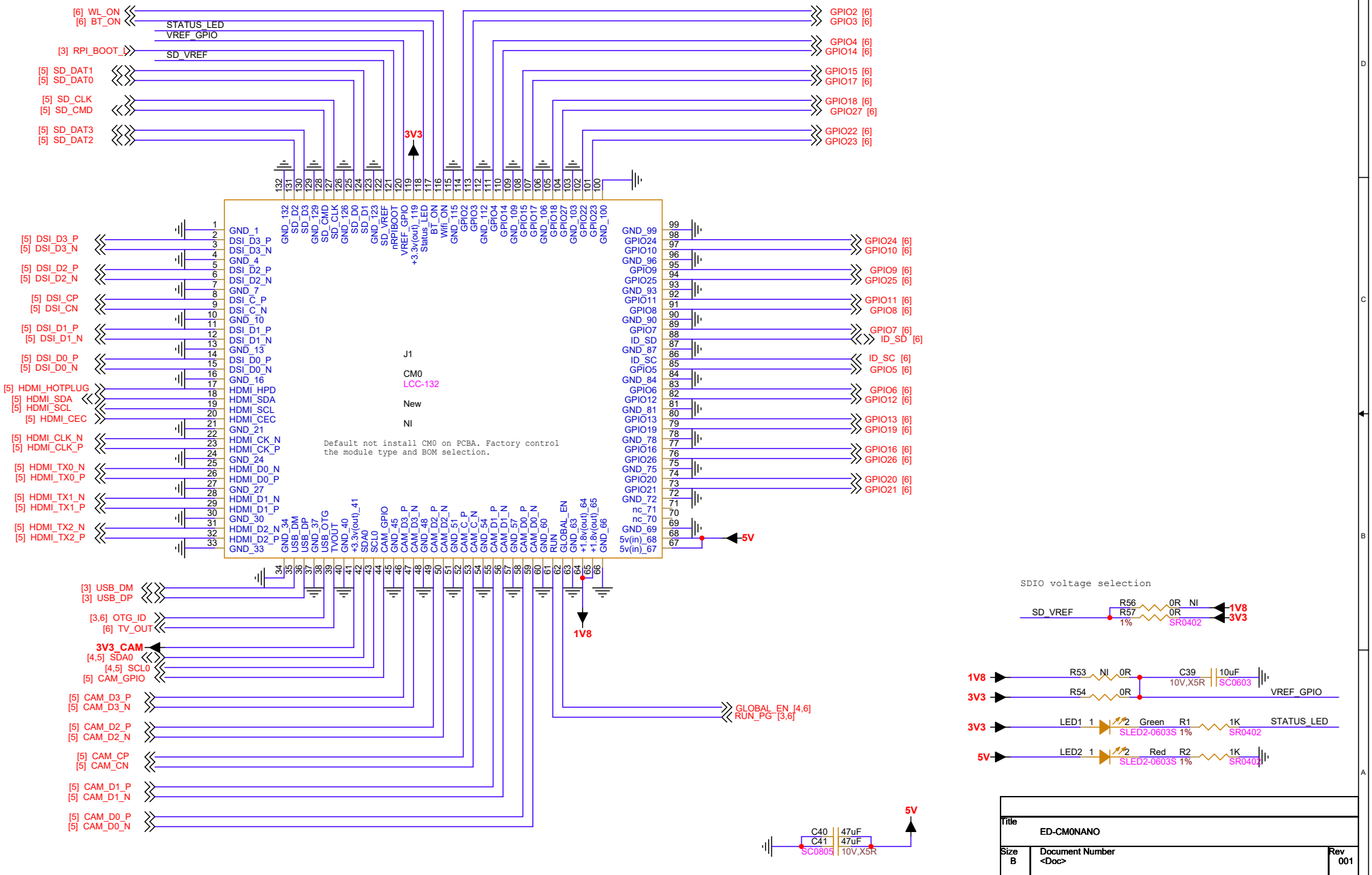
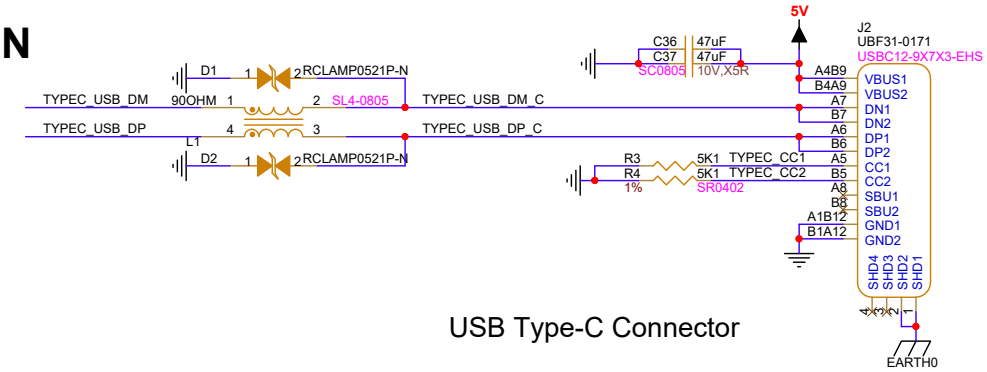
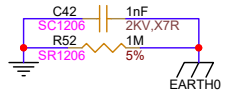
CM0 Interface Connector (Stamp hole)



USB & PWR-IN

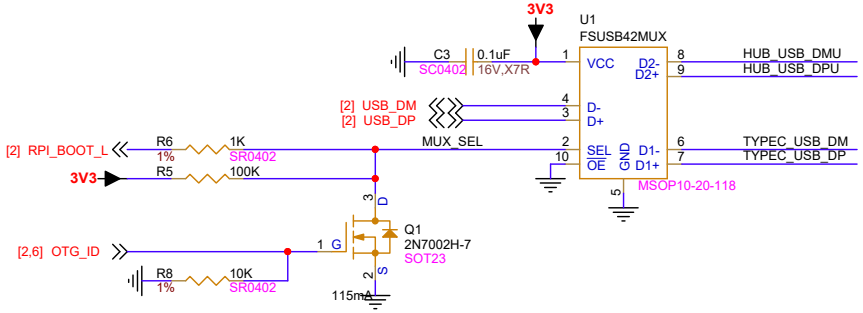


USB Type-C Connector

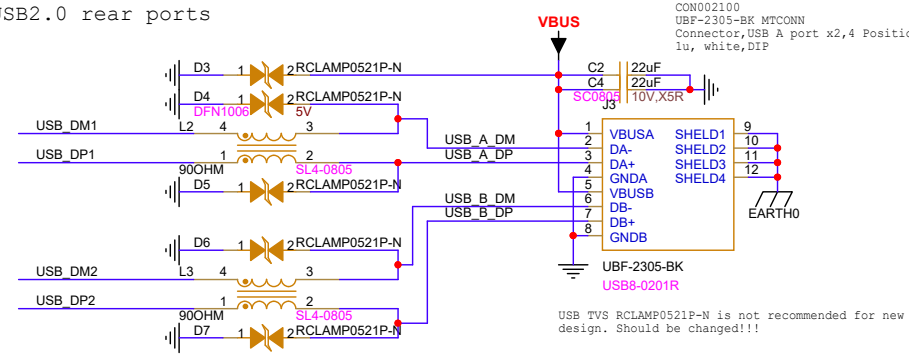


1:2 USB Switch

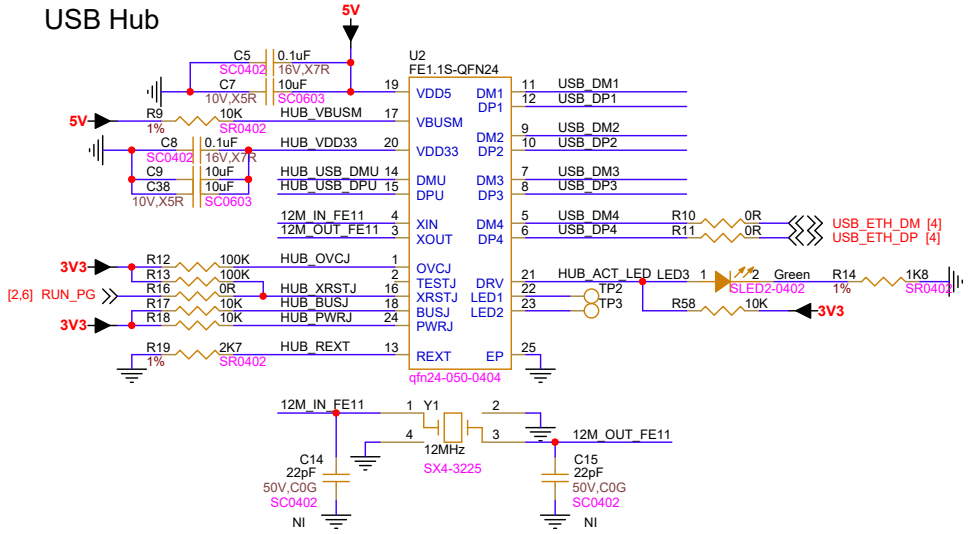
OTG_ID	RPI_Boot	SEL	USB Port Routing
0	1	1	CM0_USB to HUB hos
0	0	0	CM0_USB to Type-C port
1	x	0	CM0_USB to Type-C port



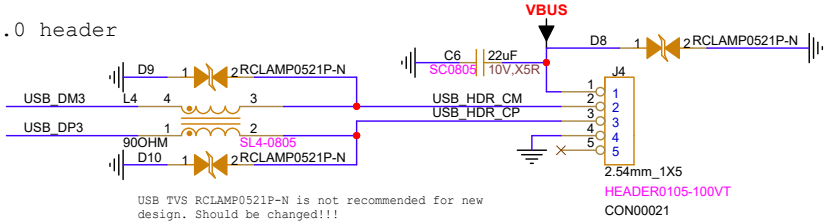
USB2.0 rear ports



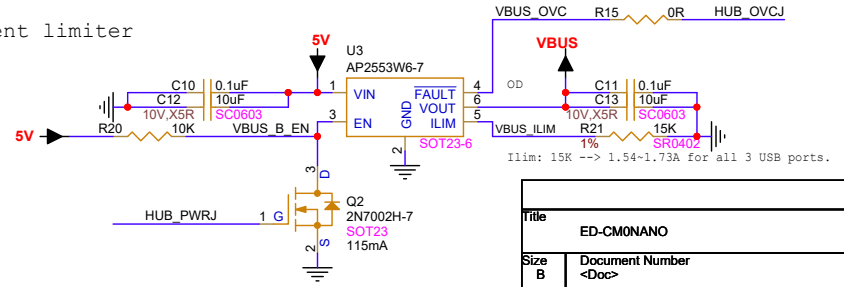
USB Hub



USB2.0 header



Current limiter



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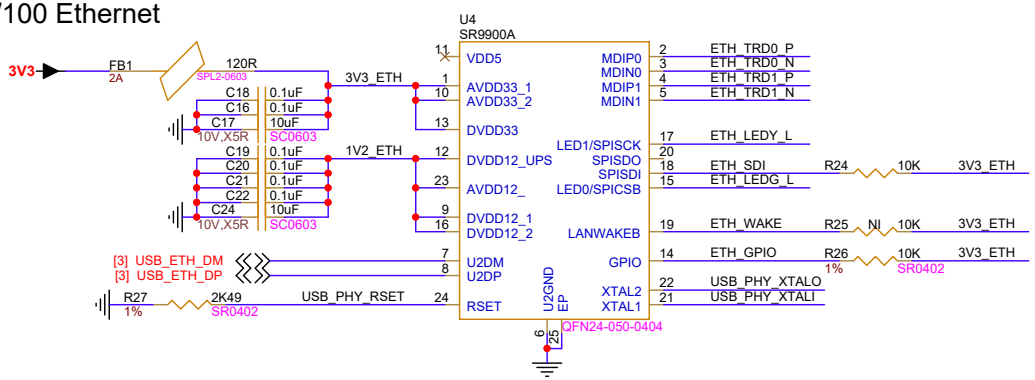
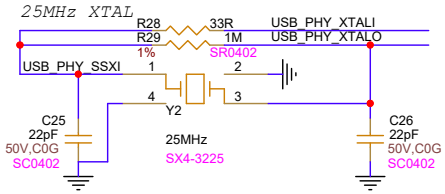
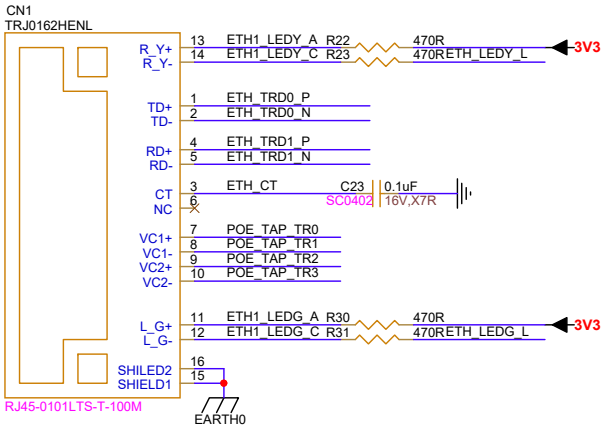
Ethernet & RTC

10/100 Ethernet

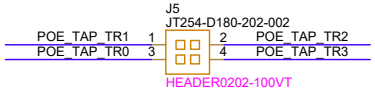




10/100M RJ45 with Magnatic and POE (802.3af)

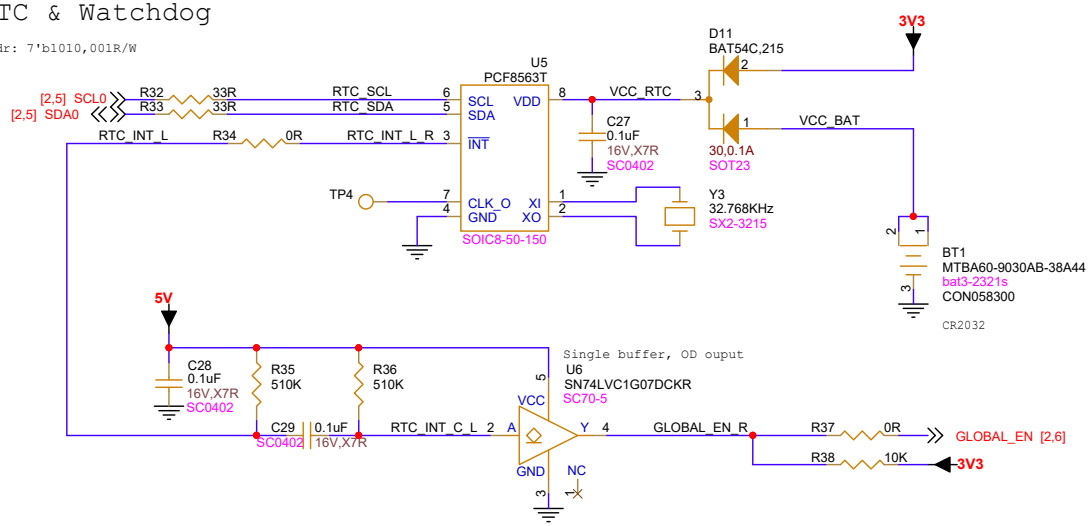


RPI POE HAT



RTC & Watchdog

Addr: 7'b1010,001R/W



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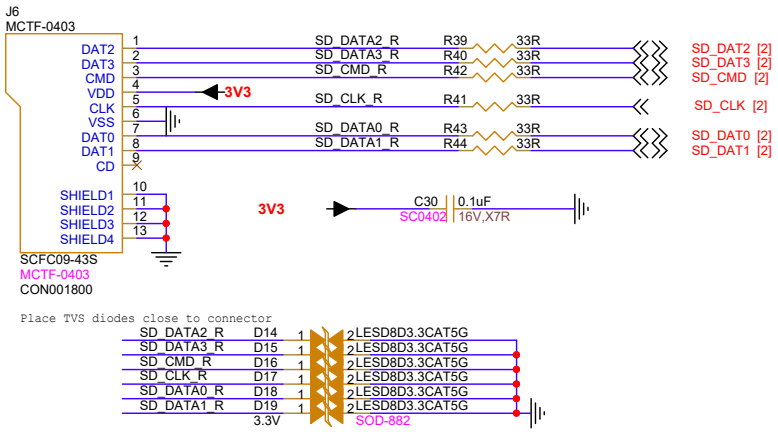
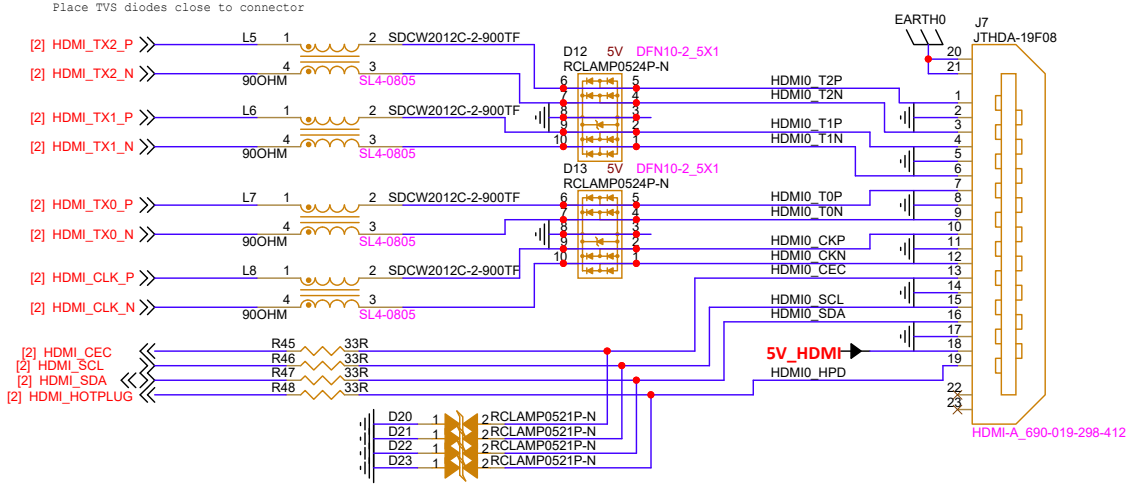
SD, HDMI, DSI & CSI

Micro SD Card



HDMI

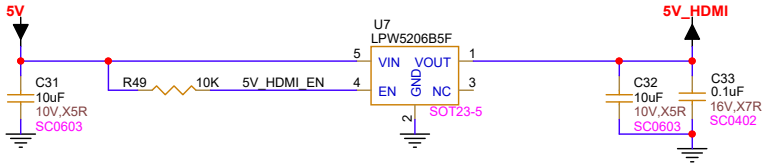
Differential pair resistance is 100ohm
Place TVS diodes close to connector



Power Switch & Current Limiter

Vin type: 2.5V~6V
Iout max: 600mA
Rds: 160mohm
Quiescent Current: 16uA
Tja: 250 degree/W

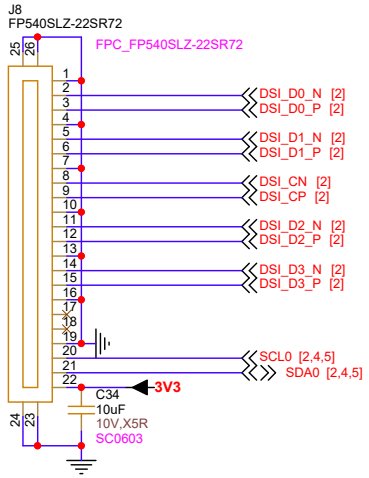
HDMI Spec
Normal operating: <55mA
When short: <0.5A

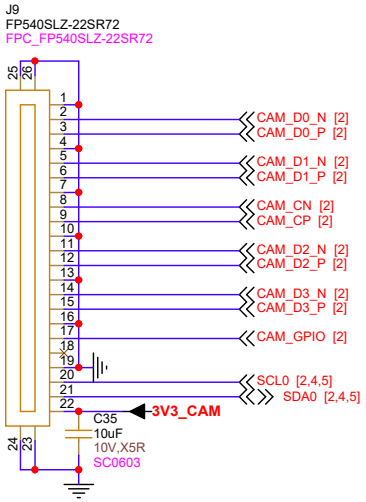


Raspberry Pi DSI & CSI 22-pin FPC

Vertical FPC connectors

Connector pin definition reference to CM4IO board





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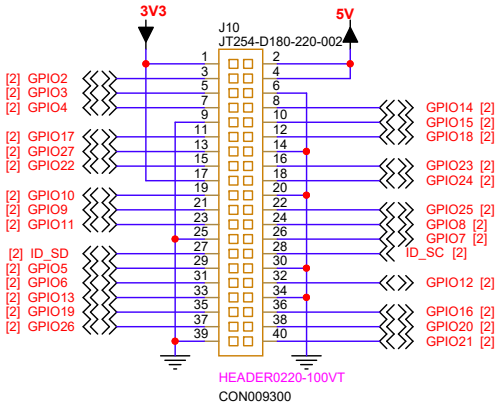
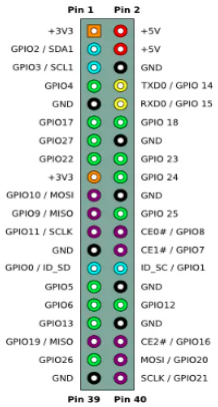
Pin Headers

RPI 2X20P Pin Header

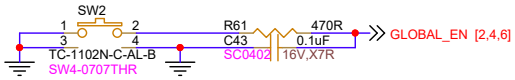




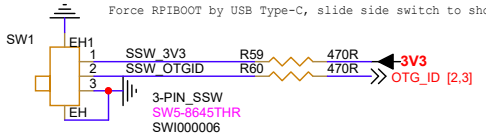
GPIO Alternative Function List

GPIO	Pull	ALT0	ALT1	ALT2	ALT3	ALT4	ALT5
GPIO0	High	SDA0	SA5	<reserved>			
GPIO1	High	SCL0	SA4	<reserved>			
GPIO2	High	SDA1	SA3	<reserved>			
GPIO3	High	SCL1	SA2	<reserved>			
GPIO4	High	GPCLK0	SA1	<reserved>			ARM_TDI
GPIO5	High	GPCLK1	SA0	<reserved>			ARM_TDO
GPIO6	High	GPCLK2	SOE_N / SE	<reserved>			ARM_RTCK
GPIO7	High	SPI0_CE1_N	SWE_N /SRW_N	<reserved>			
GPIO8	High	SPI0_CE0_N	SD0	<reserved>			
GPIO9	Low	SPI0_MISO	SD1	<reserved>			
GPIO10	Low	SPI0_MOSI	SD2	<reserved>			
GPIO11	Low	SPI0_SCLK	SD3	<reserved>			
GPIO12	Low	PWM0	SD4	<reserved>			ARM_TMS
GPIO13	Low	PWM1	SD5	<reserved>			ARM_TCK
GPIO14	Low	TXD0	SD6	<reserved>			TXD1
GPIO15	Low	RXD0	SD7	<reserved>			RXD1
GPIO16	Low	<reserved>	SD8	<reserved>	CTS0	SPI1_CE2_N	CTS1
GPIO17	Low	<reserved>	SD9	<reserved>	RTS0	SPI1_CE1_N	RTS1
GPIO18	Low	PCM_CLK	SD10	<reserved>	BSCSL SDA /MOSI	SPI1_CE0_N	PWM0
GPIO19	Low	PCM_FS	SD11	<reserved>	BSCSL SCL /SCLK	SPI1_MISO	PWM1
GPIO20	Low	PCM_DIN	SD12	<reserved>	BSCSL /MISO	SPI1_MOSI	GPCLK0
GPIO21	Low	PCM_DOUT	SD13	<reserved>	BSCSL /CE_N	SPI1_SCLK	GPCLK1
GPIO22	Low	<reserved>	SD14	<reserved>	SD1_CLK	ARM_TRST	
GPIO23	Low	<reserved>	SD15	<reserved>	SD1_CMD	ARM_RTCK	
GPIO24	Low	<reserved>	SD16	<reserved>	SD1_DAT0	ARM_TDO	
GPIO25	Low	<reserved>	SD17	<reserved>	SD1_DAT1	ARM_TCK	
GPIO26	Low	<reserved>	<reserved>	<reserved>	SD1_DAT2	ARM_TDI	
GPIO27	Low	<reserved>	<reserved>	<reserved>	SD1_DAT3	ARM_TMS	

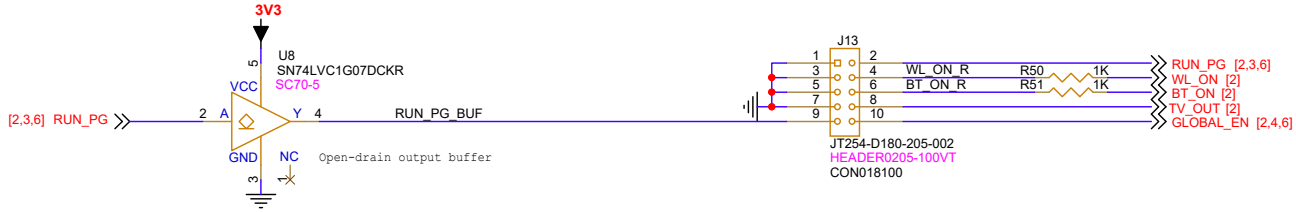
Reset Button



RPI Boot Selection



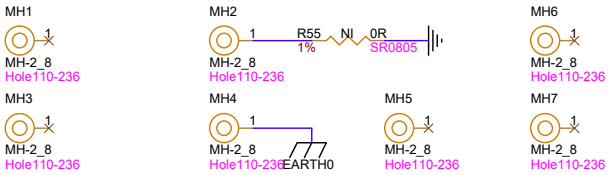
Misc Funtional Jumpers



Short pins 1-2 will shutdown the module.
Short pins 3-4 will disable WiFi.
Short pins 5-6 will disable Bluetooth

A button between pins 9-10 can be used to wake up compute module from power down.
If compute module is awake, RUN_PG will be high. So the button doesn't do anything.
If the compute module is asleep, then RUN_PG will be at 0V and so pull global enable low.

Screw Holes



Fiducial Marks

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