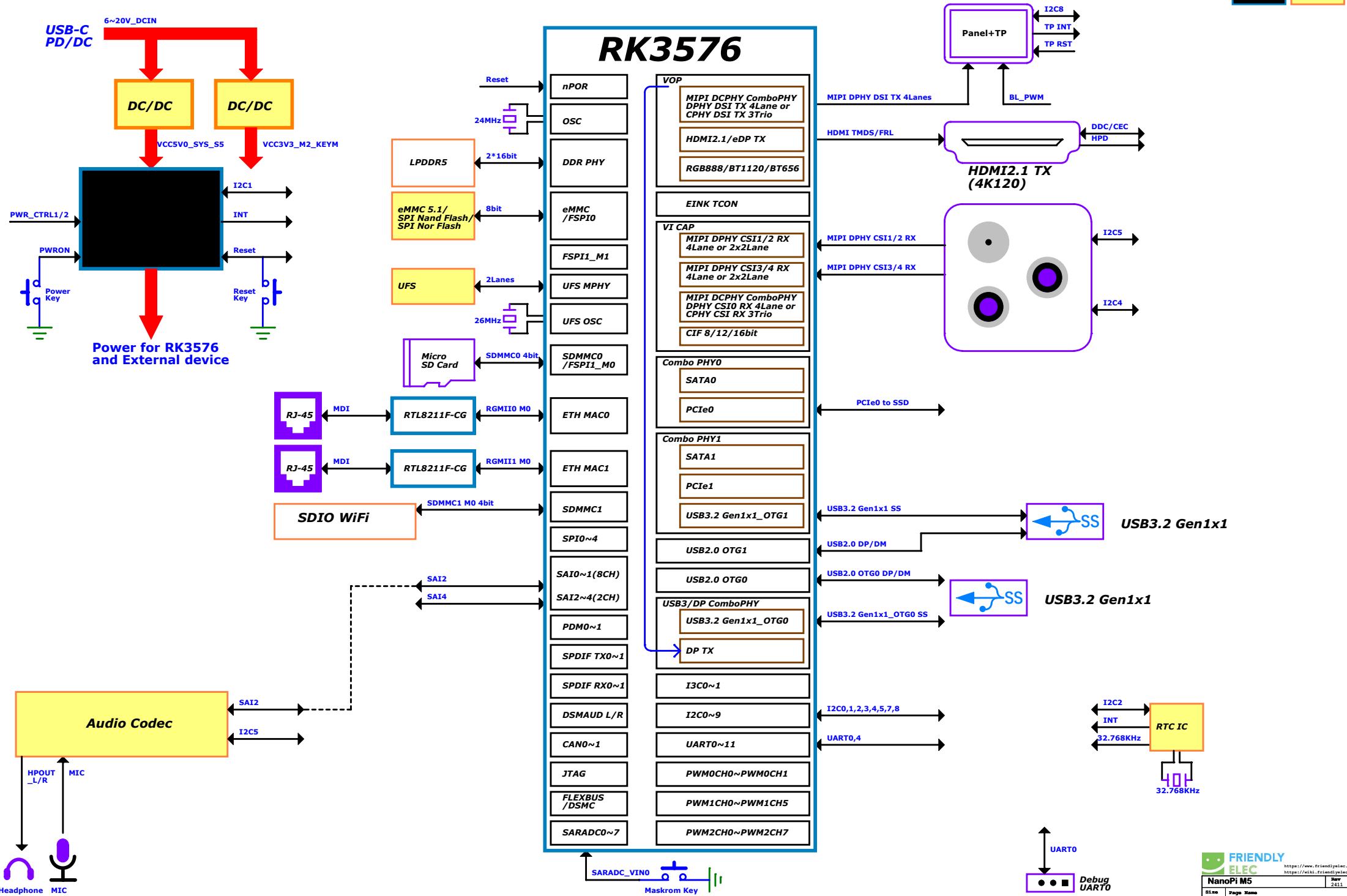
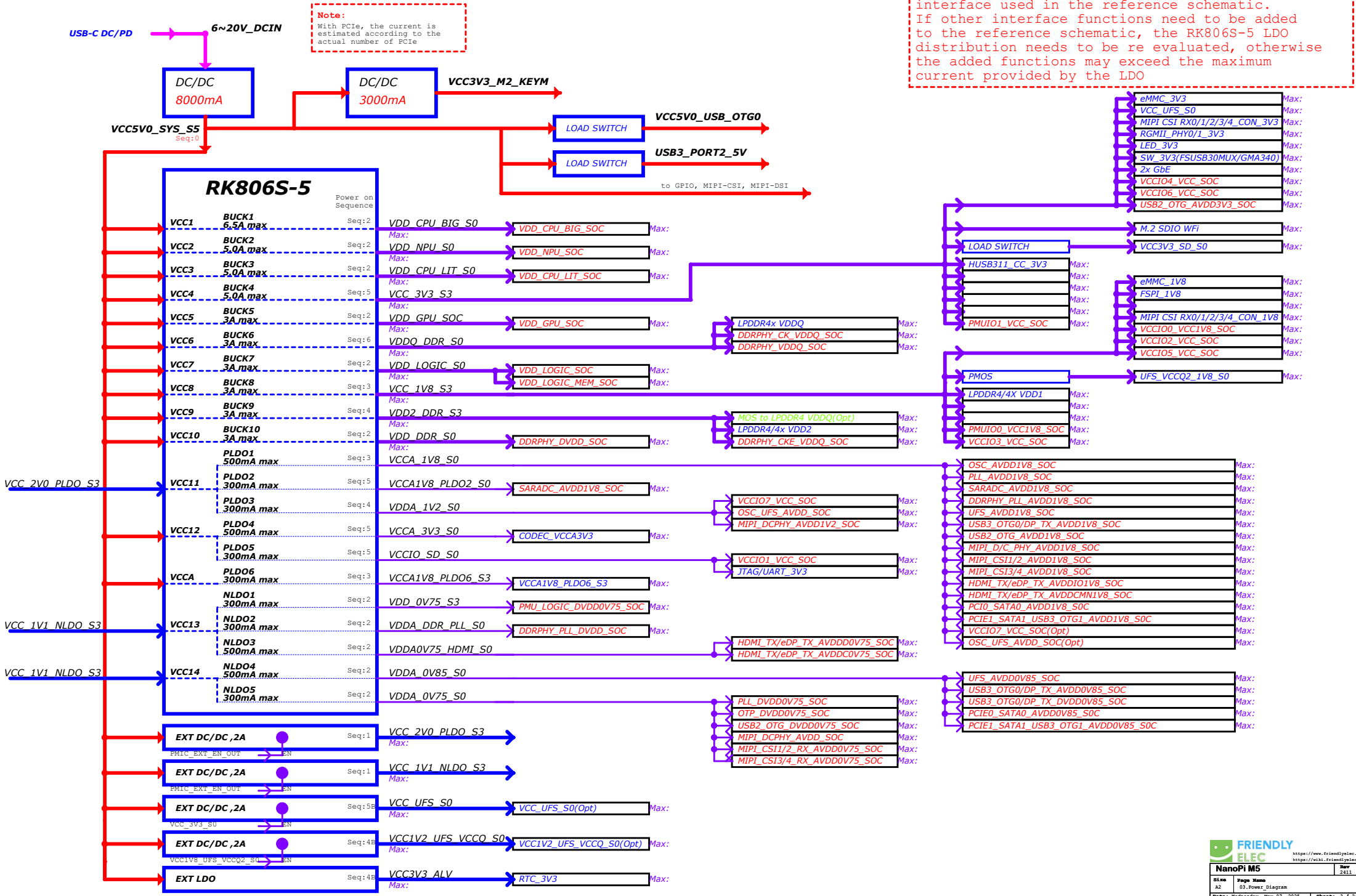


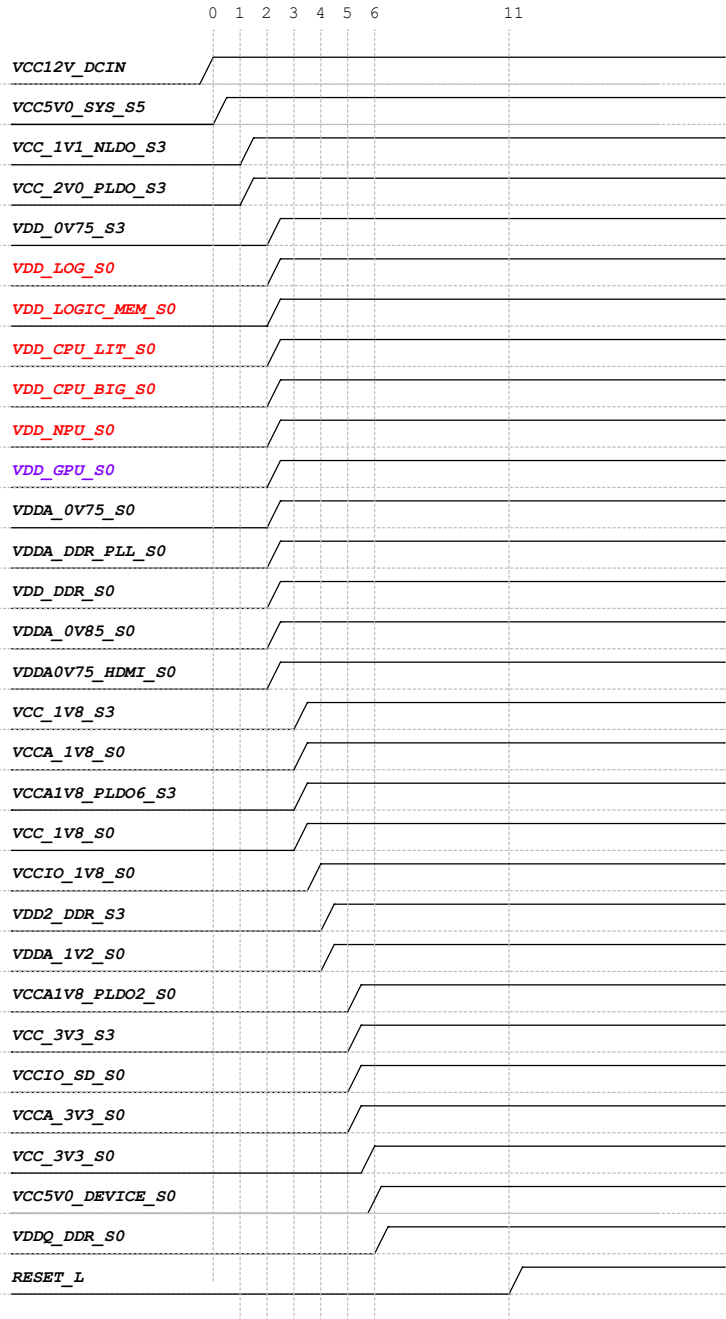
NanoPi M5



Power Tree



Power Sequence



Power description

Power Supply	PMIC Channel	Supply Limit	Power Name	Time Slot	Default Voltage	Default ON/OFF	Work Voltage	Peak Current	Sleep Current
VCC5V0_SYS_S5	RK806_BUCK1	6.5A	VDD_CPU_BIG_S0	Slot:2	0.75V	ON	DVFS	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK2	5A	VDD_NPU_S0	Slot:2	0.75V	ON	DVFS	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK3	5A	VDD_CPU_LIT_S0	Slot:2	0.75V	ON	DVFS	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK4	5A	VCC_3V3_S3	Slot:5	3.3V	ON	3.3V	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK5	3A	VDD_GPU_S0	Slot:2	ADJ FB=0.5V	ON	DVFS	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK6	3A	VDDQ_DDR_S0	Slot:6	ADJ FB=0.5V	ON	0.61V-LP4/4x 0.51V-LP5	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK7	3A	VDD_LOGIC_S0 VDD_LOGIC_MEM_S0	Slot:2	0.75V	ON	0.75V	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK8	3A	VCC_1V8_S3	Slot:3	1.8V	ON	1.8V	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK9	3A	VDD2_DDR_S3	Slot:4	ADJ FB=0.5V	ON	1.1V-LP4/4x 1.05V-LP5	TBD	TBD
VCC5V0_SYS_S5	RK806_BUCK10	3A	VDD_DDR_S0	Slot:2	0.85V DVFS	ON	0.85V DVFS	TBD	TBD
VCC_2V0_PLDO	RK806_PLDO1	0.5A	VCCA_1V8_S0	Slot:3	1.8V	ON	1.8V	TBD	TBD
	RK806_PLDO2	0.3A	VCCA1V8_PLDO2_S0	Slot:5	1.8V	ON	1.8V	TBD	TBD
	RK806_PLDO3	0.3A	VDDA_1V2_S0	Slot:4	1.2V	ON	1.2V	TBD	TBD
VCC5V0_SYS_S5	RK806_PLDO4	0.5A	VCCA_3V3_S0	Slot:5	3.0V	ON	3.3V	TBD	TBD
	RK806_PLDO5	0.3A	VCCIO_SD_S0	Slot:5	3.3V	ON	3.3V	TBD	TBD
VCC5V0_SYS_S5	RK806_PLDO6	0.3A	VCCA1V8_PLDO6_S3	Slot:3	1.8V	ON	1.8V	TBD	TBD
VCC_1V1_NLDO	RK806_NLDO1	0.3A	VDD_0V75_S3	Slot:2	0.75V	ON	0.75V	TBD	TBD
	RK806_NLDO2	0.3A	VDDA_DDR_PLL_S0	Slot:2	0.85V DVFS	ON	0.85V DVFS	TBD	TBD
	RK806_NLDO3	0.5A	VDDA0V75_HDMI_S0	Slot:2	0.75V	ON	0.75V	TBD	TBD
VCC_1V1_NLDO	RK806_NLDO4	0.5A	VDDA_0V85_S0	Slot:2	0.85V	ON	0.85V	TBD	TBD
	RK806_NLDO5	0.3A	VDDA_0V75_S0	Slot:2	0.75V	ON	0.75V	TBD	TBD
	RK806_RESETn								
VCC5V0_SYS_S5	EXT BUCK	2A	VCC_2V0_PLDO_S3	Slot:1	2.1V	ON	2.0V	TBD	TBD
VCC5V0_SYS_S5	EXT BUCK	2A	VCC_1V1_NLDO_S3	Slot:1	1.1V	ON	1.1V	TBD	TBD
VCC12V_DCIN	EXT BUCK	6A	VCC5V0_SYS_S5	Slot:0	5.0V	ON	5.0V	TBD	TBD
VCC12V_DCIN	EXT BUCK	3A	VCC5V0_DEVICE_S0	Slot:5A	5.2V	ON	5.2V	TBD	TBD
VCC_3V3_S3	SWITCH	2A	VCC_3V3_S0	Slot:5A	3.3V	ON	3.3V	TBD	TBD
VCC_1V8_S3	SWITCH	2A	VCCIO_1V8_S0	Slot:3A	1.8V	ON	1.8V	TBD	TBD

Note:

The power suffix S0, S3 or S5 means:
S5: Keep power on during power down
S3: Keep power on during sleeping
S0: Power off during sleeping

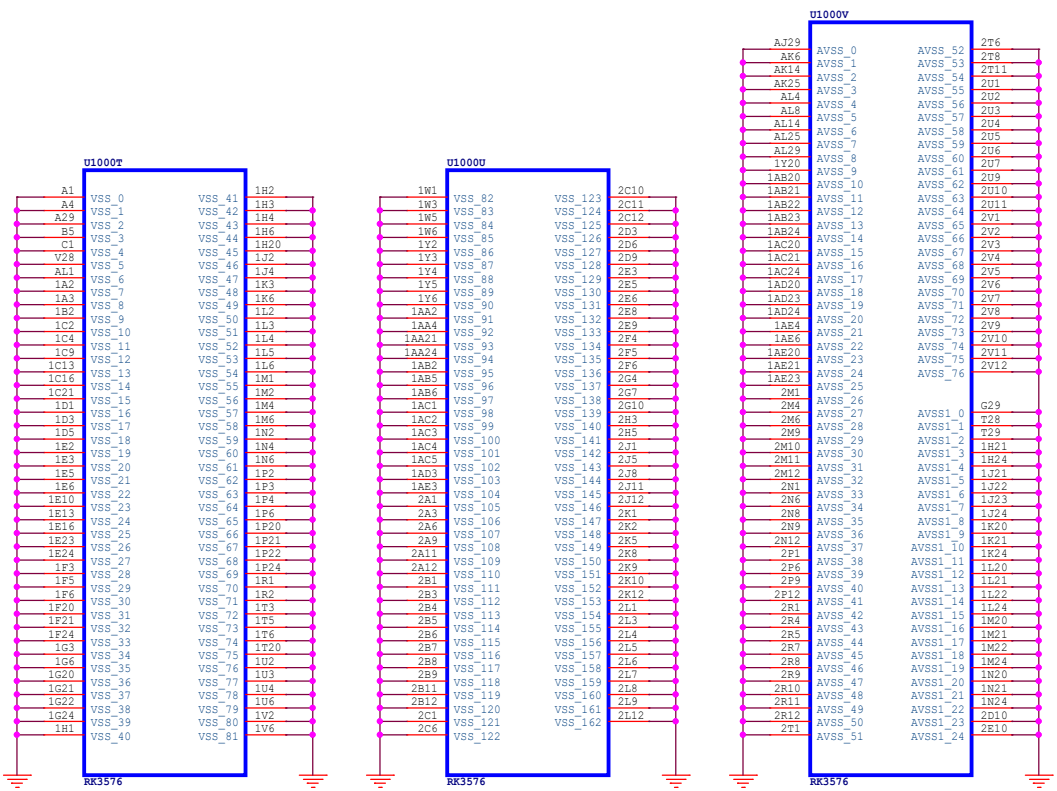
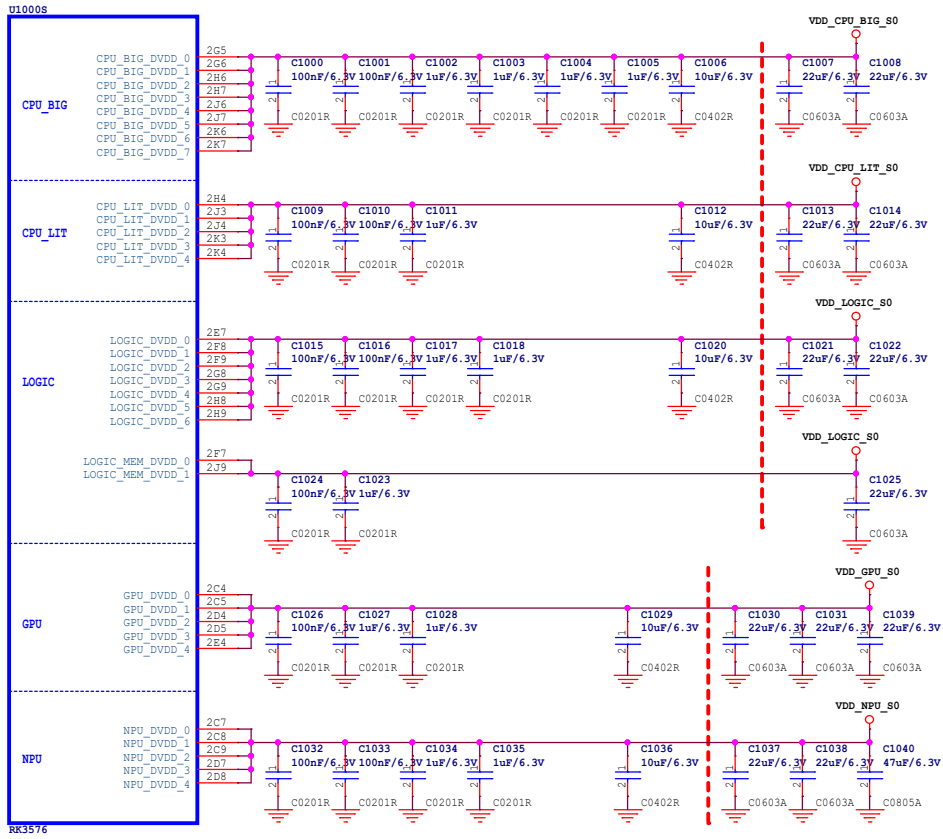
IO Power Domain Map

IO Domain	Pin Num	Support IO Voltage	Supply Power Pin Name	Power Source	Operating Voltage
PMUIO0	Pin 2K11	1.8V Only	PMUIO0_VCC1V8	VCC_1V8	1.8V
PMUIO1	Pin 1U20	1.8V or 3.3V	PMUIO1_VCC	VCC_1V8 VCC_3V3	3.3V
VCCIO0	Pin 1J20	1.8V Only	VCCIO0_VCC1V8	VCC_1V8	1.8V
VCCIO1	Pin 2A8	1.8V or 3.3V	VCCIO1_VCC	VCC_1V8 VCC_3V3	1.8V/3.3V
VCCIO2	Pin 2A2	1.8V or 3.3V	VCCIO2_VCC	VCC_1V8 VCC_3V3	1.8V
VCCIO3	Pin 2B10	1.8V or 3.3V	VCCIO3_VCC	VCC_1V8 VCC_3V3	1.8V
VCCIO4	Pin 2A7	1.8V or 3.3V	VCCIO4_VCC	VCC_1V8 VCC_3V3	3.3V
VCCIO5	Pin 2A4/2A5	1.8V or 3.3V	VCCIO5_VCC	VCC_1V8 VCC_3V3	1.8V
VCCIO6	Pin 2N3	1.8V or 3.3V	VCCIO6_VCC	VCC_1V8 VCC_3V3	3.3V
VCCIO7	Pin 2M3	1.2V or 1.8V	VCCIO7_VCC	VCC_1V2 VCC_1V8	1.2V

IO Type	Operating Voltage
1.8V Only	VCCIO*_VCC1V8=1.8V
1.2V or 1.8V	VCCIO*_VCC=1.2V or 1.8V
1.8V or 3.3V	VCCIO*_VCC=1.8V or 3.3V

RK3576_S (Power)

RK3576_T/U/V (GND)



Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

D

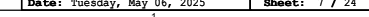


1

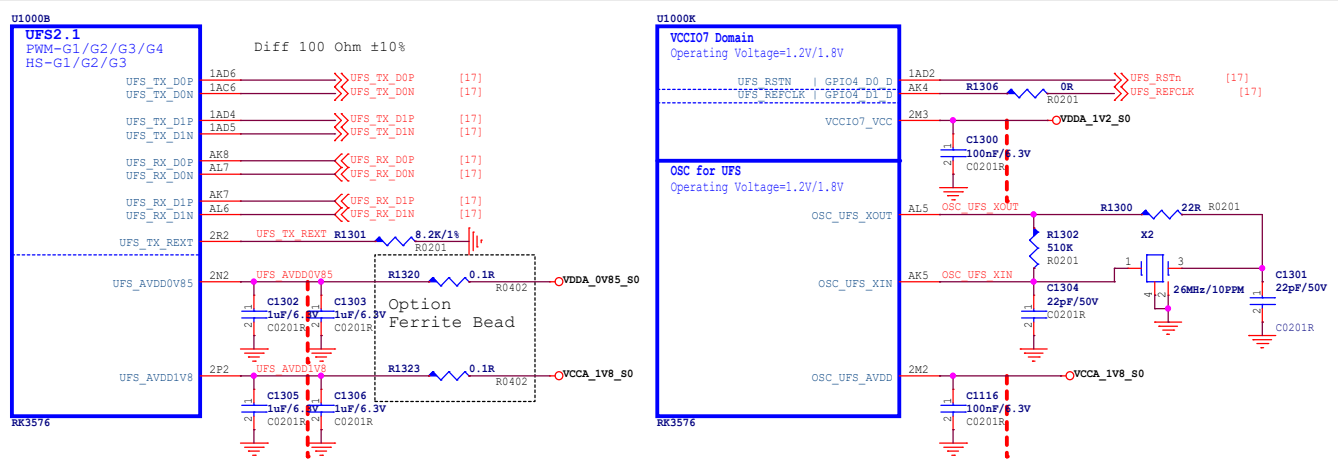


Note2:
Resistors in the red line dotted box
should be placed under the U1000 package

007

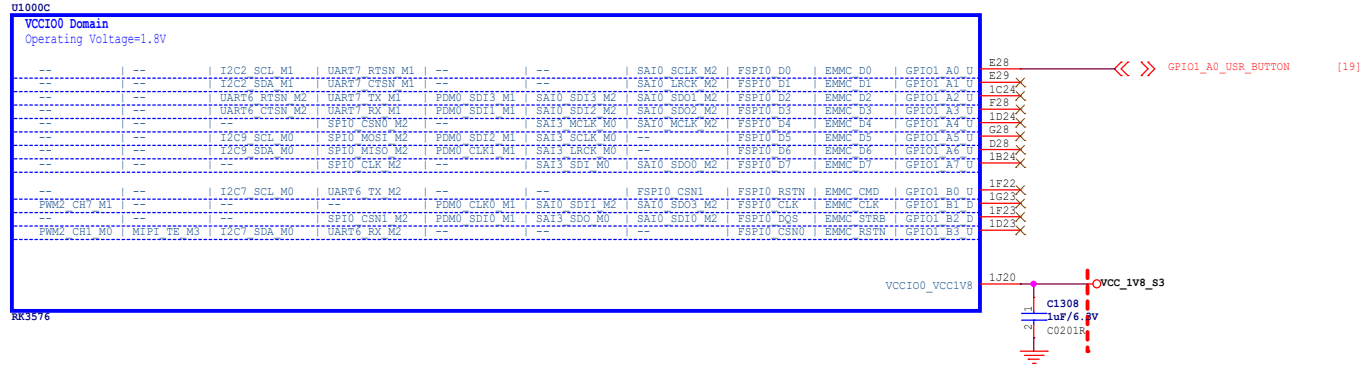


RK3576_B
(UFS2.1)



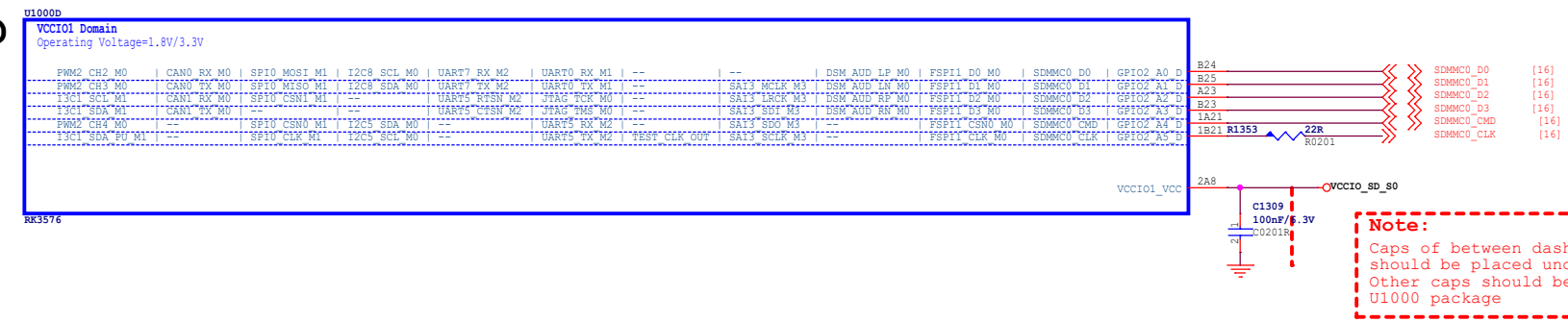
Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

RK3576_C
(VCCIO0)



Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

RK3576_D
(VCCIO1)



Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package. Other caps should be placed close to the U1000 package

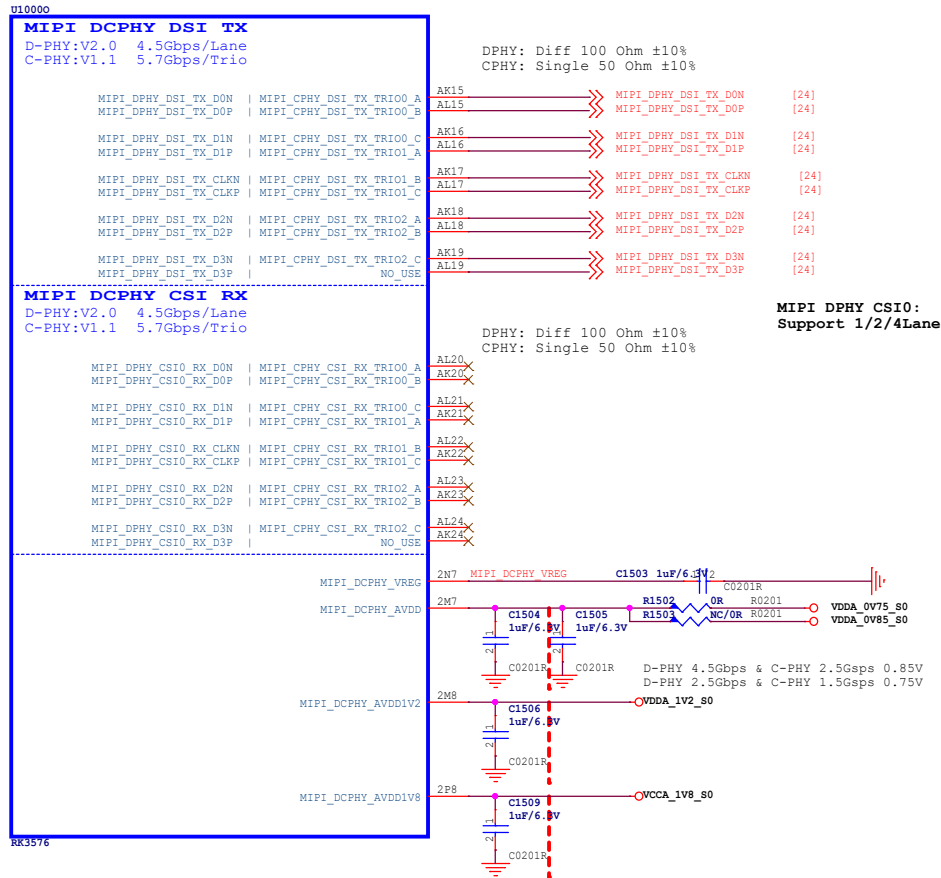
Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package. Other caps should be placed close to the U1000 package

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Caps of between dashed red lines and U1000 should be placed under the U1000 package. Other caps should be placed close to the U1000 package

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Caps of between dashed red lines and U1000 should be placed under the U1000 package. Other caps should be placed close to the U1000 package

Note!!!
If the PCIe1 or SATA1 function of Combo PHY1 is selected, the USB3 OTG1 function cannot be used, and even the USB2 OTG1 function cannot be used

RK3576_O (MIPI DCPHY)

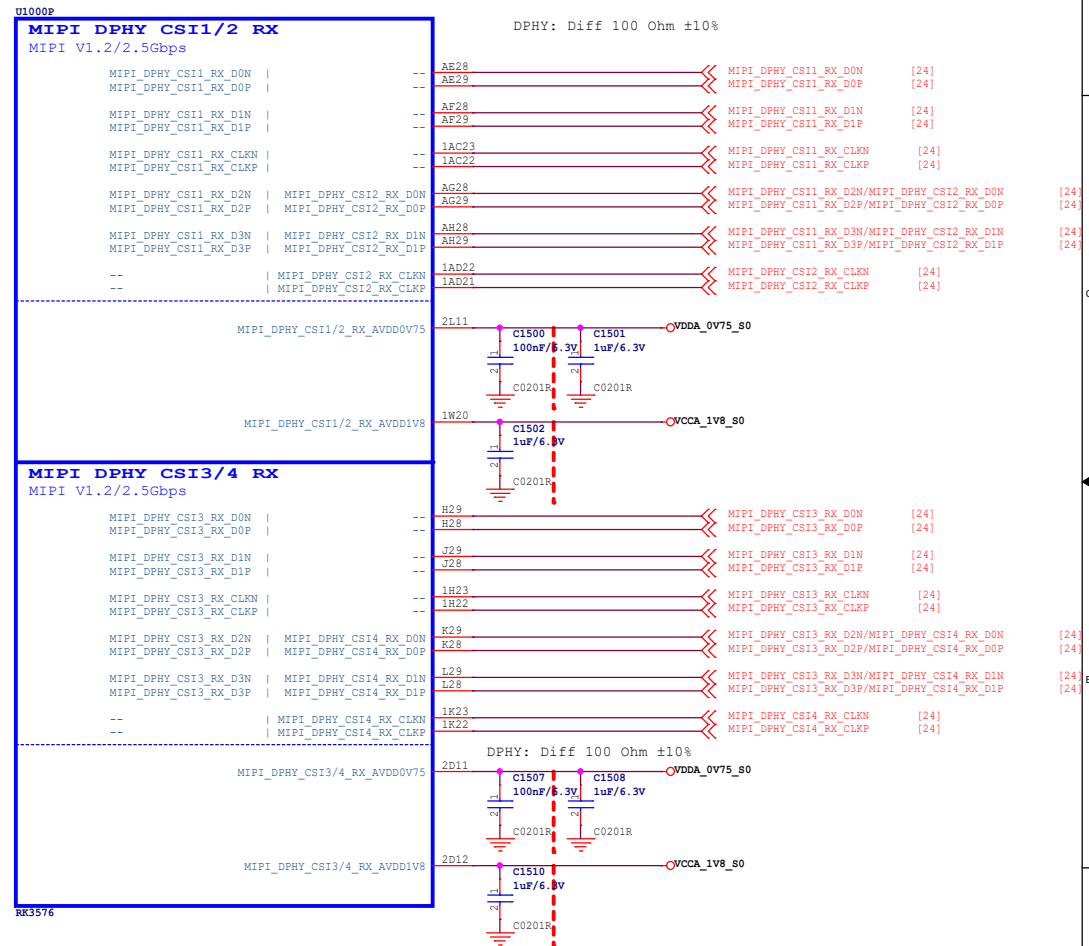


Note:

Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

RK3576_P (MIPI DPHY CSI RX)

Support MIPI DPHY CSI1: 1/2/4Lane
Support MIPI DPHY CSI2: 1/2Lane
Support MIPI DPHY CSI3: 1/2/4Lane
Support MIPI DPHY CSI4: 1/2Lane
Support MIPI DPHY CSI1 2Lane + MIPI DPHY CSI2 2Lane

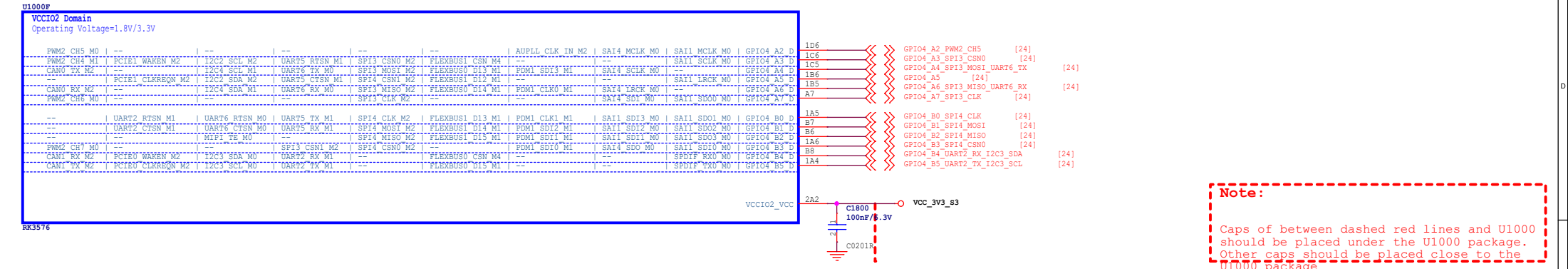


Support MIPI DPHY CSI3: 1/2/4Lane
Support MIPI DPHY CSI4: 1/2Lane
Support MIPI DPHY CSI1 2Lane + MIPI DPHY CSI2 2Lane
Support MIPI DPHY CSI3 2Lane + MIPI DPHY CSI4 2Lane

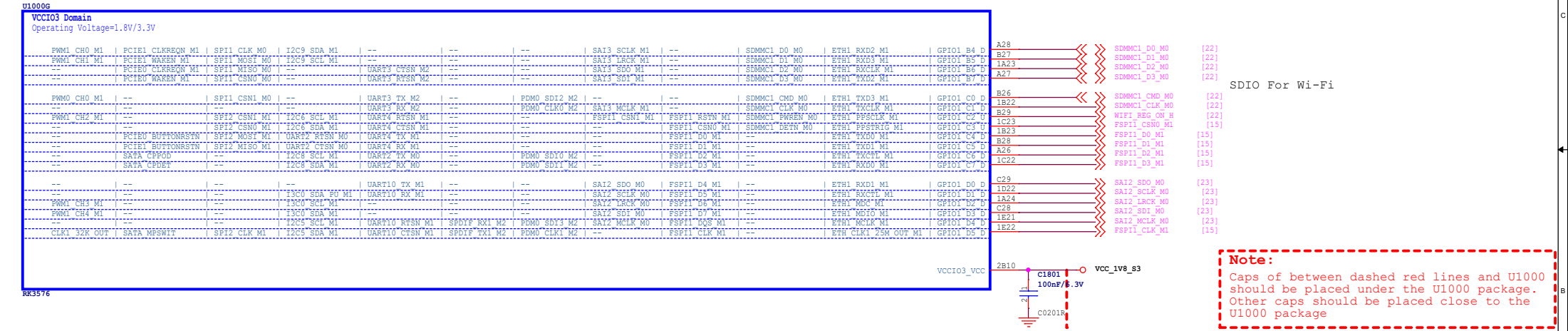
Note:

Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

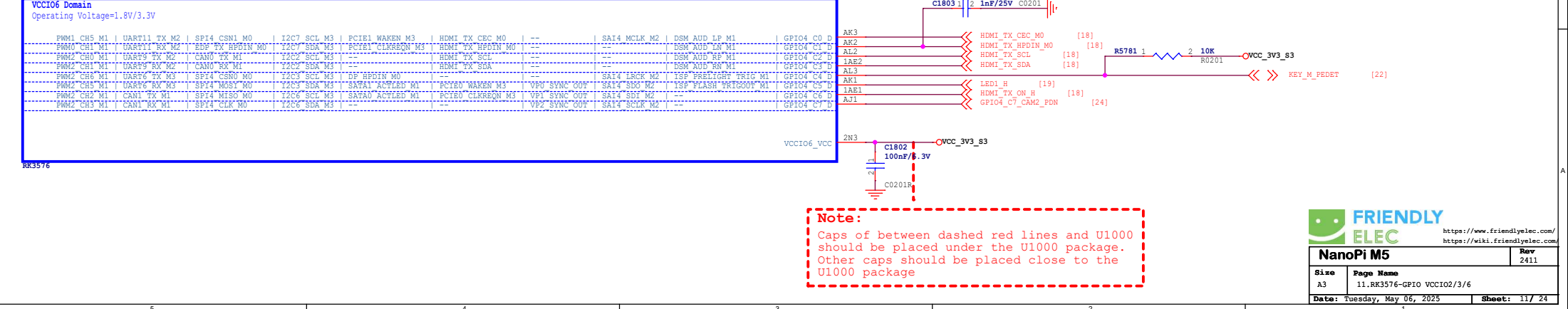
RK3576_F (VCCIO2)



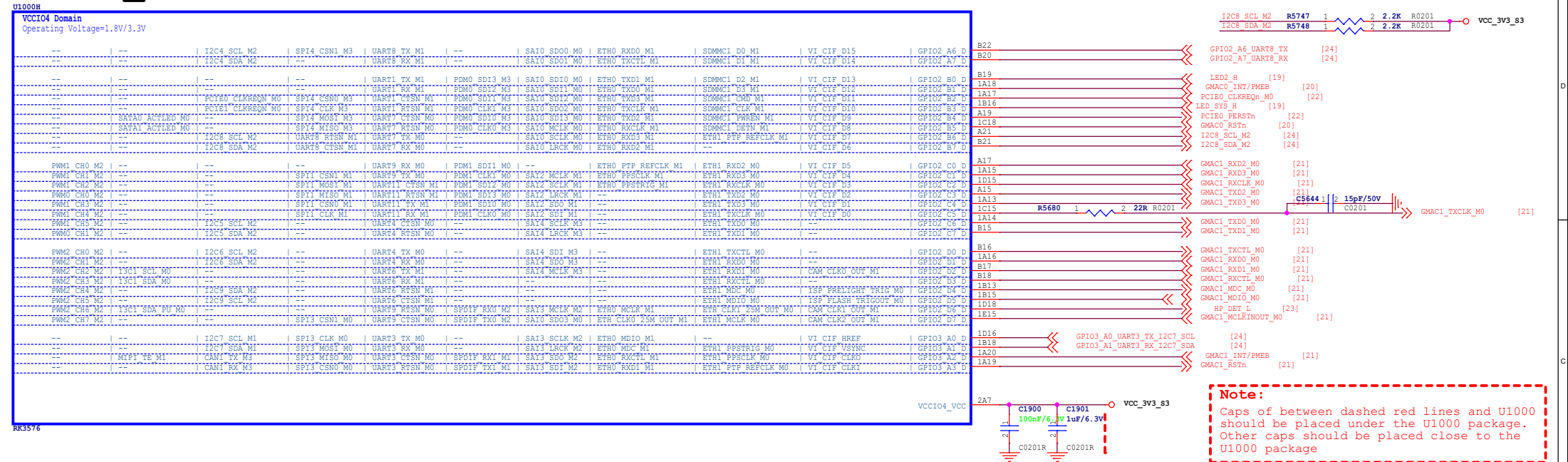
RK3576_G (VCCIO3)



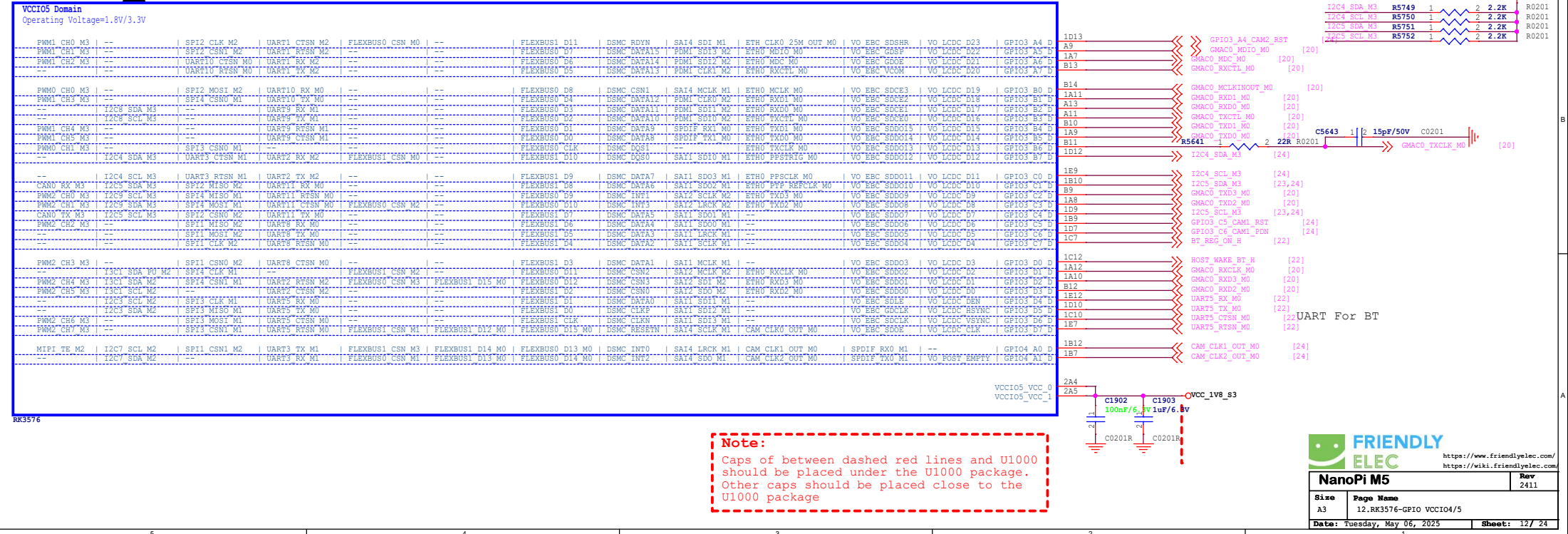
RK3576_J (VCCIO6)



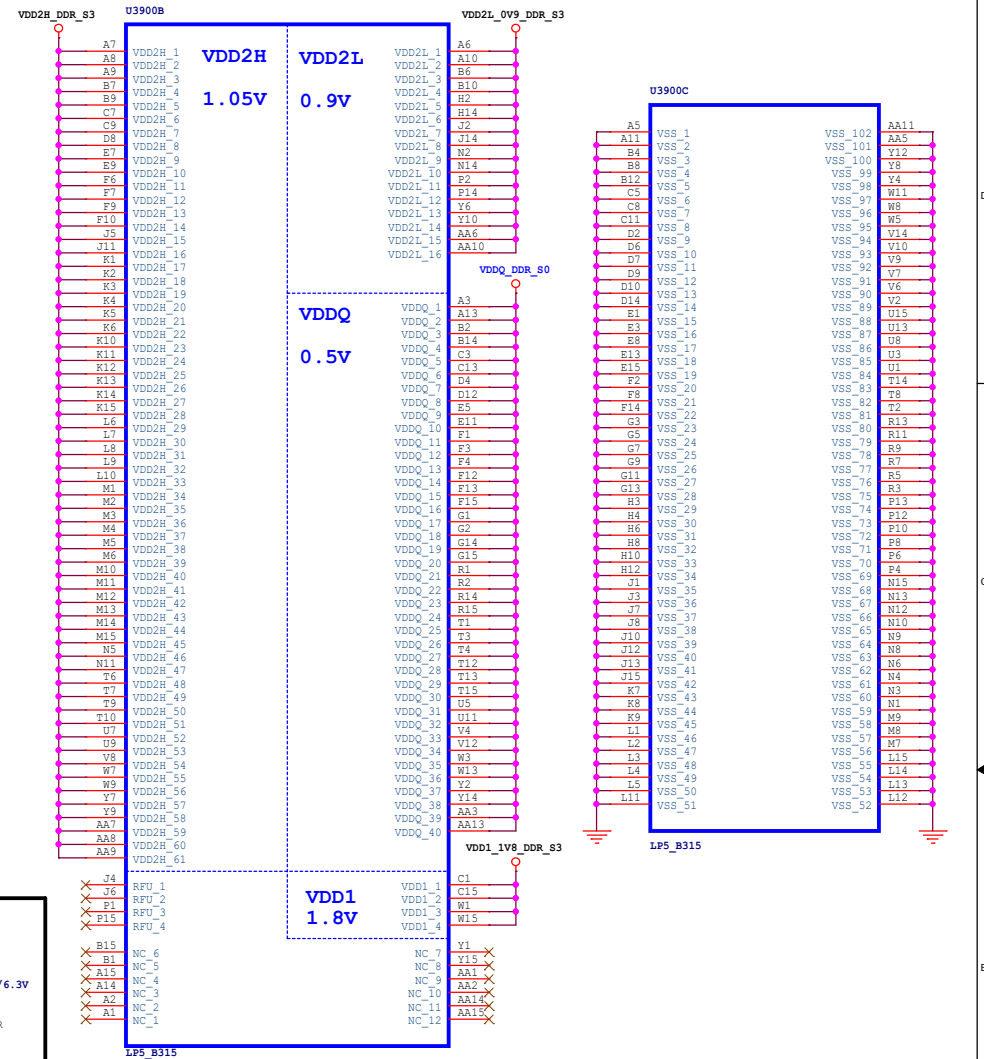
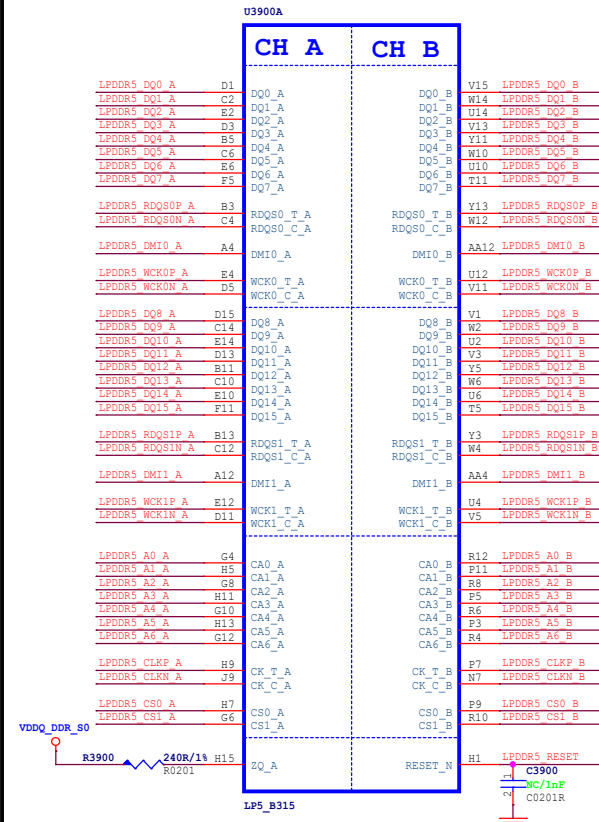
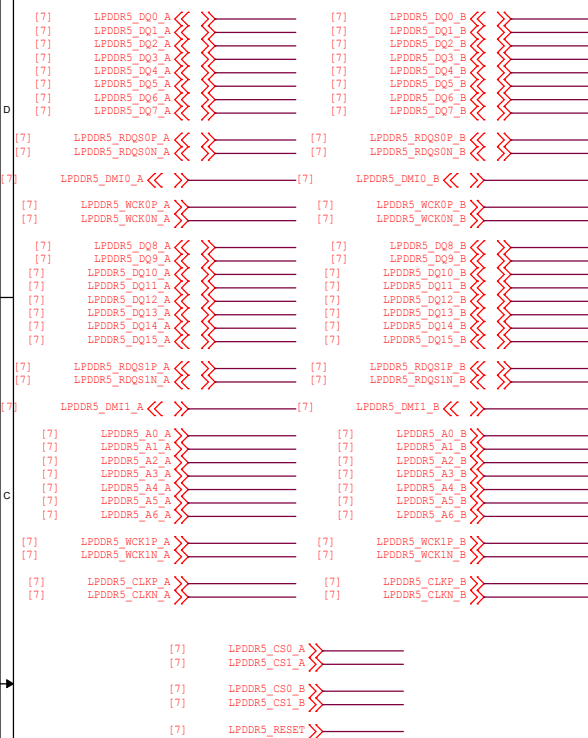
RK3576_H (VCCIO4)



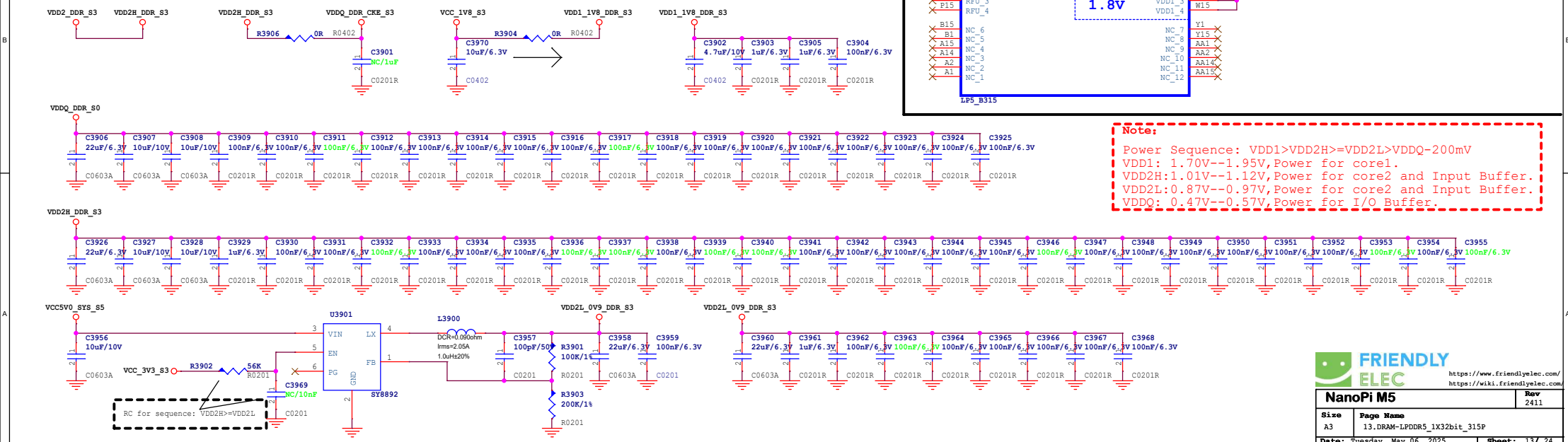
RK3576_I (VCCIO5)



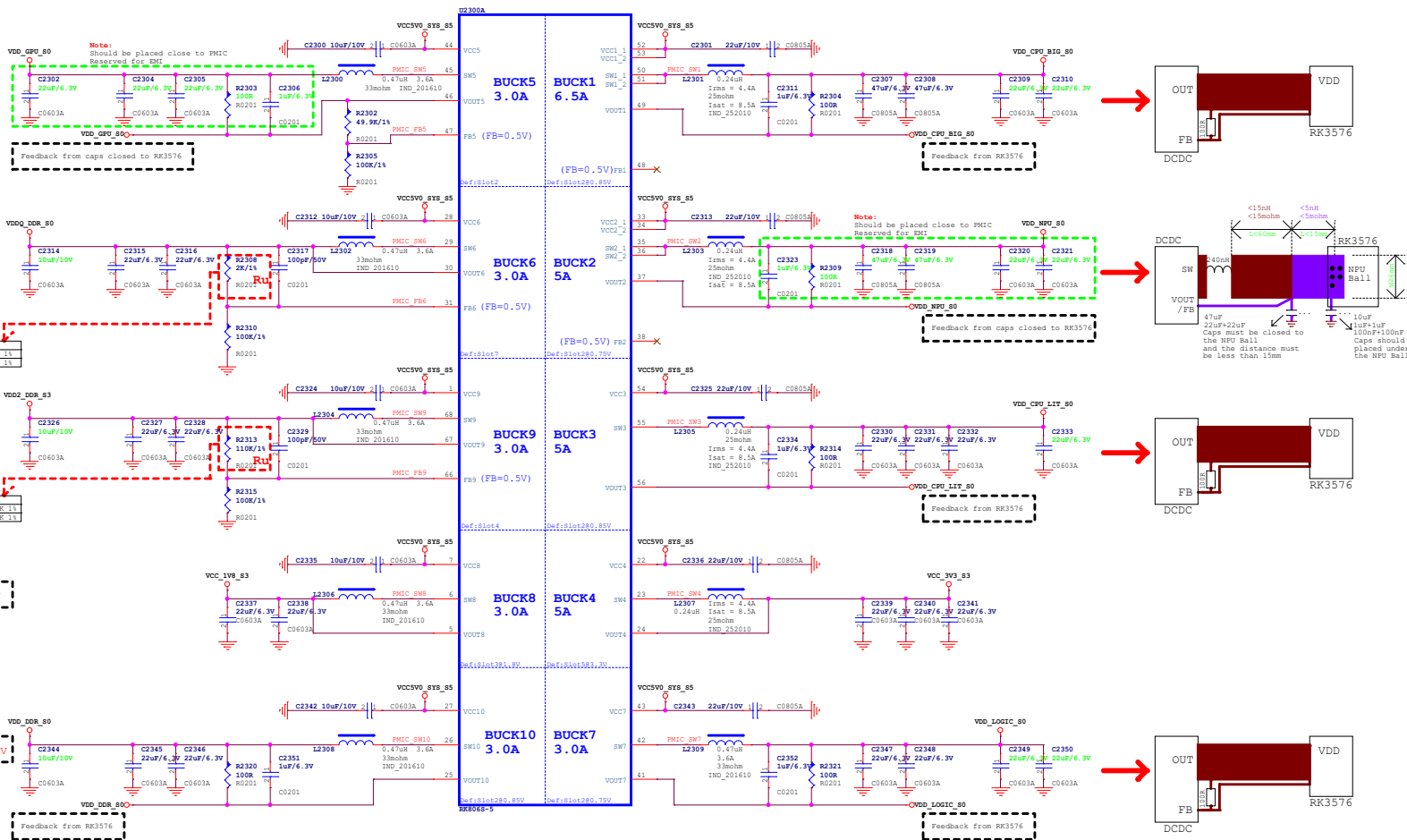
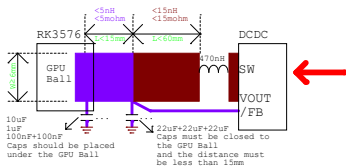
LPDDR5



Note:
Power Sequence: VDD1>VDD2H>VDD2L>VDDQ-200mV
VDD1: 1.70V--1.95V, Power for core1.
VDD2H: 1.01V--1.12V, Power for core2 and Input Buffer.
VDD2L: 0.87V--0.97V, Power for core2 and Input Buffer.
VDDQ: 0.47V--0.57V, Power for I/O Buffer.



PMIC RK806S-5 BUCK



IF TVS UNMOUNTED, ESD OR SURGE SHOULD BE DAMAGE THE PMIC!!!

This device must be mounted. Replacing TVS mode is not recommended, if must, please choose the same specifications.

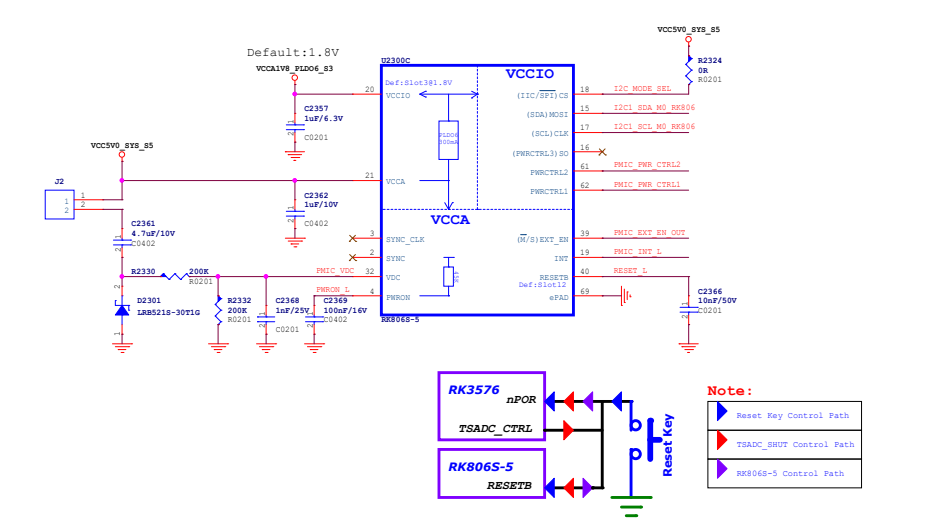
Operating Supply Voltage: +5.5V(5.25-6V)
Peak Pulse Current: >10A (t_{pin}=8/20uS)
Surge Clamping Voltage: <6.5V

DO NOT DELETE IT!

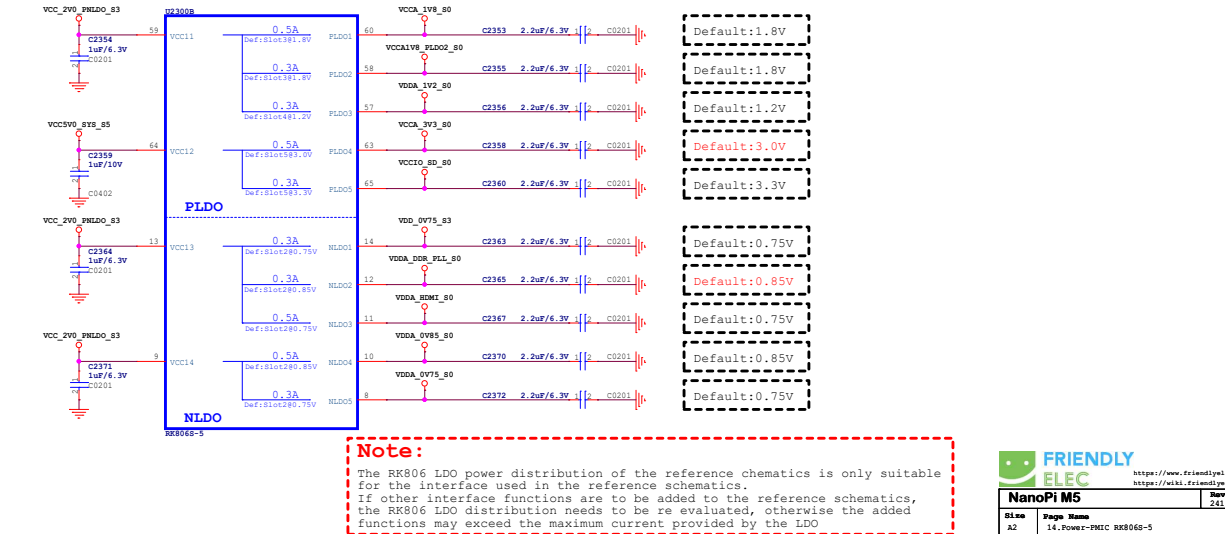
V_{clamp}=6.5V
V_{ovs}=-9V
V_{avg}=-9.5V
30pF

PMIC RK806S-5 Management

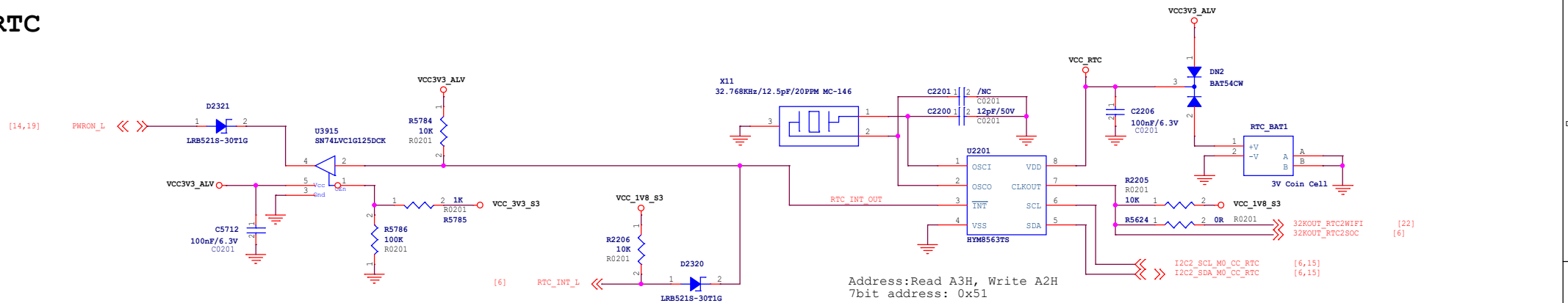
Note:
I2C Mode: CS (pin18) connected to VCCA (pin21);
SPI Mode (Def): CS (pin18) floating or connected to GND



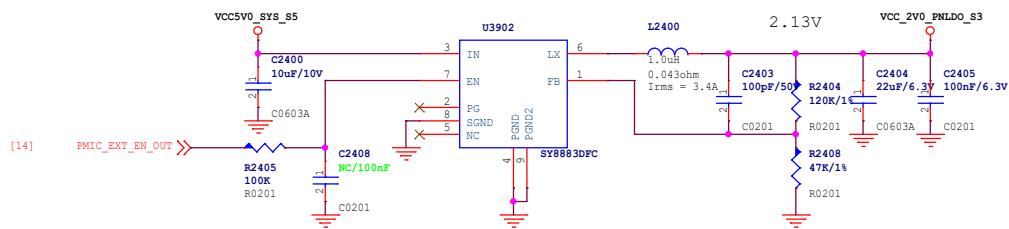
PMIC RK806S-5 LDO



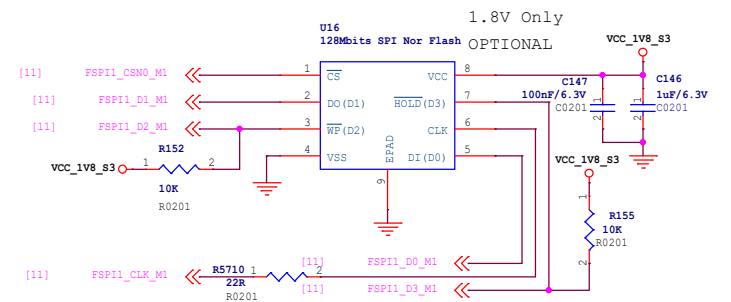
RTC



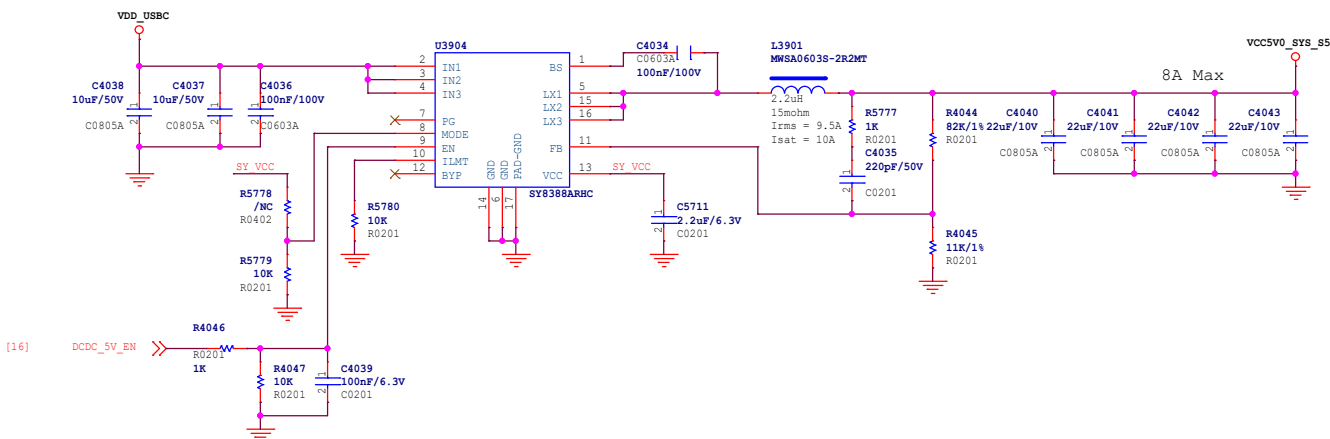
VCC_2V0_PLDO_NLDO_S3



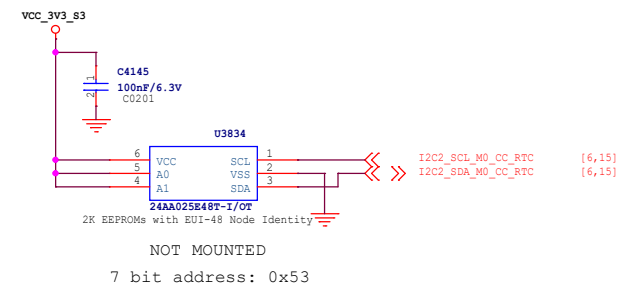
SPI Nor Flash



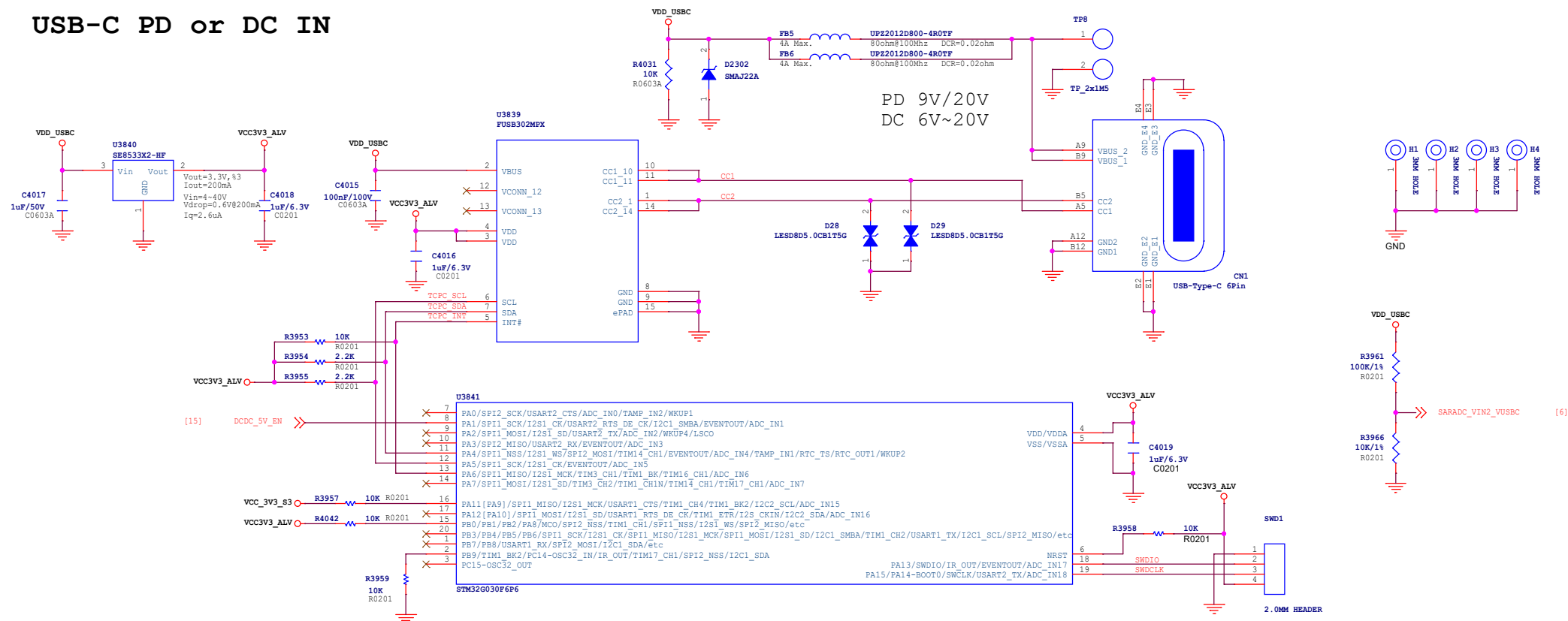
VCC5V0_SYS



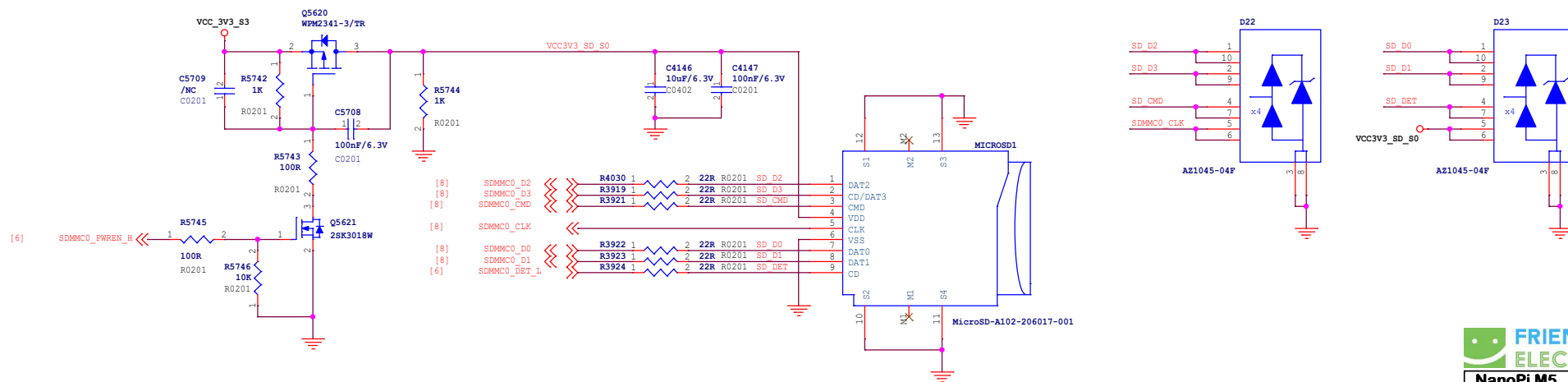
EUI-48 Node Identity



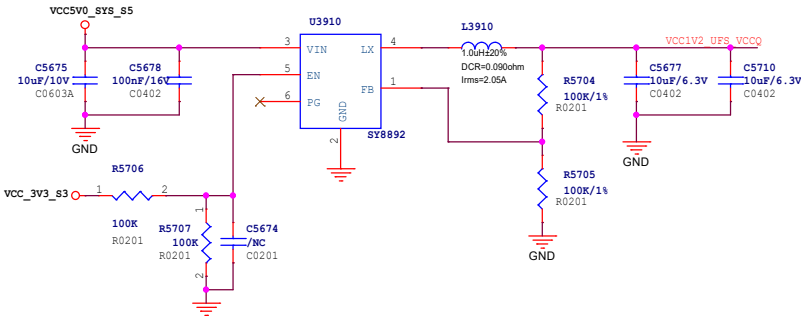
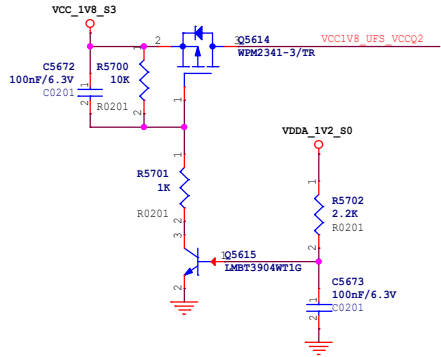
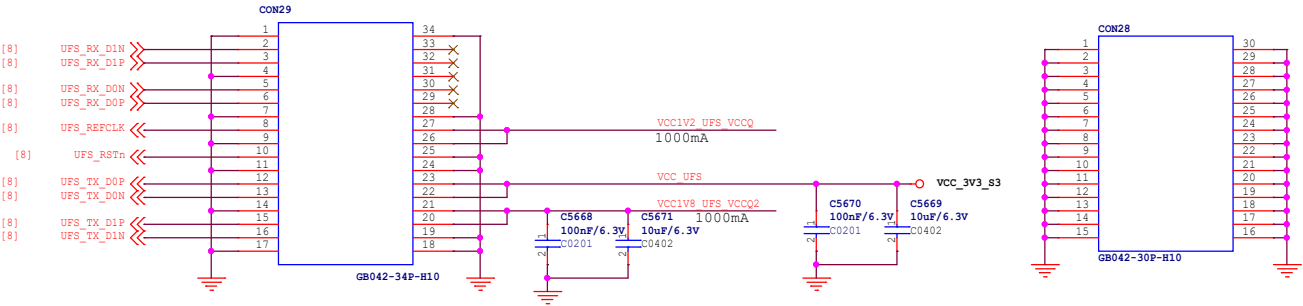
USB-C PD or DC IN



microSD



UFS Socket



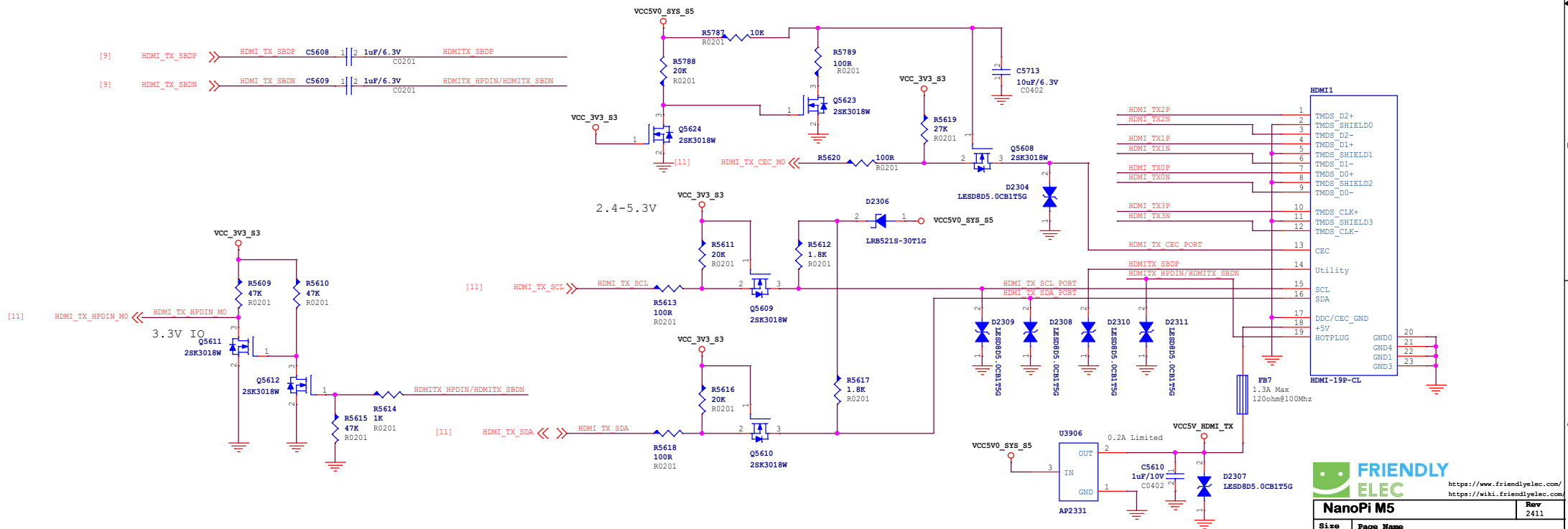
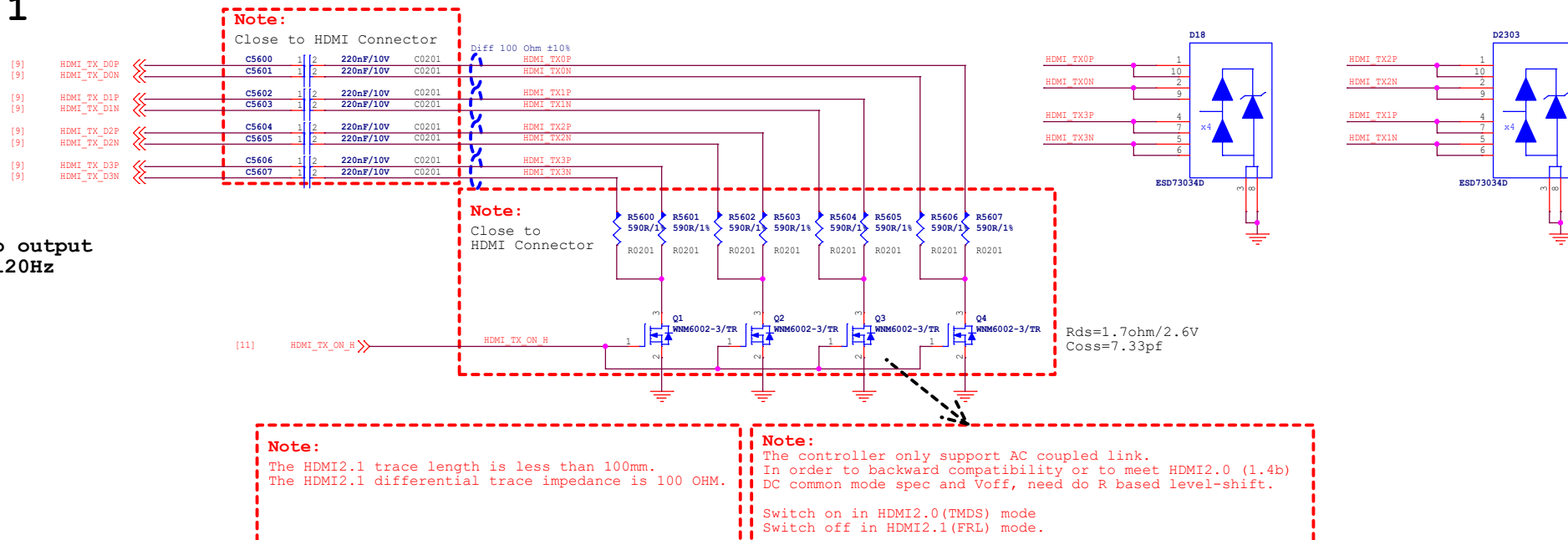
Supported Particles	VCCQ	VCCQ2	VCC	Default UFS device: UFS2.2
UFS2.0	1.2V	1.8V	3.3V	
UFS2.1	No Connect	1.8V	3.3V	
UFS2.2	No Connect	1.8V	3.3V	
UFS3.0	1.2V	No Connect	2.5V/3.3V	
UFS3.1	1.2V	No Connect	2.5V/3.3V	
Do not support UFS4.0 Device!				
Sequence:VCCQ2->VCCQ, VCC is independent				

Note:
The power ball that is not used at the particle must be kept floating.

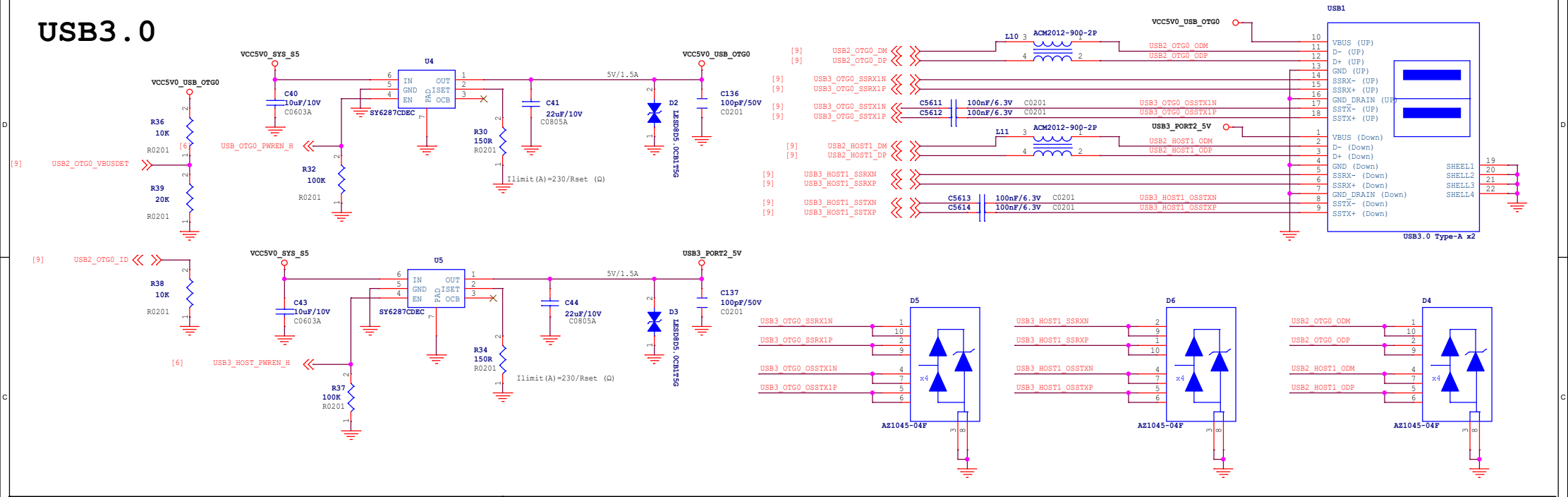
Note:
For particles that require VCCQ and VCCQ2, the following timing needs to be met:
Sequence: VDDA_1V2_S0->VCCQ2->VCCQ
VDDA_1V2_S0 is the power of REFCK & RST_N in RK SOC, which needs to be powered on before UFS particles

HDMI 2.1

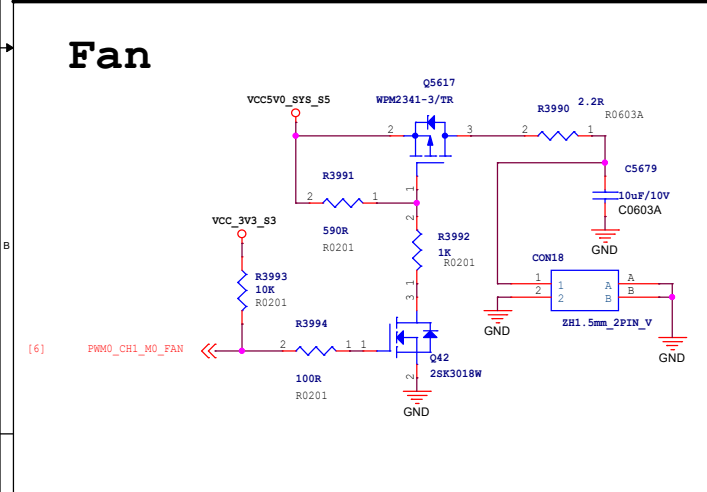
Support video output
up to 4Kx2K@120Hz



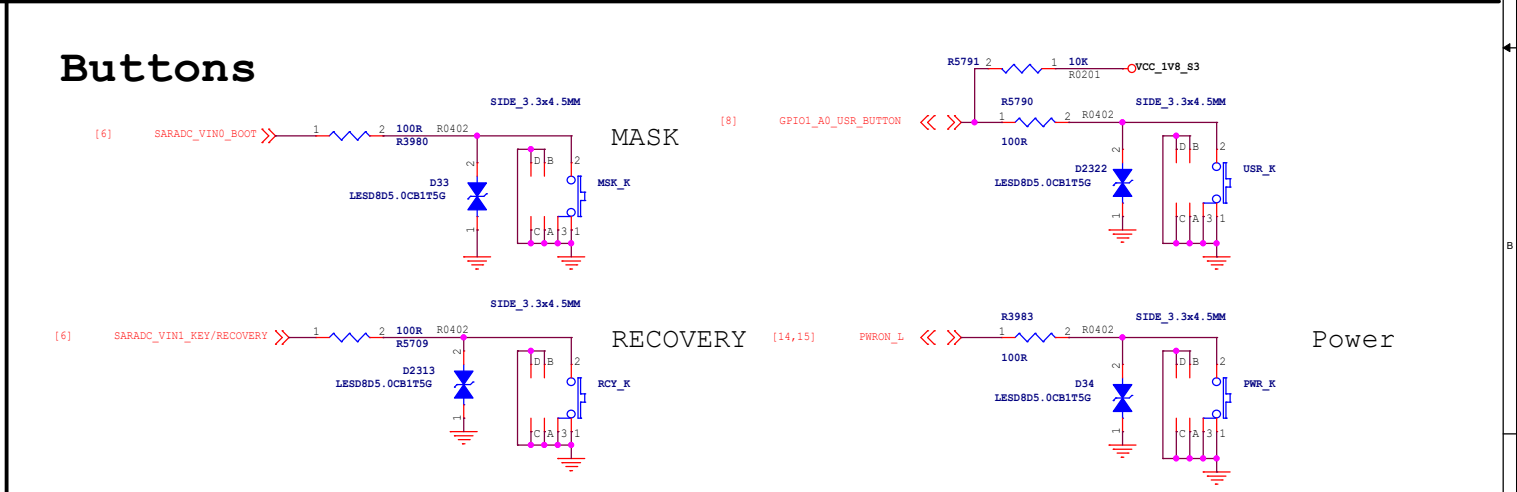
USB3.0



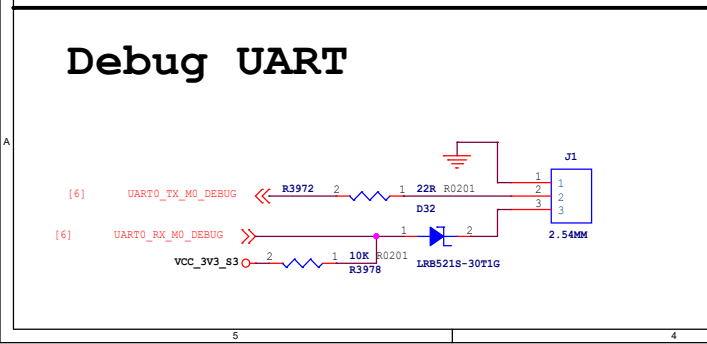
Fan



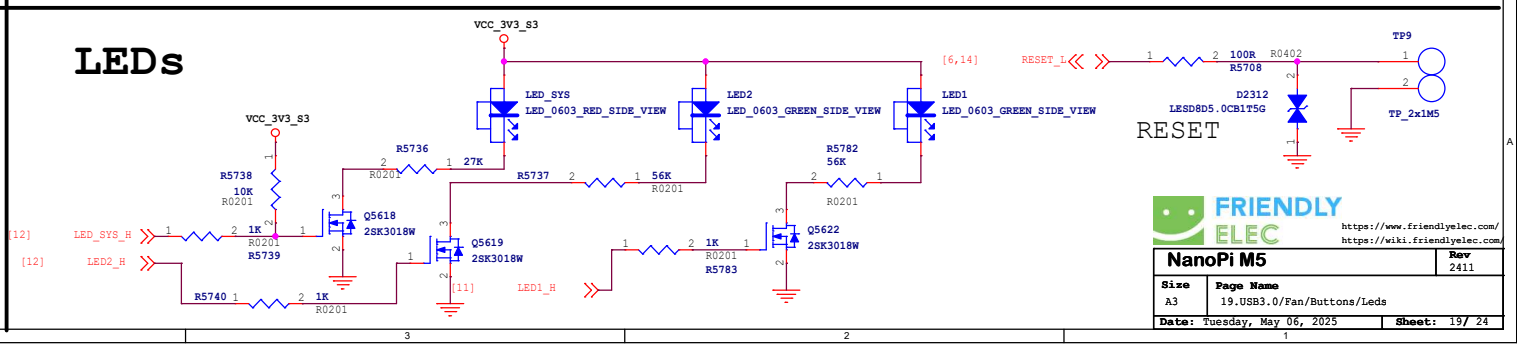
Buttons



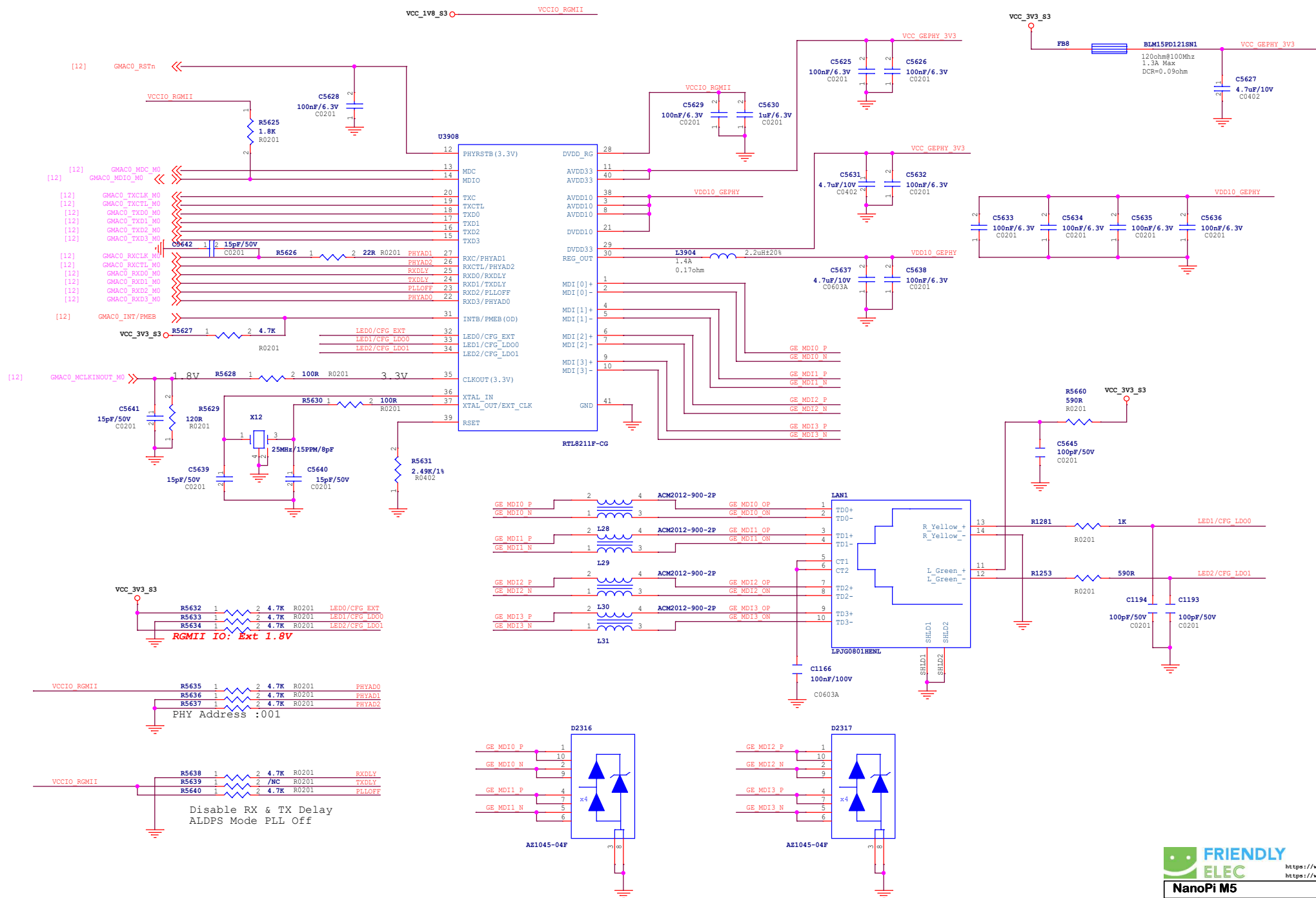
Debug UART



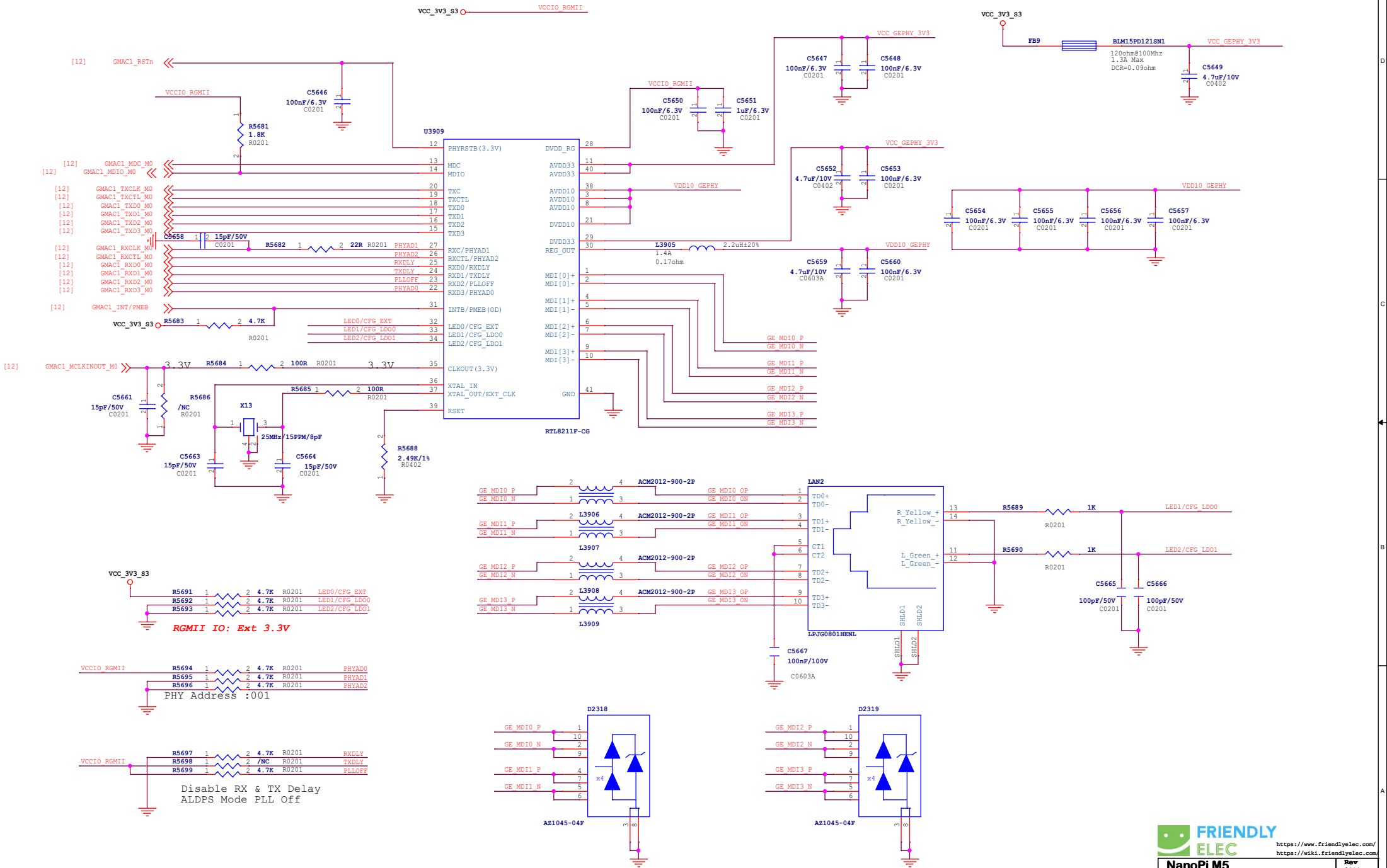
LEDs



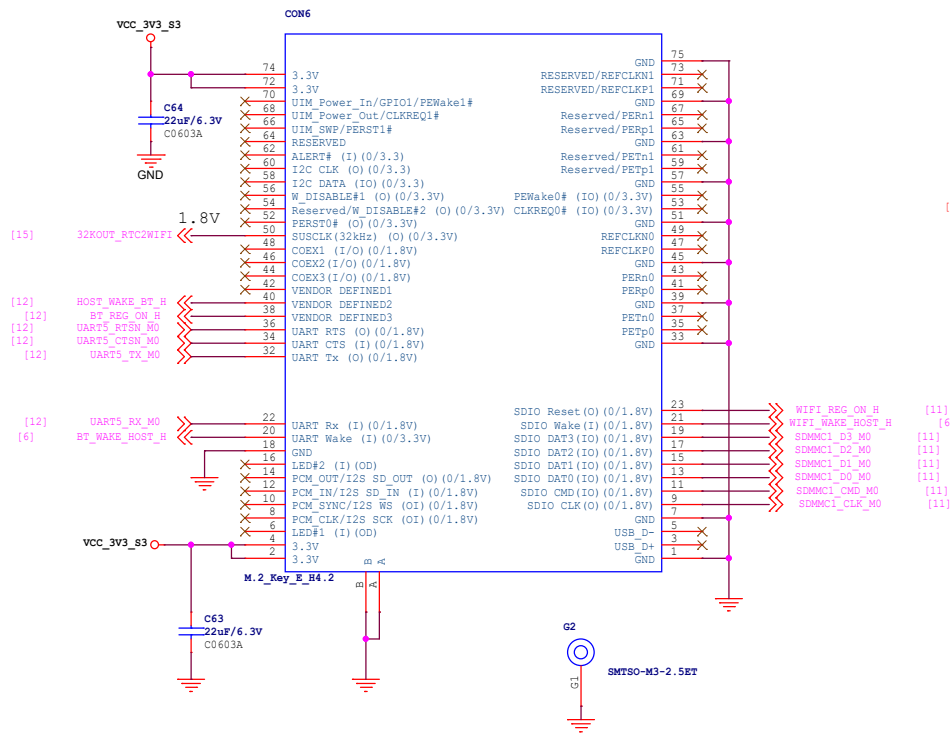
GbE A



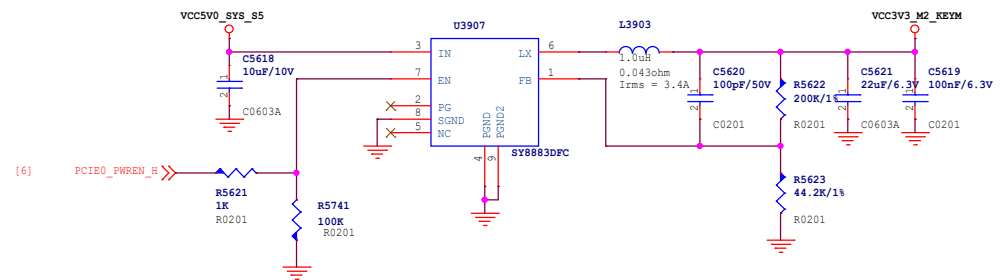
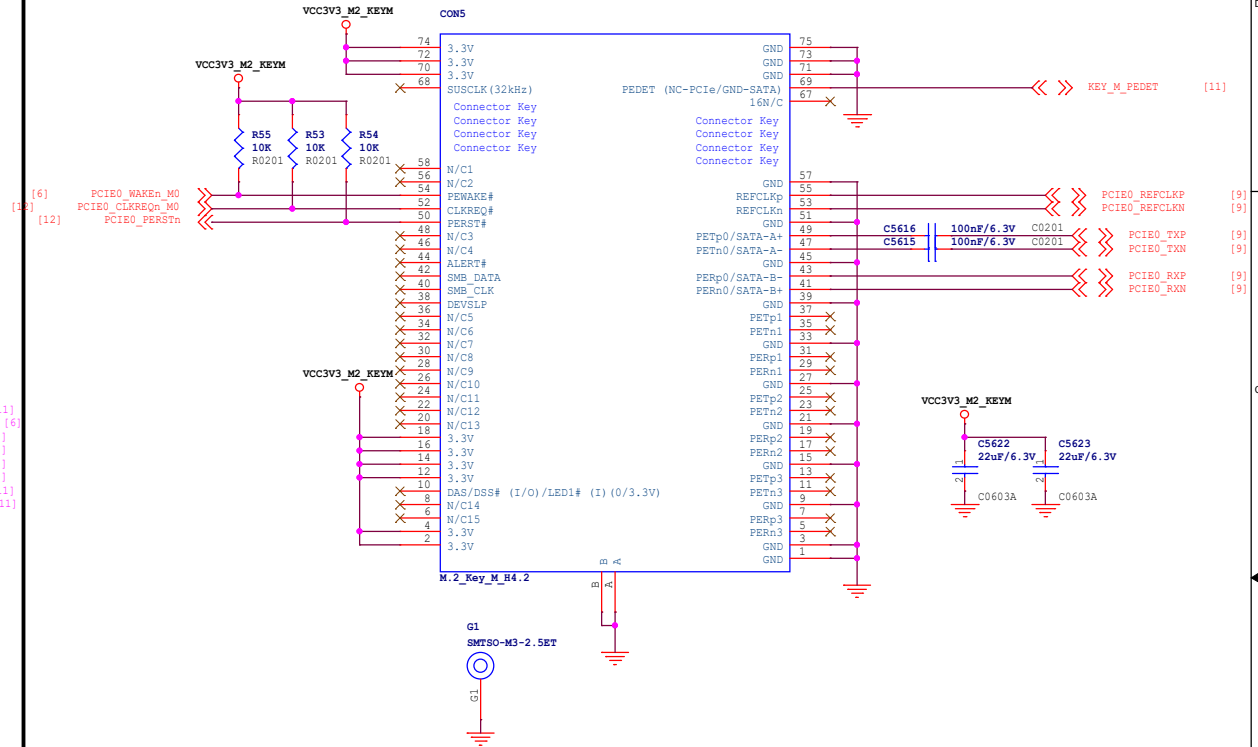
GbE B



M.2 Key E 2230



M.2 Key M 2280



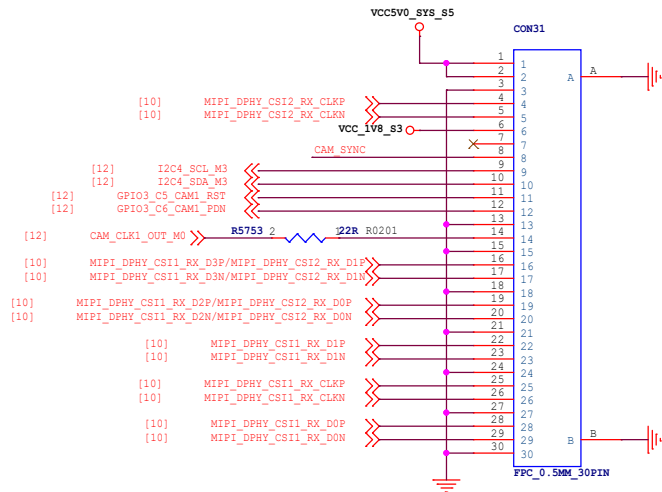
Audio

[11] SAI2_MCLK_M0
[11] SAI2_SDO_M0
[11] SAI2_SDI_M0
[11] SAI2_SCLK_M0
[11] SAI2_LRCK_M0

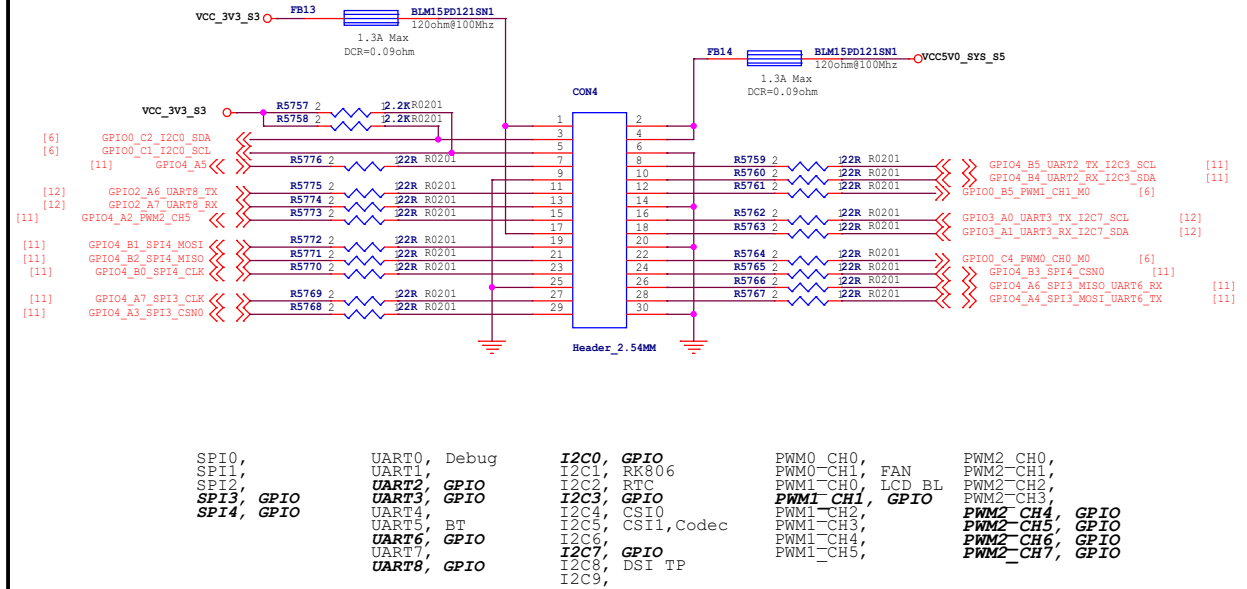
[12,24] I2C5_SDA_M3
[12,24] I2C5_SCL_M3

Power On Sequence: (Sequentially turn on power pins)
1. DVDD/AVDD/DACREF/CPVDD power supply on.
2. MICVDD power supply on.
3. Software starts to initialize ALC5616.

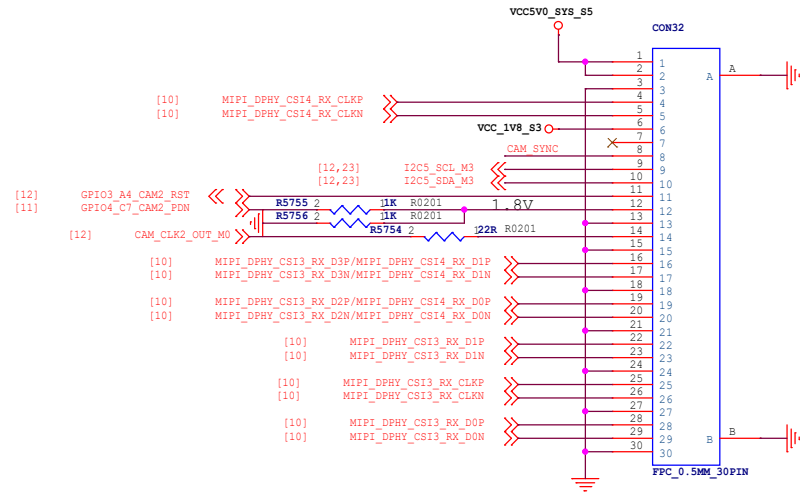
MIPI-CSIO



GPIO



MIPI-CSI1



MIPI-DSI

