

Block diagram

A

A

B

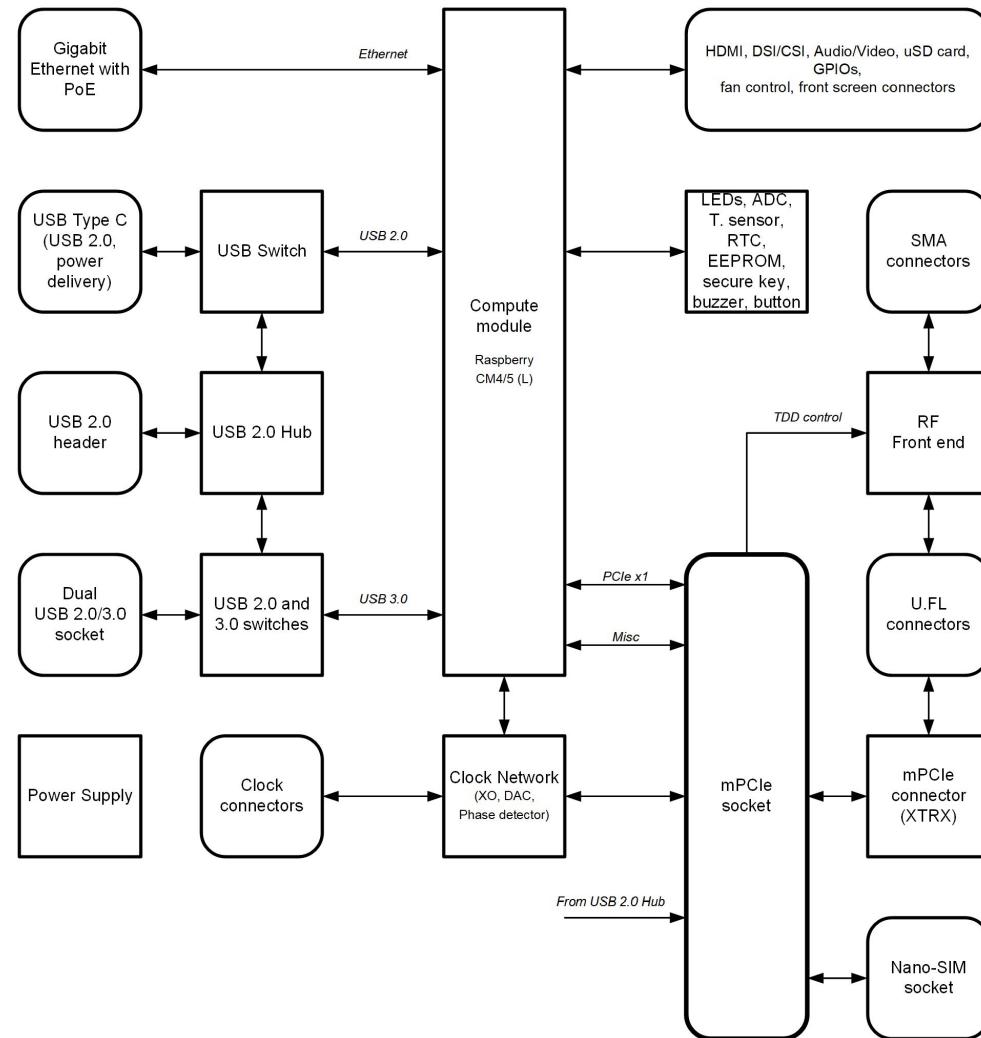
B

C

C

D

D



Project name: **LimePSB-RPCM_Inv2.Pcb**

Title: **Block diagram**

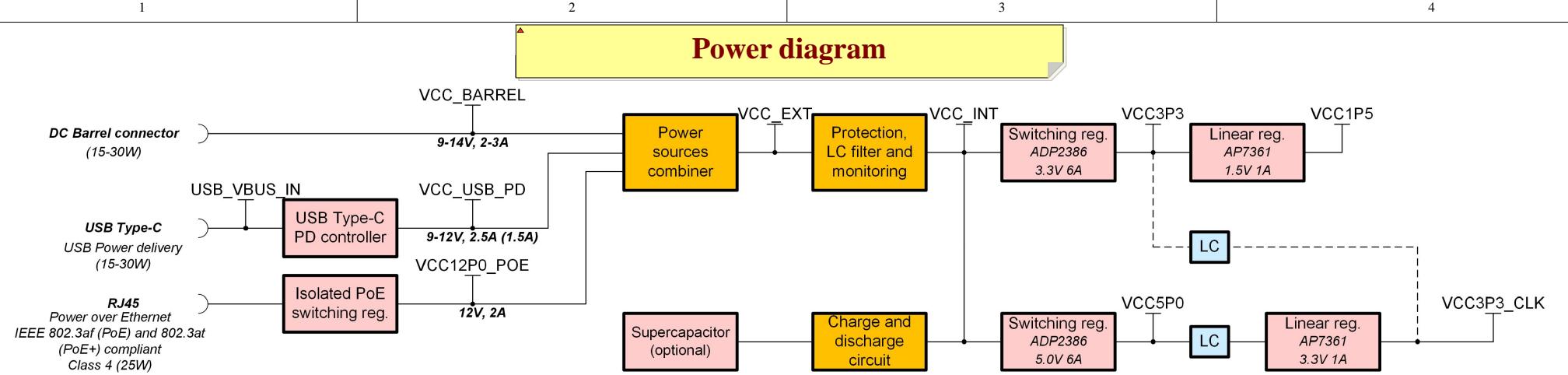
Size: **A4** Revision: **v1.2**

Date: **2024-09-10** Time: **13:00:30** Sheet**1** of **13**

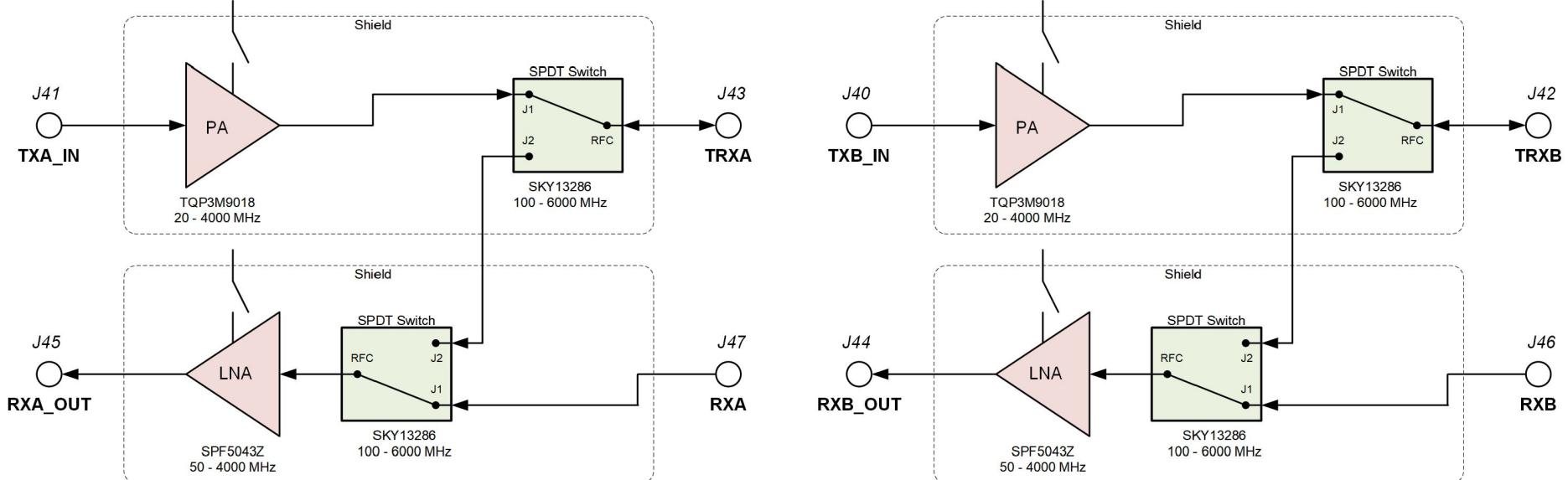
File: **01_Block_diag.SchDoc**

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RF Front End diagram



Project name: **LimePSB-RPCM_1v2.PrjPcb**

Title: **Power + RF Front End diagram**

Size: **A4**

Revision: **v1.2**

Date: **2024-09-10**

Time: **13:00:34**

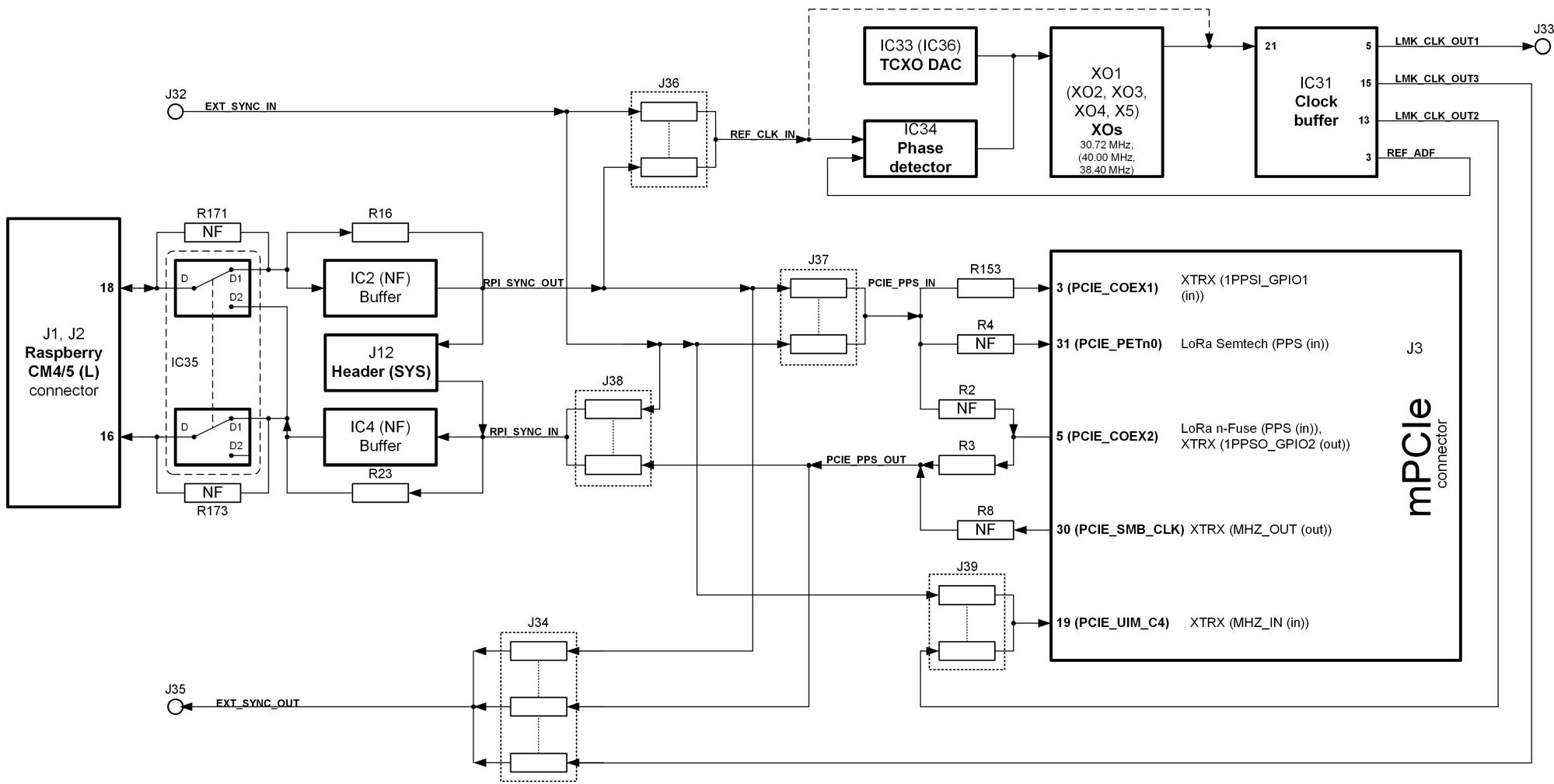
Sheet **2** of **13**

File: **02_Power_RFFE_diag.SchDoc**

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Clock diagram



Project name: **LimePSB-RPCM_Iv2.PrjPcb**

Title: **Clock diagram**

Size: **A4** Revision: **v1.2**

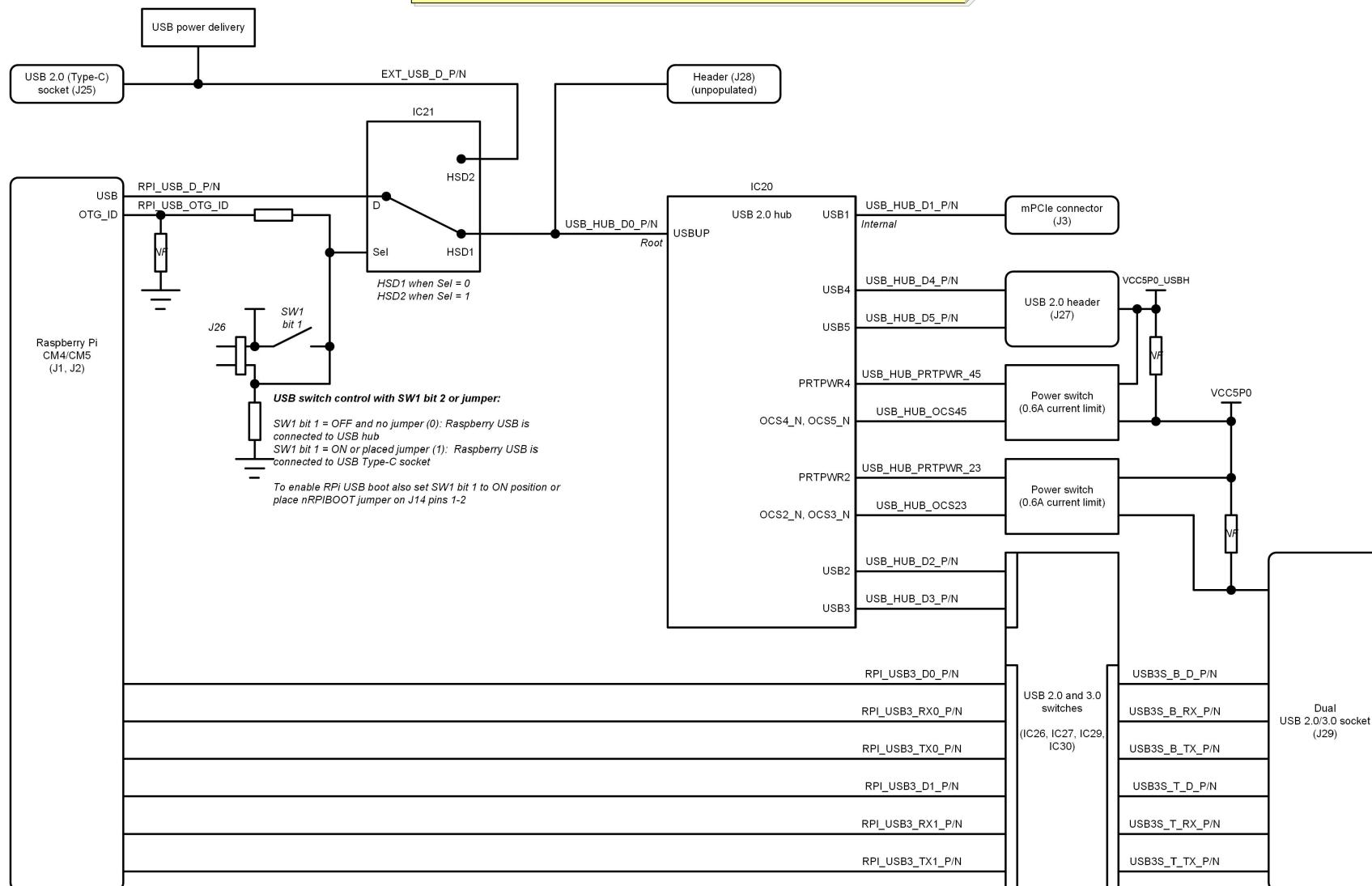
Date: **2024-09-10** Time: **13:00:39** Sheet**3** of **13**

File: **03_Clock_diag.SchDoc**

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USB diagram



Project name: **LimePSB-RPCM_Iv2.PrjPcb**

Title: **USB diagram**

Size: **A4** Revision: **v1.2**

Date: **2024-09-10** Time: **13:00:45** Sheet**4** of **13**

File: **04_USB_diag.SchDoc**

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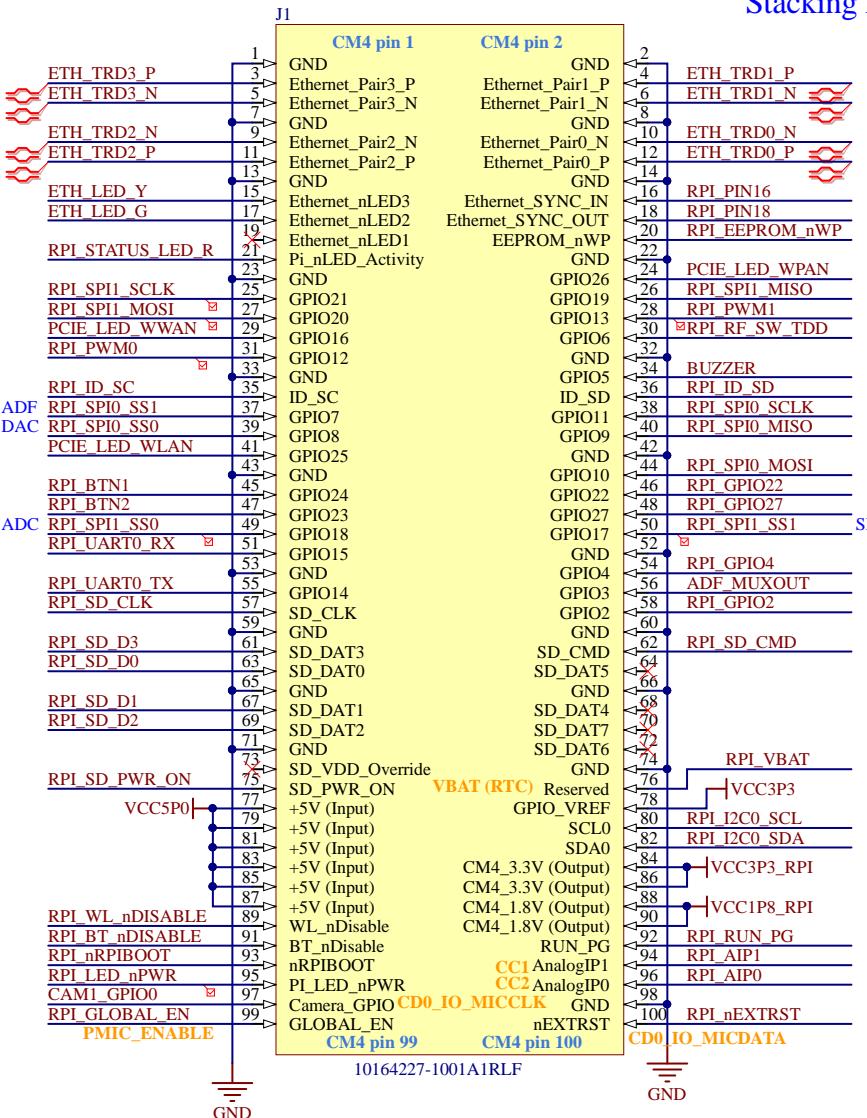


NF elements on sheet: R1, R2, R4, R6, C6, C7, C8, R8, R9, R10, R11, J5, J6
Number of NF elements on sheet: 13

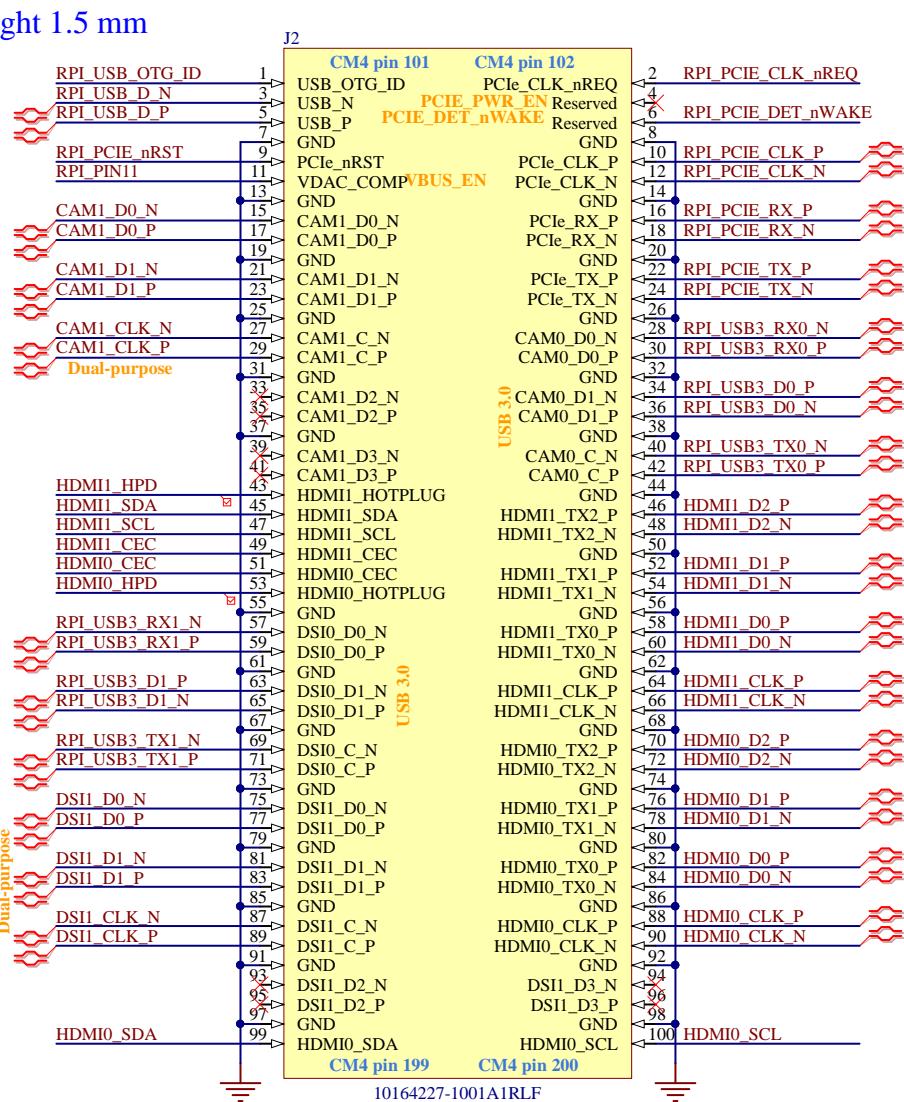
Raspberry Pi CM4/5(L) and mPCIe

Board to Board connector for Raspberry Pi CM4/5(L)

Stacking height 1.5 mm



Stacking height 1.5 mm

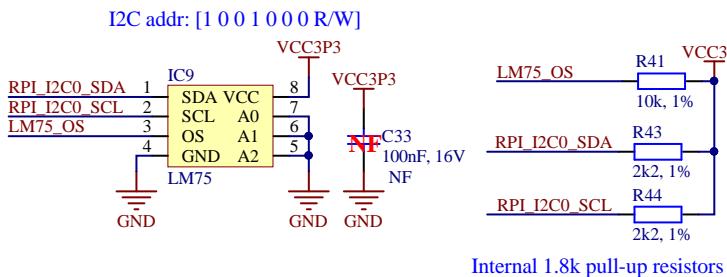


NF elements on sheet: C33, R45, R49, C34, C35, J18, R50, R51, R40, J19, J20, R52, IC11, IC13, R73, R75, R77, R82, R84, R85, R86, R96, IC18, R78, BATT

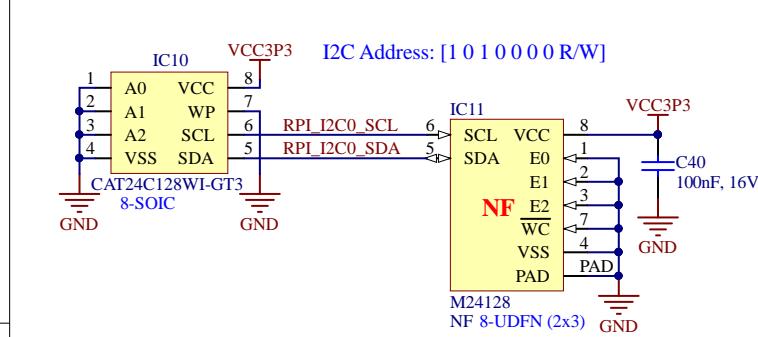
Number of NF elements on sheet: 25

Misc 2

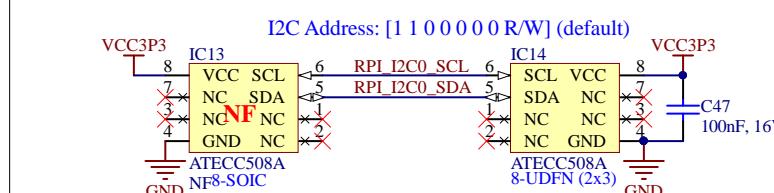
I2C Temperature sensor



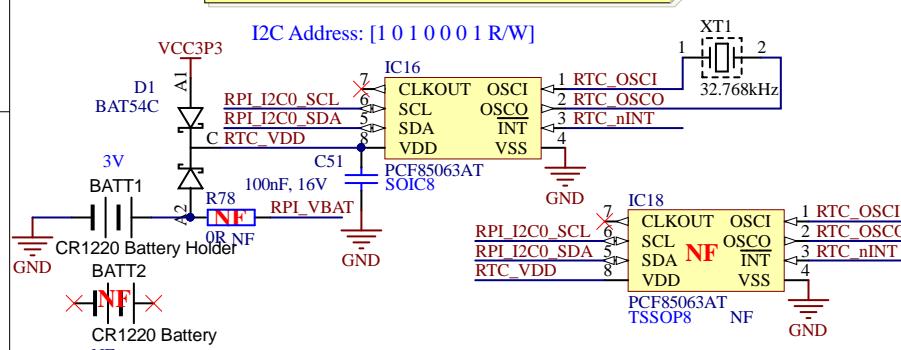
I2C EEPROM



I2C secure key storage

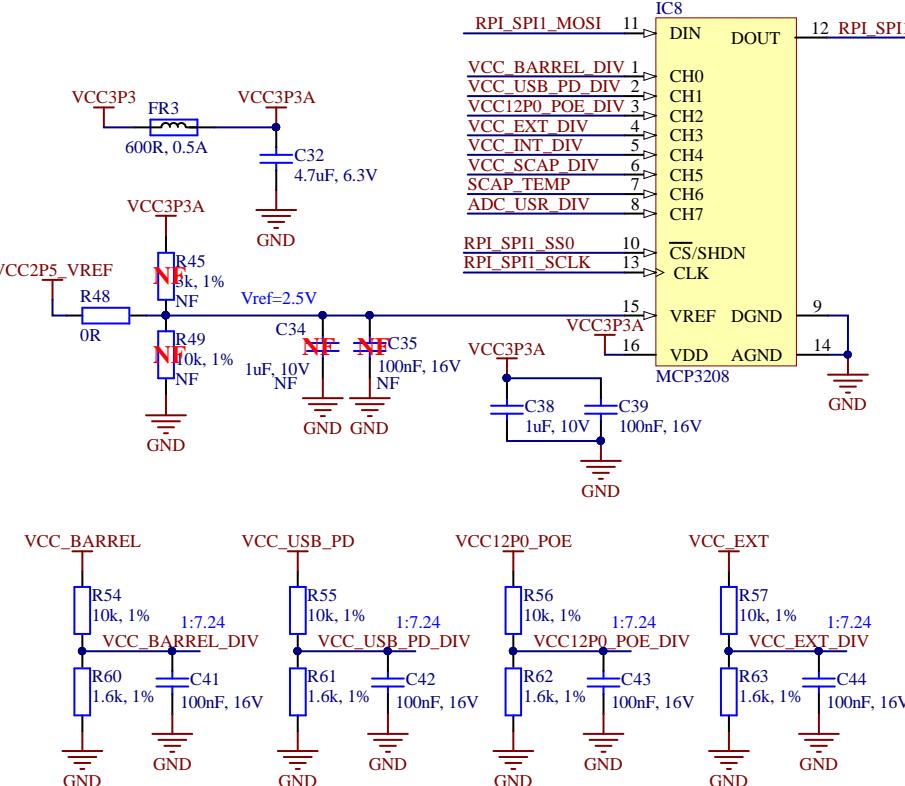


I2C RTC

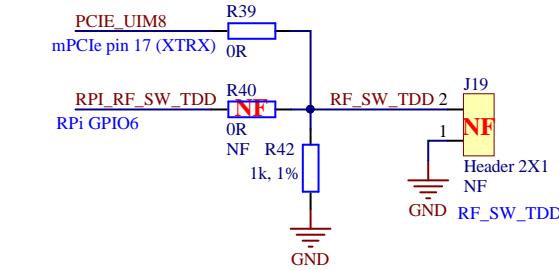


Circuit diagram showing the RTC interrupt logic. The RTC interrupt signal (RTC_nINT) is connected through resistor R90 (470k, 1%) and capacitor C54 (100nF, 16V) to the non-inverting input (pin 2) of the inverter IC19 (74LVC1G34QSE-7). The inverting input (pin 3) is connected to ground. The output (pin 1) is connected through resistor R91 (470k, 1%) to the VCC pin of IC19. The VCC pin is also connected to the VCC5P0 pin. The output of IC19 (pin 4) is connected through resistor R93 (OR gate) to the RPI_GLOBAL pin. The output of IC19 (pin 5) is connected through capacitor C55 (100nF, 16V) to ground.

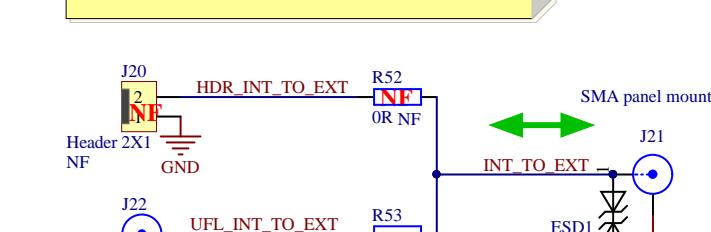
ADC



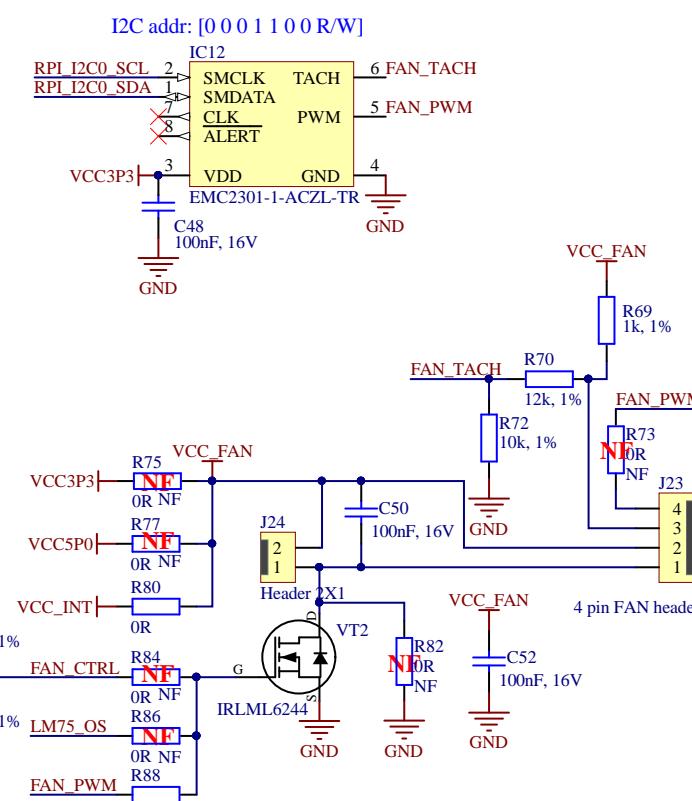
RFFE TDD control



Int to ext



FAN control



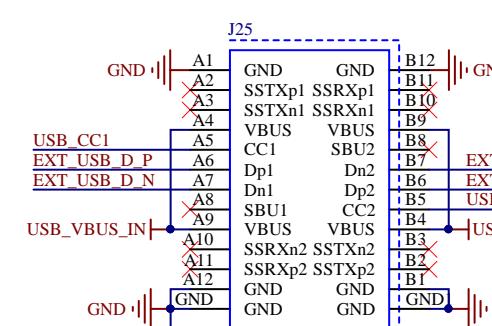
Project name: LimePSB-RPCM Lv2 PriPch

Title: Misc 2		Lime Microsystems Surrey Tech Centre Guildford GU2 7YG Surrey United Kingdom
Size: A3	Revision: v1.2	
Date: 2024-09-10	Time: 13:01:05	Sheet 7 of 13
File: 07_Misc_2.SchDoc		

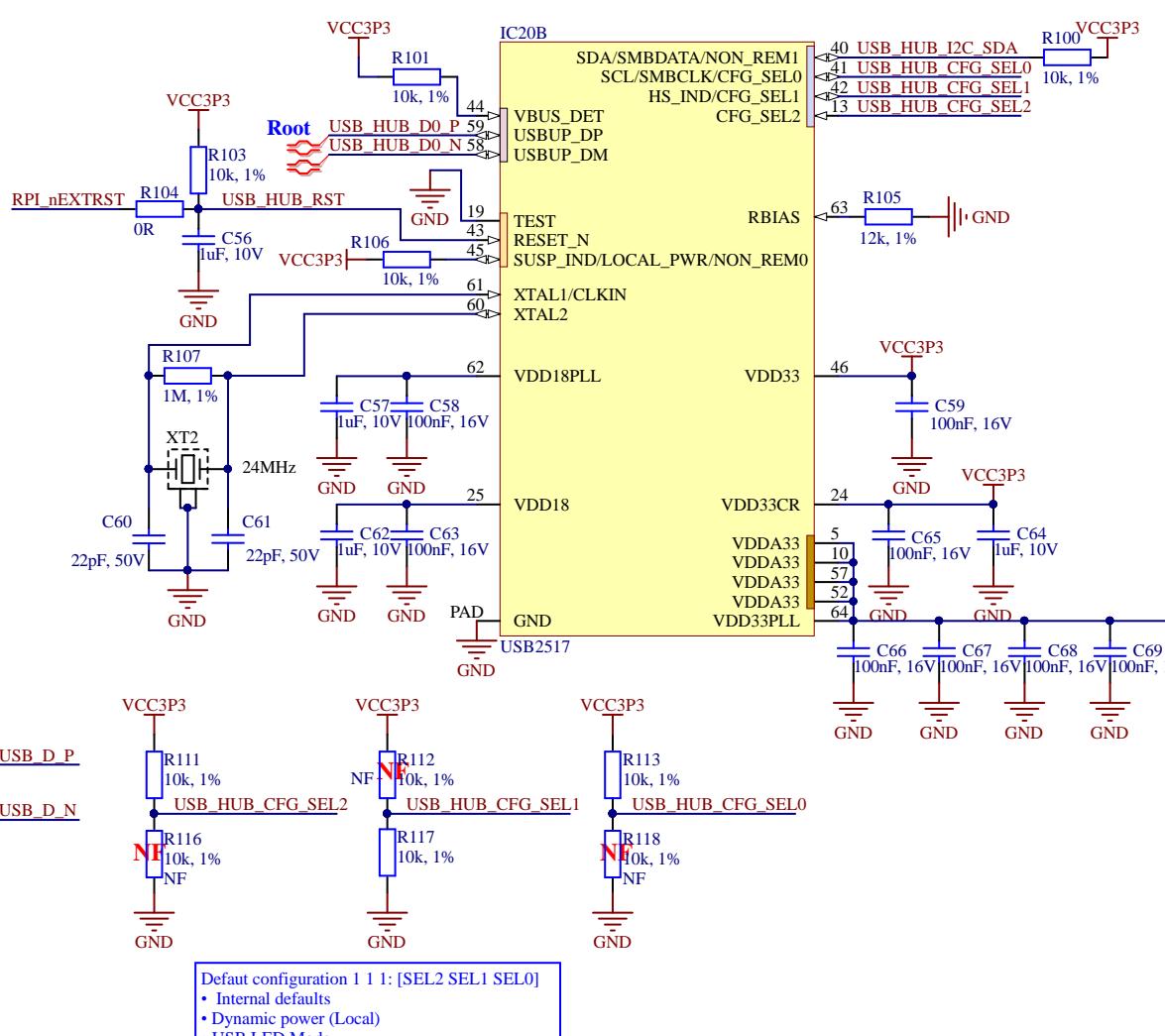
NF elements on sheet: R97, R98, VD9, R108, R109, R114, R116, J26, JMP1, R121, R122, R112, R118, IC22, IC23, J28, R125, R126, R128, C78

Number of NF elements on sheet: 20

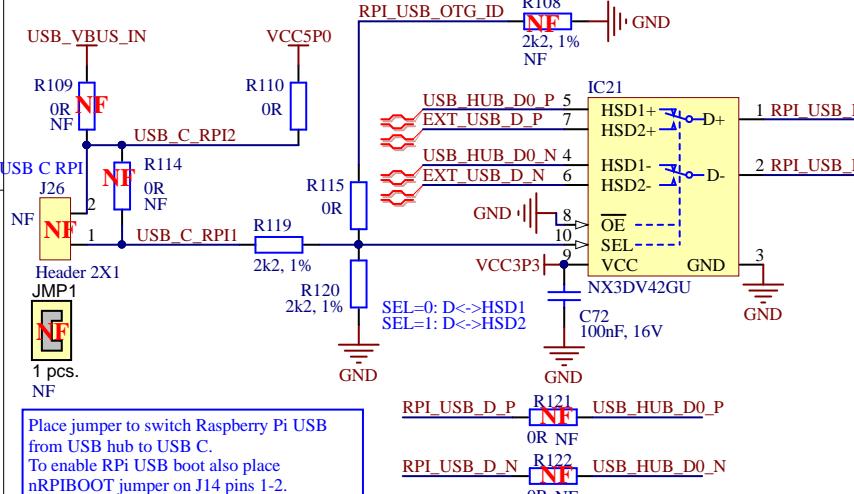
USB C socket



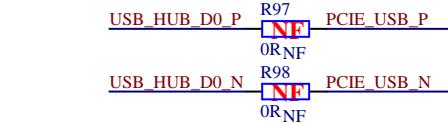
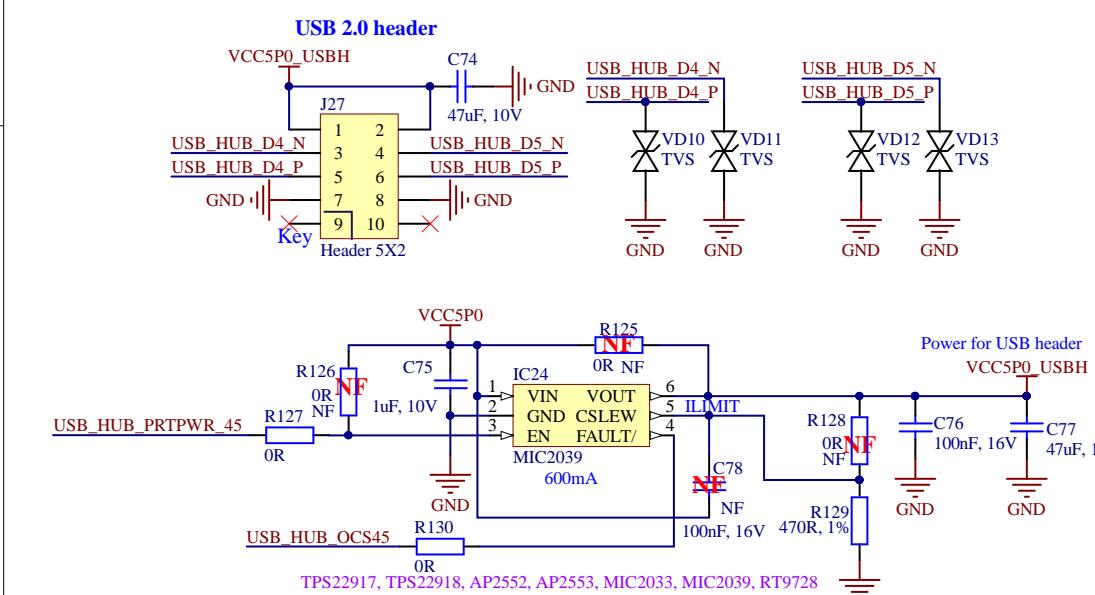
USB 2.0 HUB



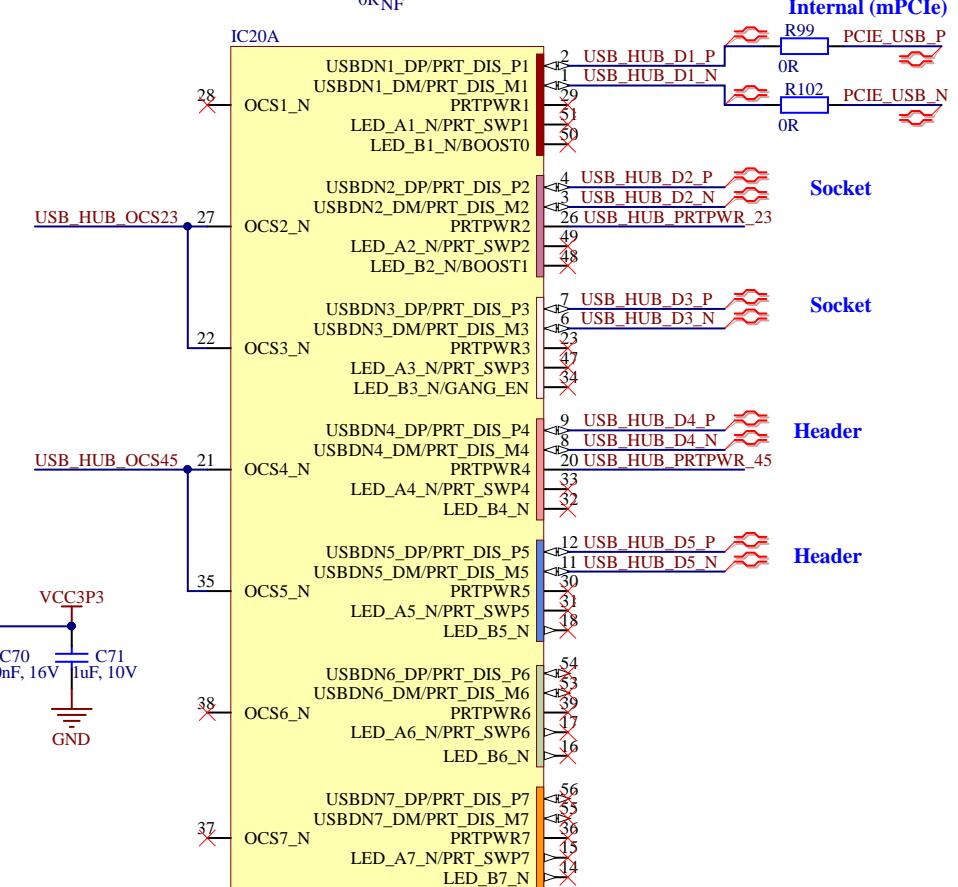
USB switch



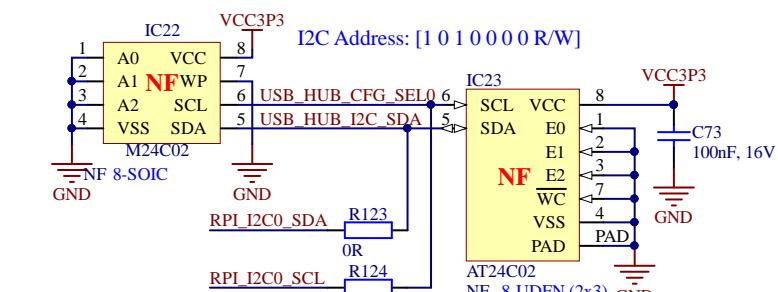
USB 2.0 header



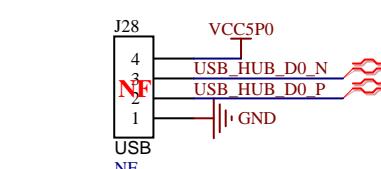
Internal (mPCIe)



PCB note: USB differential pair impedance is 90Ω



USB2.0 hub upstream



Project name: LimePSB-RPCM_Iv2.PrcPcb

Title: USB 2.0 hub

Size: A3 Revision: v1.2

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File: 08_USB_hub.SchDoc

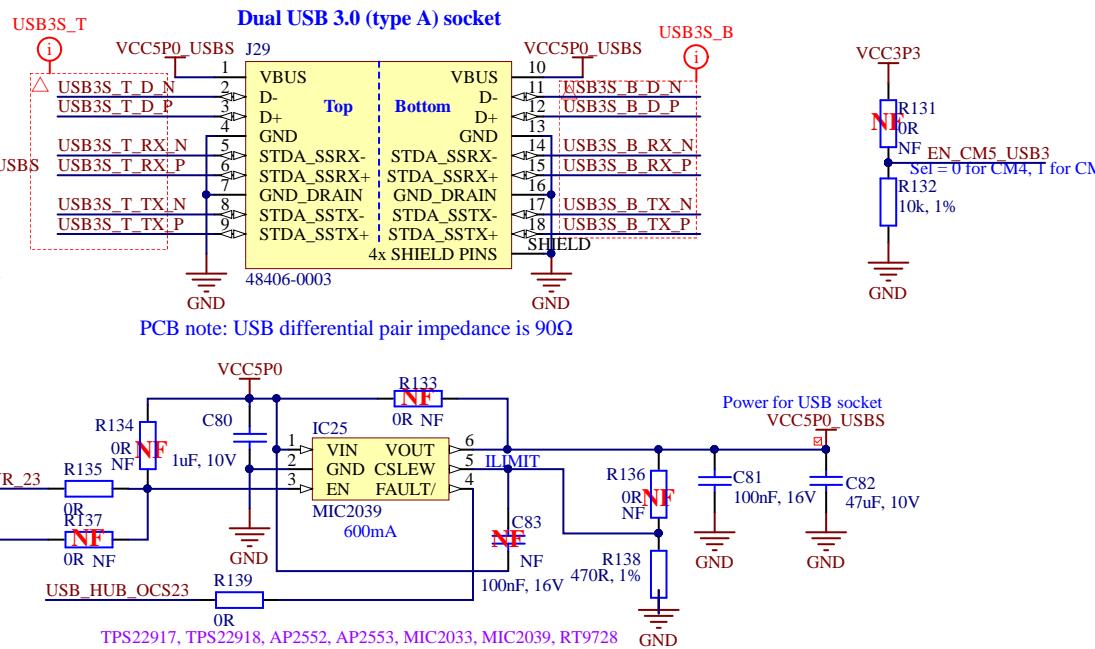
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United Kingdom



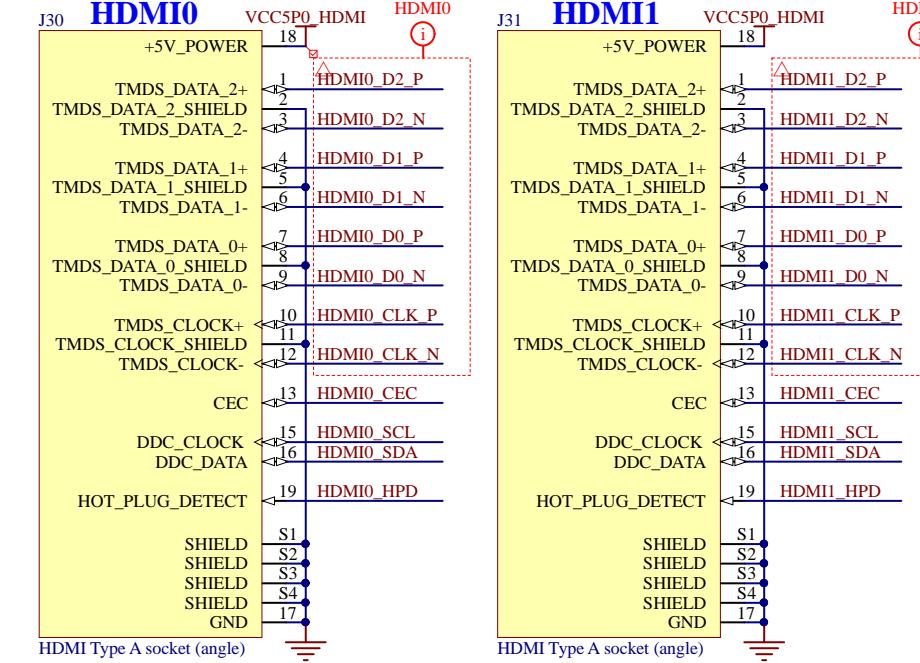
NF elements on sheet: R131, R133, R134, R136, R137, C83, R140, R142, C88
Number of NF elements on sheet: 9

USB and HDMI sockets

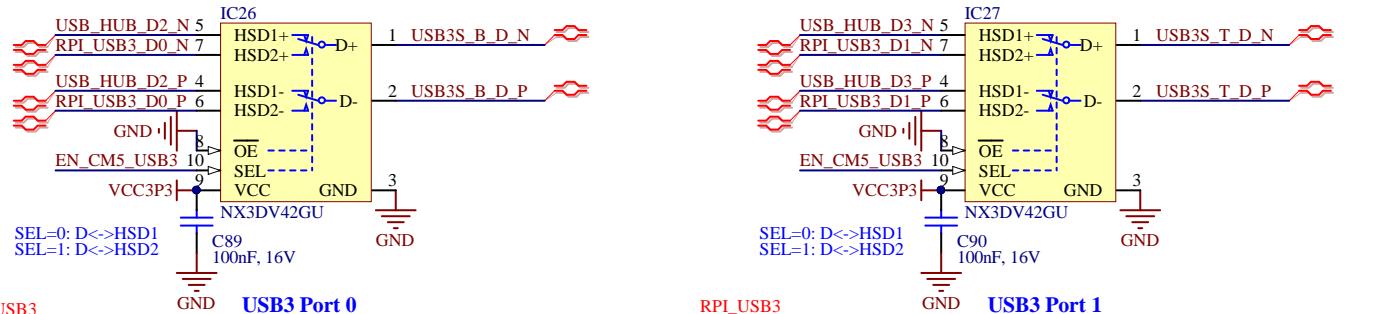
Dual USB 3.0 (type A) socket



HDMI sockets



USB 2.0 and 3.0 switches

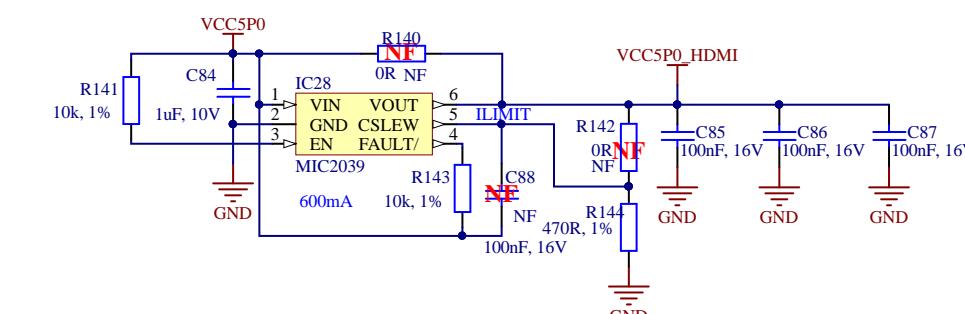
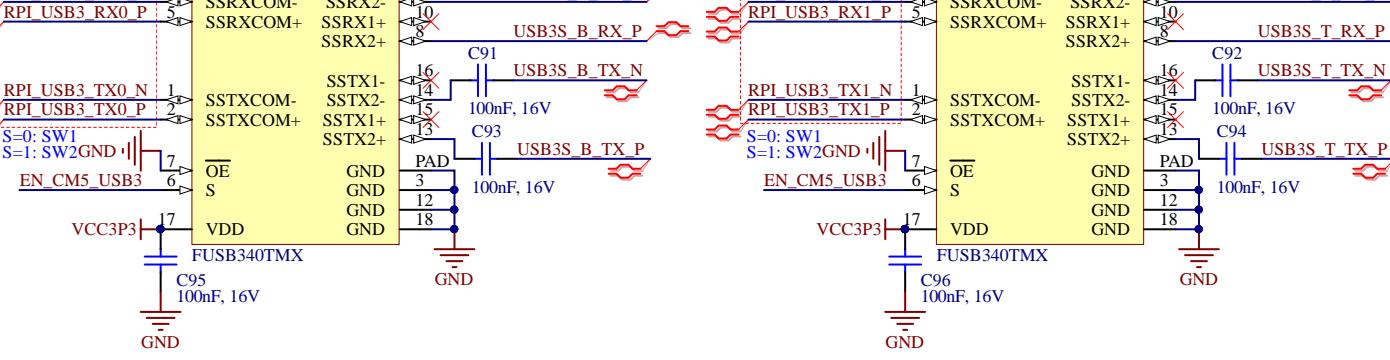


RPI_USB3 **USB3 Port 0**

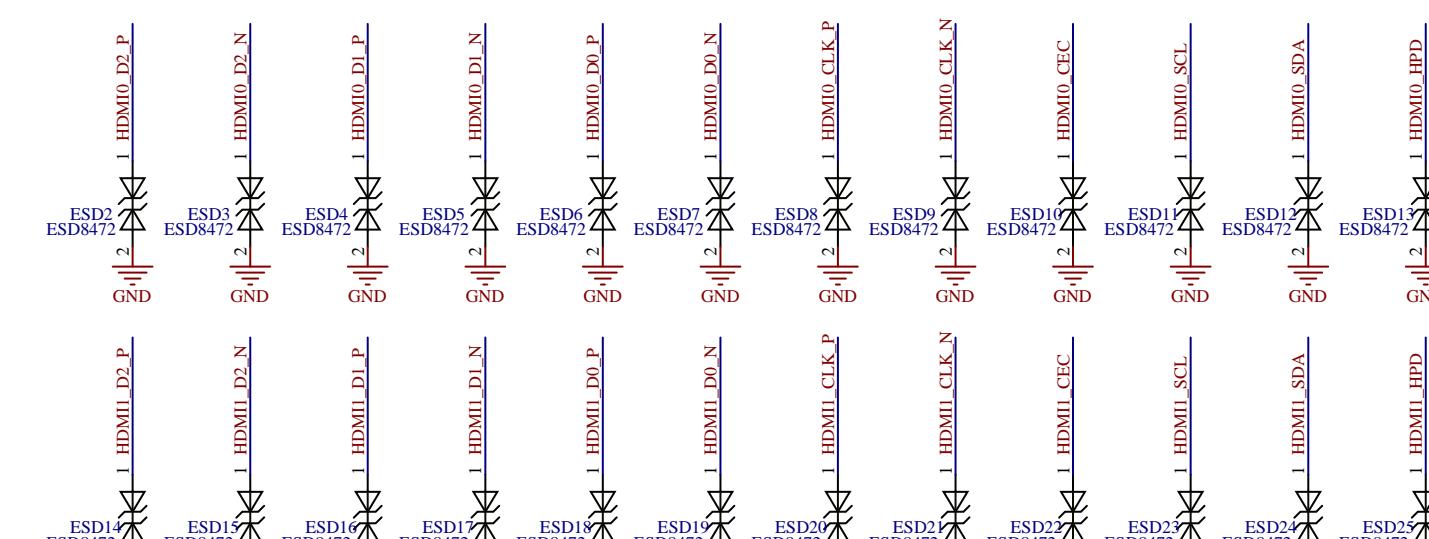
RPI_USB3 **USB3 Port 1**

USB3 Port 1

ESD protection



ESD protection for CM5



Project name: **LimePSB-RPCM_Iv2.PrcPcb**

Title: **USB and HDMI sockets**

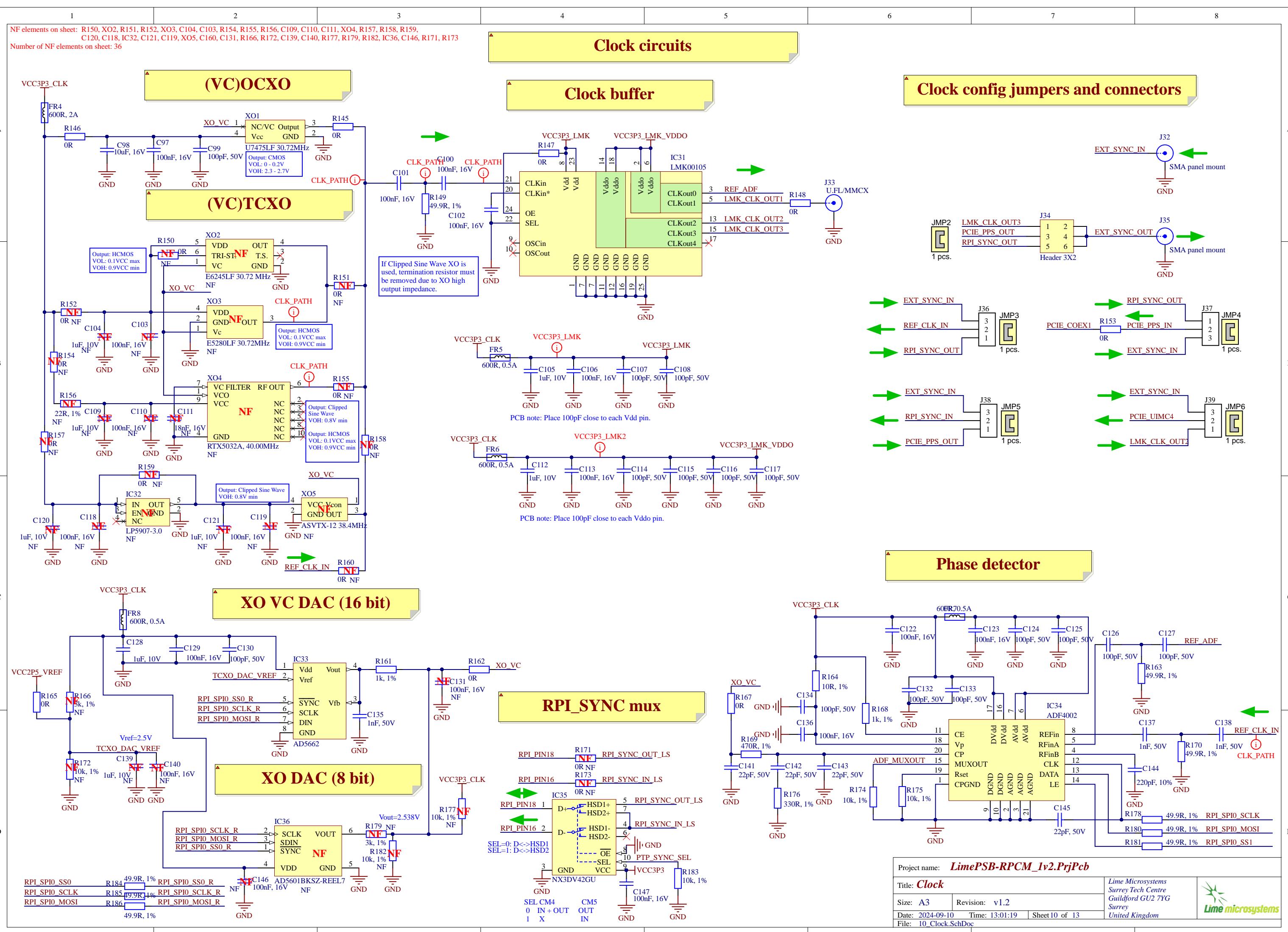
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United Kingdom

Size: **A3** Revision: **v1.2**

Date: **2024-09-10** Time: **13:01:14** Sheet **9** of **13**

File: **09_USB_HDMI.SchDoc**





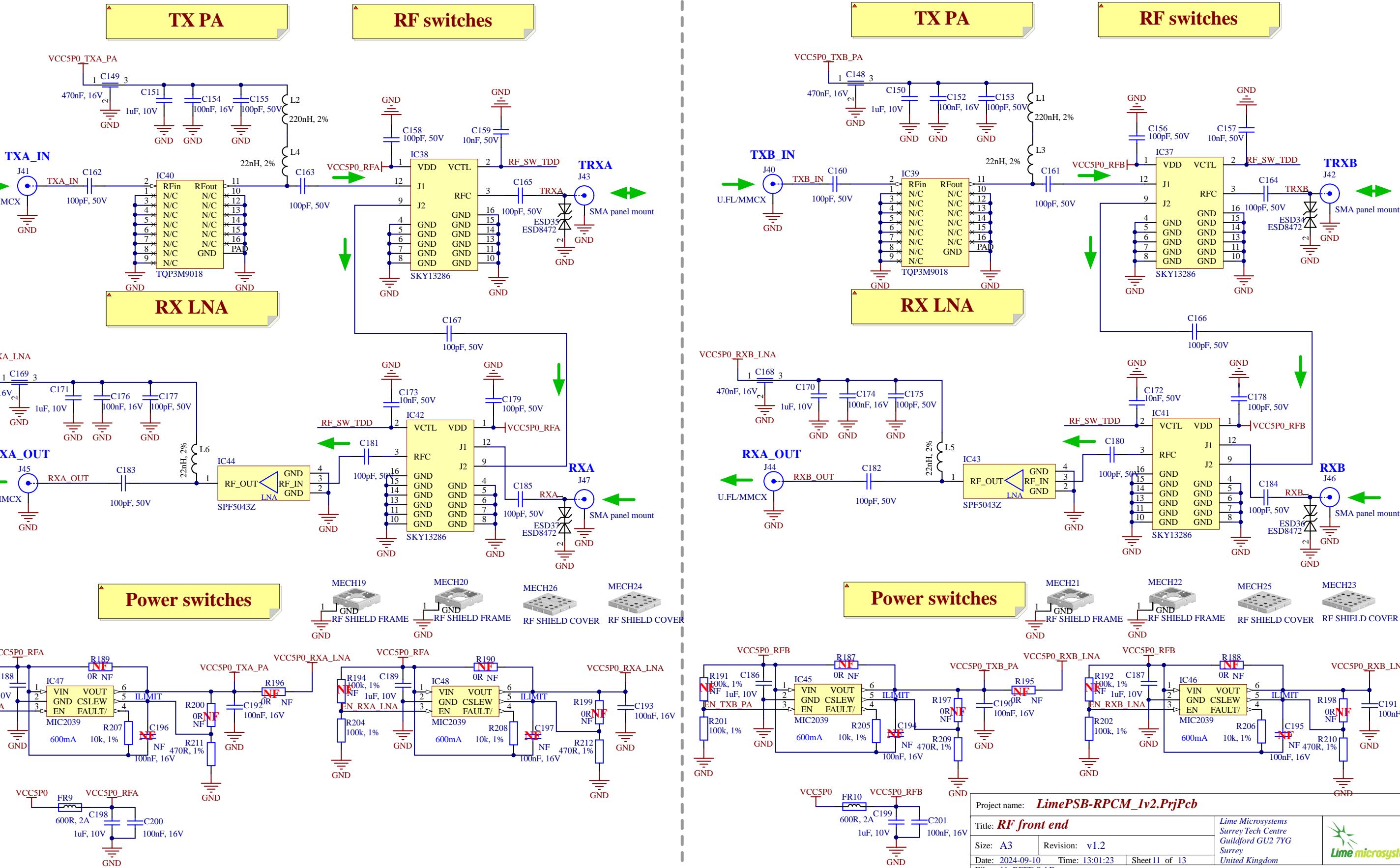
NF elements on sheet: R189, R193, R196, R200, C196, R190, R194, R199, C197, R187, R191, R195, R197, C194, R188, R192, R198, C195
Number of NF elements on sheet: 18

RF front end

Channel A

All RF switches are controlled together

Channel B

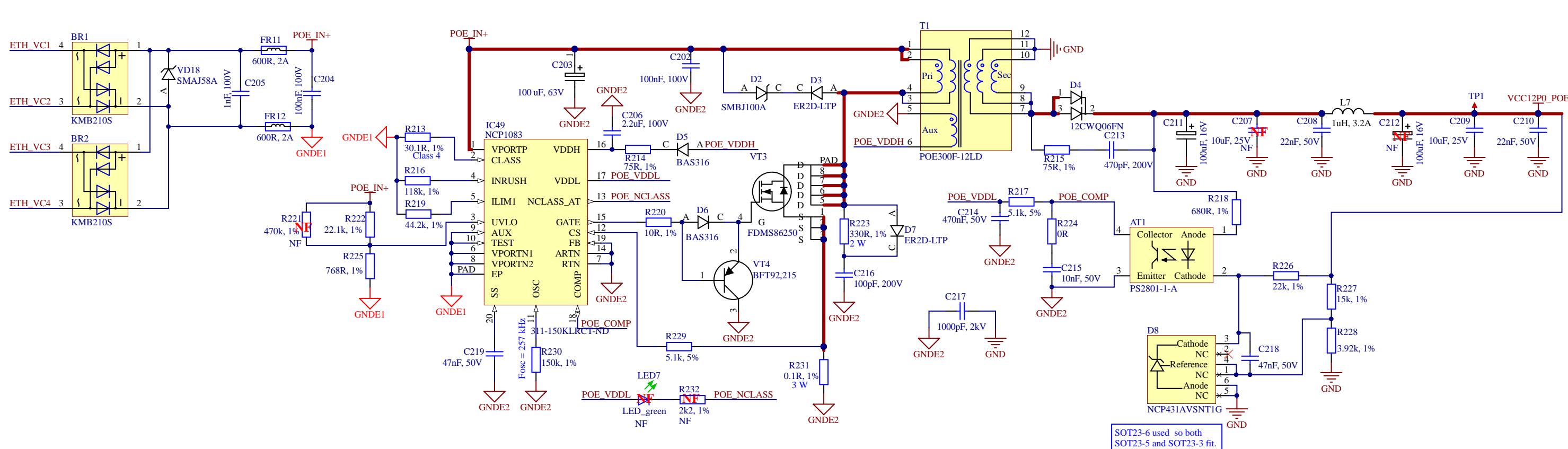


NF elements on sheet: C207, C212, R221, LED7, R232, R249, R247, LED8, R246, R245

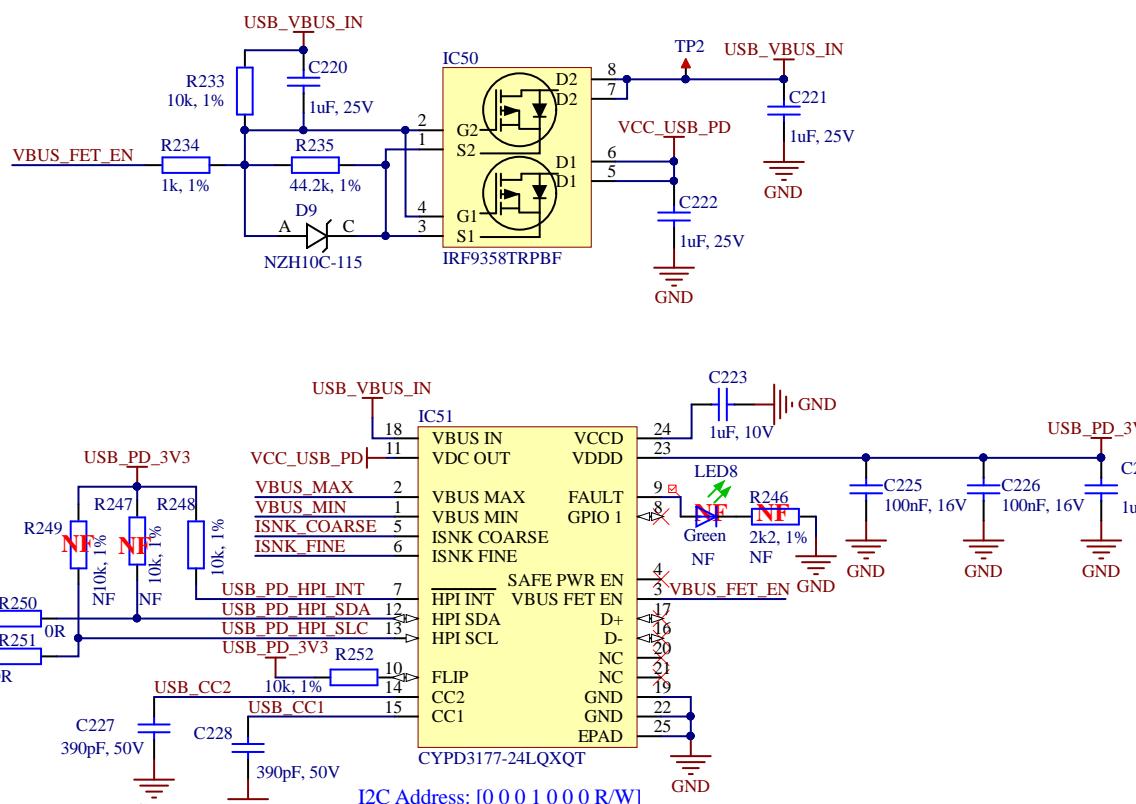
Number of NF elements on sheet: 10

Power over Ethernet

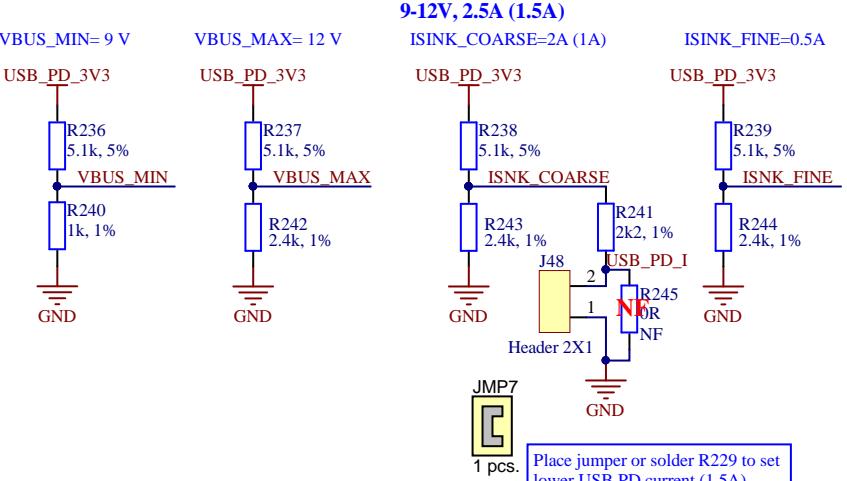
802.3at (PoE+) compliant Class 4 (25W max)



USB Power delivery



Resistor dividers for selecting VBUS Voltage and Current



Project name: LimePSB-RPCM_Iv2.PrcPcb

Title: PoE and USB PD

Size: A3 Revision: v1.2

Date: 2024-09-10 Time: 13:01:29 Sheet 12 of 13

File: 12_PoE_USB_PD.SchDoc

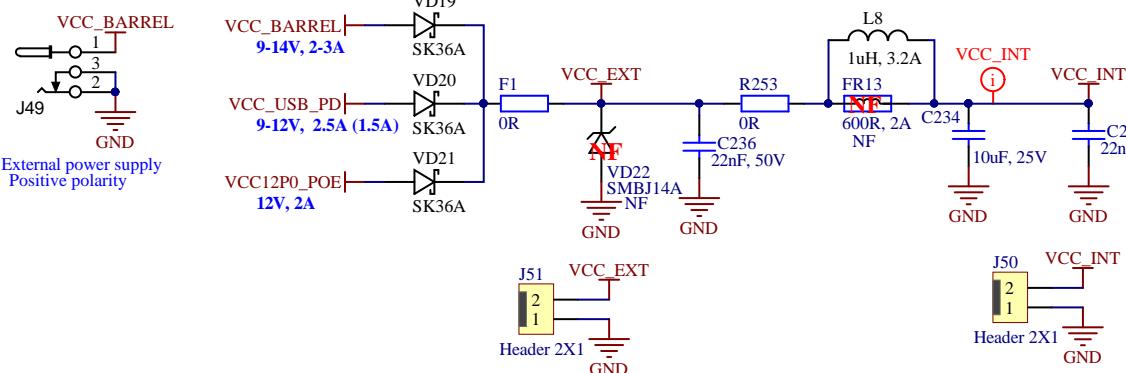
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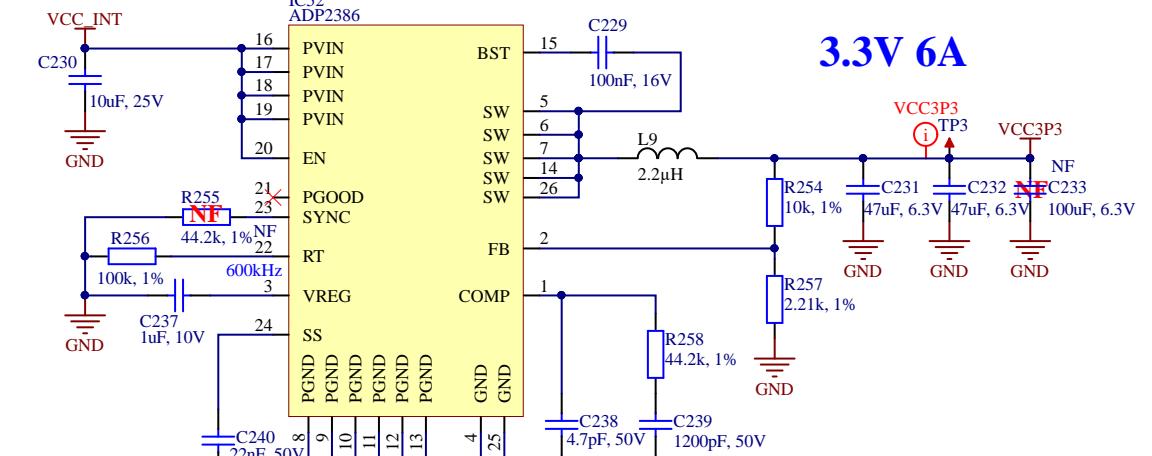
NF elements on sheet: VD22, FR13, R255, C233, R261, J53, R260, C244, C245, FR15, C253, C250, R269
Number of NF elements on sheet: 13
Total number of NF elements on all sheets: 161

Board power circuits

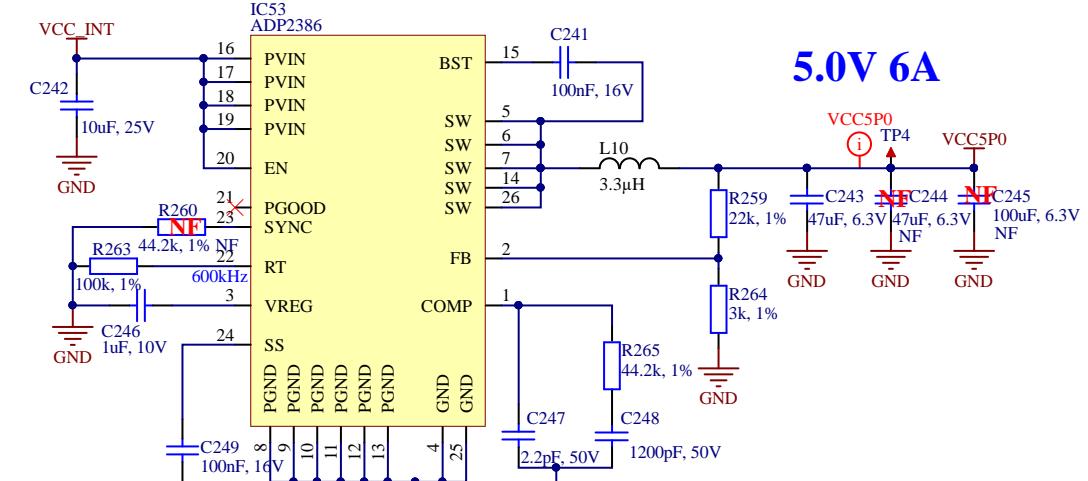
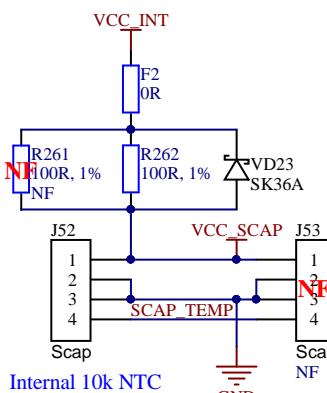
Power input



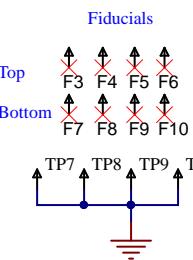
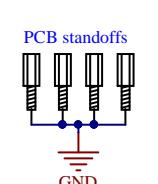
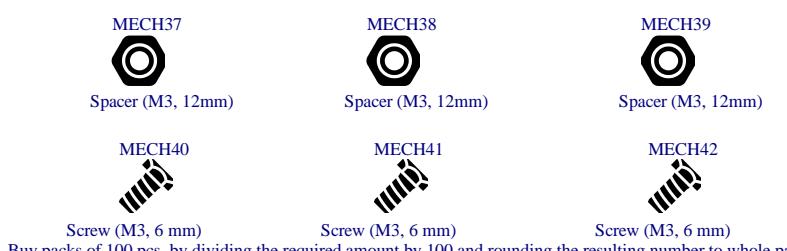
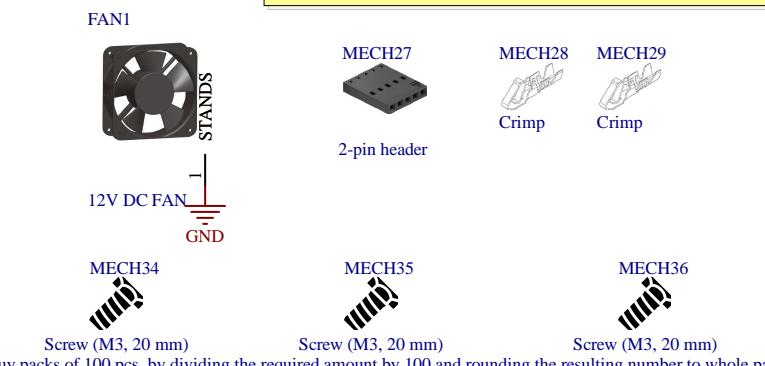
Switching regulators



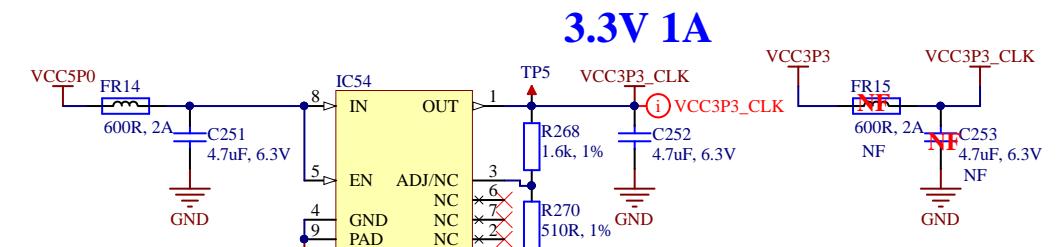
Supercapacitor



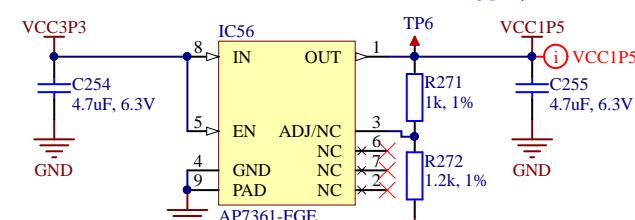
Misc for FAN



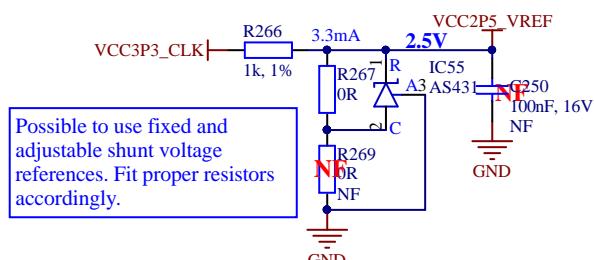
Linear regulators



1.5V 1A



Voltage reference (2.5V)



Alternative reference source for XO DAC and ADC

Project name: LimePSB-RPCM_Iv2.PrcPcb

Title: Power

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Size: A3 Revision: v1.2

Date: 2024-09-10 Time: 13:01:33 Sheet 13 of 13

File: 13_Power.SchDoc

