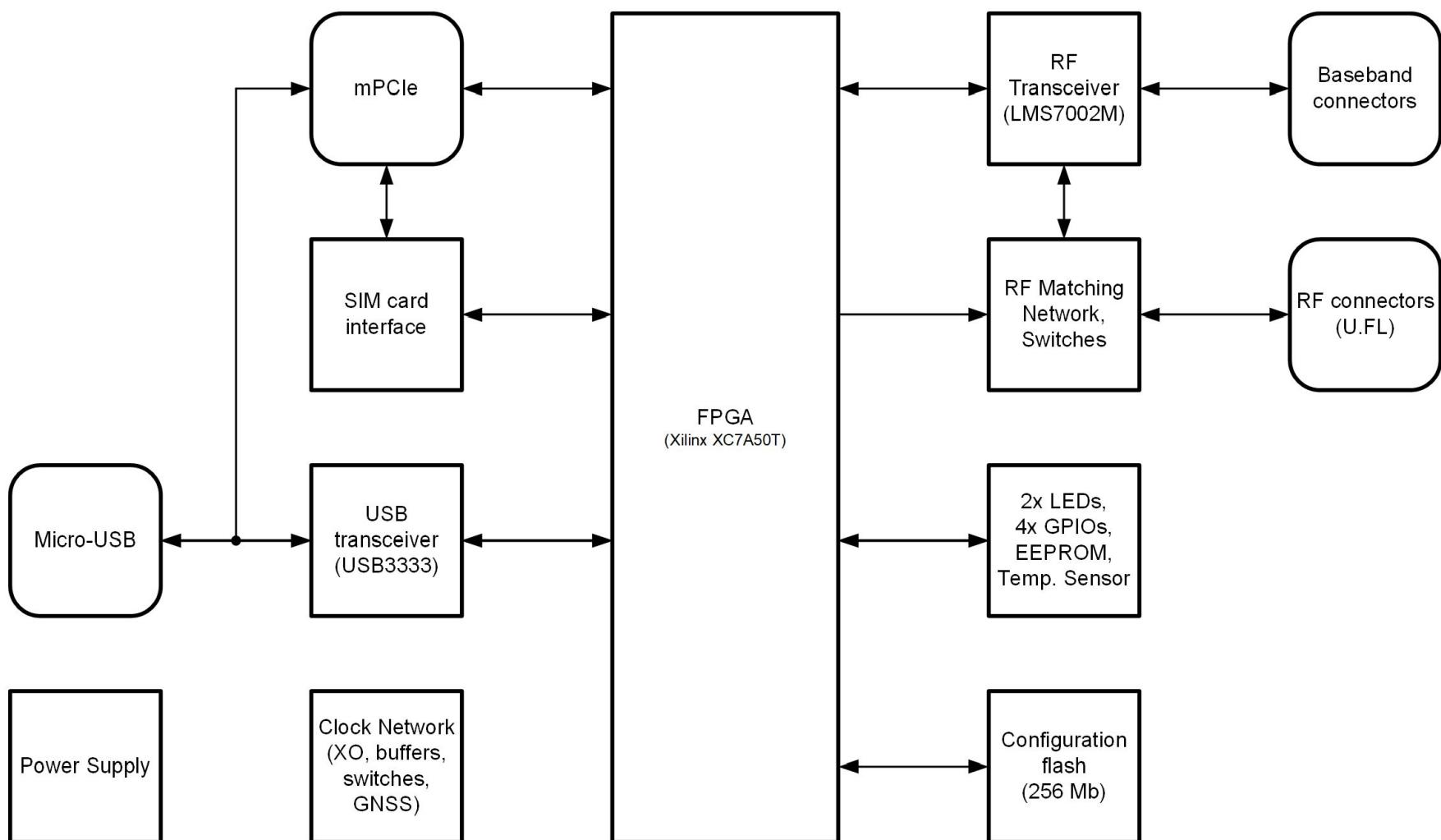


Block diagram



Project name: **LimeSDR-XTRX_Inv3.PnjPcb**

Title: **Block diagram**

Size: **A4** Revision: **v1.3**

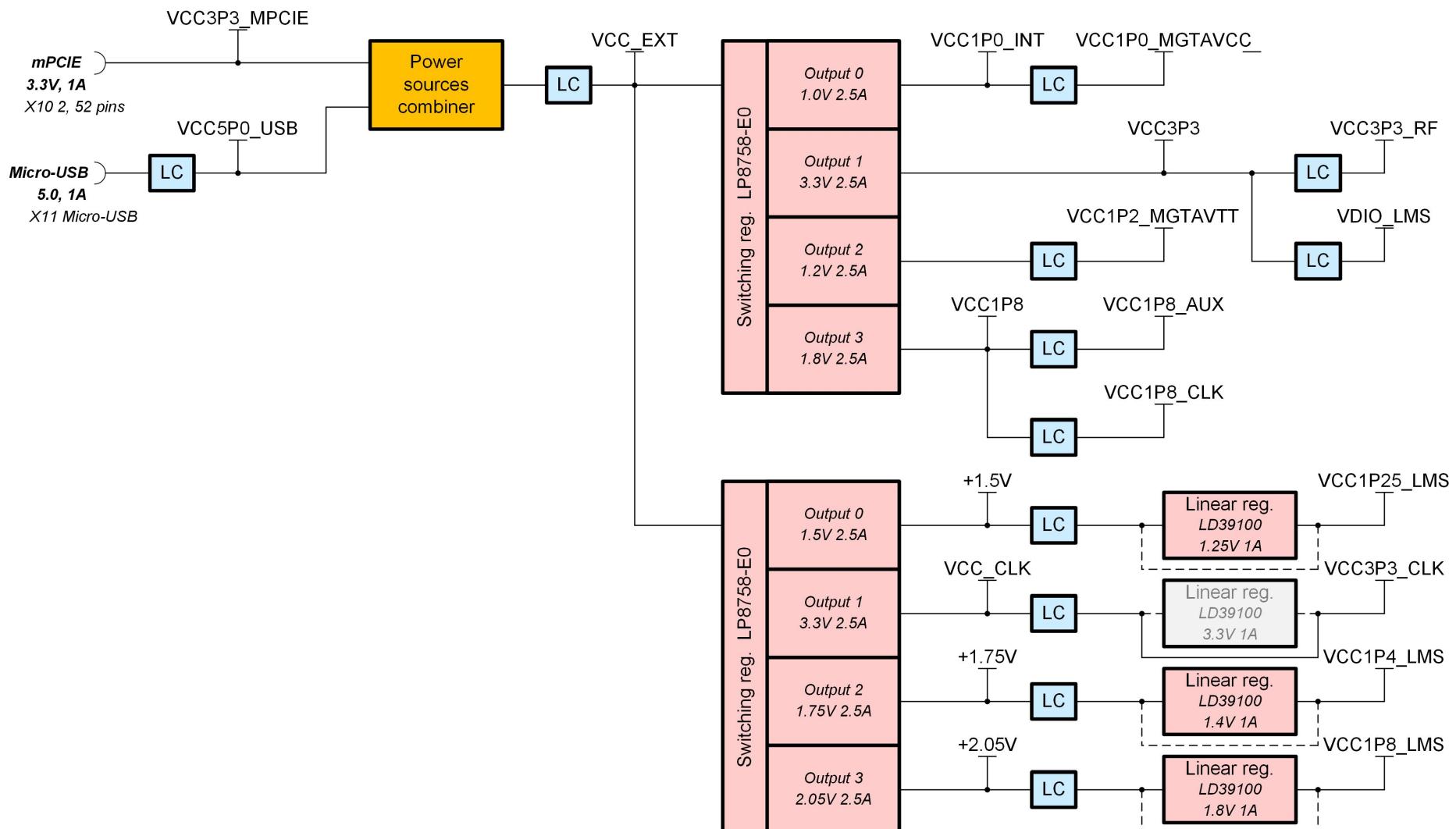
Date: **2024-11-28** Time: **12:11:21** Sheet **1** of **11**

File: **01_Block_Diagram.SchDoc**

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



Power diagram



Project name: **LimeSDR-XTRX_Iv3.PnjPcb**

Title: **Power diagram**

Size: **A4** Revision: **v1.3**

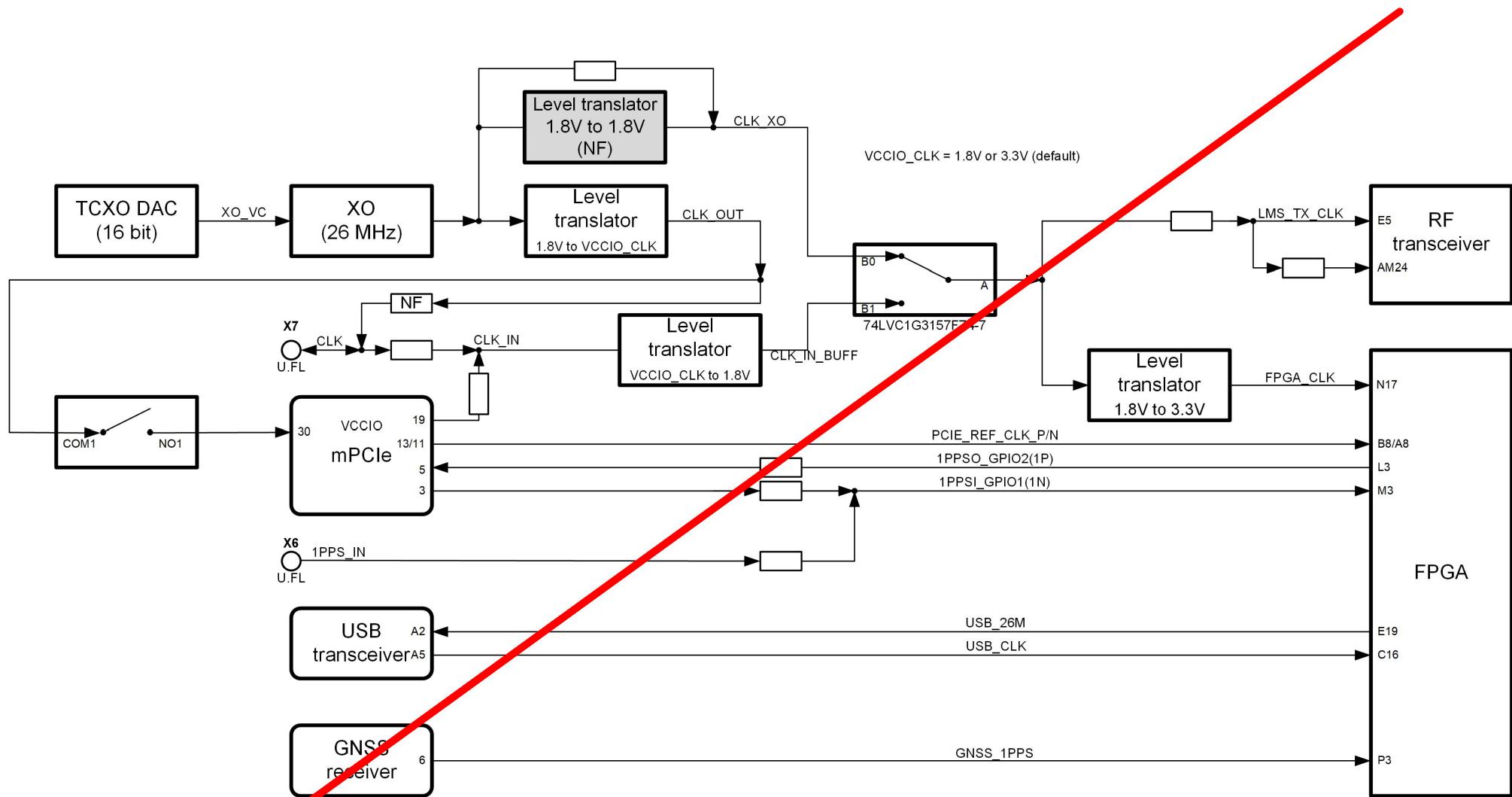
Date: **2024-11-28** Time: **12:11:25** Sheet **2** of **11**

File: **02_Power_Diagram.SchDoc**

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



Clock diagram



Project name: **LimeSDR-XTRX_Iv3.PnjPcb**

Title: **Clock diagram**

Size: **A4** Revision: **v1.3**

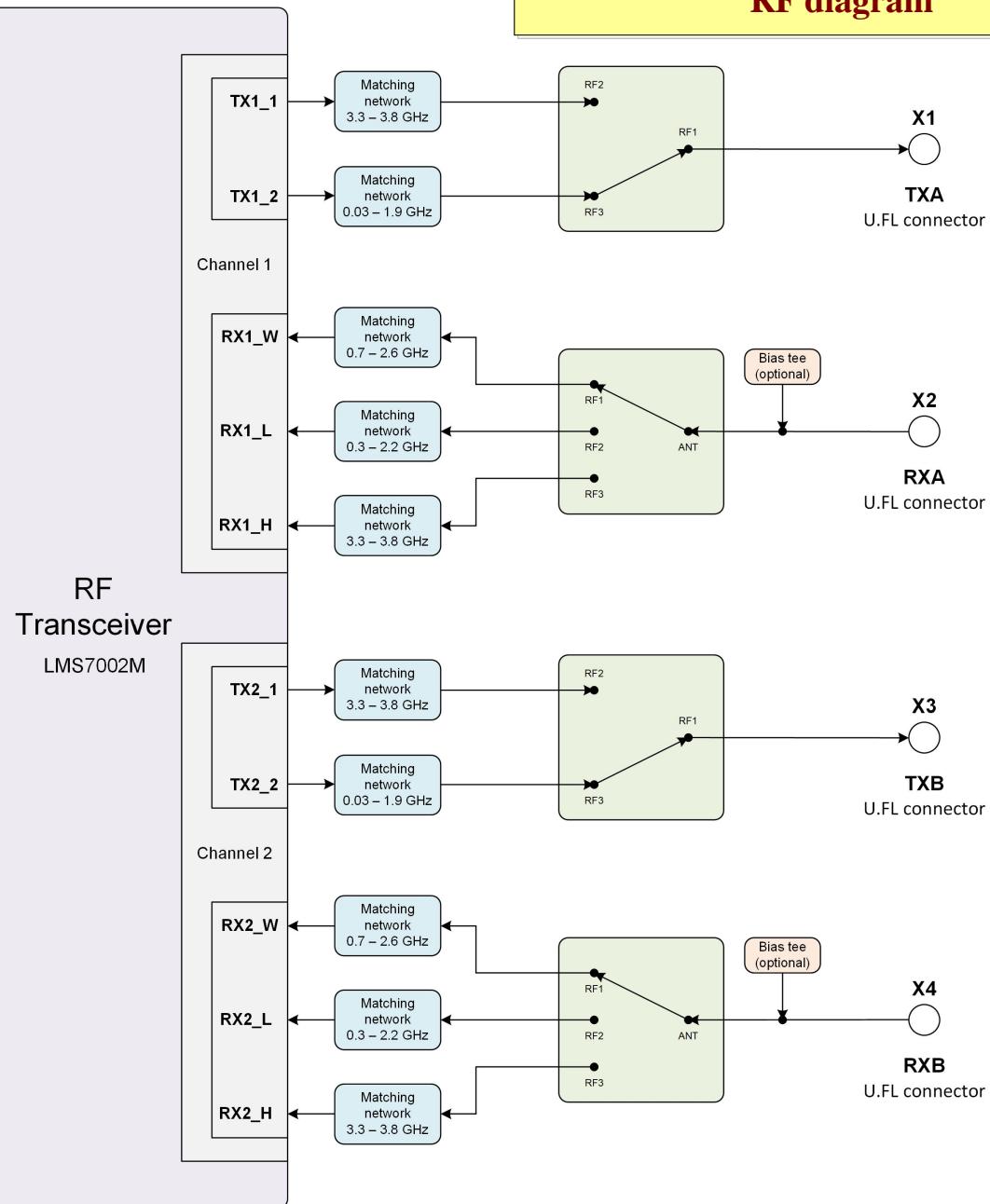
Date: **2024-11-28** Time: **12:11:30** Sheet **3** of **11**

File: **03_Clock_Diagram.SchDoc**

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



RF diagram



Project name: **LimeSDR-XTRX_Iv3.PnjPcb**

Title: **RF diagram**

Size: **A4** Revision: **v1.3**

Date: **2024-11-28** Time: **12:11:35** Sheet **4** of **11**

File: **04_RF Diagram.SchDoc**

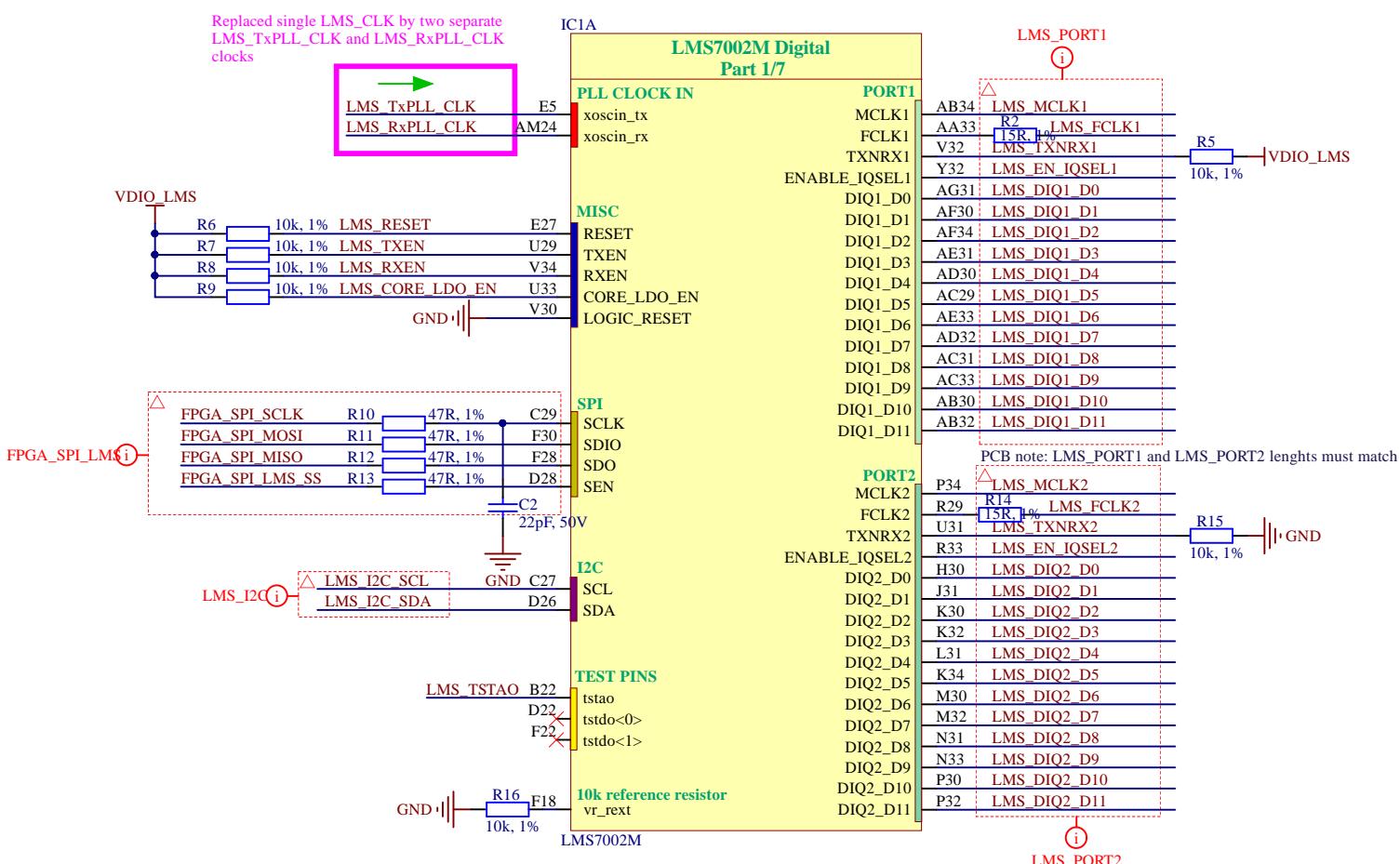
Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



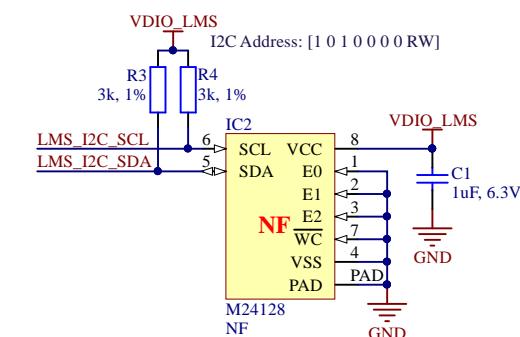
NF elements on sheet: IC2
Number of NF elements on sheet: 1

LMS7002M misc

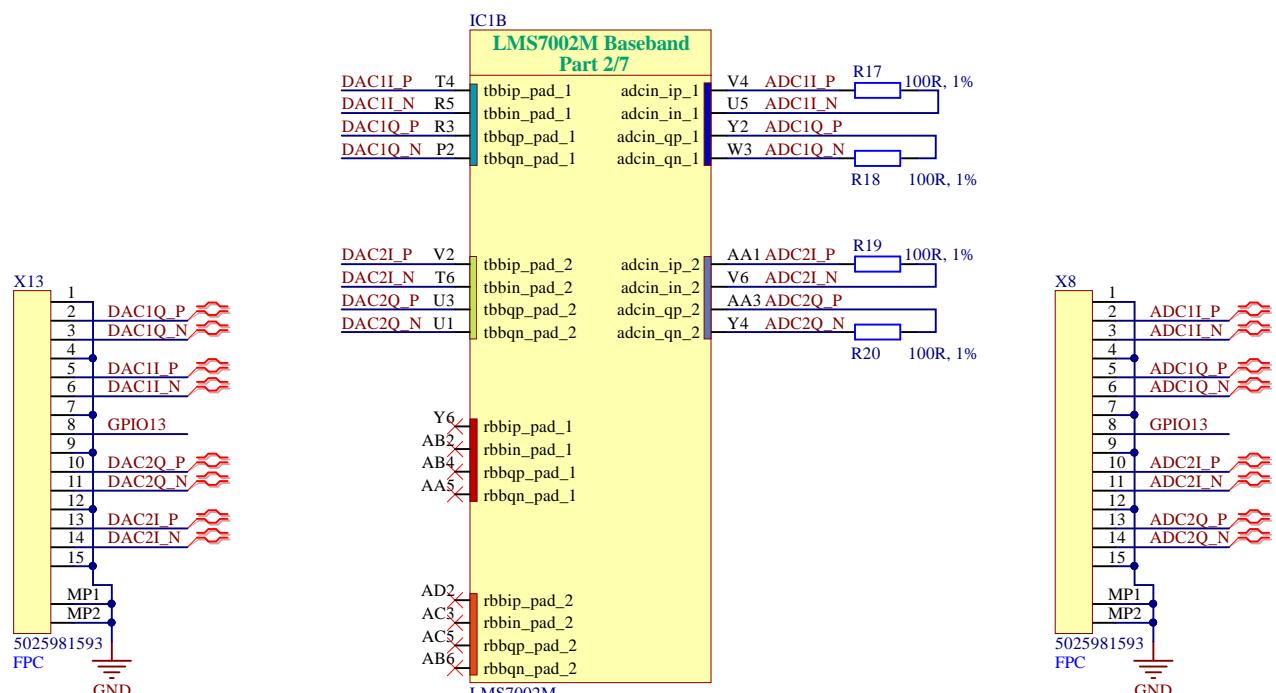
LMS7002M digital circuit



LMS EEPROM



Baseband external IO



Project name: LimeSDR-XTRX_Iv3.PrjPcb

Title: LMS7002M misc

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



Size: A3 Revision: v1.3

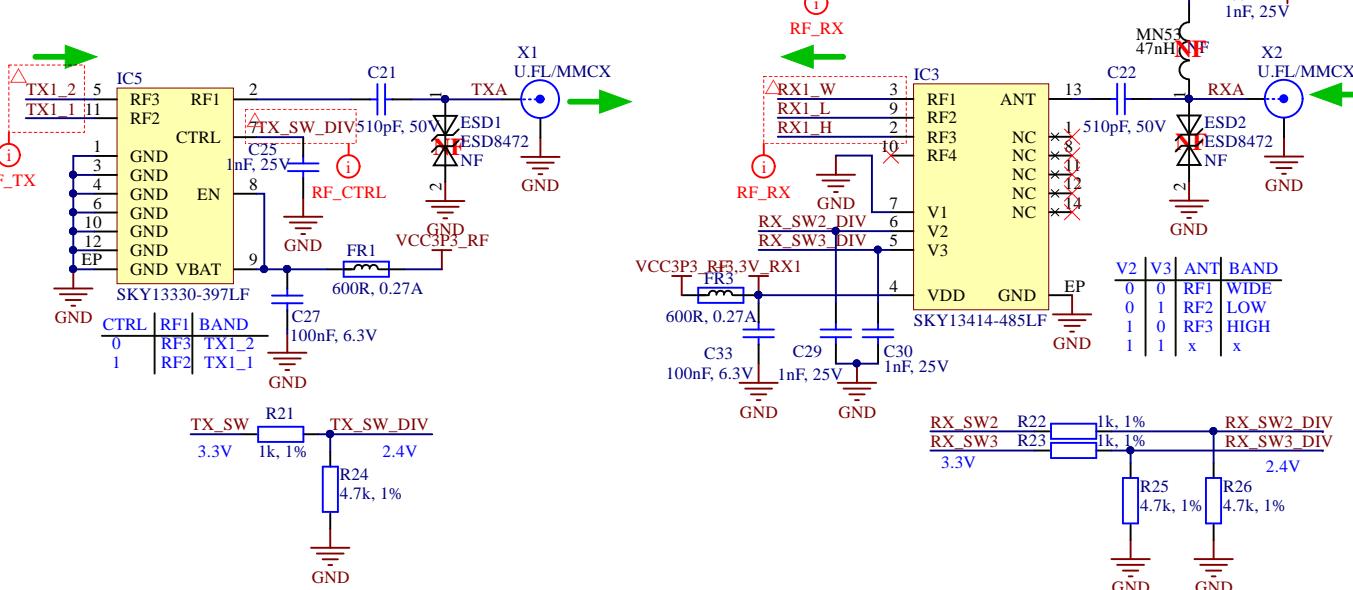
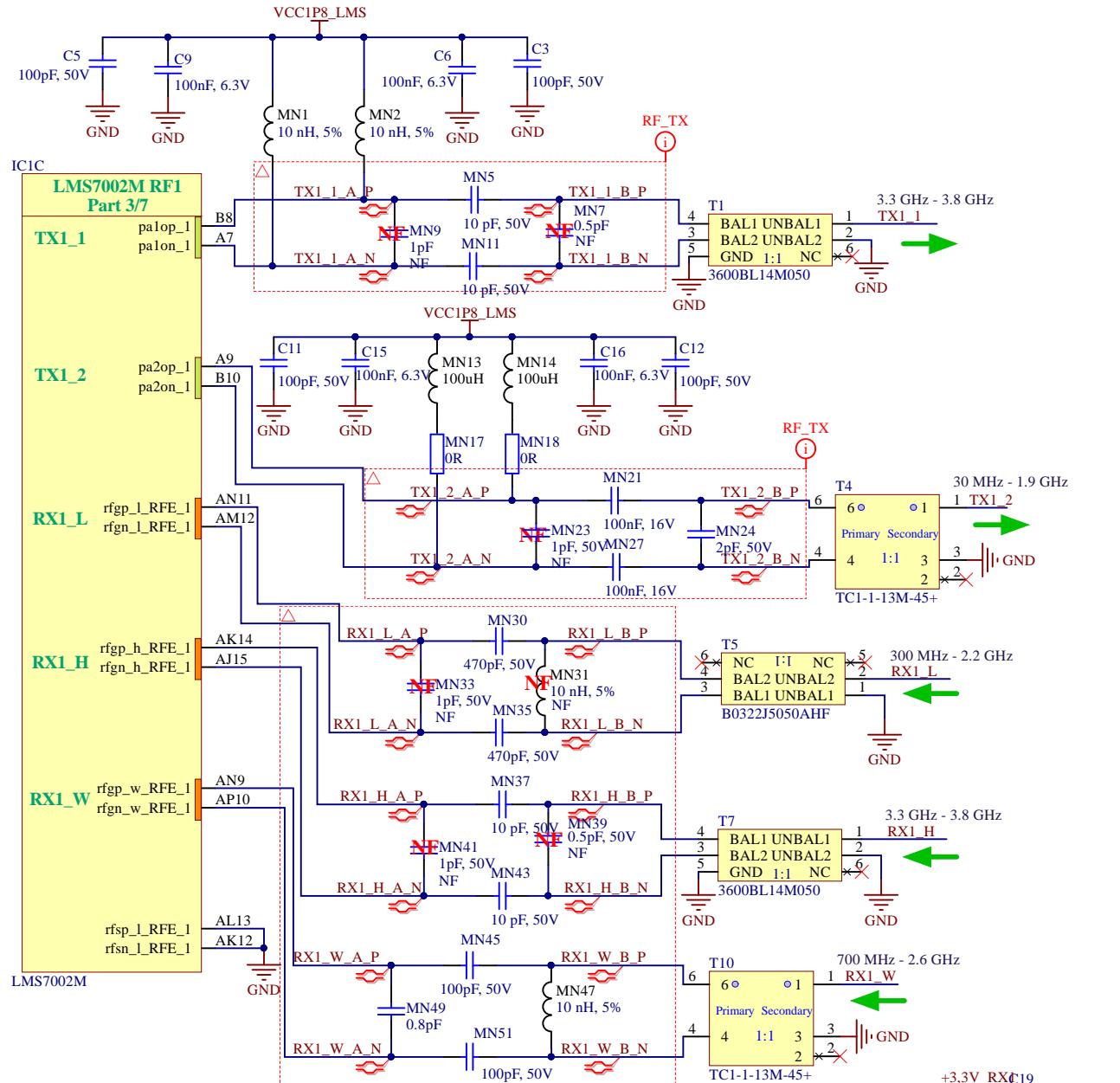
Date: 2024-11-28 Time: 12:11:40 Sheet 5 of 11

File: 05_LMS7002M_Misc.SchDoc

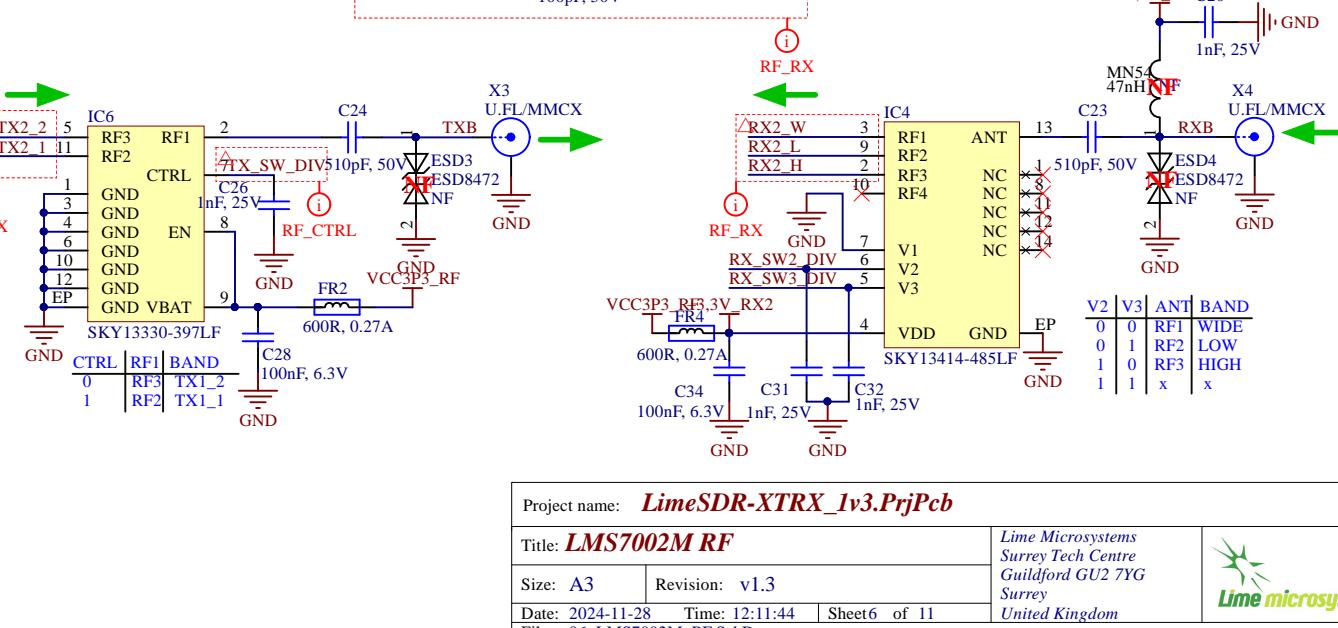
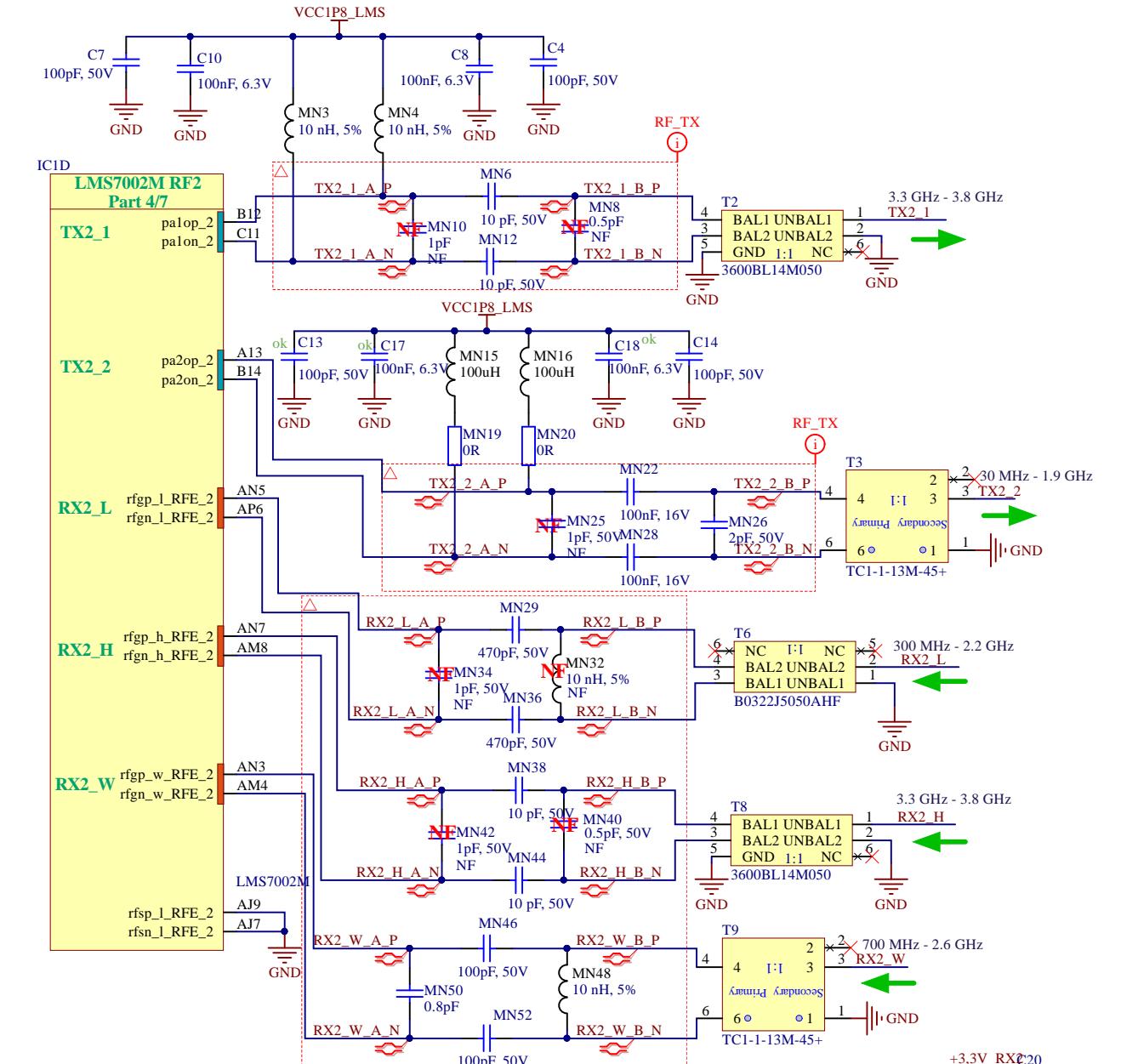
1 2 3 4 5 6 7 8
 NF elements on sheet: MN7, MN8, MN9, MN10, MN23, MN25, MN31, MN32, MN33, MN34, MN39,
 MN40, MN41, MN42, MN53, MN54, ESD1, ESD2, ESD3, ESD4
 Number of NF elements on sheet: 20

LMS7002M RF circuits

LMS RF Channel 1



LMS RF Channel 2



Project name: LimeSDR-XTRX_Iv3.PrcPcb

Title: LMS7002M RF

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom



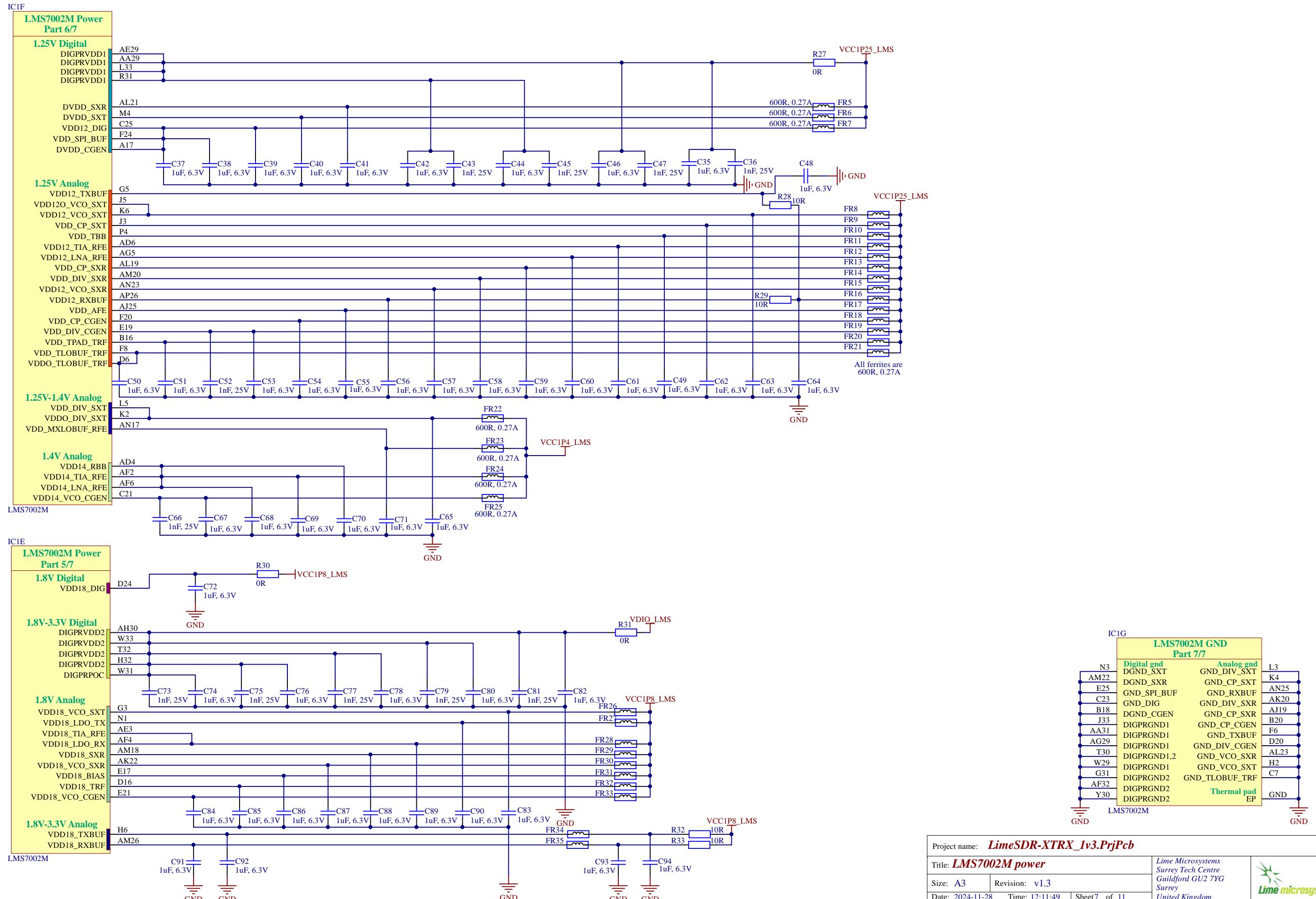
Size: A3 Revision: v1.3

Date: 2024-11-28 Time: 12:11:44 Sheet 6 of 11

File: 06_LMS7002M_RF.SchDoc

NF elements on sheet: -
Number of NF elements on sheet: 0

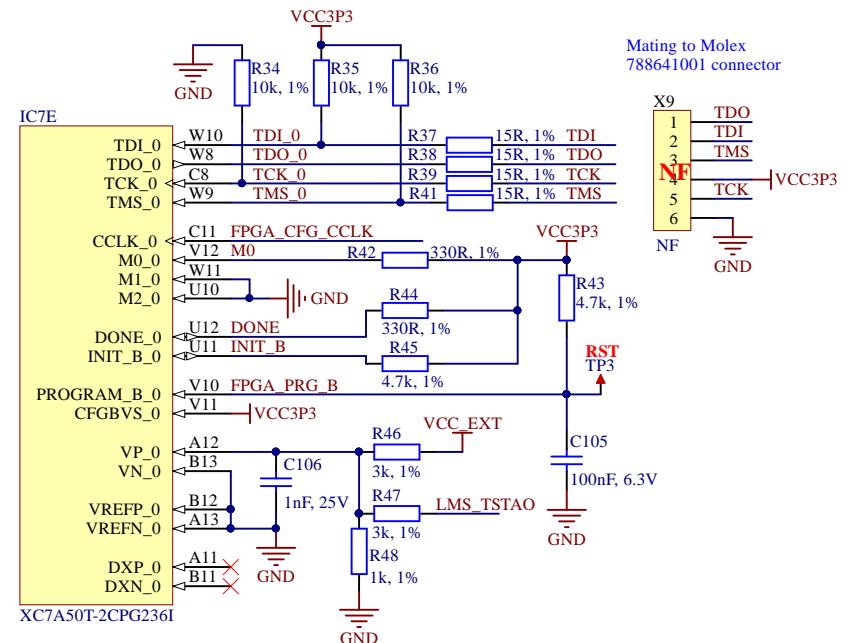
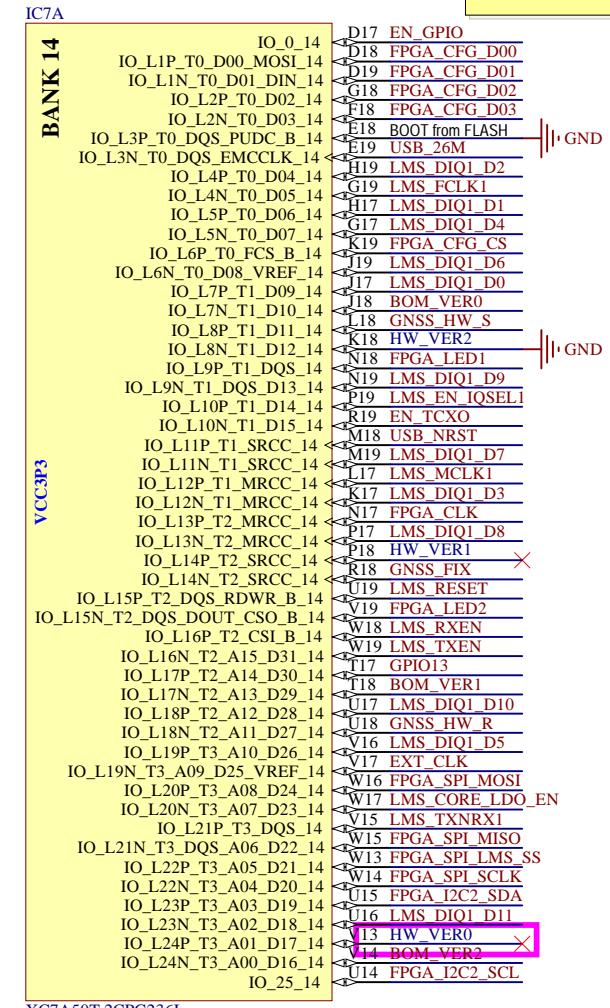
LMS7002M power supply circuit



NF elements on sheet: X9,
Number of NF elements on sheet: 1

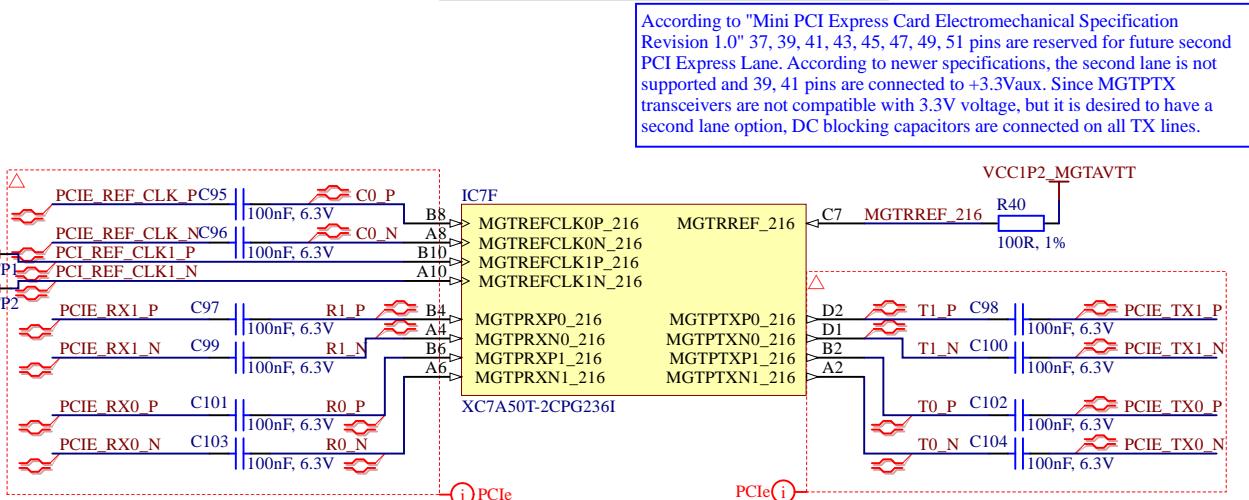
FPGA

FPGA Banks

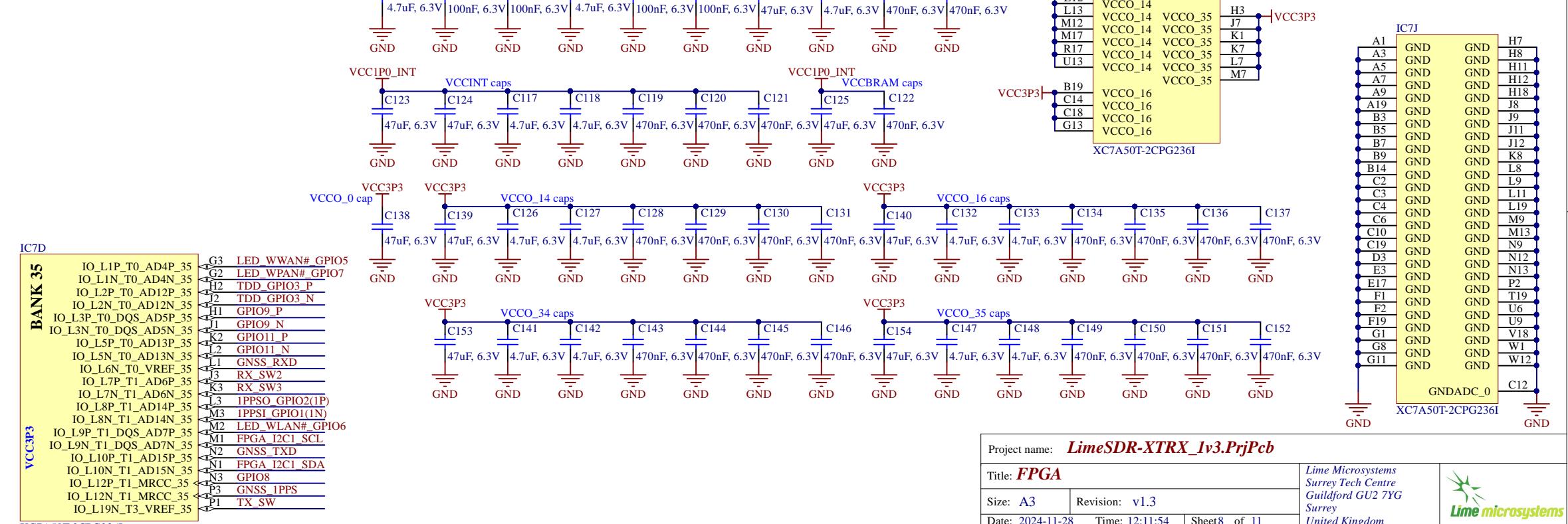
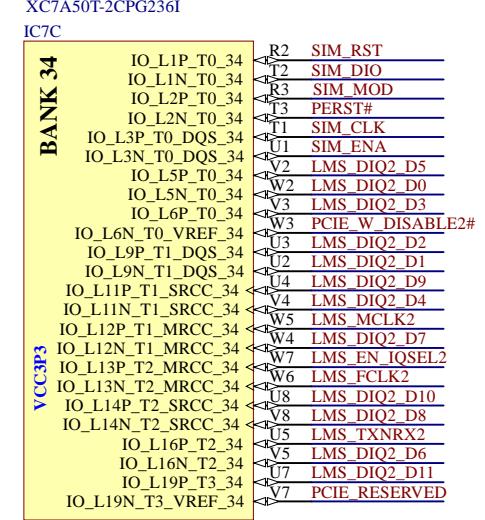
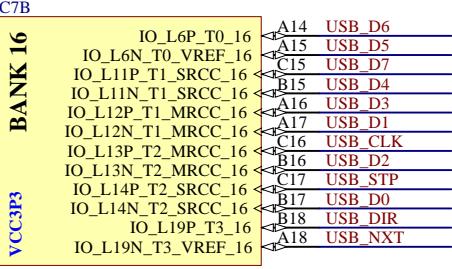
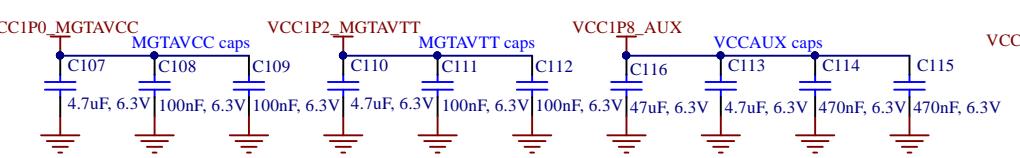
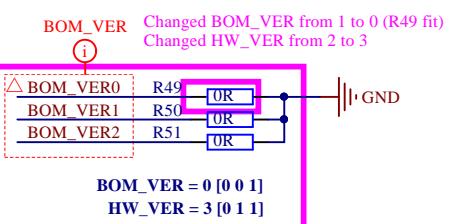
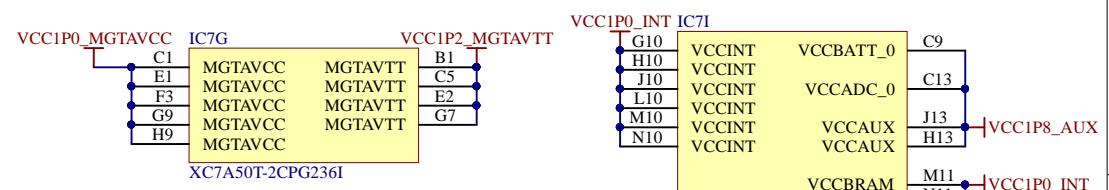


According to "Mini PCI Express Card Electromechanical Specification Revision 1.0" 37, 39, 41, 43, 45, 47, 49, 51 pins are reserved for future second PCI Express Lane. According to newer specifications, the second lane is not supported and 39, 41 pins are connected to +3.3Vaux. Since MGTPTX transceivers are not compatible with 3.3V voltage, but it is desired to have a second lane option, DC blocking capacitors are connected on all TX lines.

MGT transceivers



Power and decoupling



Project name: LimeSDR-XTRX_1v3.PriPcb

Title: *FPGA*

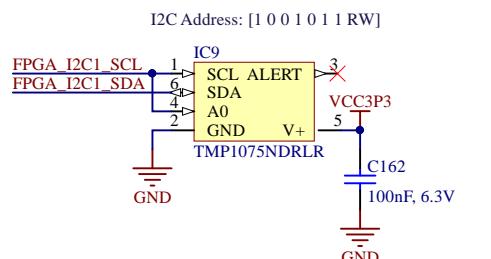
*Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom*



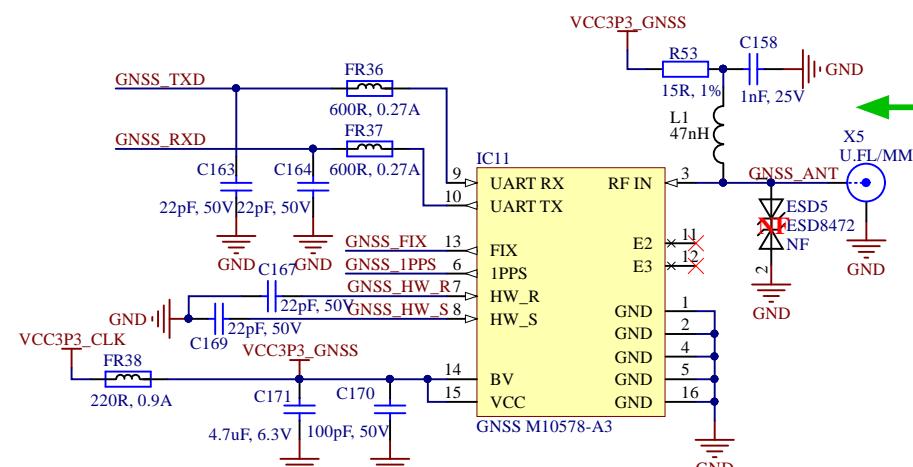
NF elements on sheet: IC8, R55, ESD5, R56, R58, R59, R60, R67, R68, R70, R73, IC13, C1
Number of NE elements on sheet: 13

Misc

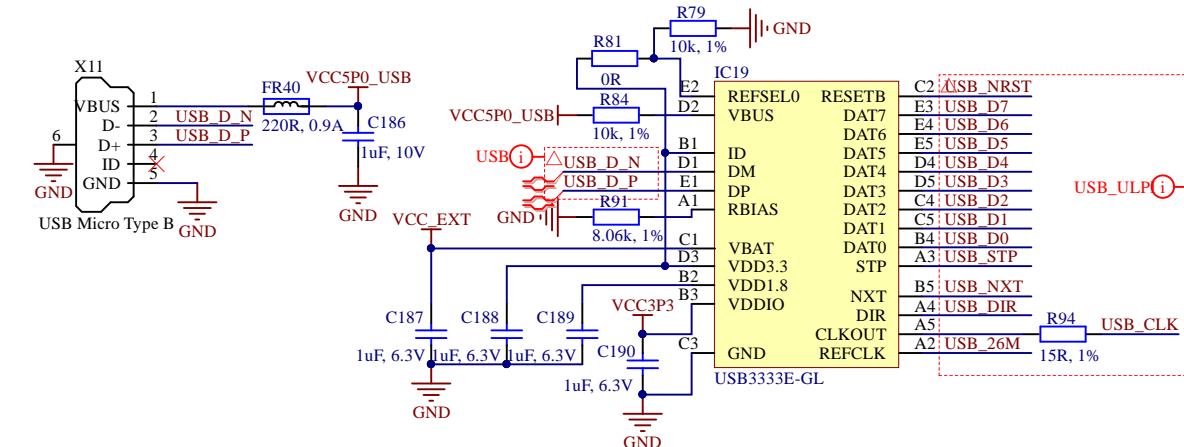
I2C Temperature sensor



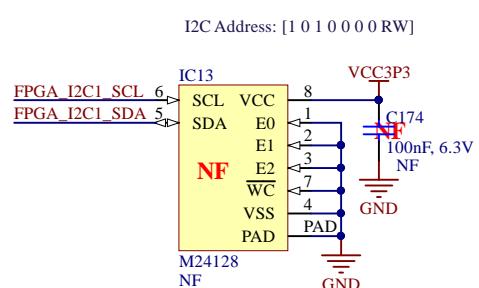
GNSS Receiver



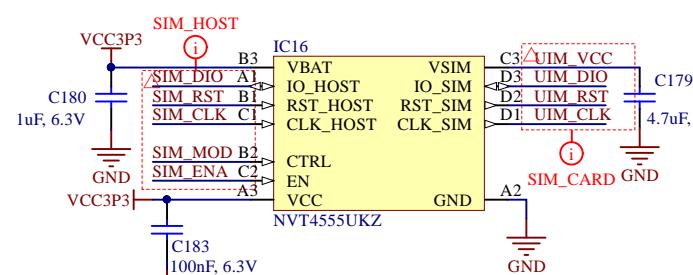
USB transceiver



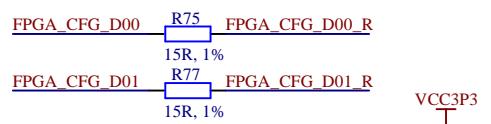
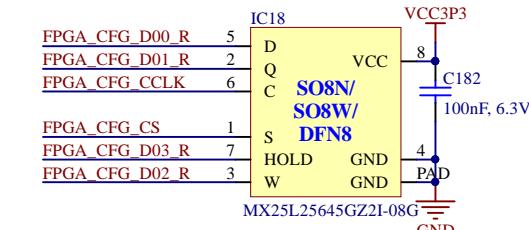
I2C EEPROM



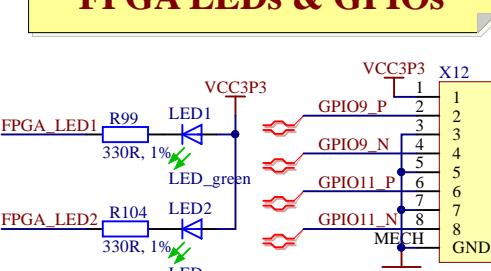
SIM card interface



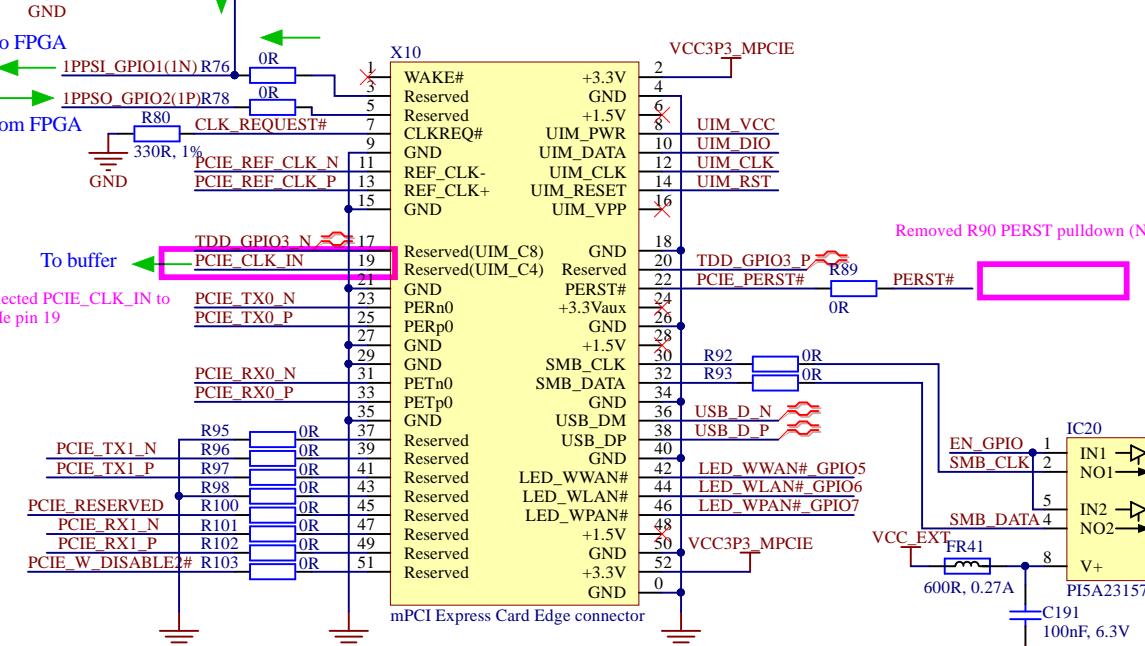
FPGA configuration Flash



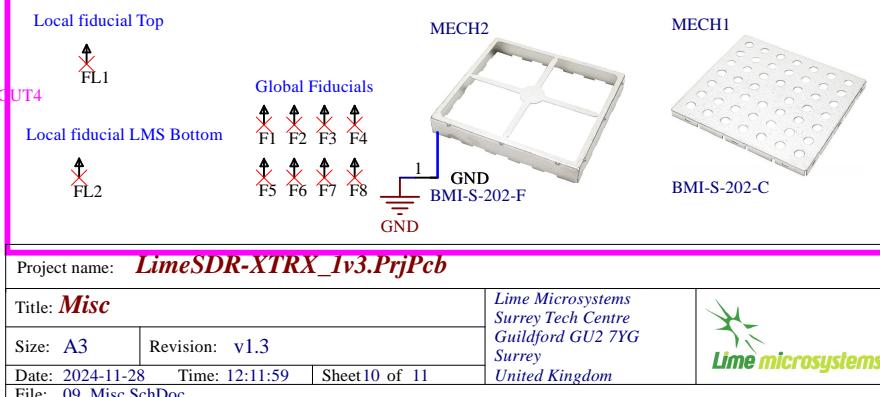
FPGA LEDs & GPIOs



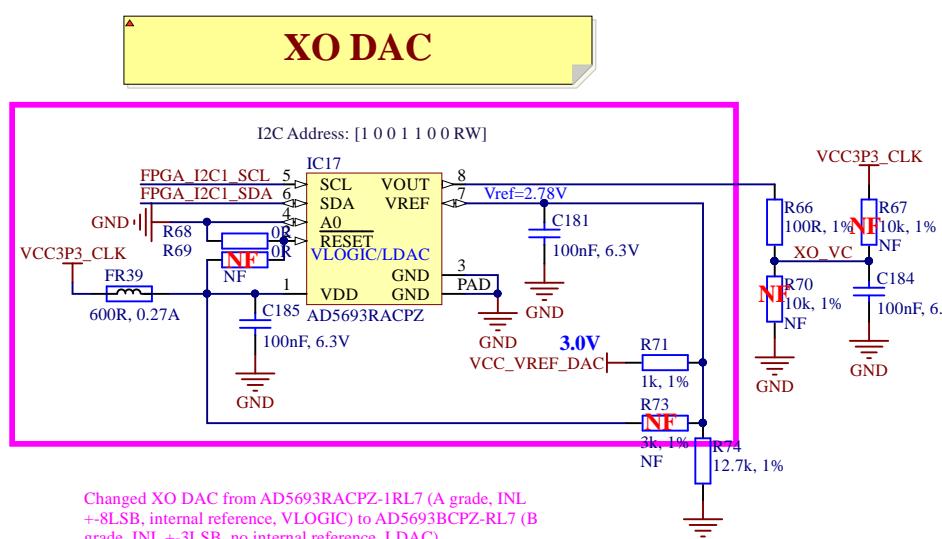
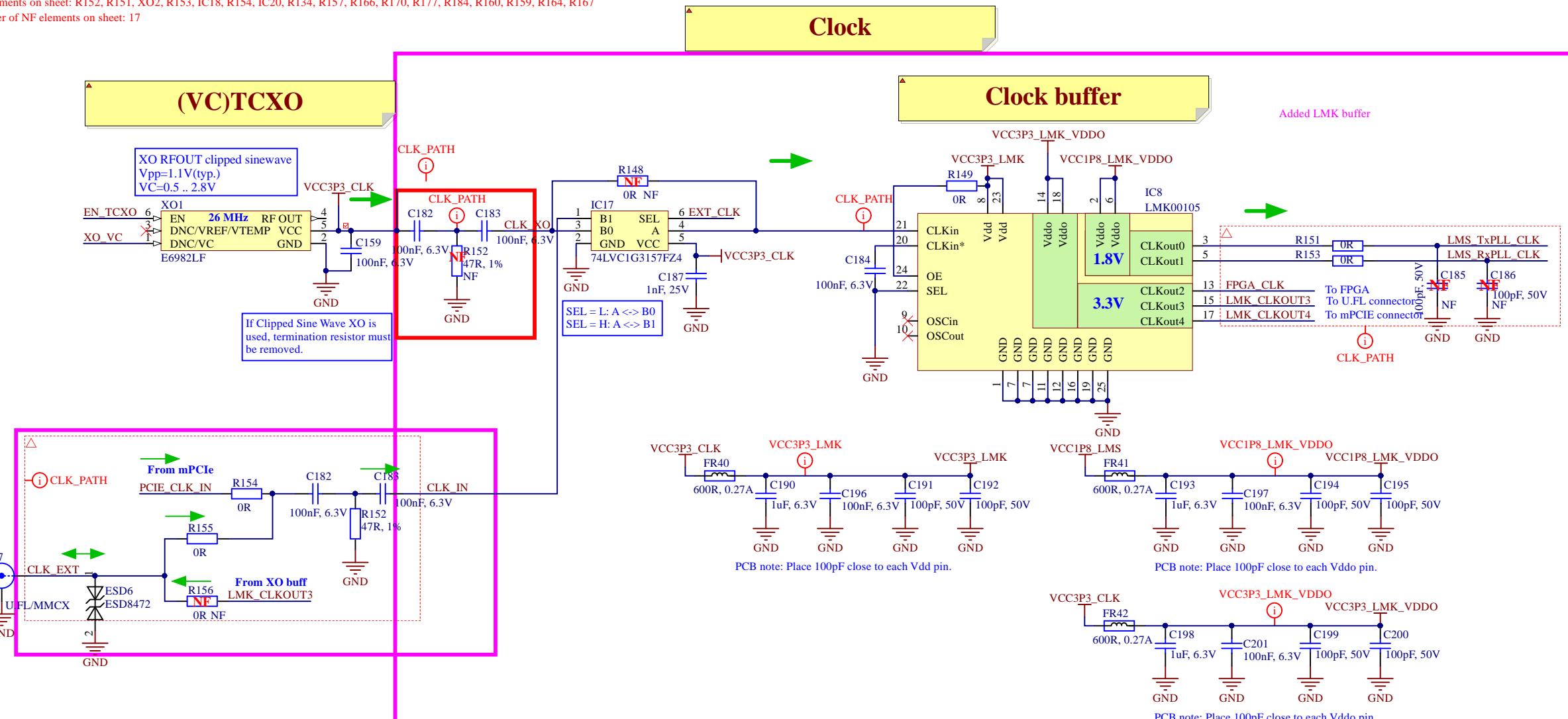
mPCIe



Mechanical components



NF elements on sheet: R152, R151, XO2, R153, IC18, R154, IC20, R134, R157, R166, R170, R177, R184, R160, R159, R164, R167
Number of NF elements on sheet: 17



Project name: LimeSDR-XTRX_Iv3.PrjPcb

Title: Clock

Size: A3 Revision: v1.3

Date: 2024-11-28 Time: 12:12:04 Sheet 10 of 11

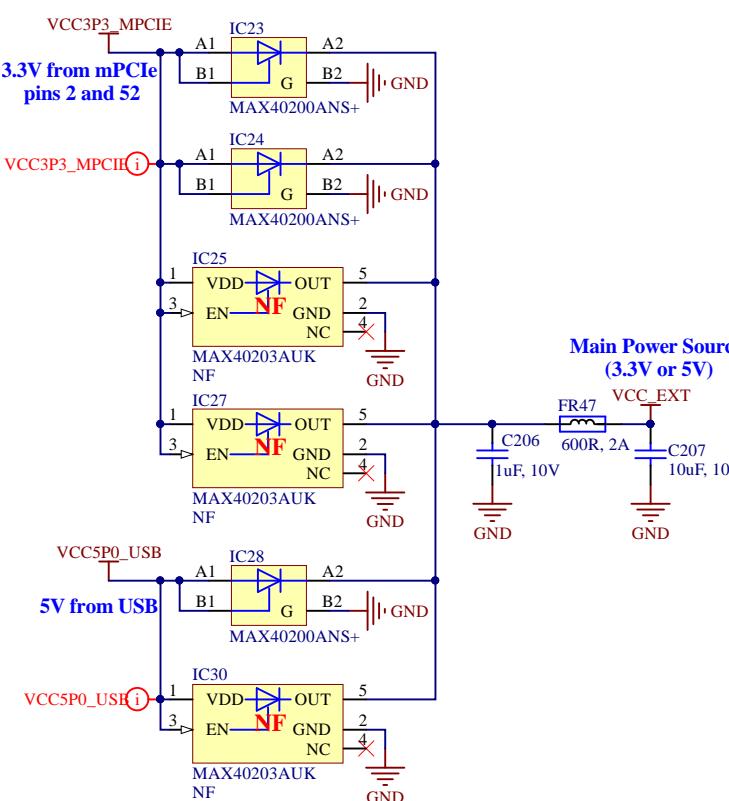
File: 10_Clock.SchDoc

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom

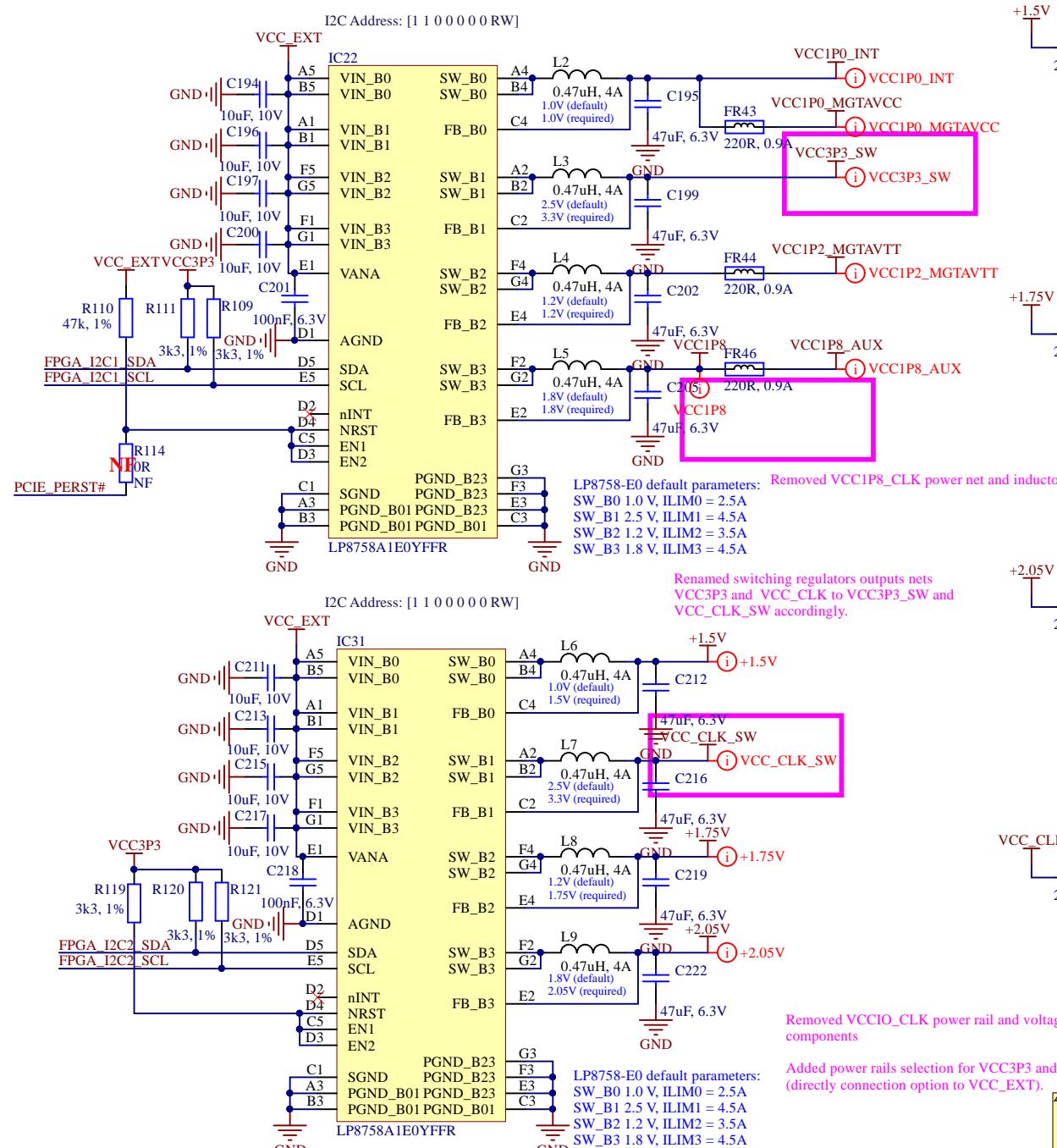


Board power circuits

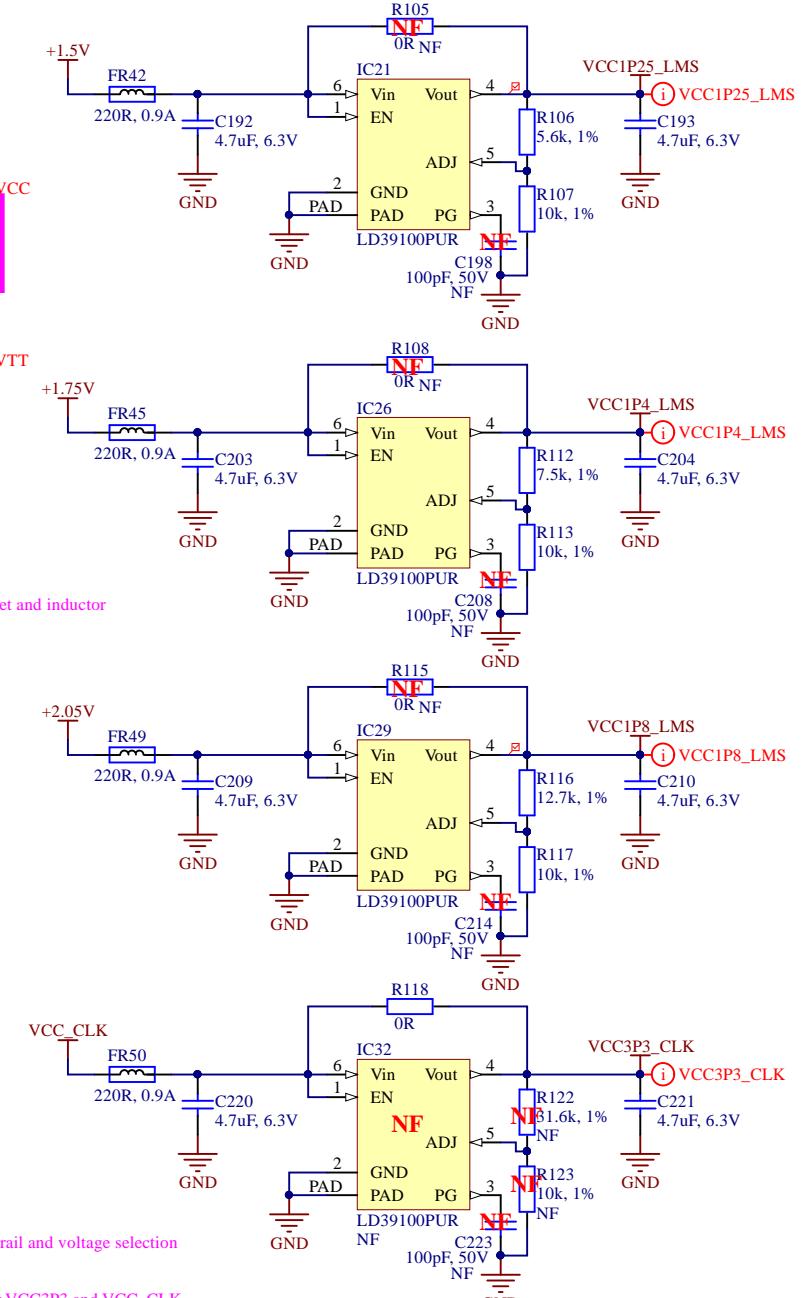
A Power input



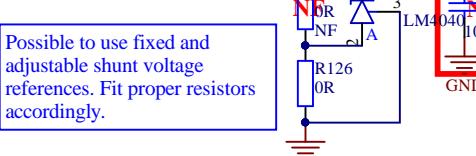
B Switching regulators



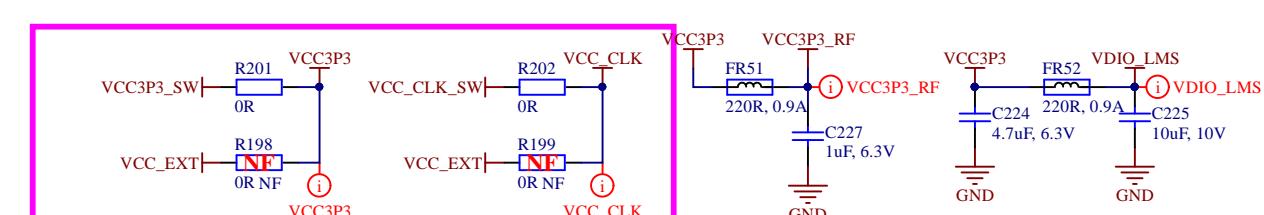
C Linear regulators



D Voltage reference



Possible to use fixed and adjustable shunt voltage references. Fit proper resistors accordingly.



E Filters, voltage selection

Project name: LimeSDR-XTRX_Iv3.PrjPcb

Title: Power

Size: A3 Revision: v1.3

Date: 2024-11-28 Time: 12:12:08 Sheet 11 of 11

File: 11_Power.SchDoc

Lime Microsystems
Surrey Tech Centre
Guildford GU2 7YG
Surrey
United Kingdom

