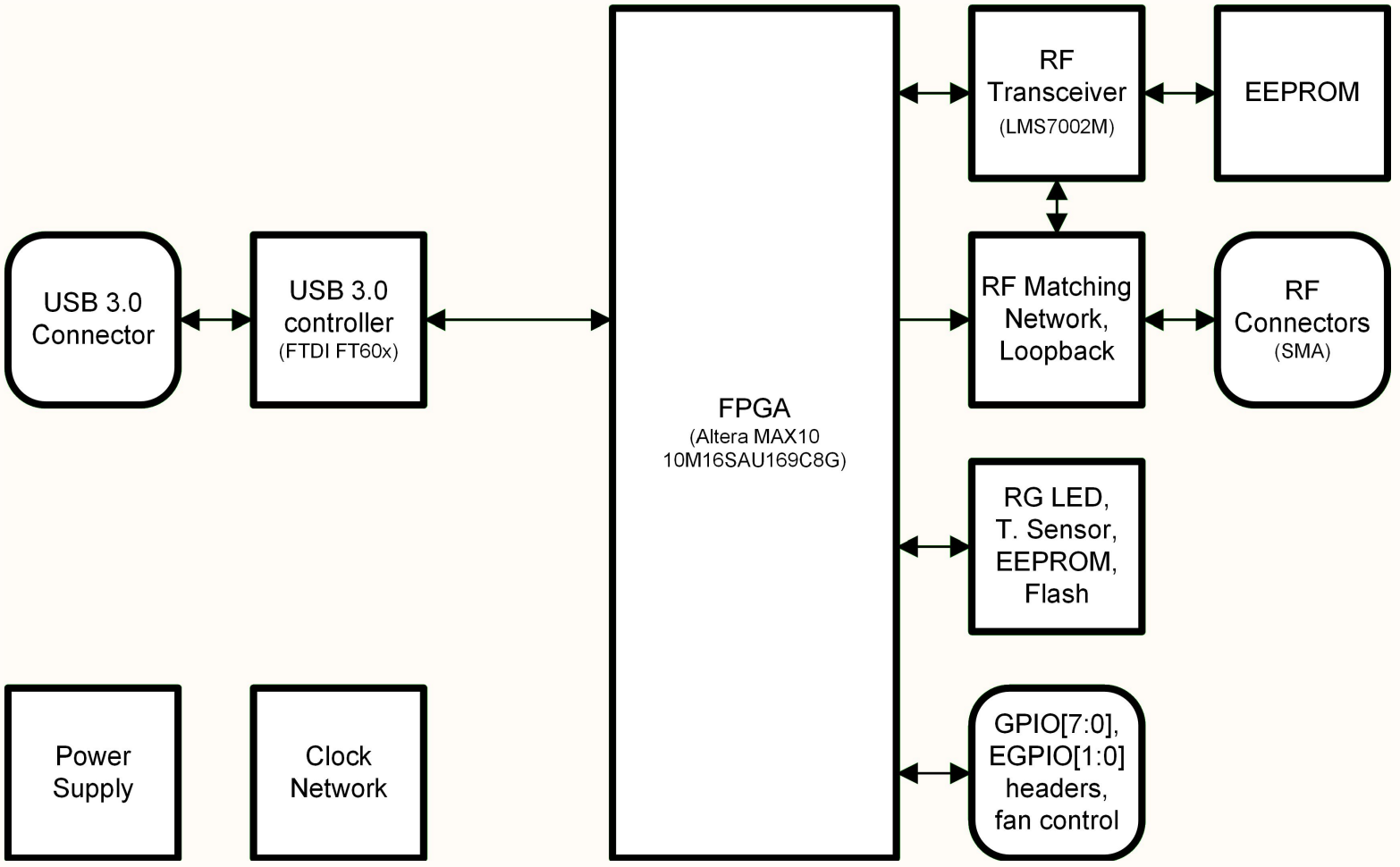
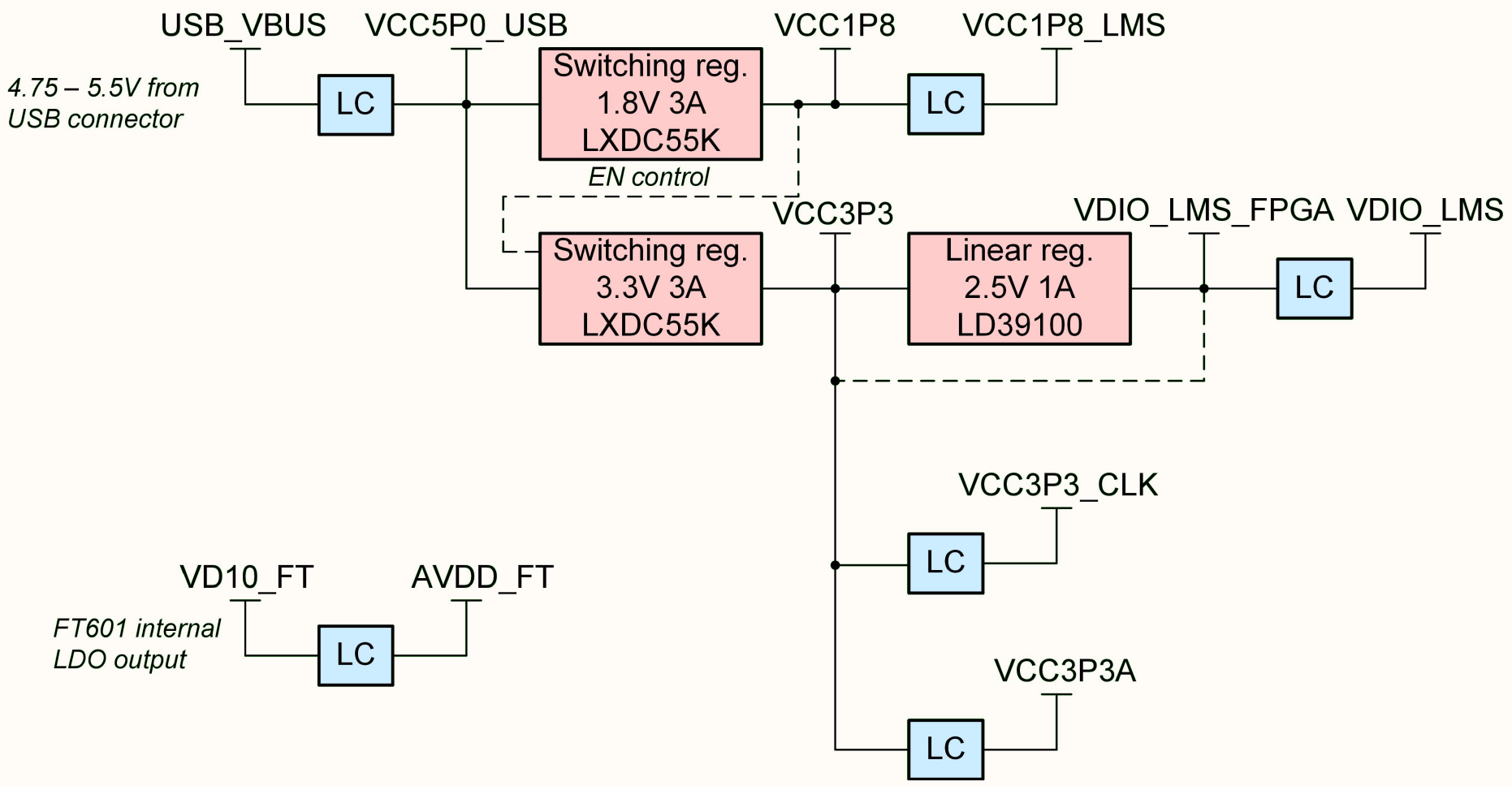
Block diagram



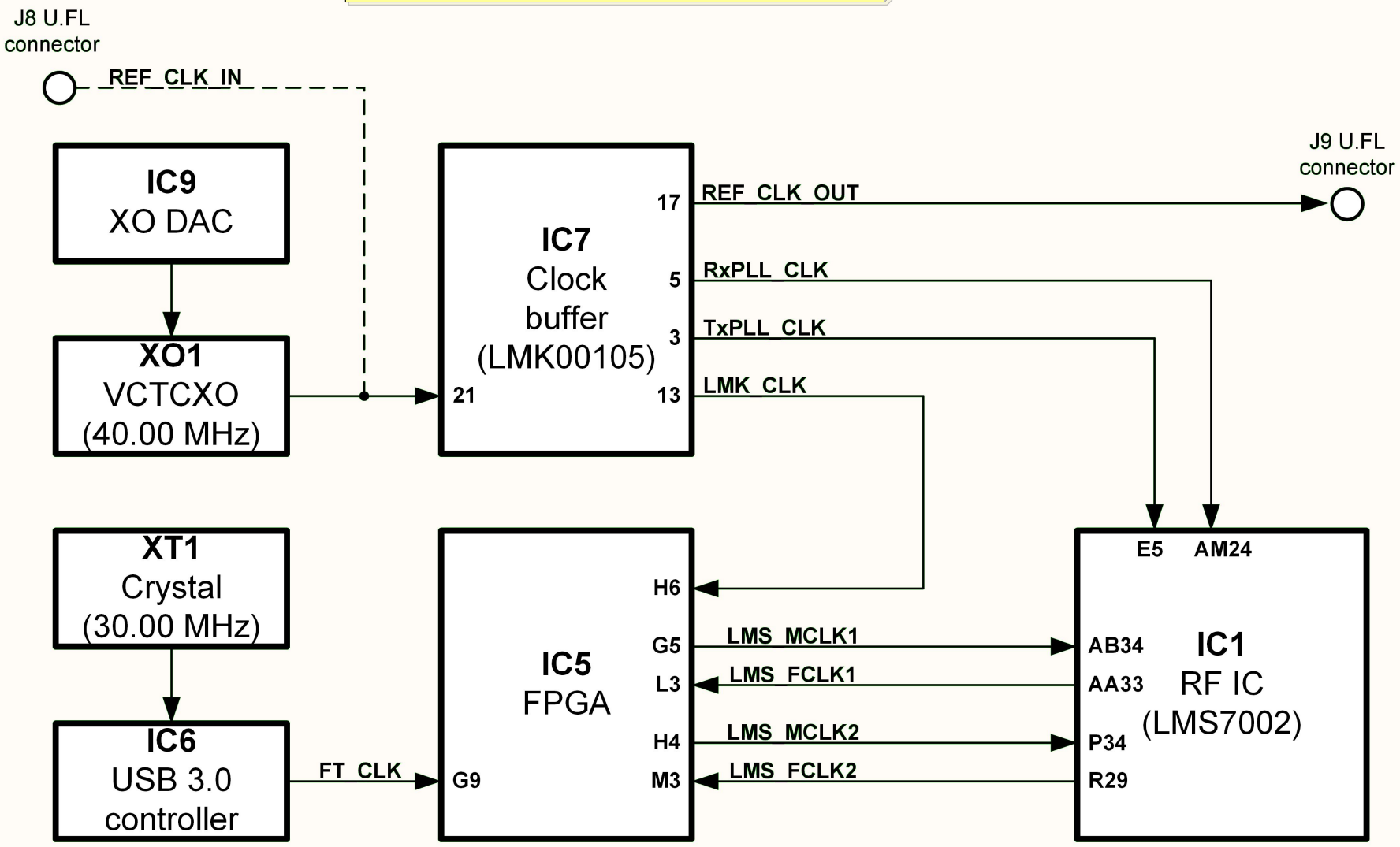
Project name: *LimeSDR_Mini_1v1.PrjPcb*			
Title: ***Block diagram***		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*	Lime microsystems
Size: A4	Revision: v1.1		
Date: 2017-12-11 Time: 17:51:03	Sheet 1 of 9		
File: 01_BlockDiagram.SchDoc			

Power diagram



Project name: *LimeSDR_Mini_1v1.PrjPcb*			
Title: *Power diagram*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*	Lime microsystems
Size: A4	Revision: v1.1		
Date: 2017-12-11 Time: 17:51:06	Sheet 2 of 9		
File: 02_PowerDiagram.SchDoc			

Clock diagram

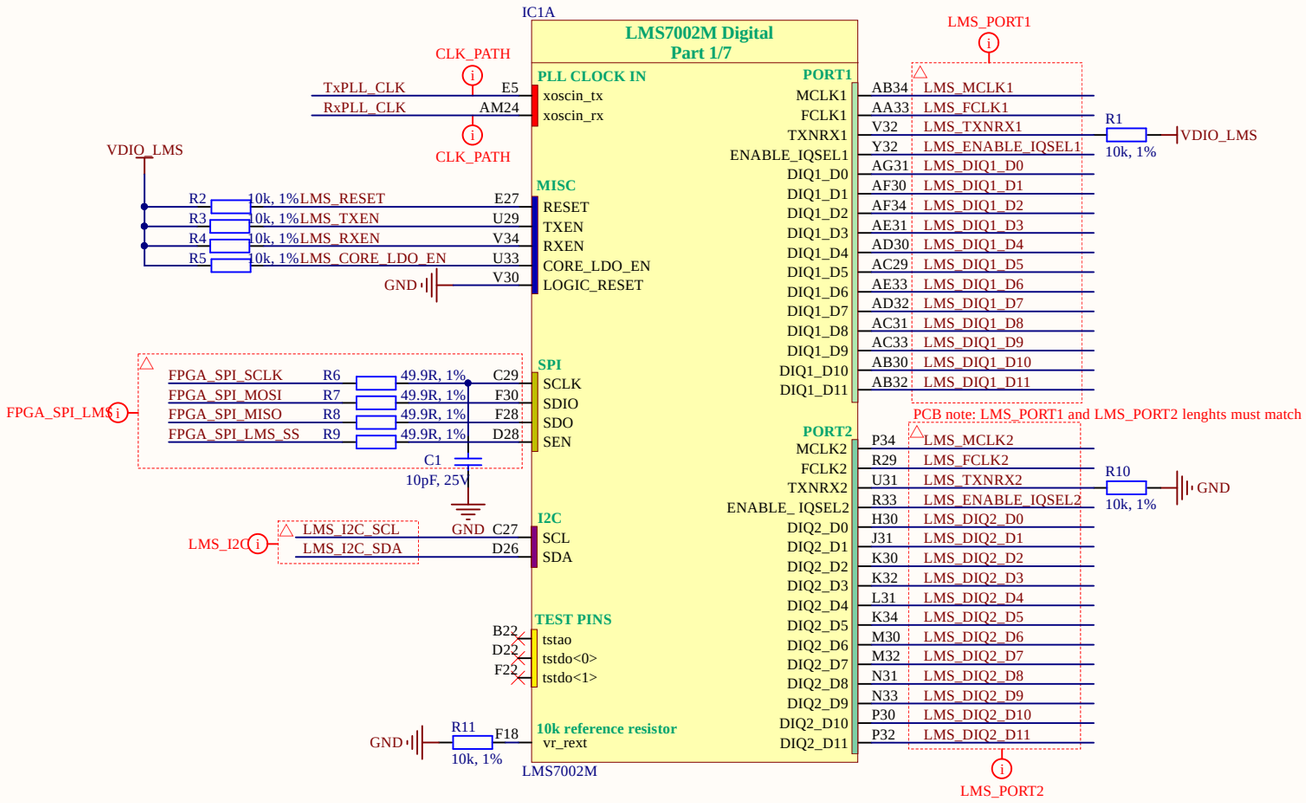


Project name: *LimeSDR_Mini_1v1.PrjPcb*			
Title: *Clock diagram*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*	Lime microsystems
Size: A4	Revision: v1.1		
Date: 2017-12-11	Time: 17:51:09	Sheet 3 of 9	
File: 03_ClockDiagram.SchDoc			

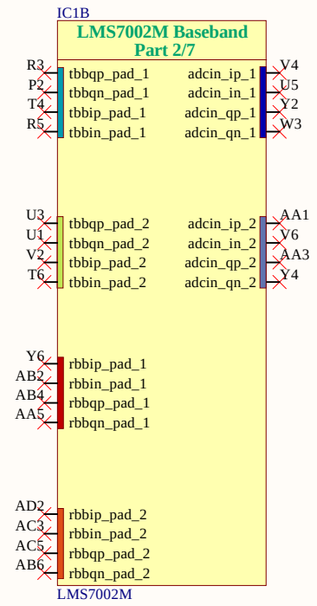
NF elements on sheet: -
Number of NF elements on sheet: 0

LMS7002M misc

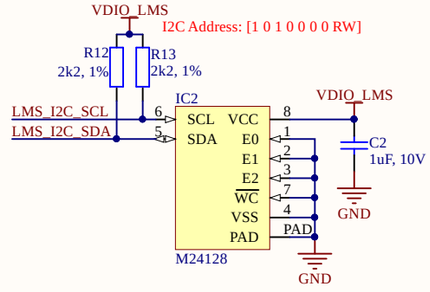
LMS7002M digital circuit



Baseband external IO



LMS EEPROM



Local fiducial LMS Top

FL1

Project name:	*LimeSDR_Mini_1v1.PrjPcb*		
Title:	*LMS7002M misc*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*
Size: A3	Revision: v1.1		
Date: 2017-12-11	Time: 17:51:12	Sheet4 of 9	
File: 04_LMS7002M_Misc.SchDoc			

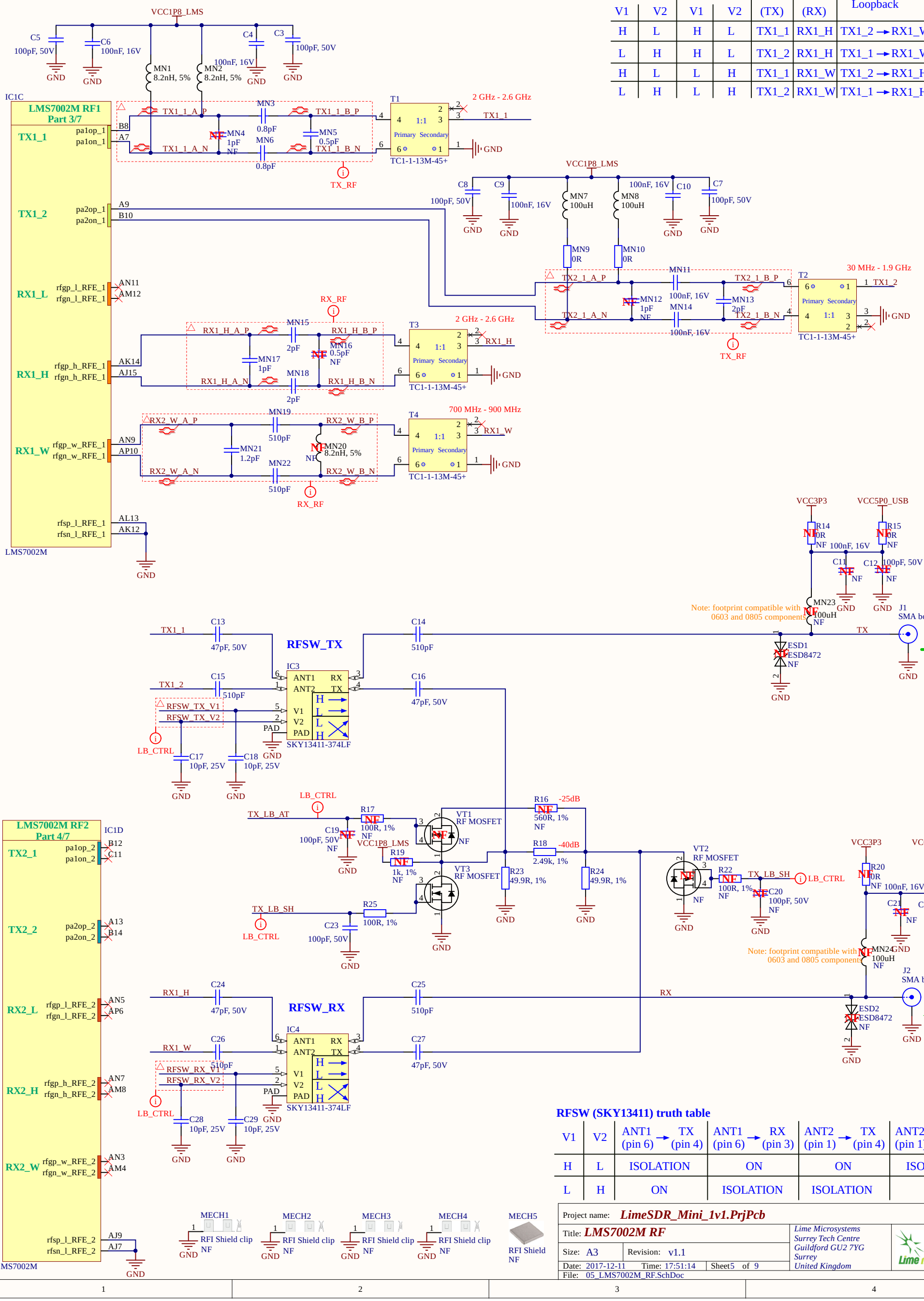
NF elements on sheet: MN4, MN12, MN16, MN20, R14, R15, C11, C12, MN23, ESD1, R16, R17, C19, VT1, R19, VT2, R22, C20, R20, R21, C21, C22, MN24, ESD2
Number of NF elements on sheet: 24

LMS7002M RF circuits

LMS RF Channel 1

RF truth table

RFSW_TX		RFSW_RX		J1	J2	Loopback
V1	V2	V1	V2	(TX)	(RX)	
H	L	H	L	TX1_1	RX1_H	TX1_2 → RX1_W
L	H	H	L	TX1_2	RX1_H	TX1_1 → RX1_W
H	L	L	H	TX1_1	RX1_W	TX1_2 → RX1_H
L	H	L	H	TX1_2	RX1_W	TX1_1 → RX1_H



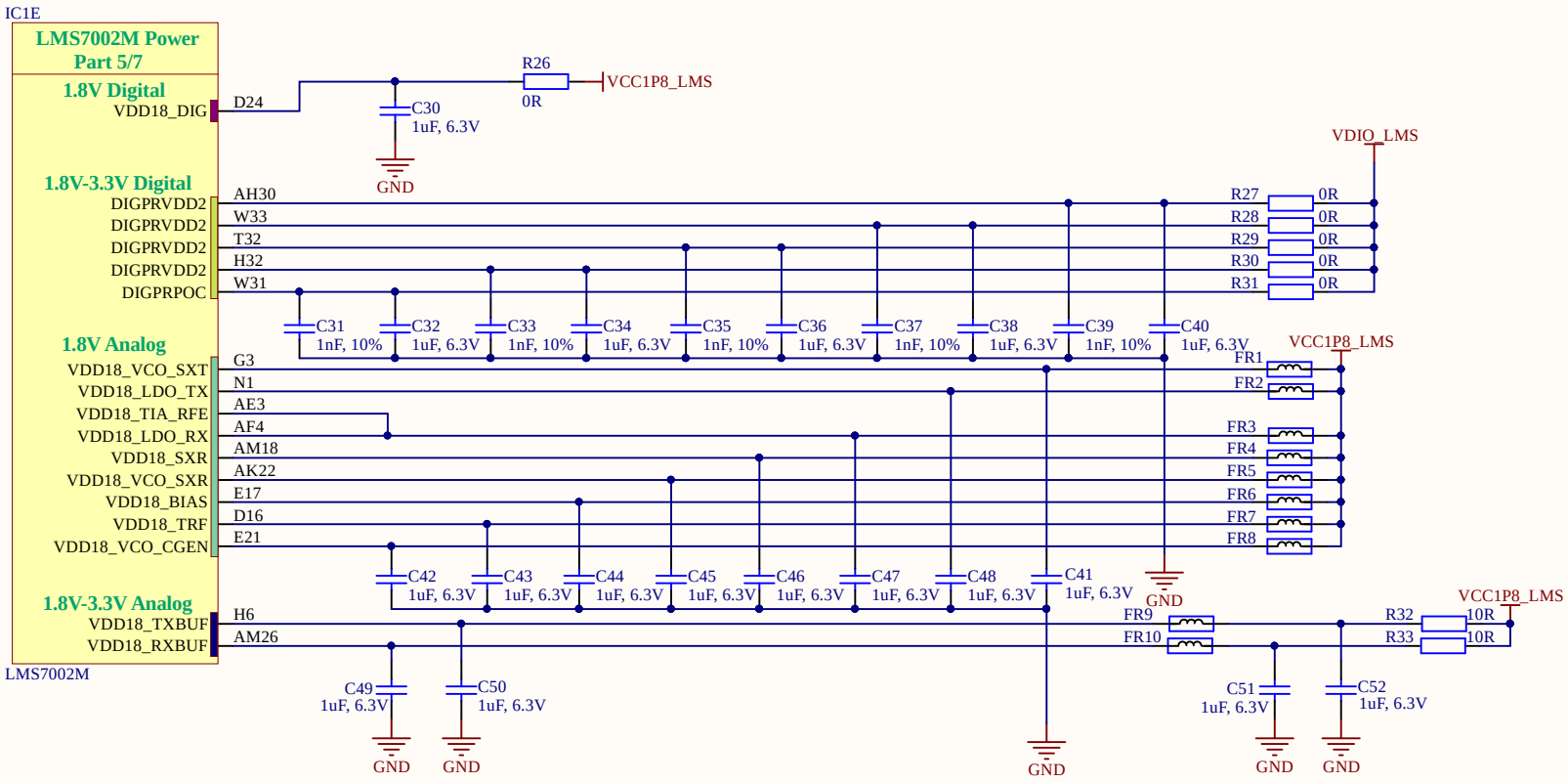
RFSW (SKY13411) truth table

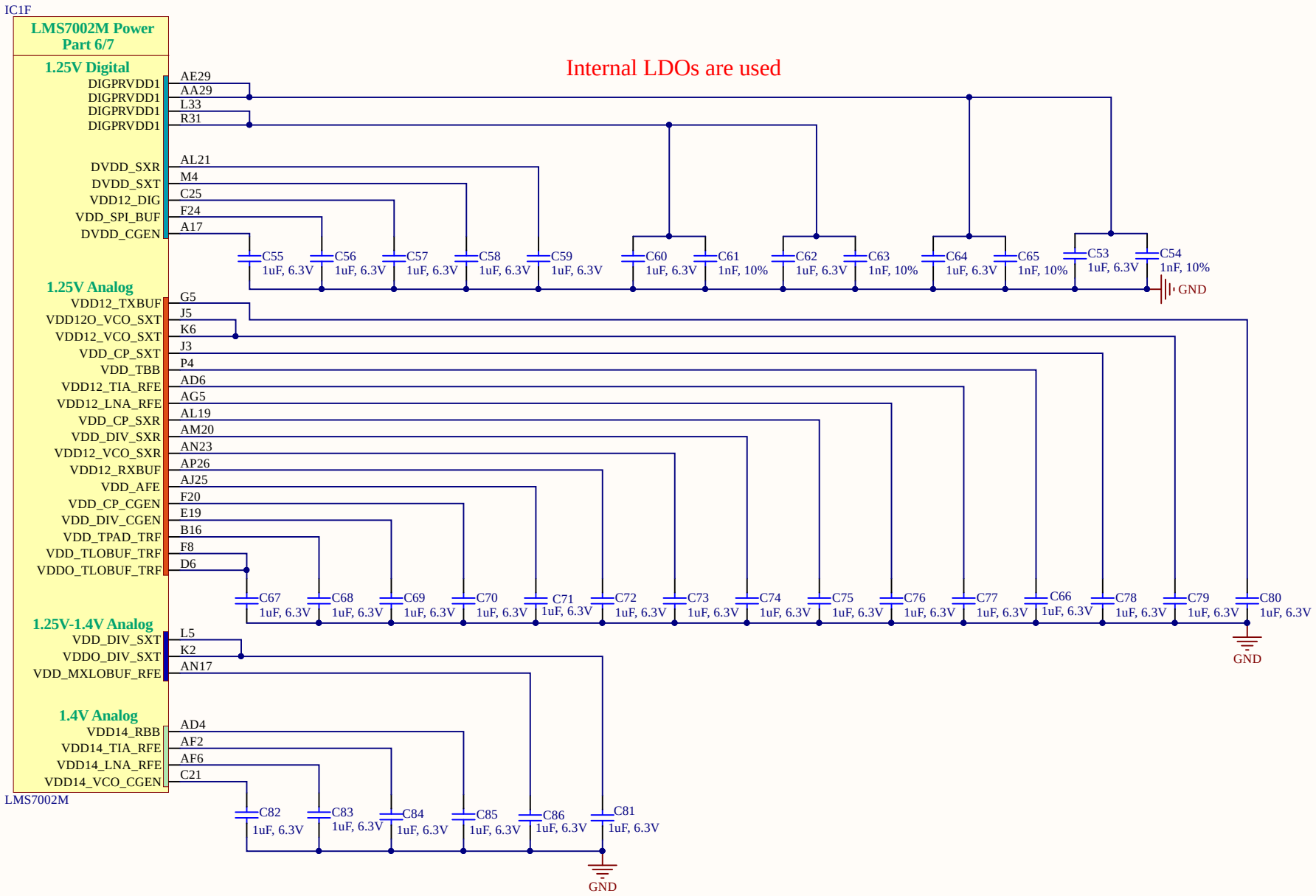
V1	V2	ANT1 (pin 6) → TX (pin 4)	ANT1 (pin 6) → RX (pin 3)	ANT2 (pin 1) → TX (pin 4)	ANT2 (pin 1) → RX (pin 3)
H	L	ISOLATION	ON	ON	ISOLATION
L	H	ON	ISOLATION	ISOLATION	ON

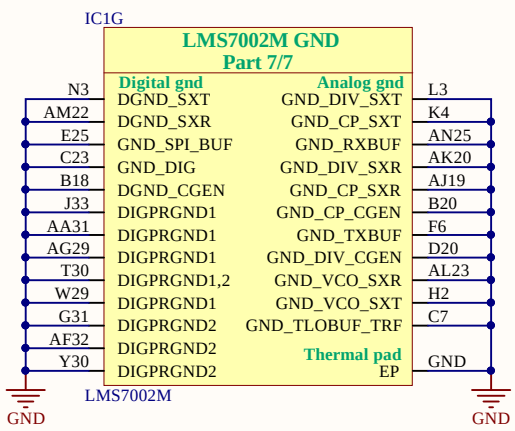
Project name:	*LimeSDR_Mini_1v1.PrjPcb*		
Title:	*LMS7002M RF*	*Lime Microsystems, Surrey Tech Centre, Guildford GU2 7YG, Surrey, United Kingdom*	Lime microsystems
Size: A3	Revision: v1.1		
Date: 2017-12-11	Time: 17:51:14	Sheet 5 of 9	
File: 05_LMS7002M_RF.SchDoc			

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

LMS7002M power supply circuit





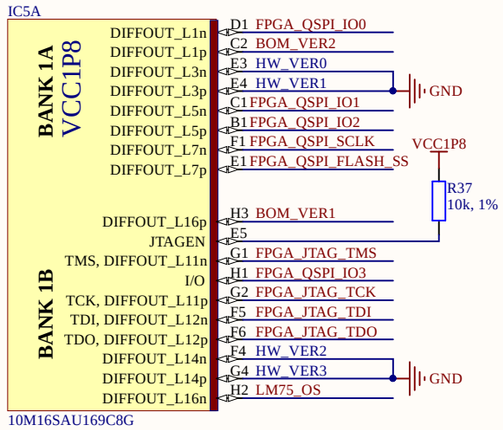


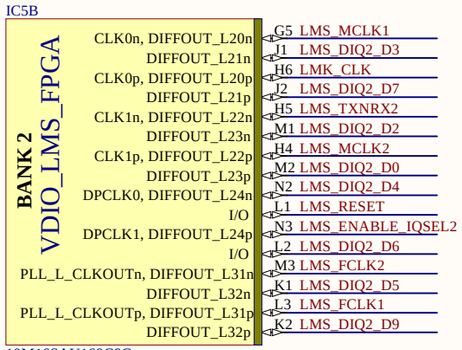
Project name: *LimeSDR_Mini_1v1.PrjPcb*			
Title: *LMS7002M power supply*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*	Lime microsystems
Size: A3	Revision: v1.1		
Date: 2017-12-11 Time: 17:51:16	Sheet6 of 9		
File: 06_LMS7002M_Power.SchDoc			

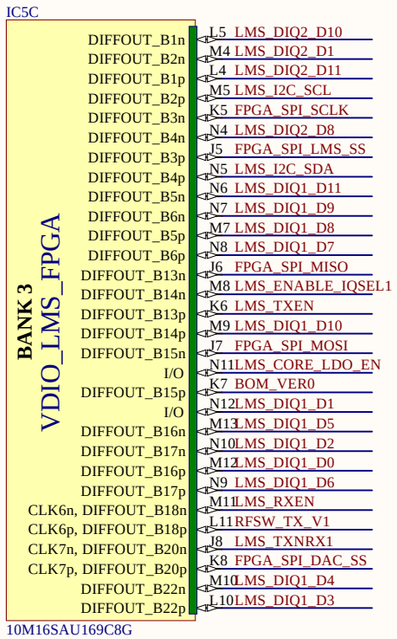
NF elements on sheet: R35, J3, J4, J5, J6, R41
Number of NF elements on sheet: 6

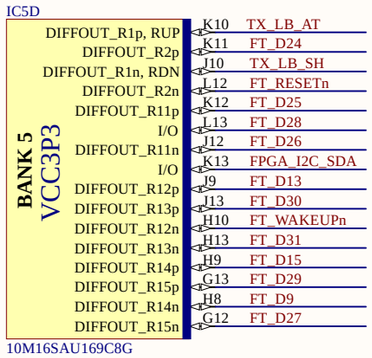
FPGA

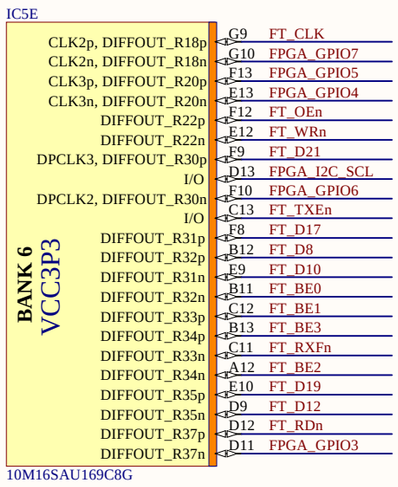
FPGA Banks

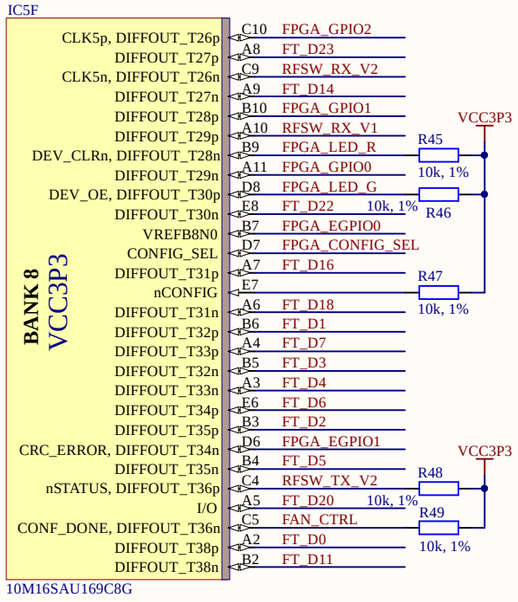




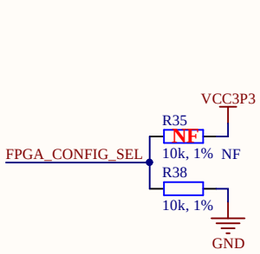




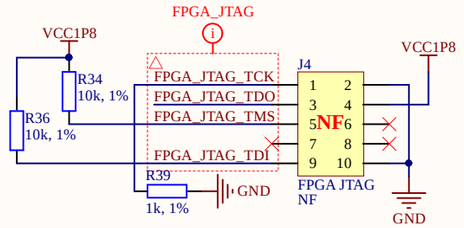




FPGA JTAG

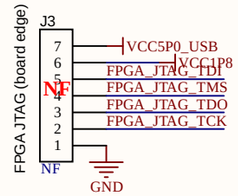


Pitch: 0.05" (1.27mm)



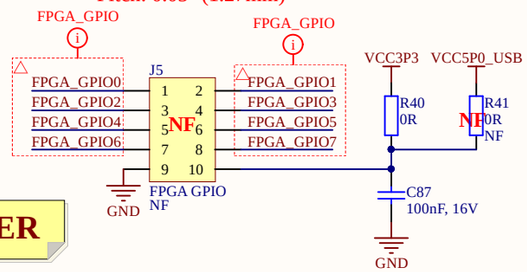
FPGA JTAG (edge)

Pitch: 0.1" (2.54mm)



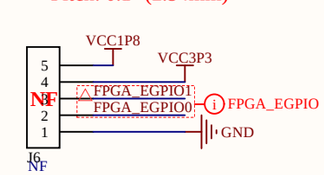
FPGA GPIO

Pitch: 0.05" (1.27mm)

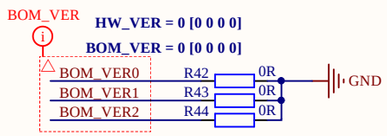


FPGA GPIO (edge)

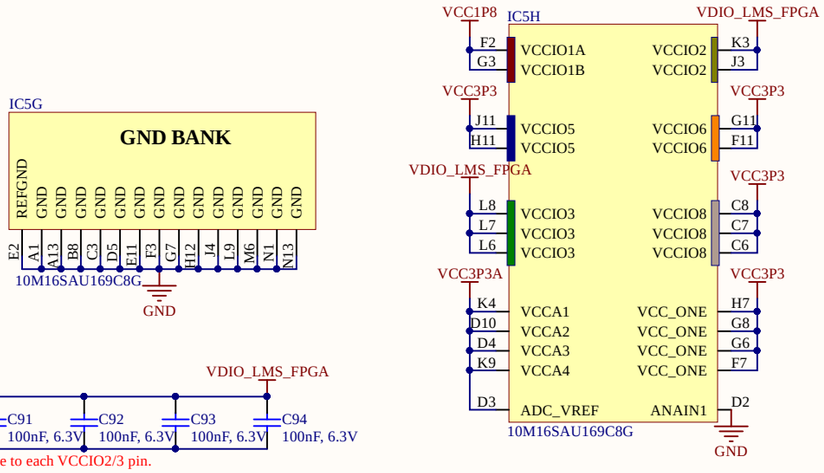
Pitch: 0.1" (2.54mm)

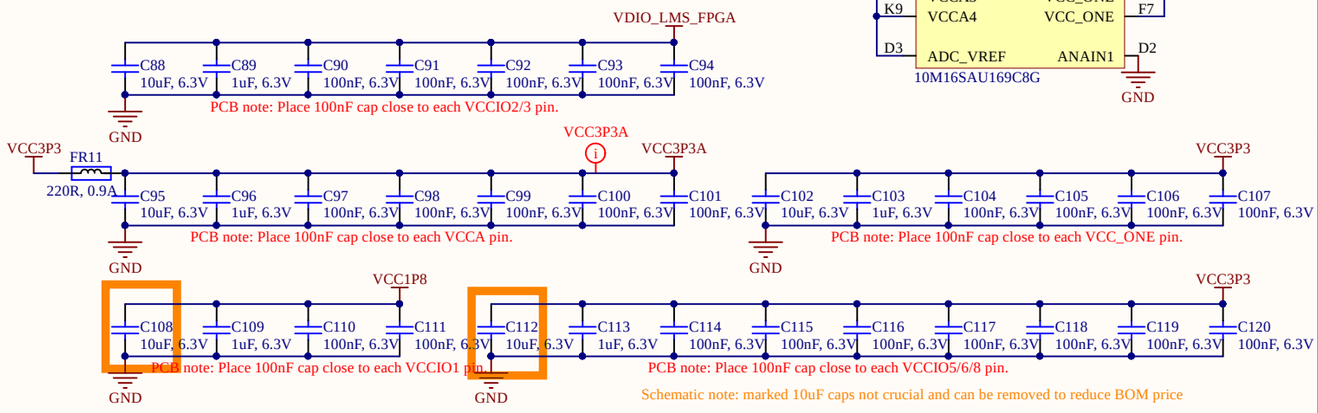


HW_VER & BOM_VER



FPGA Power





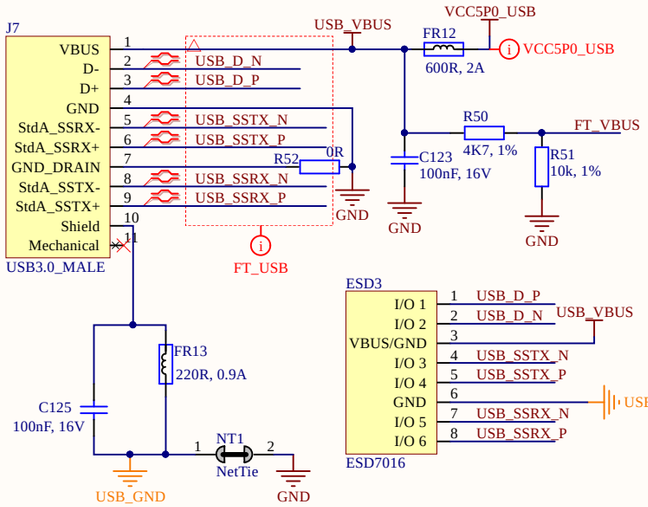
Schematic note: marked 10uF caps not crucial and can be removed to reduce BOM price

Project name:	*LimeSDR_Mini_1v1.PrjPcb*		
Title:	*FPGA*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surrey* *United Kingdom*
Size: A3	Revision: v1.1		
Date: 2017-12-11	Time: 17:51:18	Sheet 7 of 9	
File: 07_FPGA.SchDoc			

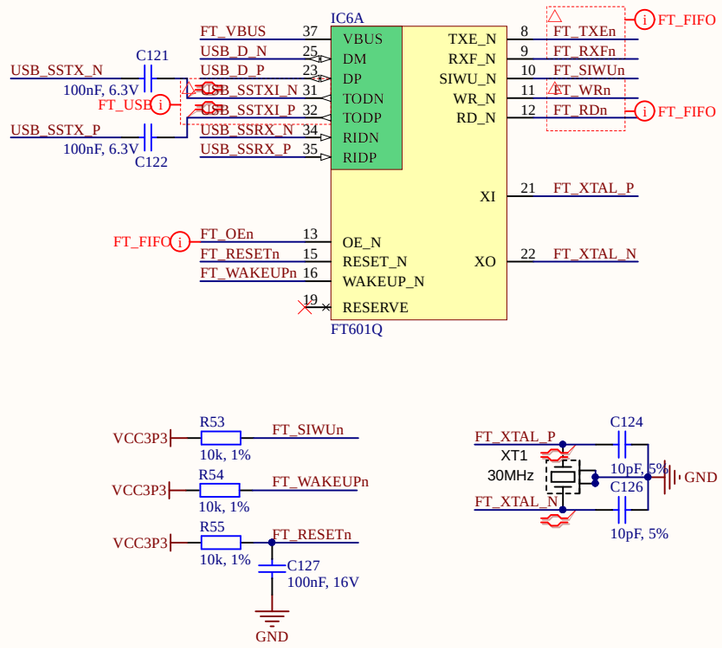
NF elements on sheet: MECH6, MECH7, MECH8, MECH9, MECH10
Number of NF elements on sheet: 5

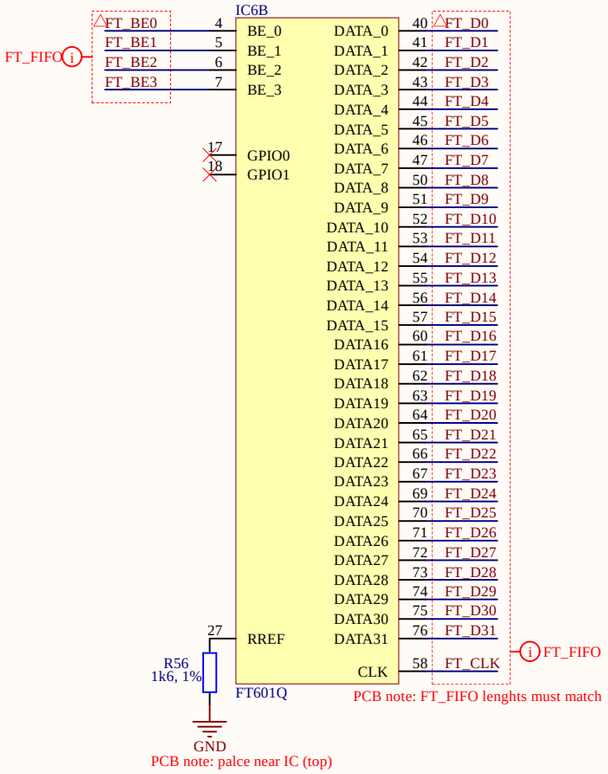
FTDI (USB3) core

USB3.0 plug and

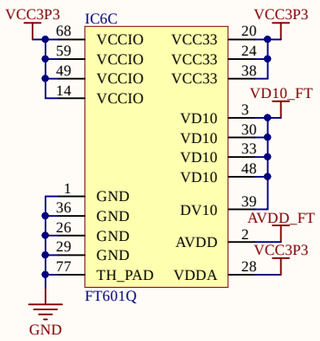


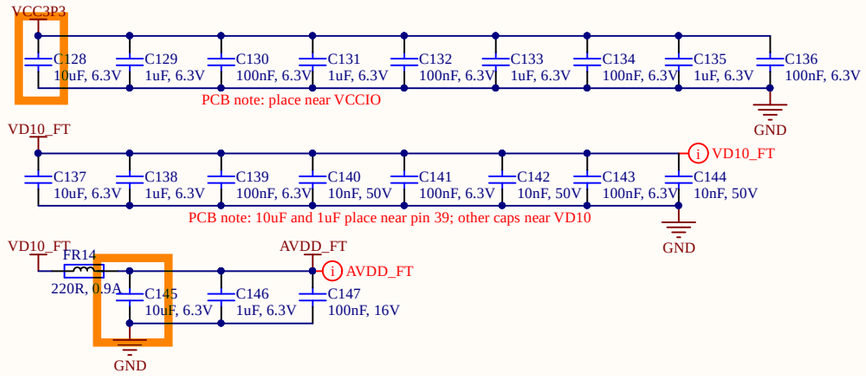
FTDI digital interfaces





FTDI Power





Schematic note: marked 10uF caps not crucial and can be removed to reduce BOM price

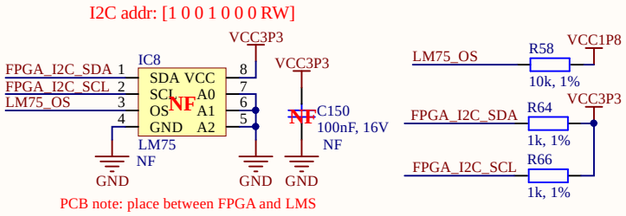
MECH7 NF RFI Shield NF
NF MECH6 1 NF RFI Shield clip GND
NF MECH8 1 NF RFI Shield clip GND
NF MECH9 1 NF RFI Shield clip GND
NF MECH10 1 NF RFI Shield clip GND

Project name:	*LimeSDR_Mini_1v1.PrjPcb*		
Title:	*USB3.0 device*		*Lime Microsystems* *Surrey Tech Centre* *Guildford GU2 7YG* *Surray* *United Kingdom*
Size: A3	Revision: v1.1		
Date: 2017-12-11	Time: 17:51:20	Sheet 8 of 9	
File: 08_USB3_0_device.SchDoc			

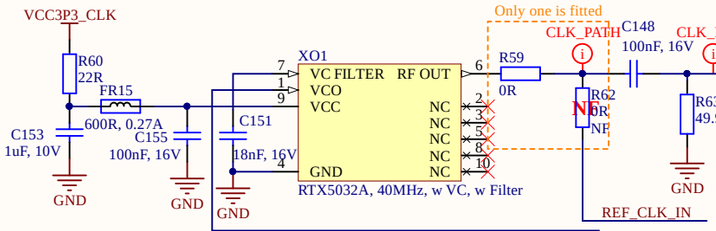
NF elements on sheet: C152, C154, R62, IC8, C150, R171, J10, R74, LED2, R73, R75, R77, R84, C183, MECH11, MECH12, MECH13, MECH14, MECH15
Number of NF elements on sheet: 19
Number of NF elements on all sheets: 54

Misc

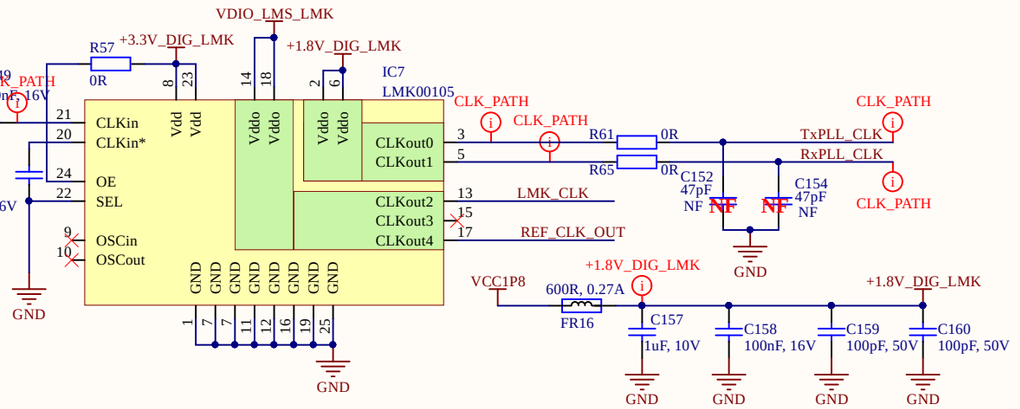
I2C Temperature sensor



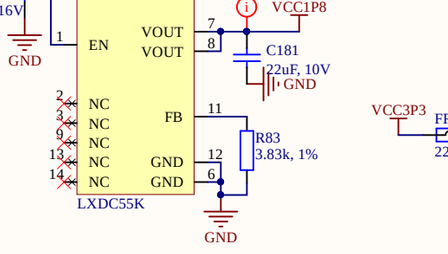
(VC)TCXO



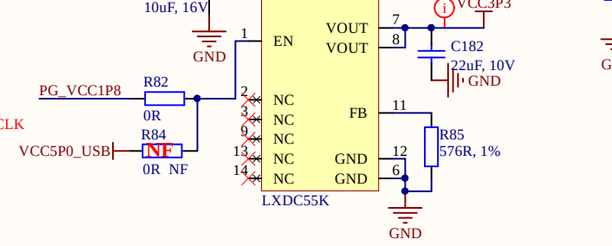
Clock buffer



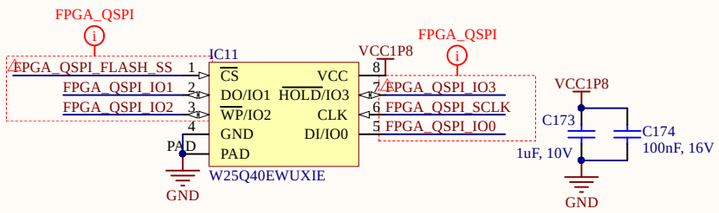
I2C EEPROM



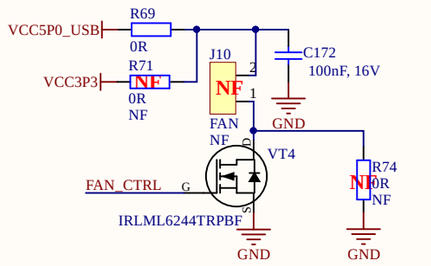
XO DAC



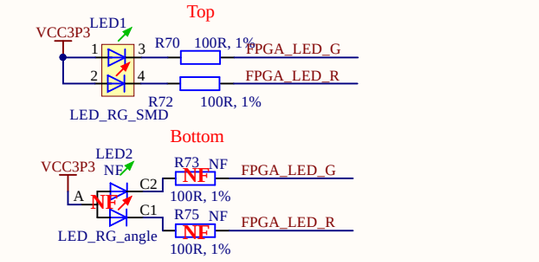
FPGA FLASH



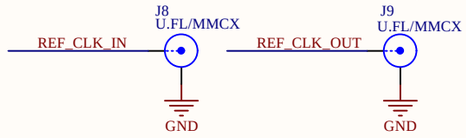
FAN control



LED (Red/Green)



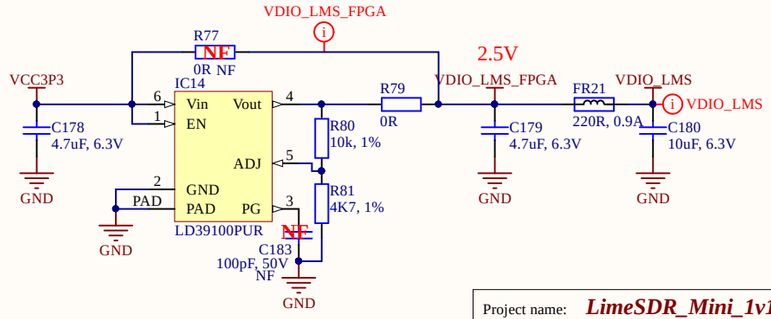
Ref CLK

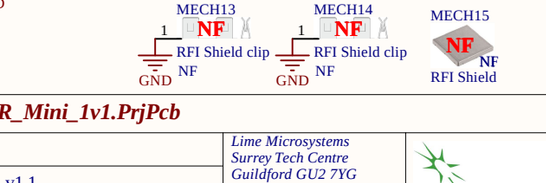


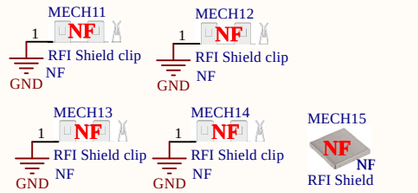
Switching regulator (1.8V)

Switching regulator (3.3V)

Linear regulator (VDIO_LMS_FPGA)







Project name:	*LimeSDR_Mini_1v1.PrjPcb*
Title:	*Misc*
Size: A3	Revision: v1.1
Date: 2017-12-11	Time: 17:51:23 Sheet 9 of 9
File: 09_Misc.SchDoc	

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

Lime microsystems