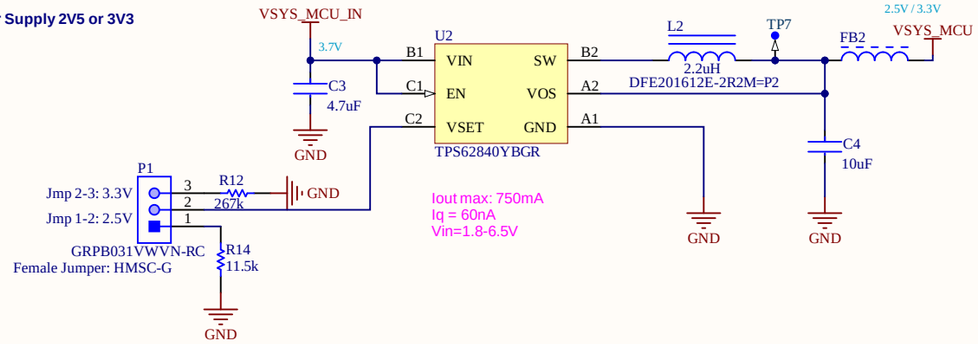
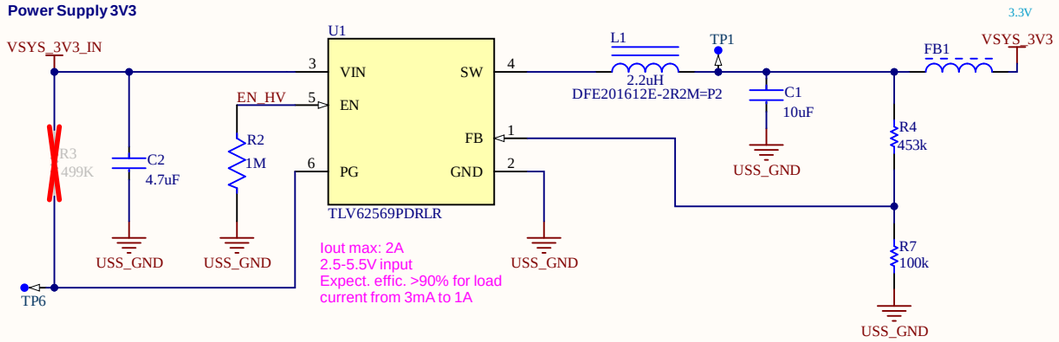
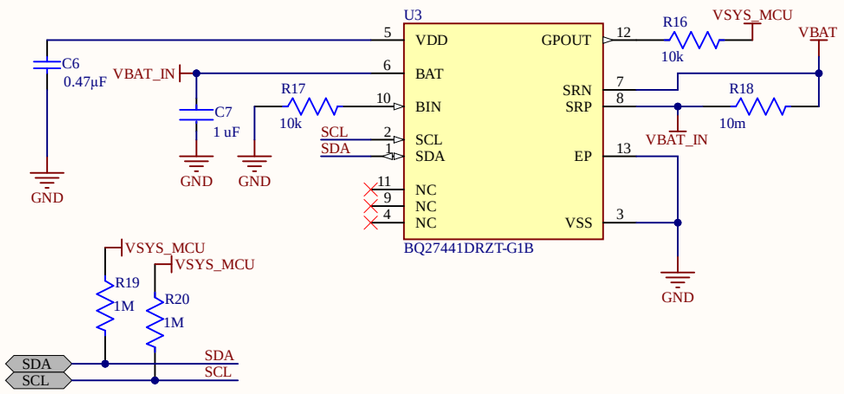
Power Supply 2V5 or 3V3



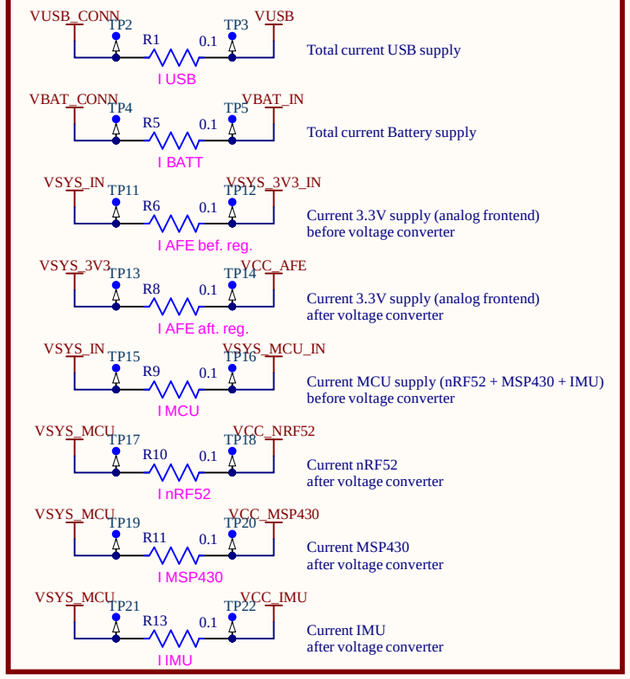
Power Supply 3V3



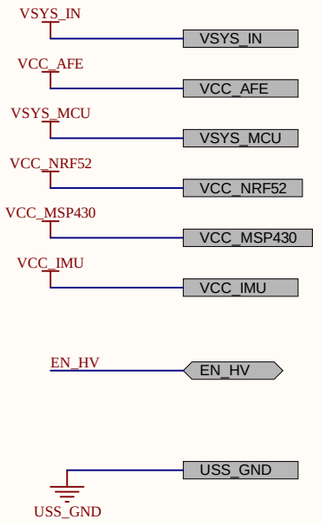
FUEL GAUGE



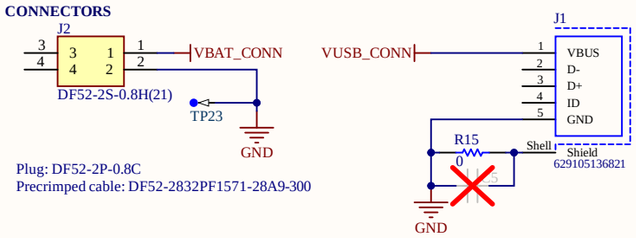
CURRENT MEASUREMENT RESISTORS



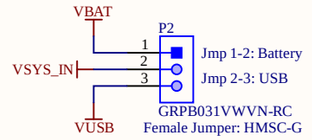
OFF SHEET CONNECTIONS



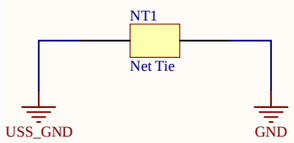
CONNECTORS



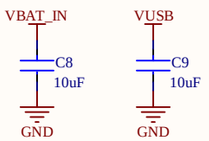
Jumper to switch USB / Battery supply



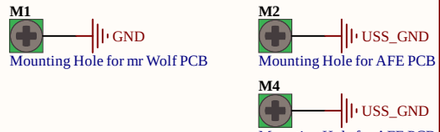
Analog / digital GND connection



BYPASS SUPPLY



MOUNTING HOLES



ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich			Project: Wearable Ultra Low-Power Ultrasound probe
Drawing number:	Rev: v1.2	Format: A3	Laboratory: Integrated Systems Laboratory
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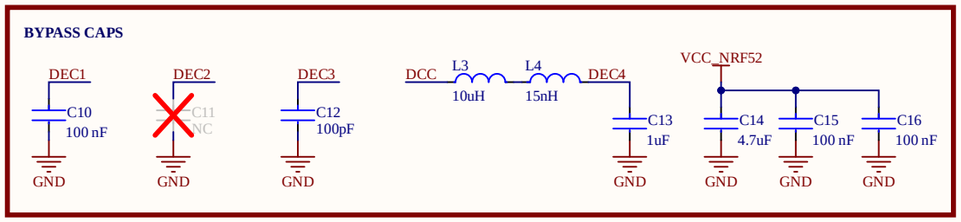
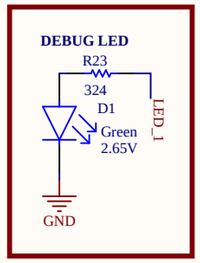
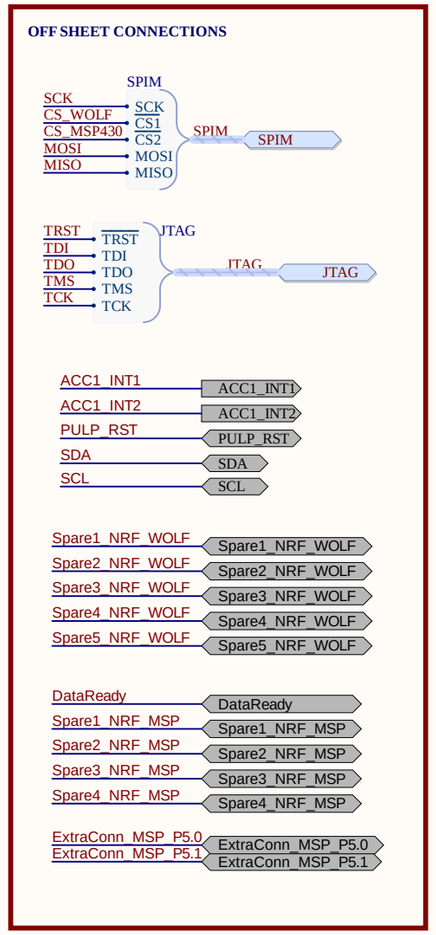
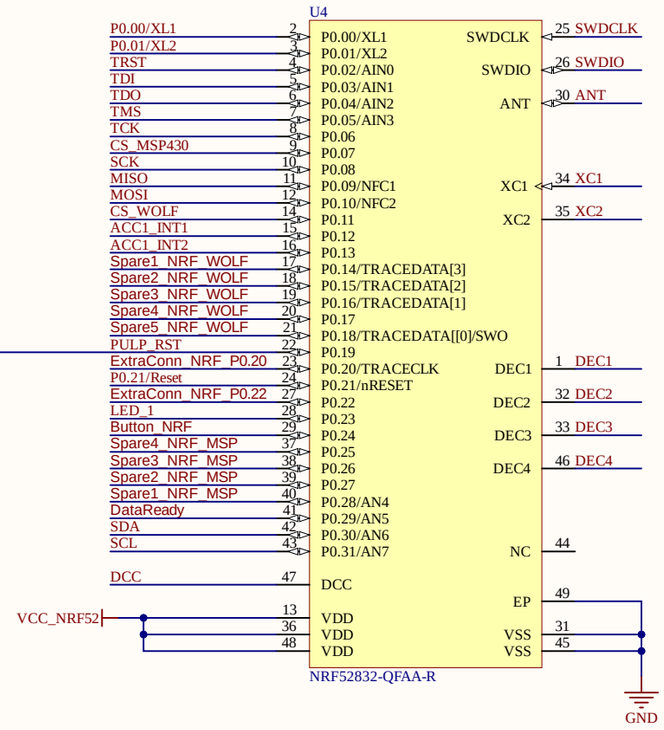
File: C:\Users\serge\Documents\repos\wulpus_dev\hw\wulpus_acquisition_pcb\00_POWER.SchDoc			

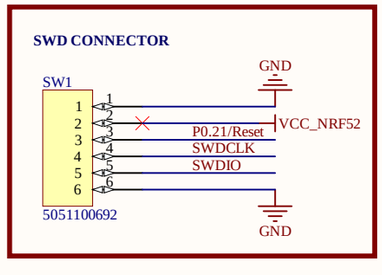


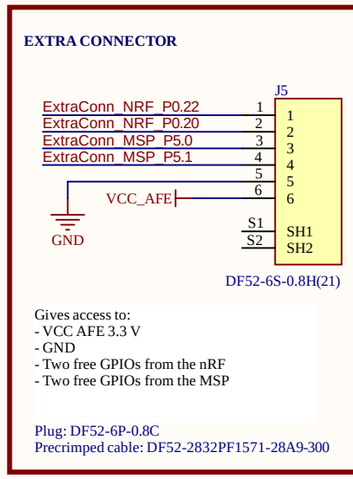


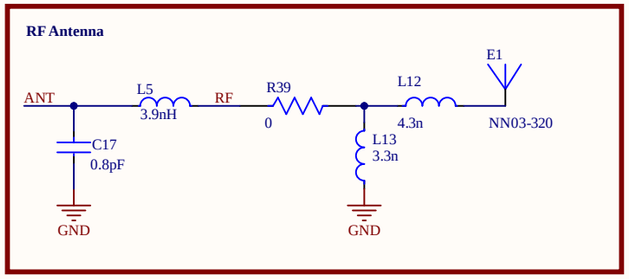


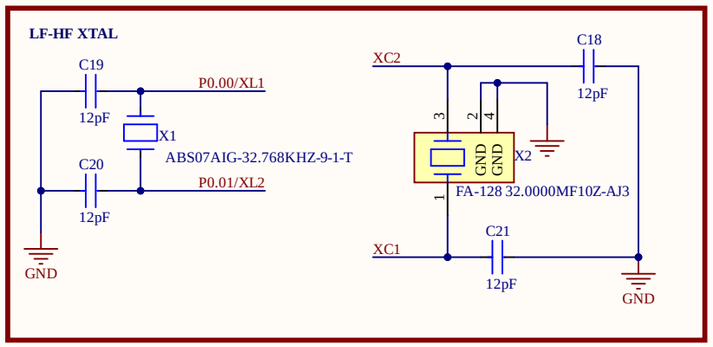
NRF52832 WITH DC/DC AND CHIP ANTENNA

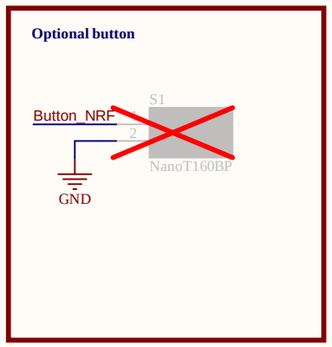












ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project:

Wearable Ultra Low-Power Ultrasound probe

Drawing number:	Rev: v1.2	Format:	Laboratory: Integrated Systems Laboratory	Sheet: 01_NRF52.SchDoc	
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OFF SHEET CONNECTIONS

VSYS_IN → VSYS_IN
VCC_MSP430 → VCC_MSP430

CH0_IN → CH0_IN
CH0_OUT → CH0_OUT
CH1_IN → CH1_IN
CH1_OUT → CH1_OUT
TxPwr → TxPwr
RxPwr → RxPwr
RxEn → RxEn

Switch_CLR → Switch_CLR
Switch_CLK → Switch_CLK
Switch_D_IN → Switch_D_IN
Switch_D_OUT → Switch_D_OUT
Switch_LE → Switch_LE

Spare1_MSP_AFE → Spare1_MSP_AFE
Spare2_MSP_AFE → Spare2_MSP_AFE
Spare3_MSP_AFE → Spare3_MSP_AFE
Spare4_MSP_AFE → Spare4_MSP_AFE

EN_HV → EN_HV
DataReady → DataReady
Spare1_NRF_MSP → Spare1_NRF_MSP
Spare2_NRF_MSP → Spare2_NRF_MSP
Spare3_NRF_MSP → Spare3_NRF_MSP
Spare4_NRF_MSP → Spare4_NRF_MSP
Spare5_NRF_MSP → Spare5_NRF_MSP

ExtraConn_MSP_P5.0 → ExtraConn_MSP_P5.0
ExtraConn_MSP_P5.1 → ExtraConn_MSP_P5.1

SPIM: SCK, CS_WOLF → CS1, CS_MSP430 → CS2, MOSI, MISO → SPIM

USS_GND → USS_GND

BYPASS CAPS

VCC_MSP430 → L11 600 Ohm → PVCC
C22 33uF, C23 1nF, C30 33uF, C31 1nF: PVCC → USS_GND
VCC_MSP430 → L8 600 Ohm → C24 1uF, C27 100 nF → AVCC1 → USS_GND
VCC_MSP430 → L9 600 Ohm → C25 1uF, C28 100 nF → DVCC1 → GND
VCC_MSP430 → L10 600 Ohm → C26 1uF, C29 100 nF → DVCC3 → GND

U5

AVCC1	1	AVCC1	
DVCC1	18	DVCC1	
DVCC3	49	DVCC3	
PVCC	56	PVCC	
PVCC	57	PVCC	
	3	P1.0_UCA1CLK_TA1.0_A0_C0_VREF-_VeREF-	
	4	P1.1_UCA1STE_TA4.0_A1_C1_VREF+_VeREF+	
TP8 MOSI	19	P1.2_UCA1SIMO_UCA1TXD_TA1.0_A8_C8	
TP9 MISO	20	P1.3_UCA1SOMI_UCA1RXD_TA1.1_A9_C9	
	25	P1.4_TB0.4_UCB0STE_A2_C2	
LED_MSP430	26	P1.5_TB0.5_UCB0CLK_A3_C3	
RxPwr	23	P1.6_UCA3STE_UCB0SIMO_UCB0SDA	
	24	P1.7_USSTRG_UCA3CLK_UCB0SOMI_UCB0SCL	
TP10 SCK	21	P2.0_UCA1CLK_UCA3SIMO_UCA3TXD	
CS_MSP430	22	P2.1_UCA1STE_UCA3SOMI_UCA3RXD	
EN_HV	2	P2.2_COUT_UCA0CLK_A14_C14	
	27	P3.1_TA1CLK_TB0.1_MTIF_OUT_IN	
	50	P3.3_MCLK_TB0.3_XPB1	
	51	P3.4_SMCLK_DMAE0	
	52	P3.5_ACLK_COUT	
DataReady	28	P4.0_RTCCLK_TA4.1_MTIF_PIN_EN	
Spare1_NRF_MSP	29	P4.1_UCA0CLK_TB0.4_UCA3SOMI_UCA3RXD	
Spare2_NRF_MSP	30	P4.2_UCA0STE_TB0.5_UCA3SIMO_UCA3TXD	
Spare3_NRF_MSP	31	P4.3_UCA0SIMO_UCA0TXD	
Spare4_NRF_MSP	32	P4.4_UCA0SOMI_UCA0RXD	
ExtraConn_MSP_P5.0	34	P5.0_TB0.0_UCA2SIMO_UCA2TXD	
ExtraConn_MSP_P5.1	35	P5.1_TB0.1_UCA2SOMI_UCA2RXD	
Button_MSP	36	P5.2_TB0.2_UAC2CLK	
Switch_CLR	37	P5.3_TB0.3_UCA2STE	
Switch_CLK	38	P5.4_TA0.0_UCB1CLK_TA4.0	
Switch_D_IN	39	P5.5_TA4.1_UCB1SIMO_UCB1SDA	
Switch_D_OUT	40	P5.6_TB0OUTH_UCB1SOMI_UCB1SCL	
Switch_LE	41	P5.7_TA0.2_UCB1STE	
RxEn	42	P6.0_TA0CLK_COUT	
Spare4_MSP_AFE	47	P6.2_TB0CLK	
Spare1_MSP_AFE	43	P6.4_MCLK	
Spare2_MSP_AFE	44	P6.5_SMCLK	
Spare3_MSP_AFE	45	P6.6_ACLK	
TxPwr	46	P7.0_TA1.0_TA1.2_XPB0	
	13	PJ.0_UAC2CLK_SRSCG1_DMAE0_C10_TDO	JTAG_TDO
	14	PJ.1_UCA2STE_SRSCG0_TA4CLK_C11_TDI_TCLK	JTAG_TDI
	15	PJ.2_UCA2SIMO_UCA2TXD_SROSCOFF_TB0OUTH_C12_TMS	JTAG_TMS
	16	PJ.3_UCA2SOMI_UCA2RXD_SRCPUOFF_TB0.6_C13_TCK	JTAG_TCK
	6	PJ.4_LFXIN	LFXIN
	7	PJ.5_LFXOUT	LFXOUT
	9	PJ.6_HFXIN_USSXT_BOUT	HFXIN
	10	PJ.7_HFXOUT	HFXOUT
CH0_IN	60		CH0_IN
CH0_OUT	59		CH0_OUT
CH1_IN	53		CH1_IN
CH1_OUT	54		CH1_OUT
USSXTIN	62		USSXTIN
TEST_SBWCLK	11		JTAG_TEST
RST _NMI_SBWTDIO_N	12		JTAG_RESET
USSXTOUT	63		USSXTOUT
	65	EP	GND
	64	AVSS1	USS_GND
	5	AVSS2	
	8	AVSS3	
	61	AVSS4	
	17	DVSS1	USS_GND
	33	DVSS2	
	48	DVSS3	GND
	55	PVSS	USS_GND
	58	PVSS	

MSP430FR5043IRGCT

CH0_IN, CH0_OUT, CH1_IN, CH1_OUT → R24 1M, R25 1M → USS_GND

DEBUG LED

R27 324 → LED_MSP430 → D2 Green 2.65V → GND

Optional button

Button_MSP → S2 NanoT160BP → GND

JTAG CONNECTOR

PJ1 5051100892: 8 JTAG_TEST, 7 JTAG_RESET, 6 JTAG_TDI, 5 JTAG_TDO, 4 JTAG_TMS, 3 JTAG_TCK, 2 VCC_MSP430, 1 GND
VCC_MSP430 → R29 47k → JTAG_RESET → C35 1nF → GND

LF-HF XTAL

HFXOUT → C32 12pF, R26 22
X3 FY0800018 8MHz: GND, GND
HFXIN → C34 12pF → GND
LFXOUT → C37 12pF
X4 ABS07-32.768KHZ-9-T 32.768kHz
LFXIN → C38 12pF → GND

USSXTAL

USSXTOUT → R28 22 → C33 12pF
Y1 AWSCR-8.00CV-T 8MHz
USSXTIN → C36 12pF → USS_GND

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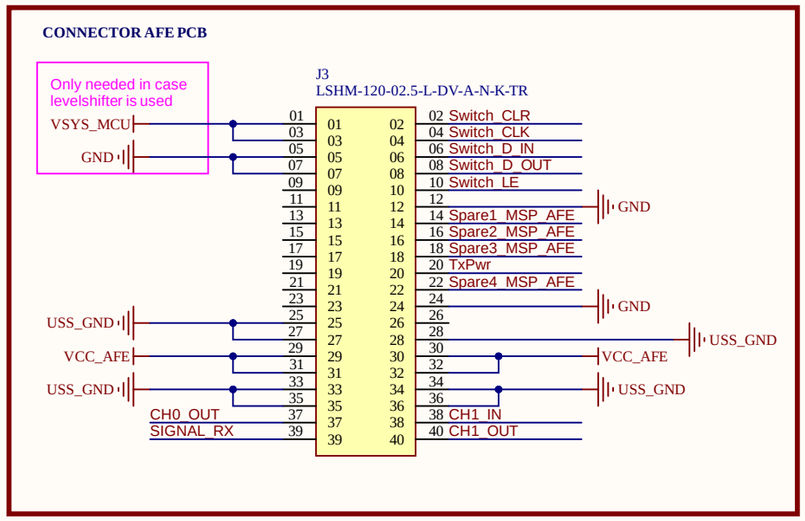
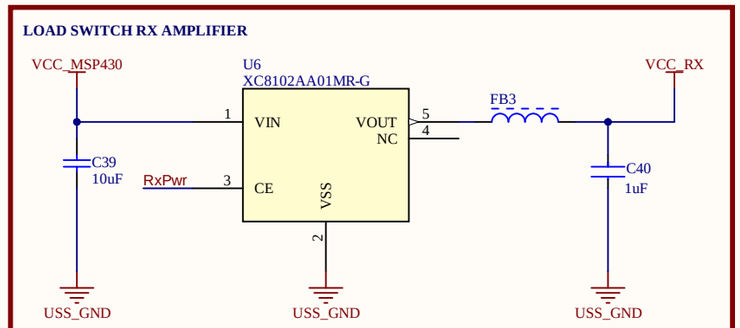
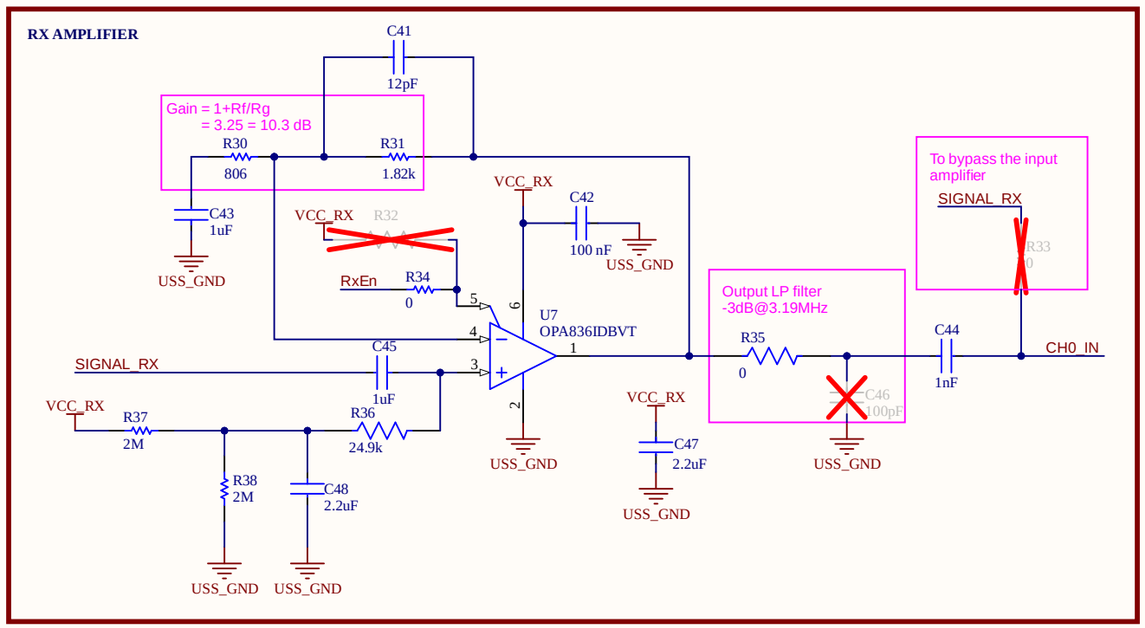
CONNECTOR AFE PCB



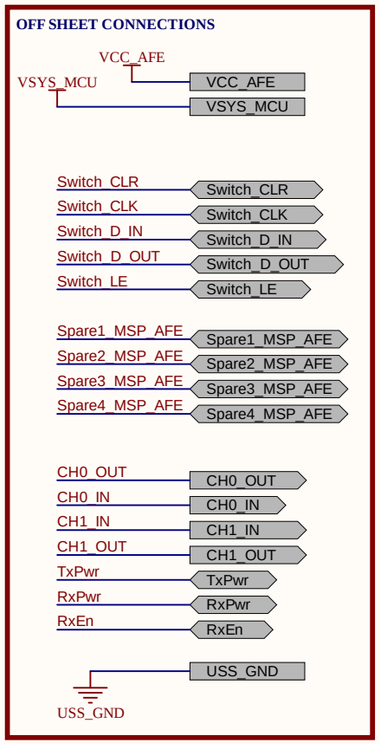
LOAD SWITCH RX AMPLIFIER



RX AMPLIFIER



OFF SHEET CONNECTIONS



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Project: Wearable Ultra Low-Power Ultrasound probe

Drawing number:	Rev: v1.2	Format: A3	Laboratory: Integrated Systems Laboratory	Sheet: 03_MSP430_AFE.SchDoc
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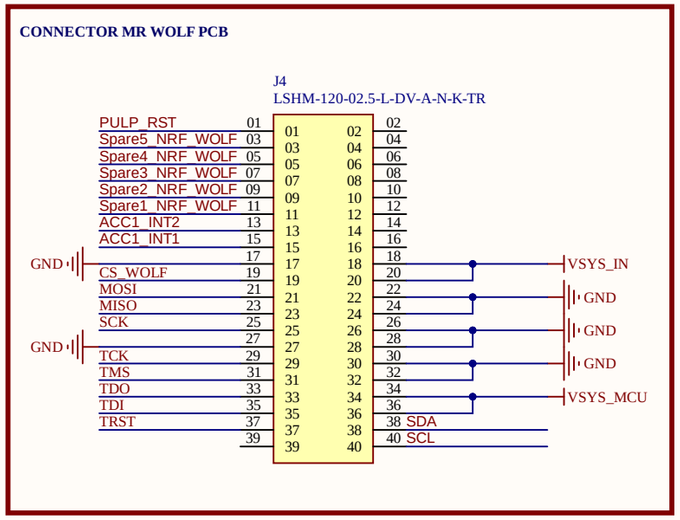

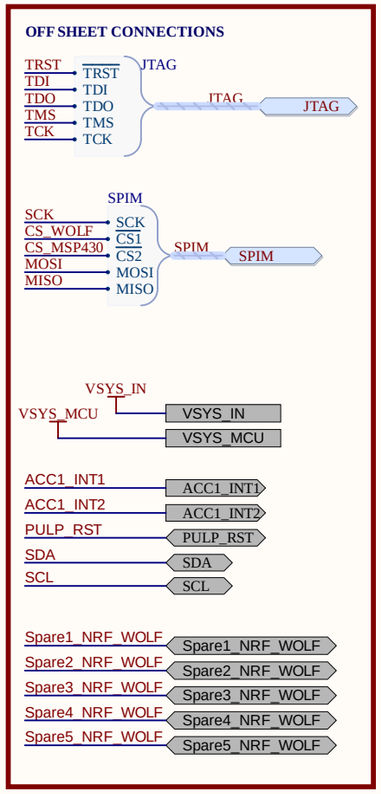

Eidgenössische Technische Hochschule Zürich
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Project:

Wearable Ultra Low-Power Ultrasound probe

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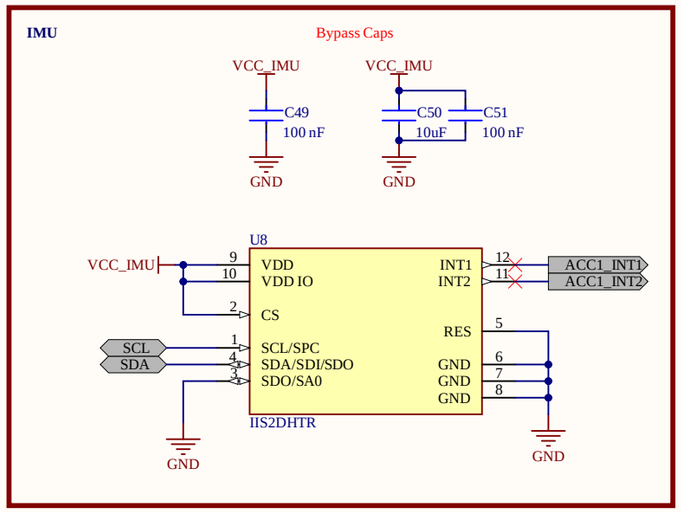

Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich			Project: Wearable Ultra Low-Power Ultrasound probe
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