B-U585I-IOT02A

MB1551

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Legend

General comment such as function title, configuration, ...

Text to be added to silkscreen.

Warning text.

Notes to generate the board layout.

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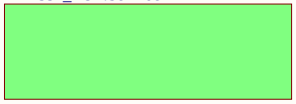
U_MB1551_TOP
MB1551_TOP.SchDoc



Title: **Project overview**		
Project: **B-U585I-IOT02A**		
Variant: U585I		
Revision: C-02		Reference: MB1551
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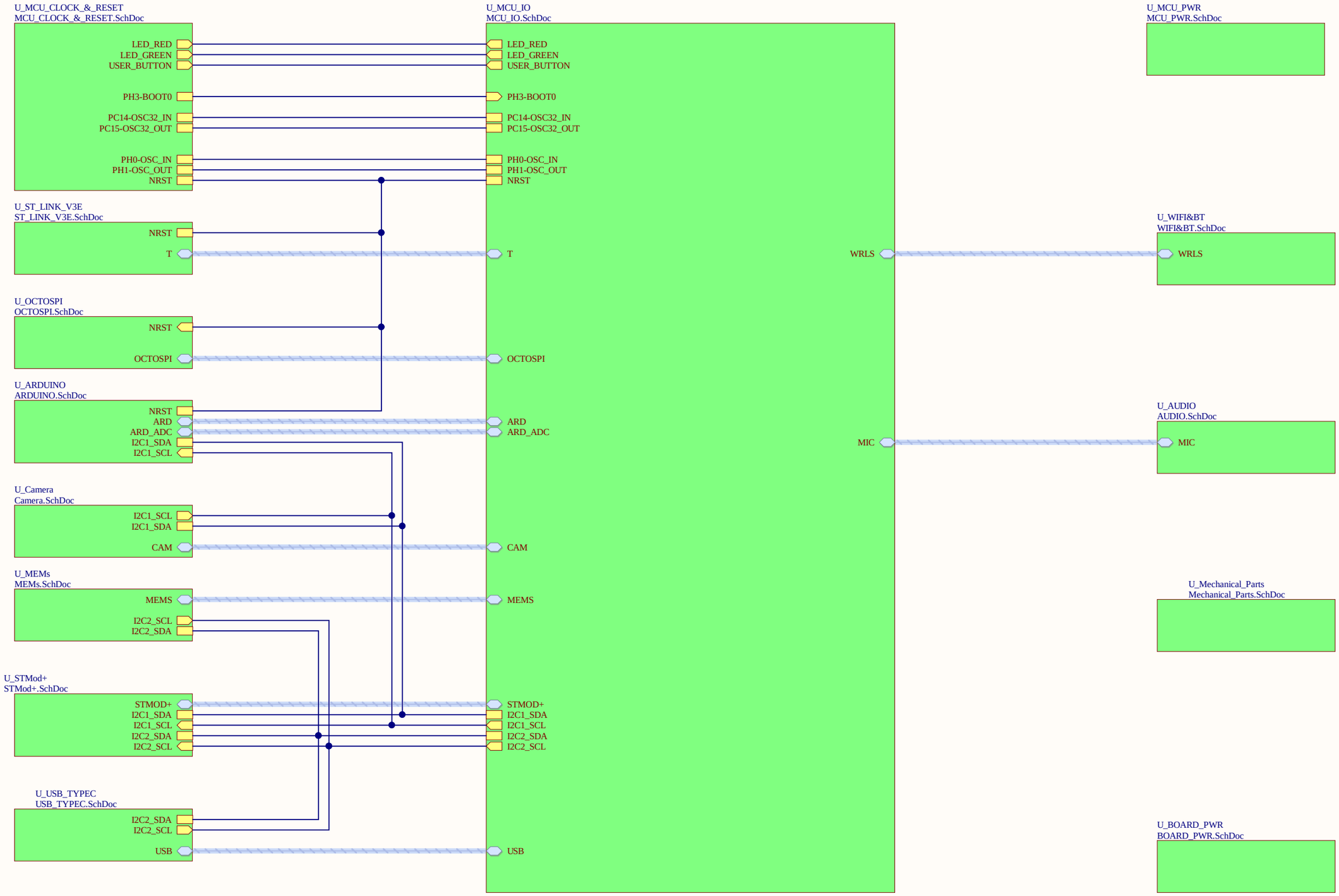
life.augmented



Title: **TOP: Hierarchical view**		
Project: **B-U585I-IOT02A**		
Variant: U585I		
Revision: C.-02		Reference: MB1551
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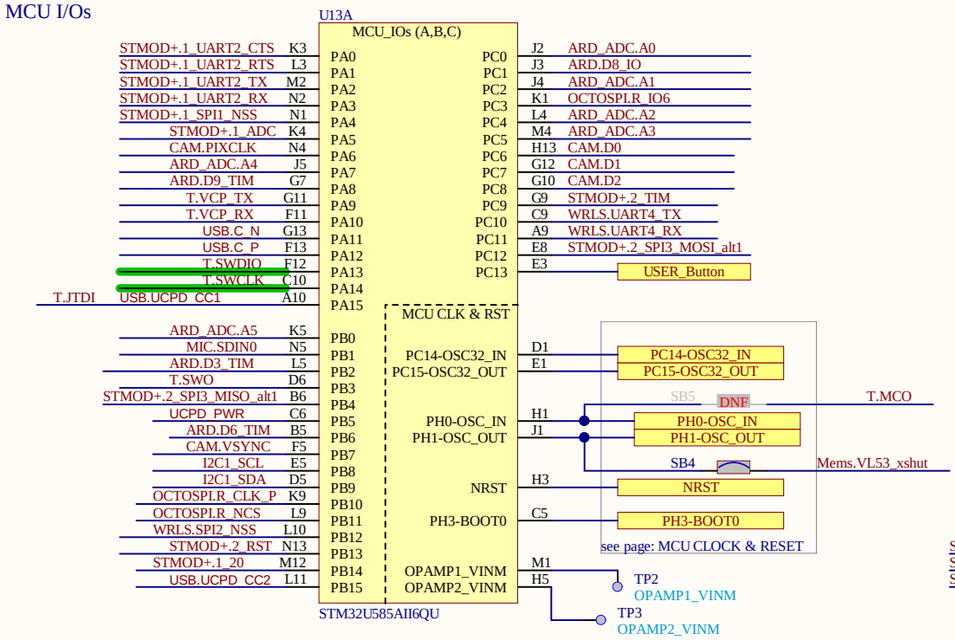
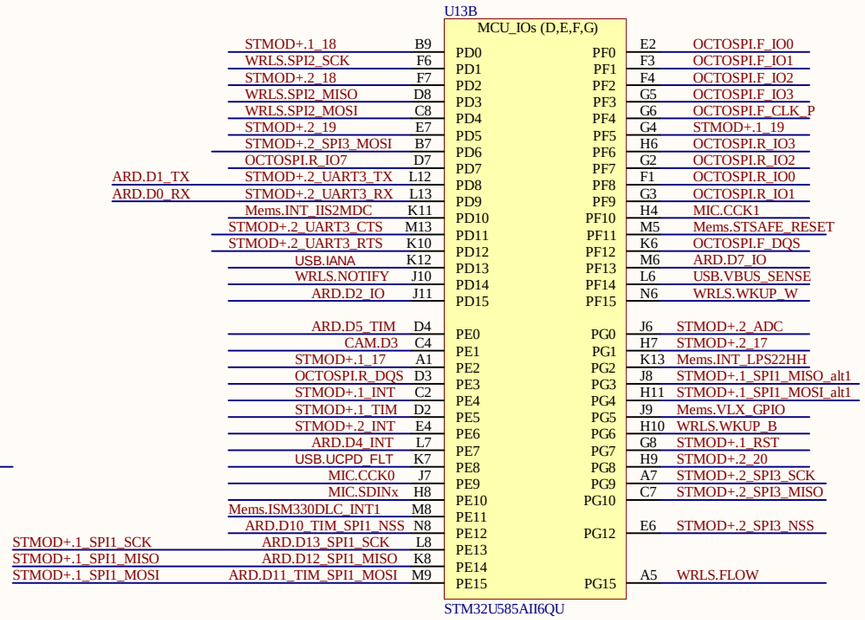
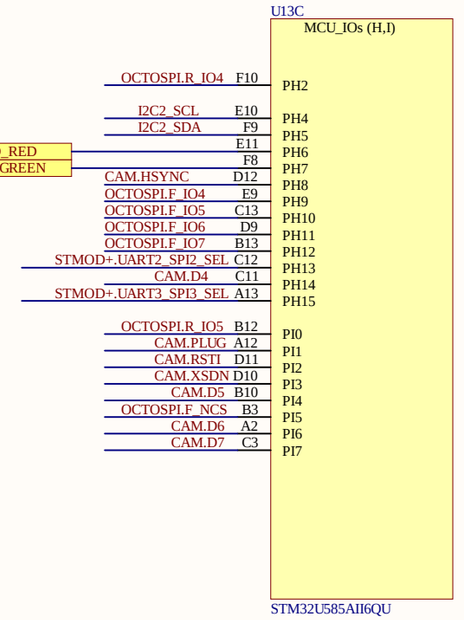
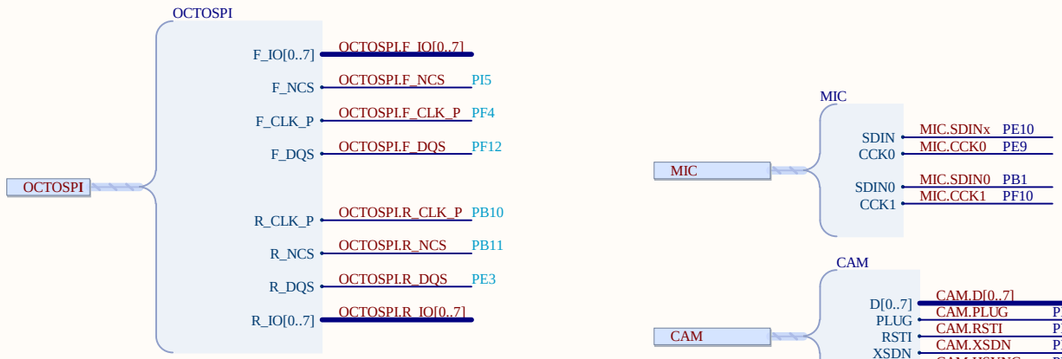
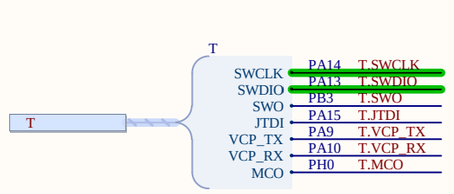
STM32 MCU I/Os

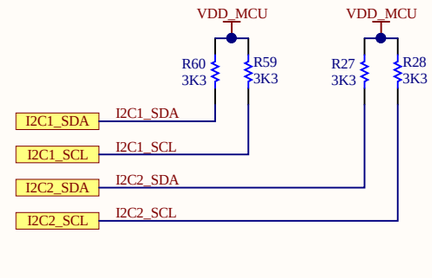


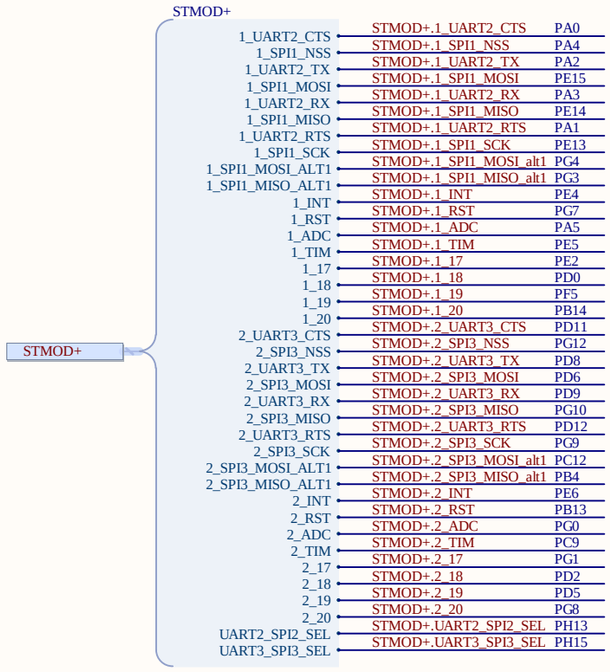


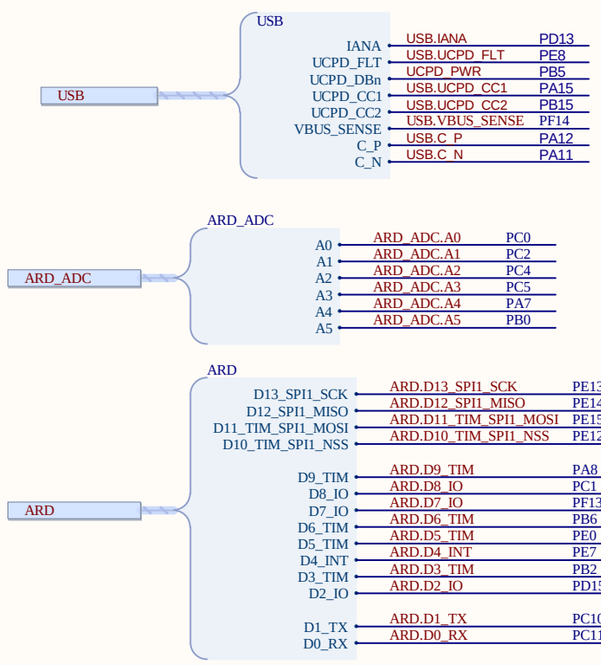


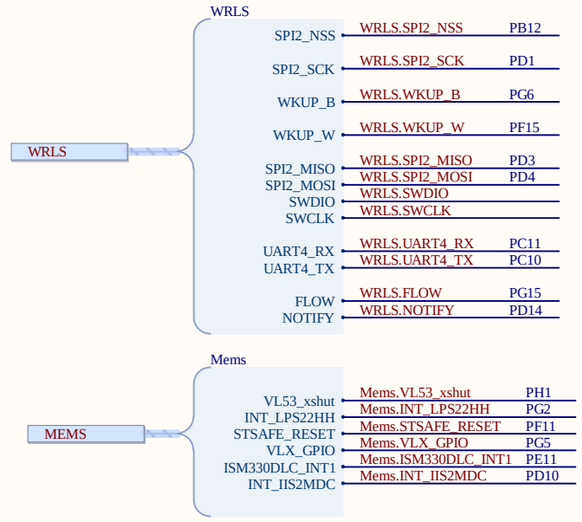












LIMITATION: Jtag exclusive with USB_CC1

Title: **MCU IOs**			
Project: **B-U585I-IOT02A**			
Variant: U585I			
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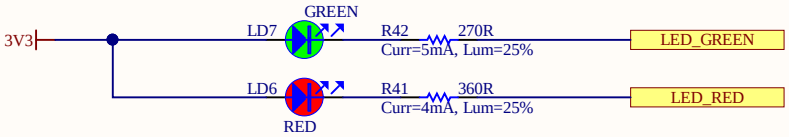
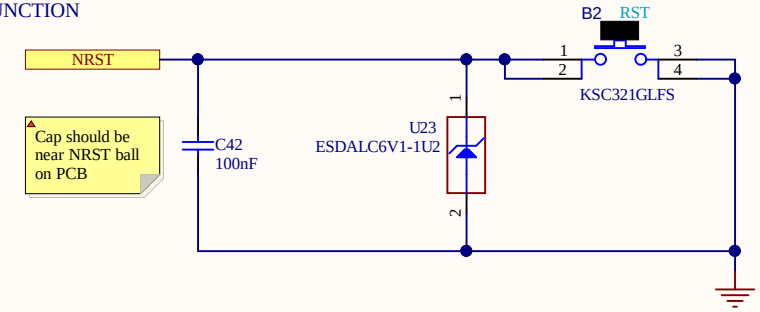
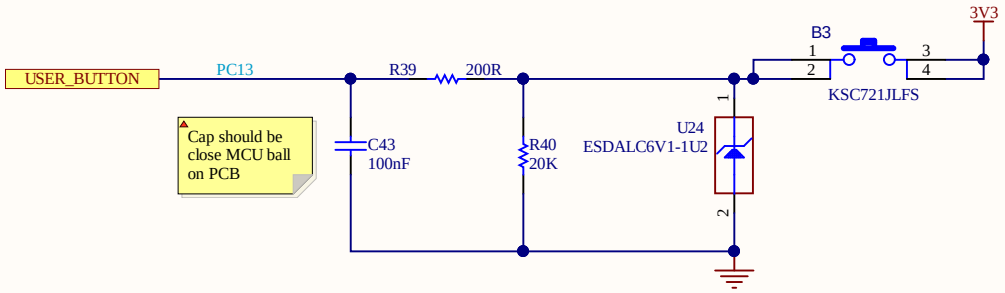
USER LEDs

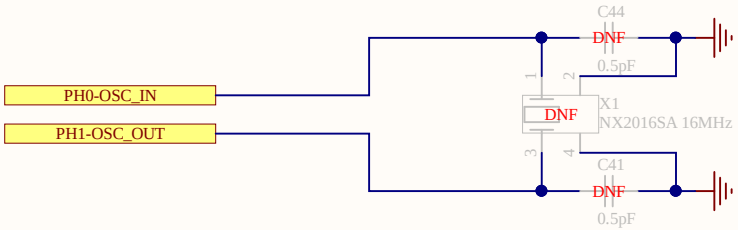


RESET FUNCTION

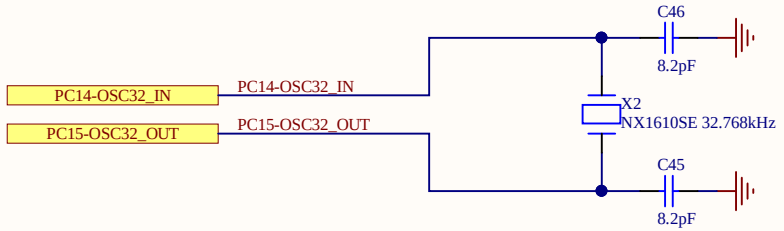




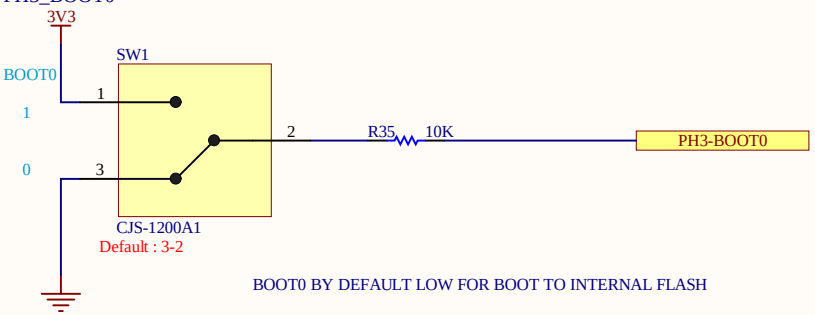
EXTERNAL HSE CLK



EXTERNAL LSE CLK



PH3_BOOT0



BOOT0 BY DEFAULT LOW FOR BOOT TO INTERNAL FLASH

Title: **MCU_CLOCK_&_RESET**		
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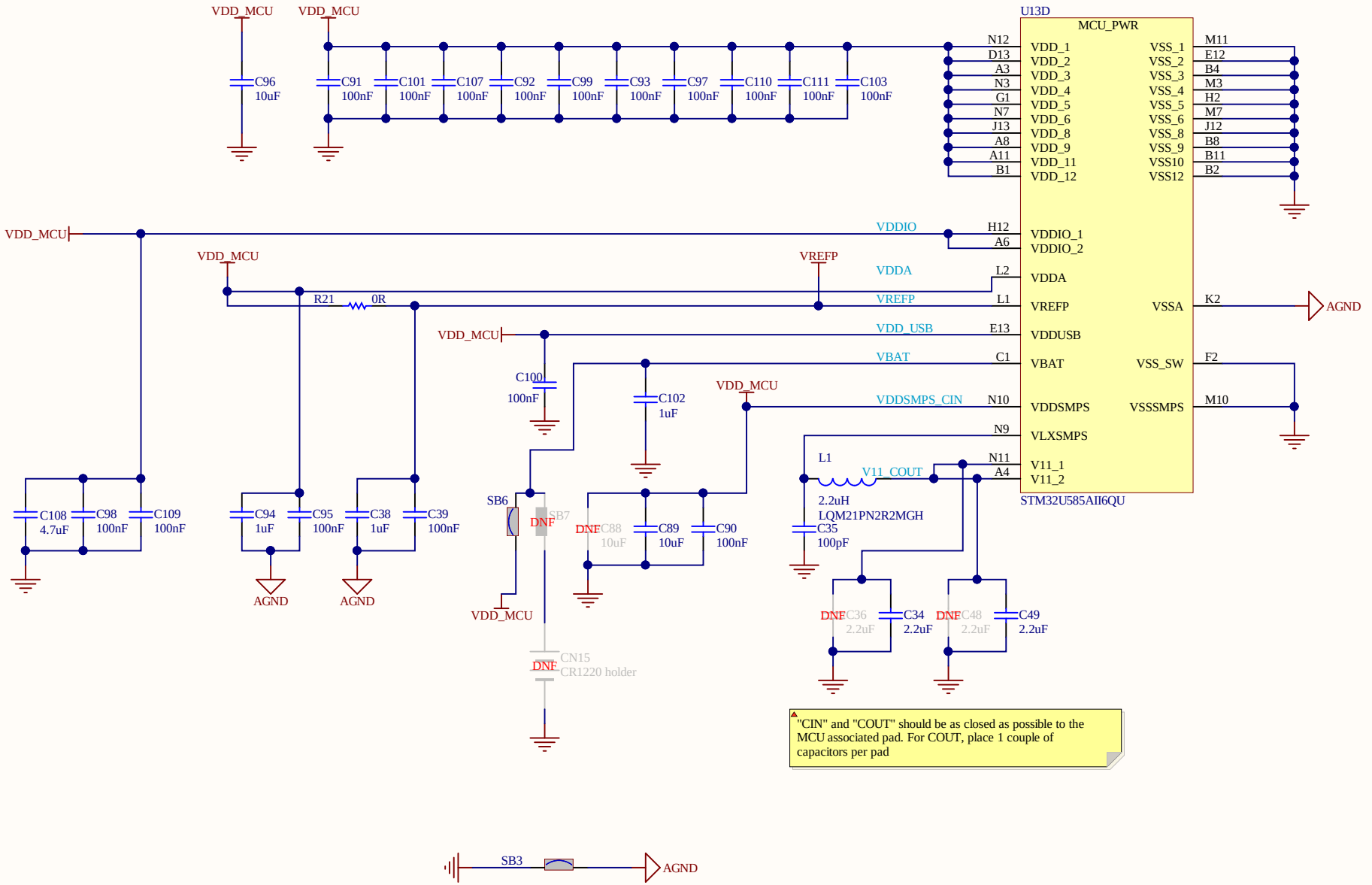
life.augmented

MCU PWR SUPPLIES

MCU DECAPS
Ceramic capacitor (Low ESR, ESR<1ohm)



Title: **MCU PWR**		
Project: **B-U585I-IOT02A**		
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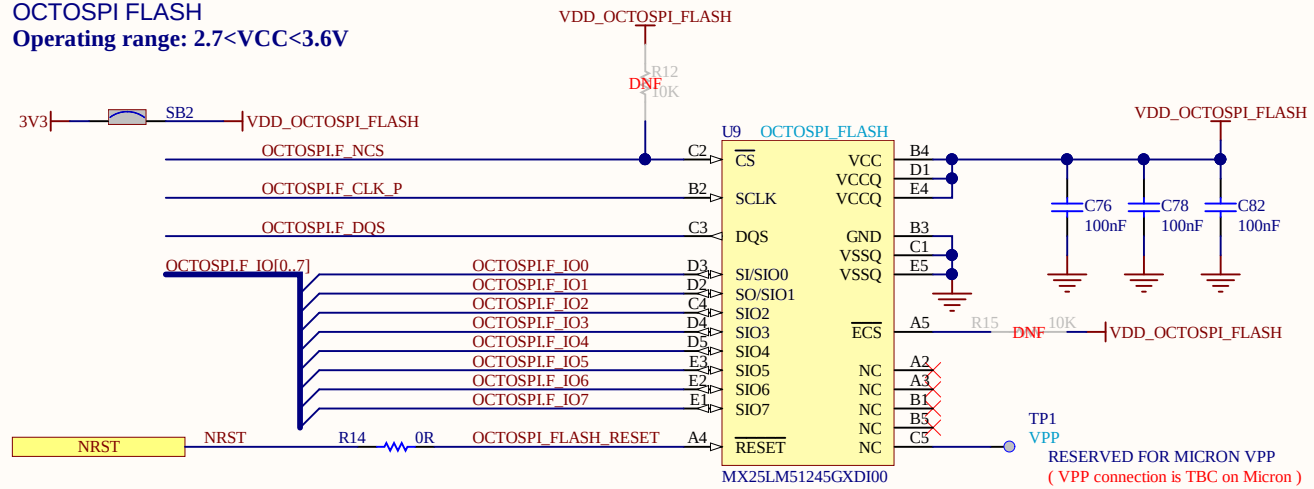
OCTOSPI FLASH

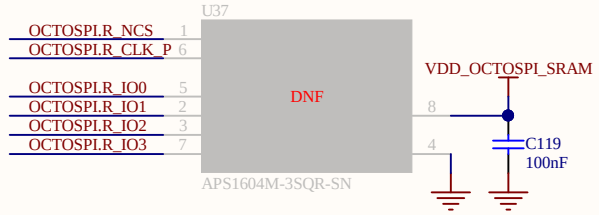
Operating range: 2.7<VCC<3.6V



(RESET pins of Flash have internal pull-up by default)

OCTOSPI bus should be routed in 50 ohm +/- 15%

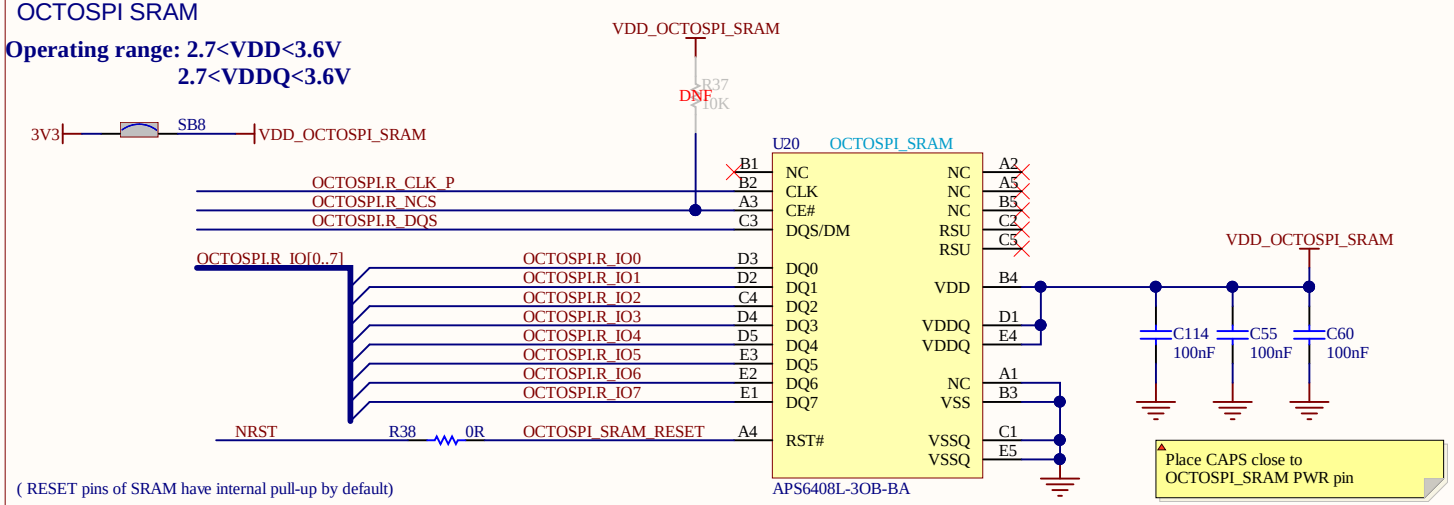
QUAD SRAM



add the footprint to support APMemory QSPI in package SO8

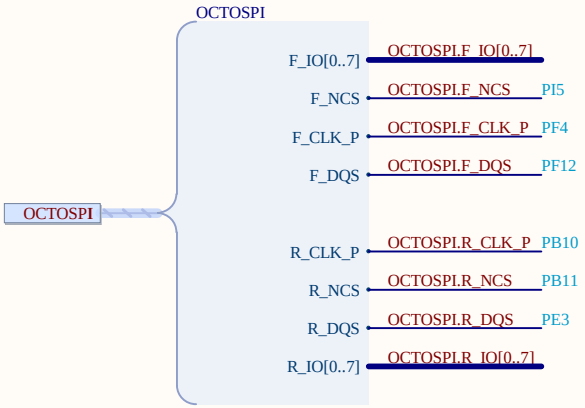
OCTOSPI SRAM

Operating range: 2.7<VDD<3.6V
2.7<VDDQ<3.6V



(RESET pins of SRAM have internal pull-up by default)

OCTOSPI bus should be routed in 50 ohm +/- 15%



Title: **OCTOSPI**		
Project: **B-U585I-IOT02A**		
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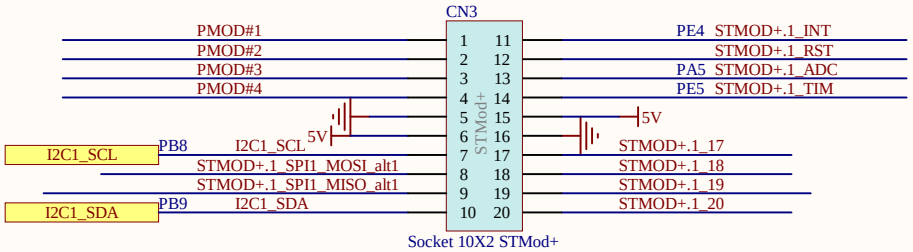
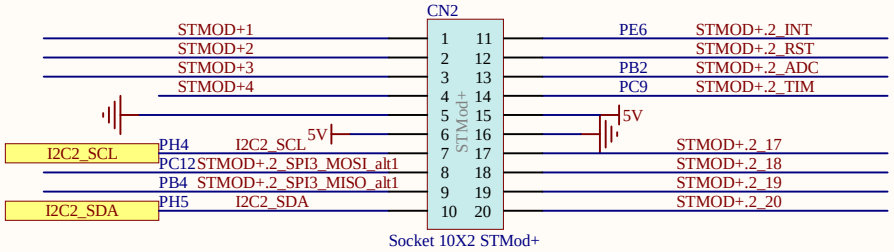
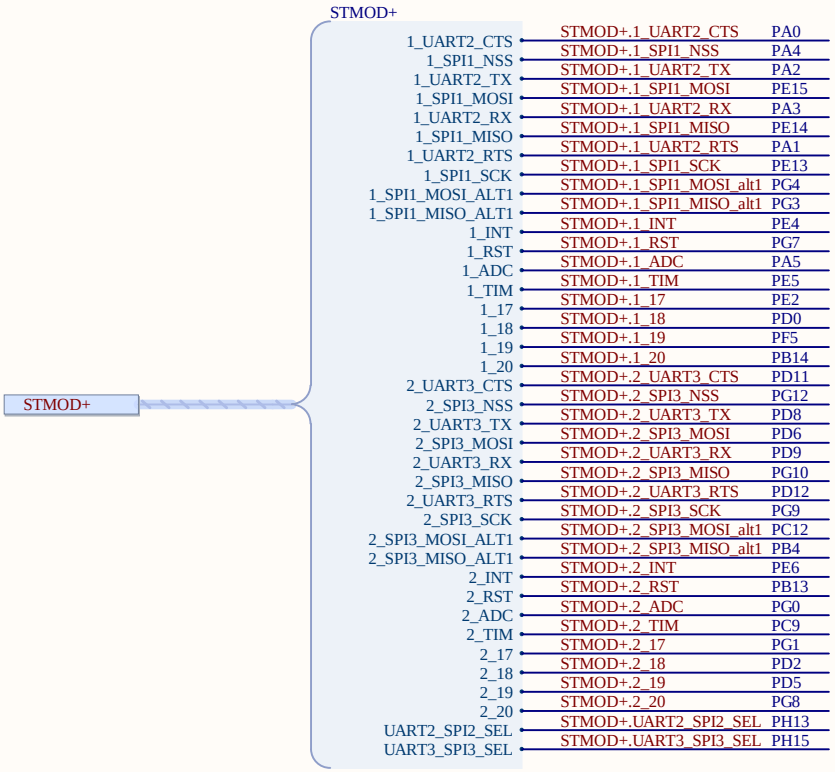
life.augmented

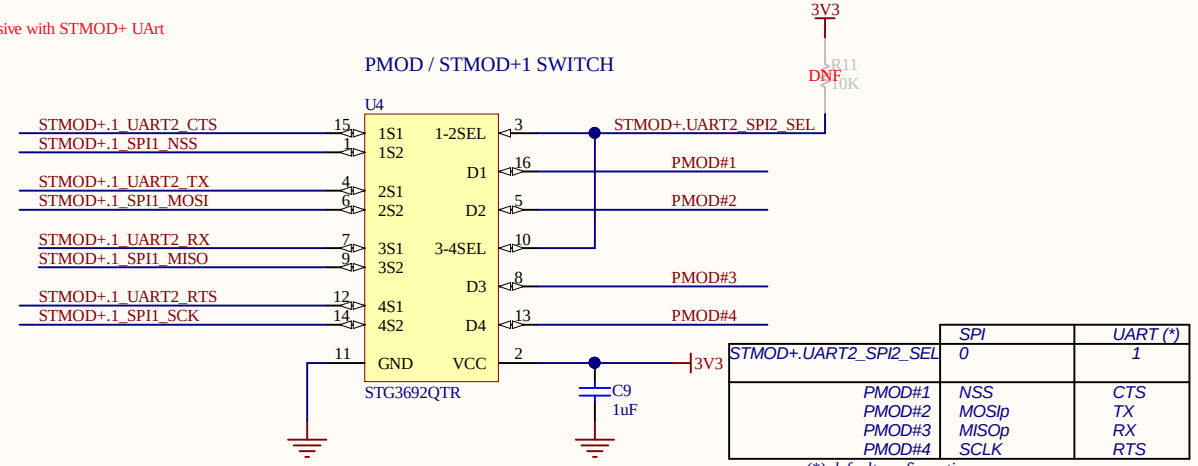
LIMITATION: Arduino UART exclusive with STMOD+ UArt







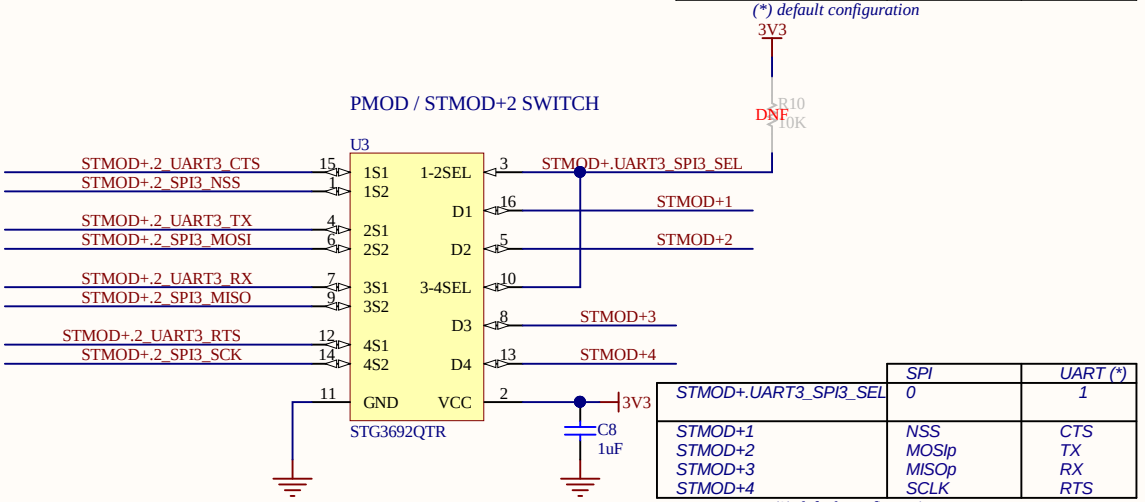
PMOD / STMOD+1 SWITCH



STMOD+.UART2_SPI2_SEL	SPI	UART (*)
	0	1
PMOD#1	NSS	CTS
PMOD#2	MOSIp	TX
PMOD#3	MISOp	RX
PMOD#4	SCLK	RTS

(*) default configuration

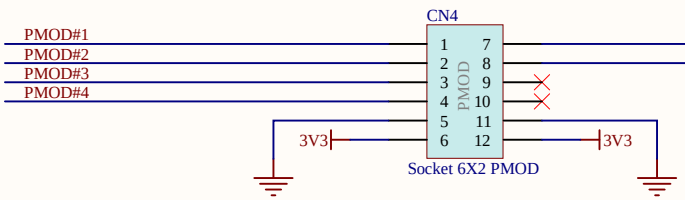
PMOD / STMOD+2 SWITCH



STMOD+.UART3_SPI3_SEL	SPI	UART (*)
	0	1
STMOD+1	NSS	CTS
STMOD+2	MOSIp	TX
STMOD+3	MISOp	RX
STMOD+4	SCLK	RTS

(*) default configuration

PMOD



Title: **STMod+**		
Project: **B-U585I-IOT02A**		
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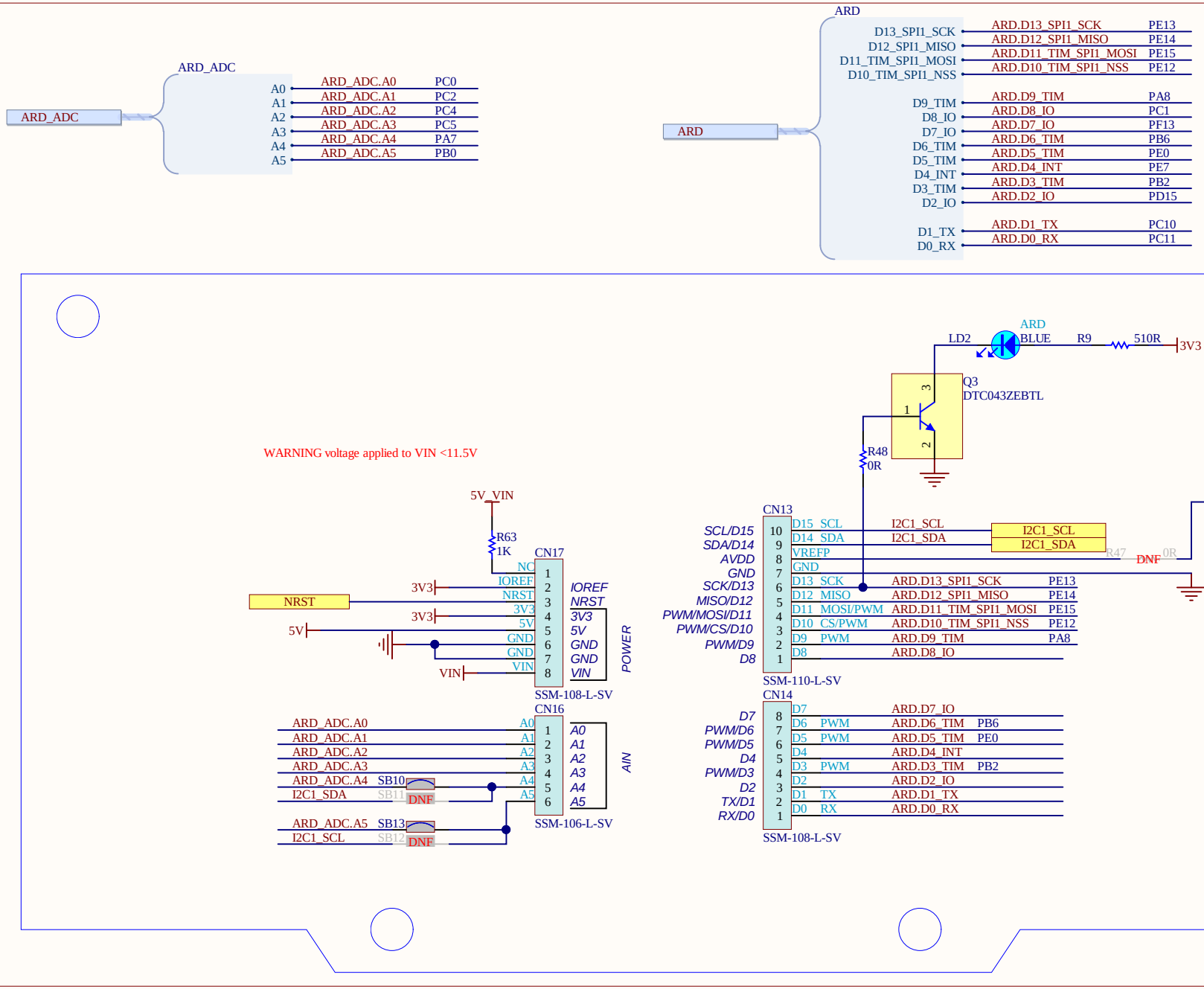
life.augmented

ARDUINO



Title: **ARDUINO**		
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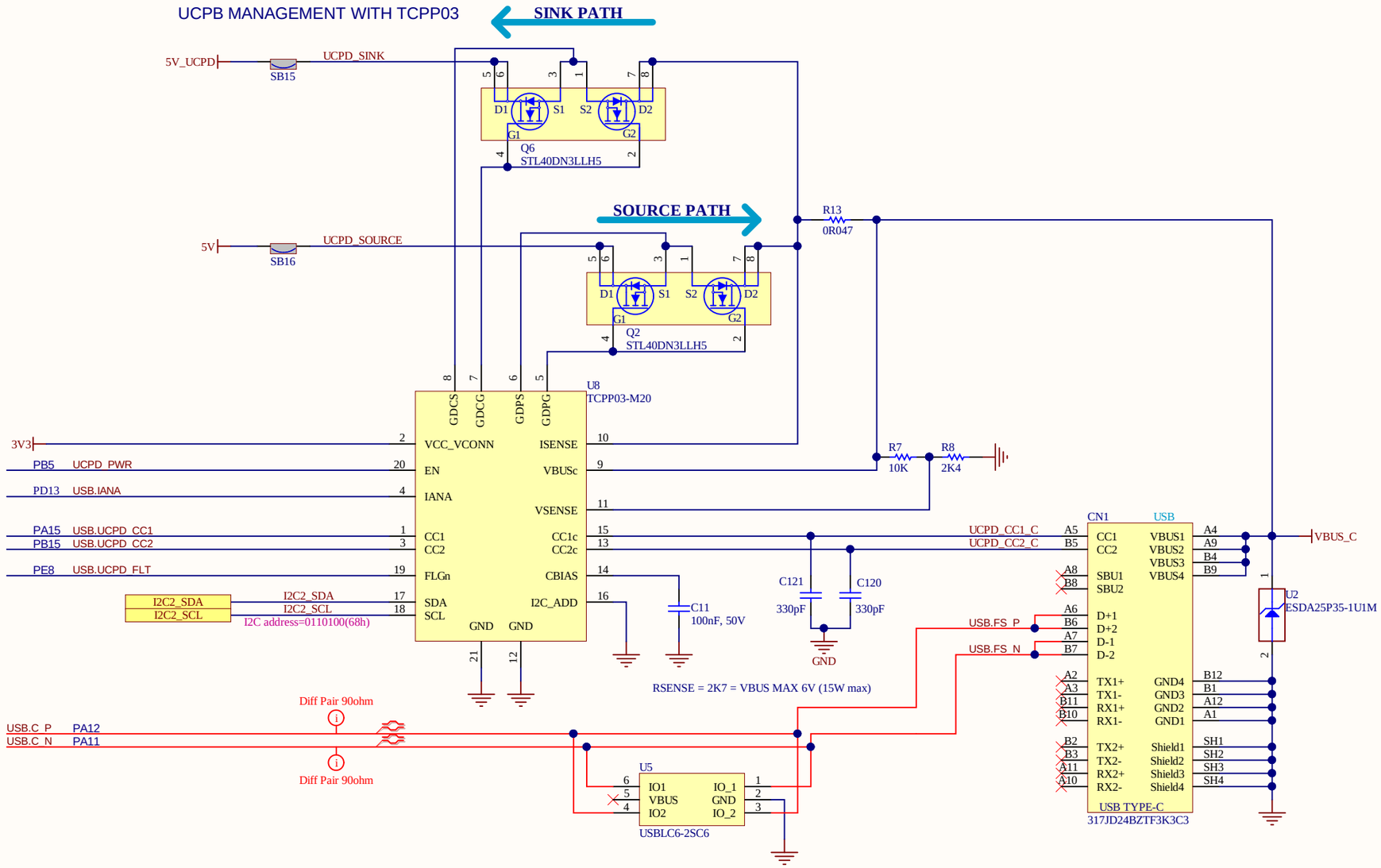
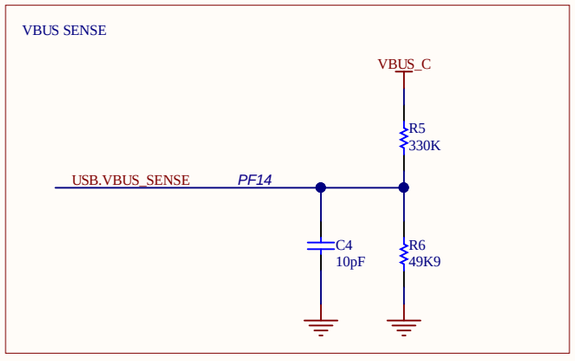
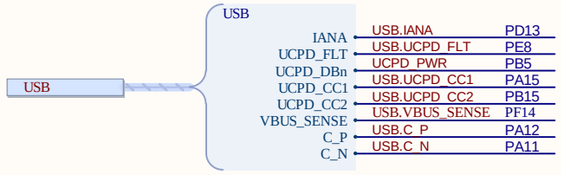
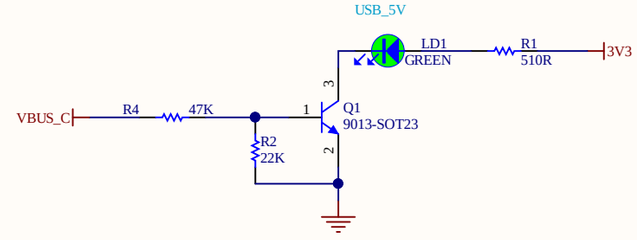
life.augmented

SINK and SOURCE









Title: **USB TYPE C**		
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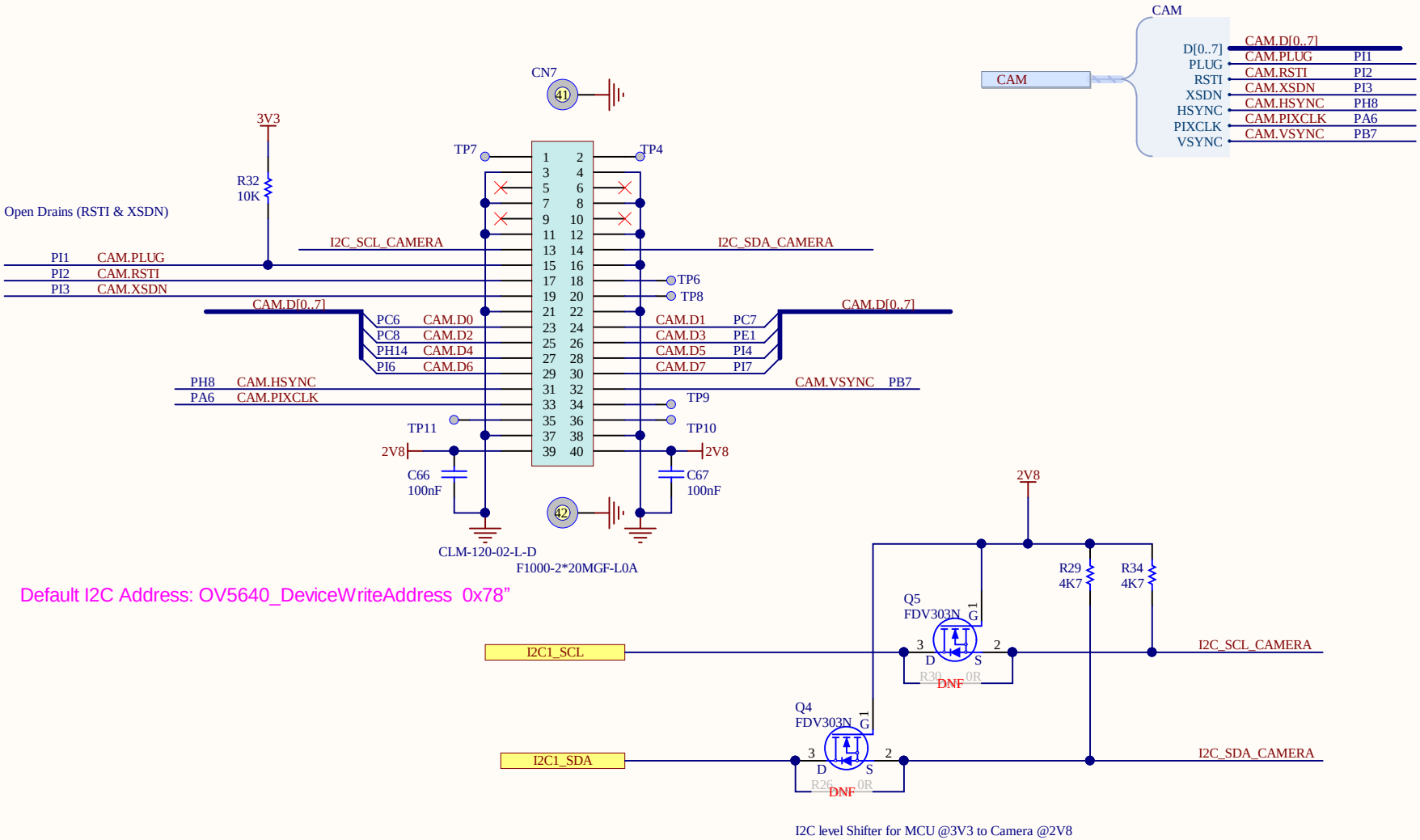
life.augmented

CAMERA MODULE CONNECTOR

Operating range: 2.8<VDD<3.6V



OCTOSPI bus should be routed in 50 ohm +/- 15%

Title: **CAMERA**		
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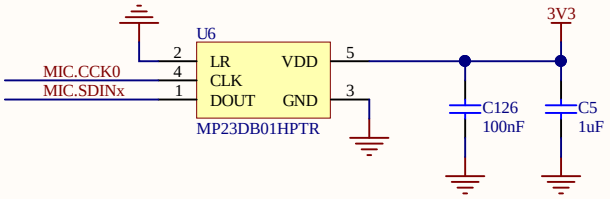
life.augmented

AUDIO MEMS

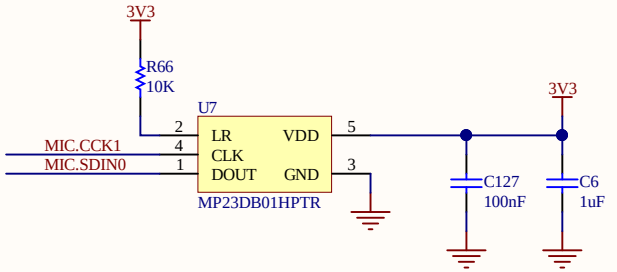
Operating range: 1.64<VDD<3.6V

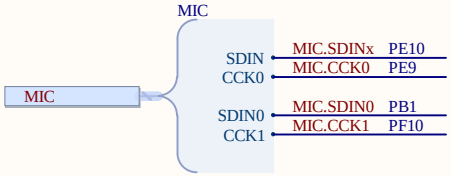
MDF&ADF INTERFACE



Operating range: 1.64<VDD<3.6V

MDF INTERFACE





Title: **AUDIO**		
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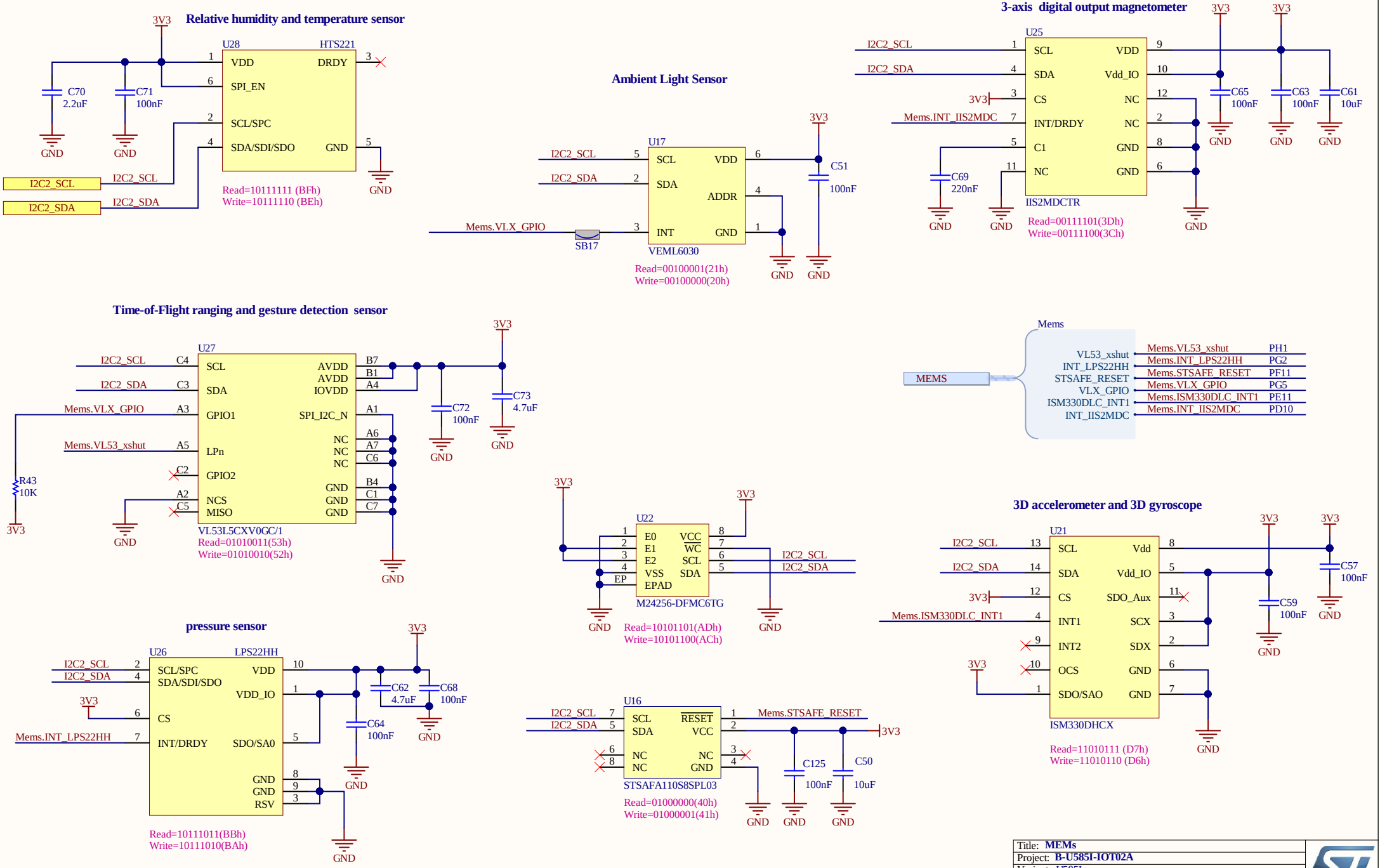
life.augmented


Relative humidity and temperature sensor
U28
HTS221
VDD
DRDY
SPI_EN
SCL/SPC
SDA/SDI/SDO
GND
C70
2.2uF
C71
100nF
I2C2_SCL
I2C2_SDA
Read=10111111 (BFh)
Write=10111110 (BEh)
Ambient Light Sensor
U17
SCL
SDA
VDD
ADDR
INT
GND
Mems.VLX_GPIO
SB17
C51
100nF
VEML6030
Read=00100001(21h)
Write=00100000(20h)
3-axis digital output magnetometer
U25
SCL
SDA
CS
INT/DRDY
C1
NC
VDD
Vdd_IO
NC
NC
GND
GND
Mems.INT_IIS2MDC
C65
100nF
C63
100nF
C61
10uF
C69
220nF
IIS2MDCTR
Read=00111101(3Dh)
Write=00111100(3Ch)
Time-of-Flight ranging and gesture detection sensor
U27
SCL
SDA
GPIO1
LPn
GPIO2
NCS
MISO
AVDD
AVDD
IOVDD
SPI_I2C_N
NC
NC
NC
GND
GND
GND
Mems.VL53_xshut
R43
10K
C72
100nF
C73
4.7uF
VL53L5CXV0GC/1
Read=01010011(53h)
Write=01010010(52h)
Mems
MEMS
VL53_xshut
INT_LPS22HH
STSAFE_RESET
VLX_GPIO
ISM330DLC_INT1
INT_IIS2MDC
Mems.VL53_xshut
Mems.INT_LPS22HH
Mems.STSAFE_RESET
Mems.VLX_GPIO
Mems.ISM330DLC_INT1
Mems.INT_IIS2MDC
PH1
PG2
PF11
PG5
PE11
PD10
U22
E0
E1
E2
VSS
EP
VCC
WC
SCL
SDA
EPAD
M24256-DFMC6TG
Read=10101101(ADh)
Write=10101100(ACh)
3D accelerometer and 3D gyroscope
U21
SCL
SDA
CS
INT1
INT2
OCS
SDO/SAO
Vdd
Vdd_IO
SDO_Aux
SCX
SDX
GND
GND
C59
100nF
C57
100nF
ISM330DHCX
Read=11010111 (D7h)
Write=11010110 (D6h)
pressure sensor
U26
LPS22HH
SCL/SPC
SDA/SDI/SDO
CS
INT/DRDY
SDO/SA0
VDD
VDD_IO
GND
GND
RSV
C62
4.7uF
C68
100nF
C64
100nF
Read=10111011(BBh)
Write=10111010(BAh)
U16
SCL
SDA
NC
NC
RESET
VCC
NC
GND
Mems.STSAFE_RESET
C125
100nF
C50
10uF
STSAFA110S8SPL03
Read=01000000(40h)
Write=01000001(41h)
Title: MEMs
Project: B-U585I-IOT02A
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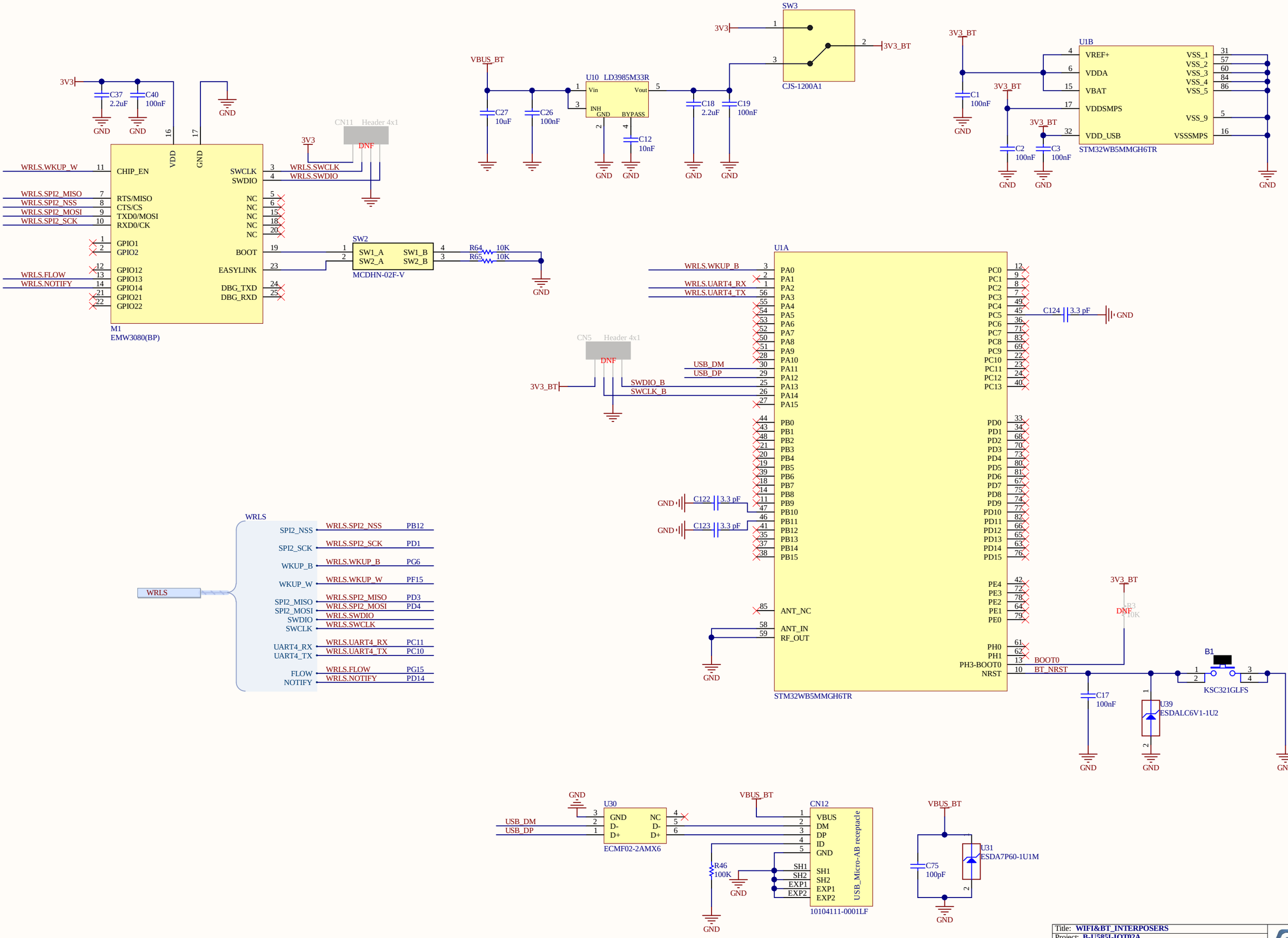

Title: **WIFI&BT_INTERPOSERS**		
Project: **B-U585I-IOT02A**		
Variant: U585I		
Revision: C-02		Reference: MB1551
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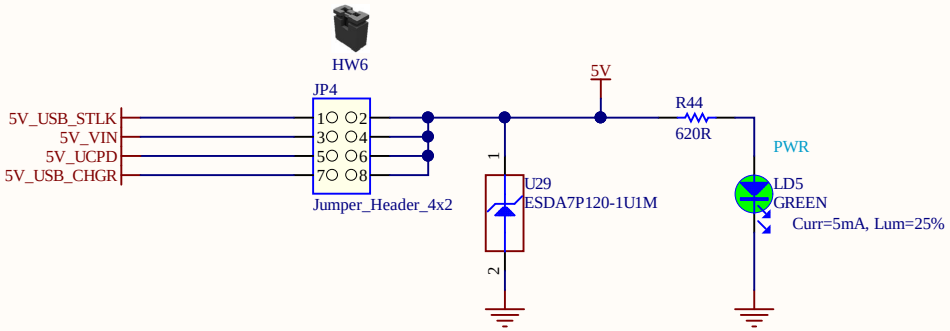
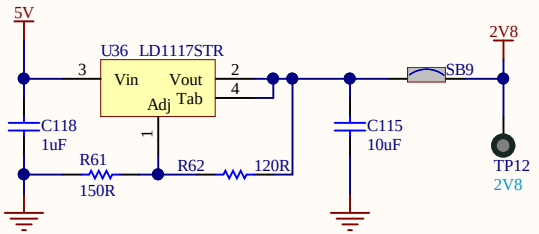
5V PWR SOURCE SELECTION

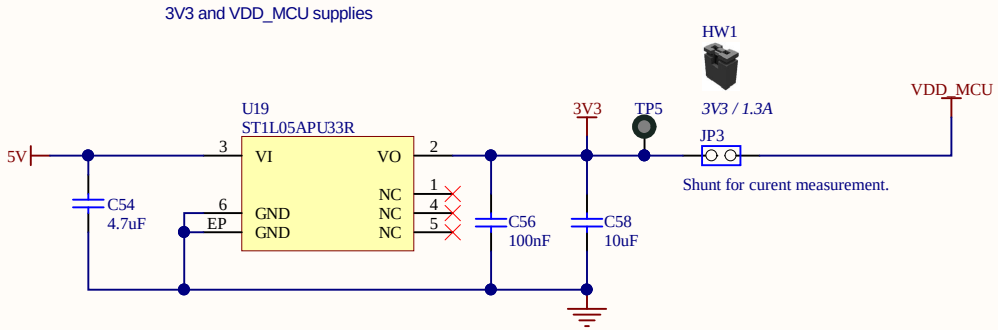


2V8_LDO: CAMERA

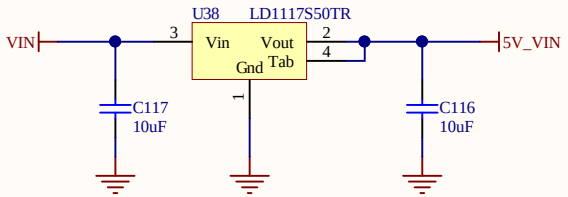
2V8 / 800mA



3V3 PWR SOURCE: 3V3 / 1300mA



VIN FROM ARDUINO up to 12V: OUTPUT 5V / Up to 800mA (depend of VIN)



Title: **BOARD_PWR**		
Project: **B-U585I-IOT02A**		
Variant: U585I		
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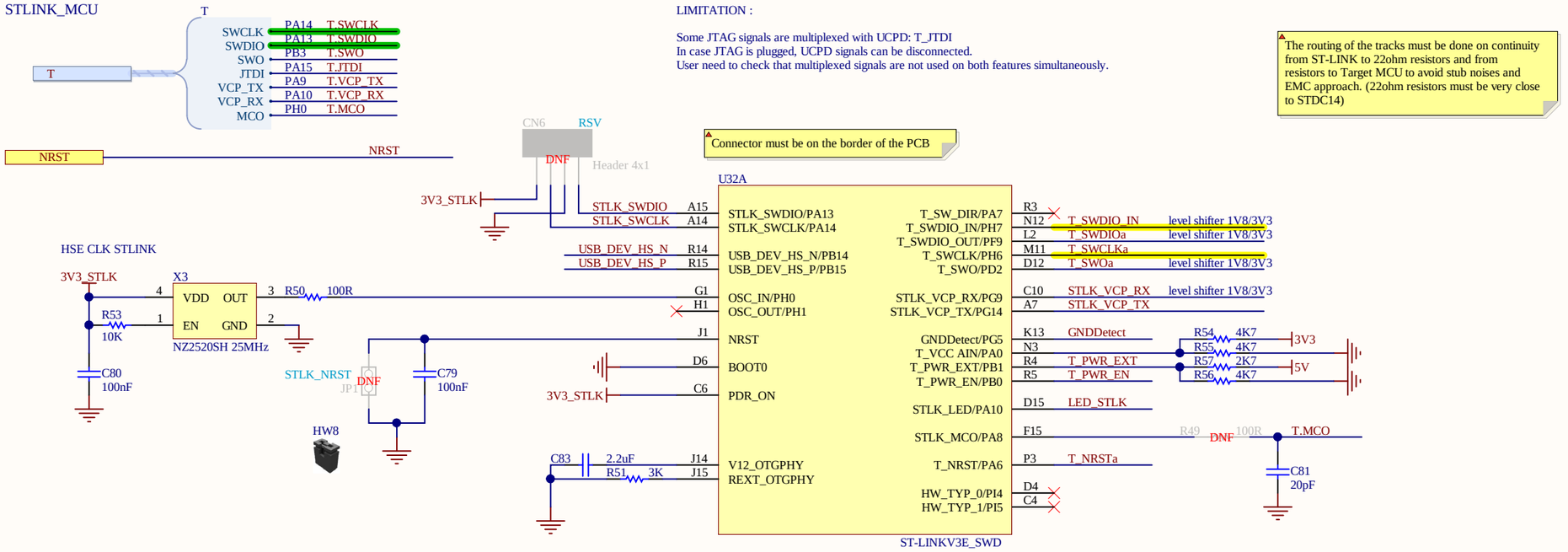
STLINK_MCU



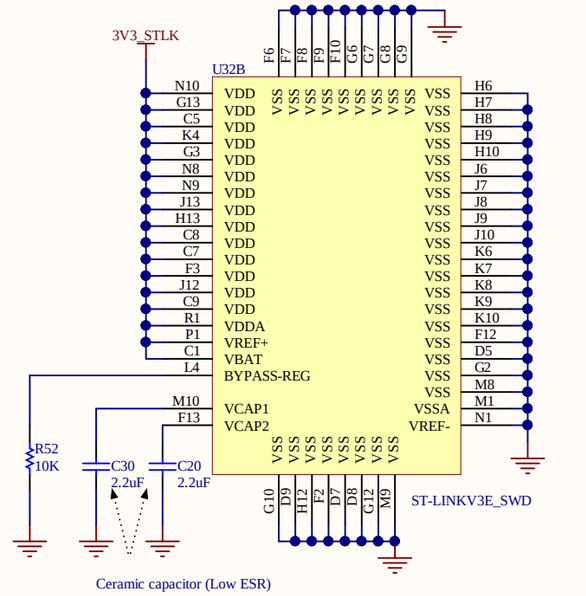
LIMITATION :

Some JTAG signals are multiplexed with UCPD: T_JTDI
In case JTAG is plugged, UCPD signals can be disconnected.
User need to check that multiplexed signals are not used on both features simultaneously.

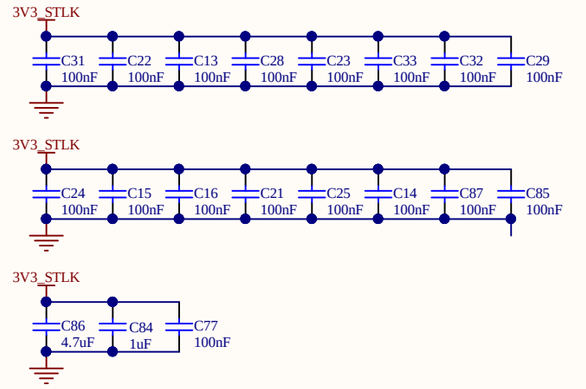
The routing of the tracks must be done on continuity from ST-LINK to 22ohm resistors and from resistors to Target MCU to avoid stub noises and EMC approach. (22ohm resistors must be very close to STDC14)

Connector must be on the border of the PCB

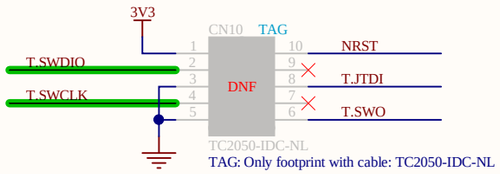
ST-LINK POWER



Ceramic capacitor (Low ESR)

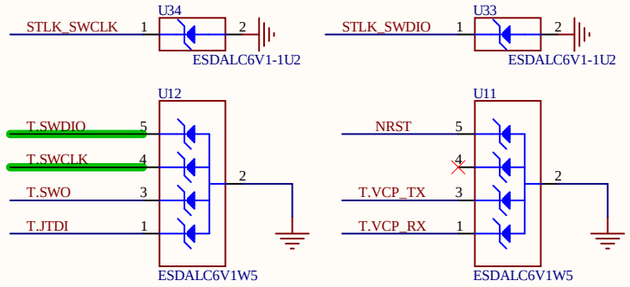


TAG CONNECTOR



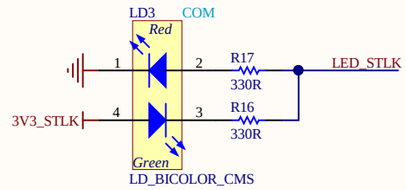
TAG: Only footprint with cable: TC2050-IDC-NL

ESD PROTECTIONS

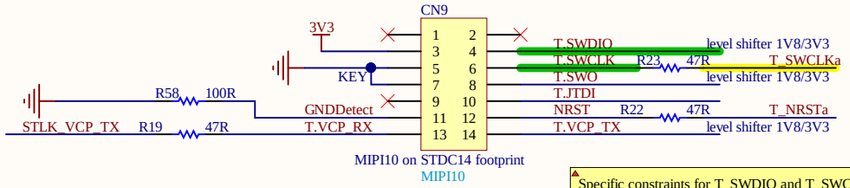


Pin attributions on ESD can be swapped for layout optimisation

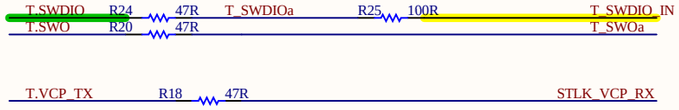
LED STLK



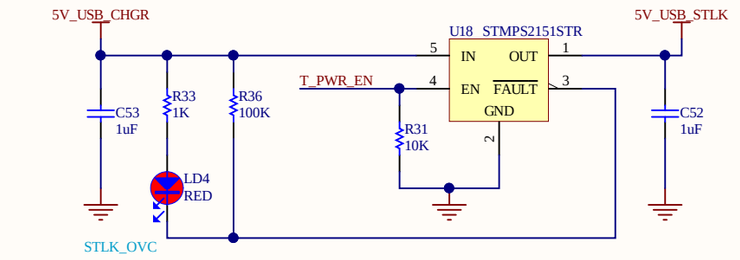
STDC14 RECEIVER



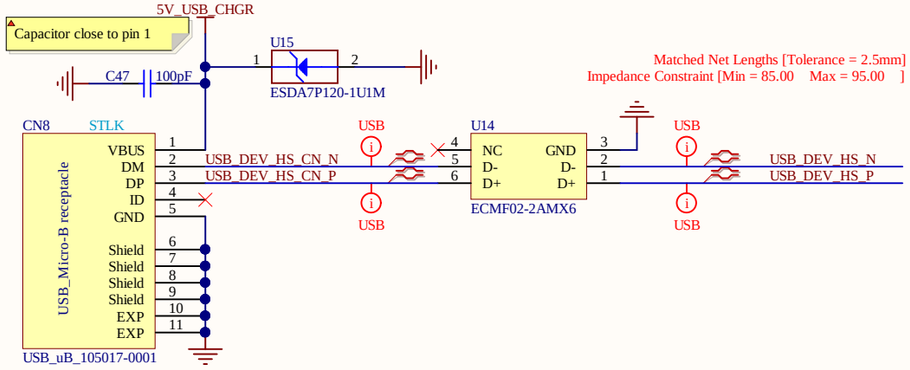
Specific constraints for T_SWDIO and T_SWCLK (must be same length and must be Shielded).



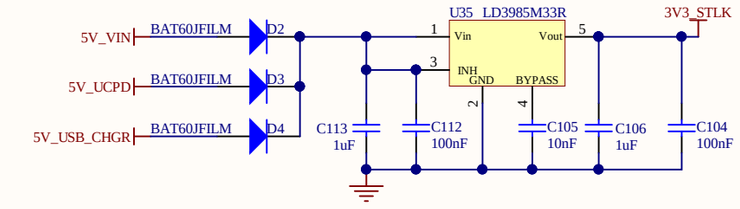
5V ST-LINK PROTECTION



ST-LINK USB CONNECTOR



ST-LINK POWER 3V3 / 150mA



Title: **ST_LINK_V3E**		
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PCB / STICKERS

HW3

DNF

HW4

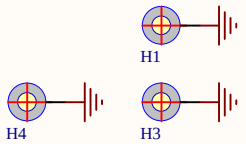
DNF

HW5

PCB

MB1551C

MECHANICAL PARTS



ADDED MODULES

Title: **MECHANICAL PART**		
Project: **B-U585I-IOT02A**		
Variant: U585I		
Revision: C-02		Reference: MB1551
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