NUCLEO-WL5JC

MB1389

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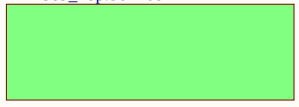
U_MB1389_Top
MB1389_Top.SchDoc



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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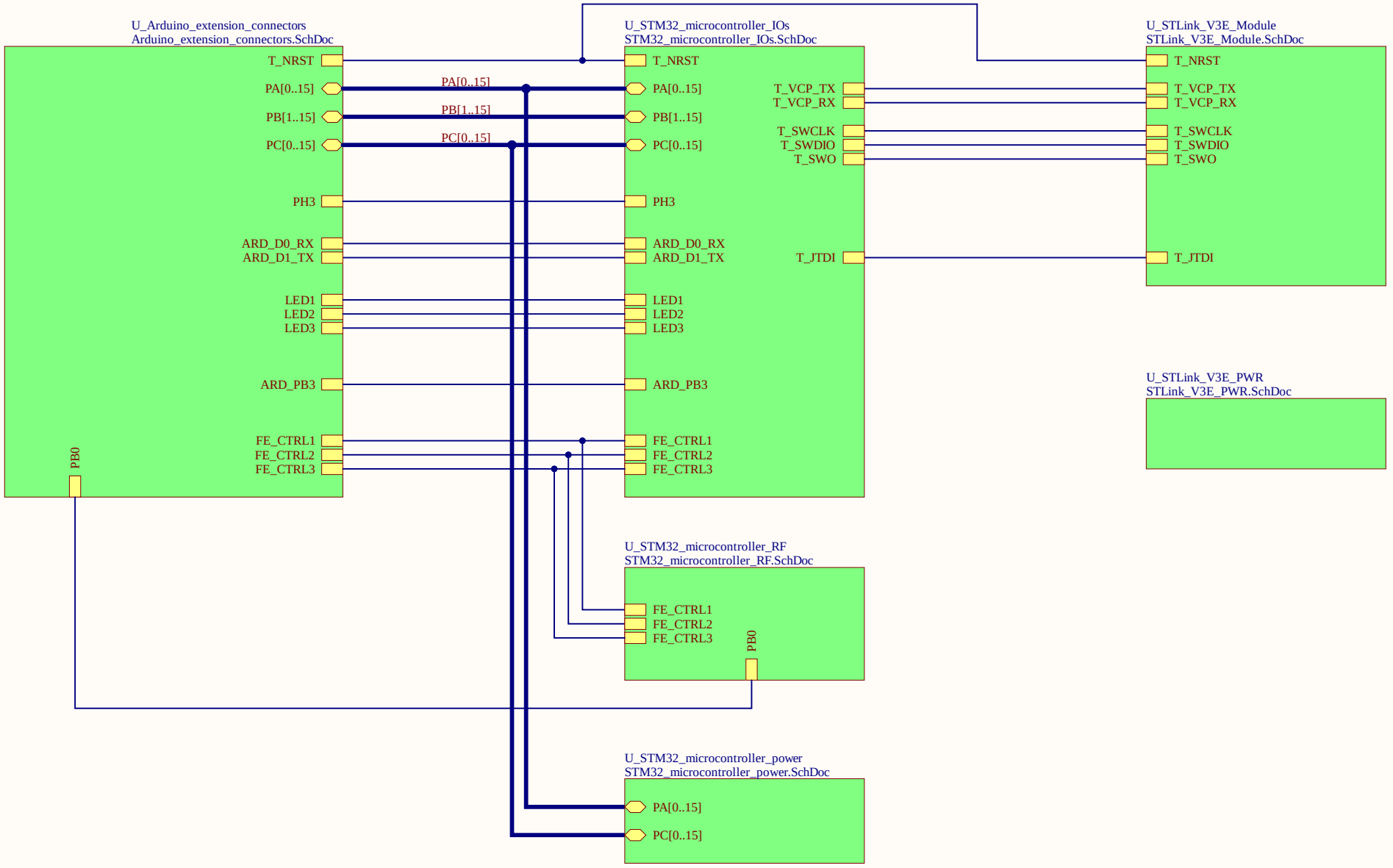
Title: **Project overview**			
Project: **NUCLEO-WL5JC**			
Variant: High-band			
Revision: D-04		Reference: MB1389	
Size: A4	Date: 2020-July-24	Sheet: 1 of 8	life.augmented



HW100
PCB
MBxxxxy

HW101
BOARD REF
MB1389D-01 syywwxxxxx

HW102
BOARD CPN
Board CPN

HW108
ES
ES

Title: **Top hierarchical view**		
Project: **NUCLEO-WL5JC**		
Variant: High-band		
Revision: D-04		Reference: MB1389
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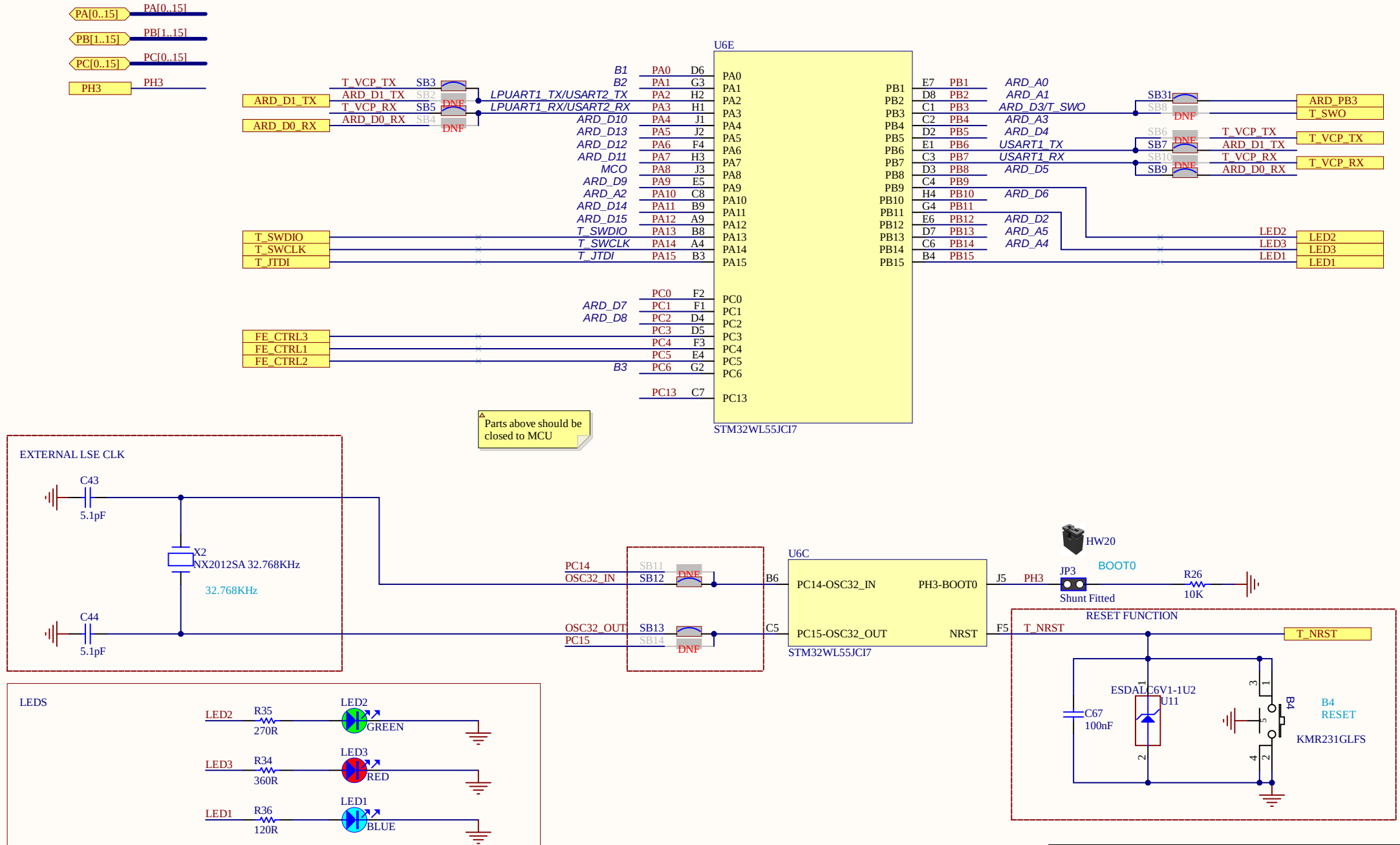
life.augmented


PA[0..15]
PB[1..15]
PC[0..15]
PH3
U6E
STM32WL55JCI7
Parts above should be closed to MCU
T_VCP_TX
ARD_D1_TX
T_VCP_RX
ARD_D0_RX
LPUART1_TX/USART2_TX
LPUART1_RX/USART2_RX
ARD_D10
ARD_D13
ARD_D12
ARD_D11
MCO
ARD_D9
ARD_A2
ARD_D14
ARD_D15
T_SWDIO
T_SWCLK
T_JTDI
ARD_D7
ARD_D8
B3
ARD_A0
ARD_A1
ARD_D3/T_SWO
ARD_A3
ARD_D4
USART1_TX
USART1_RX
ARD_D5
ARD_D6
ARD_D2
ARD_A5
ARD_A4
ARD_PB3
T_SWO
T_VCP_TX
T_VCP_RX
LED2
LED3
LED1
FE_CTRL3
FE_CTRL1
FE_CTRL2
EXTERNAL LSE CLK
C43
5.1pF
X2
NX2012SA 32.768KHz
32.768KHz
C44
5.1pF
PC14
OSC32_IN
OSC32_OUT
PC15
U6C
PC14-OSC32_IN
PC15-OSC32_OUT
PH3-BOOT0
NRST
HW20
BOOT0
JP3
Shunt Fitted
R26
10K
RESET FUNCTION
T_NRST
ESDALC6V1-1U2
U11
C67
100nF
B4
RESET
KMR231GLFS
LEDS
R35
270R
GREEN
R34
360R
RED
R36
120R
BLUE
Title: STM32 microcontroller I/Os
Project: NUCLEO-WL5JC
Variant: High-band
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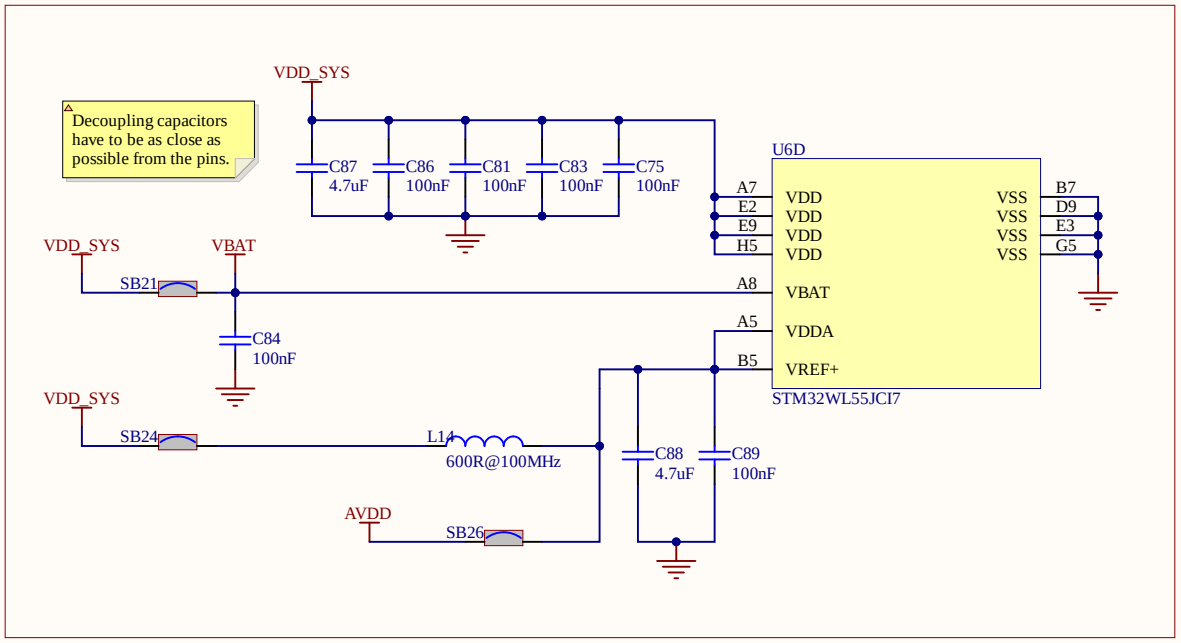
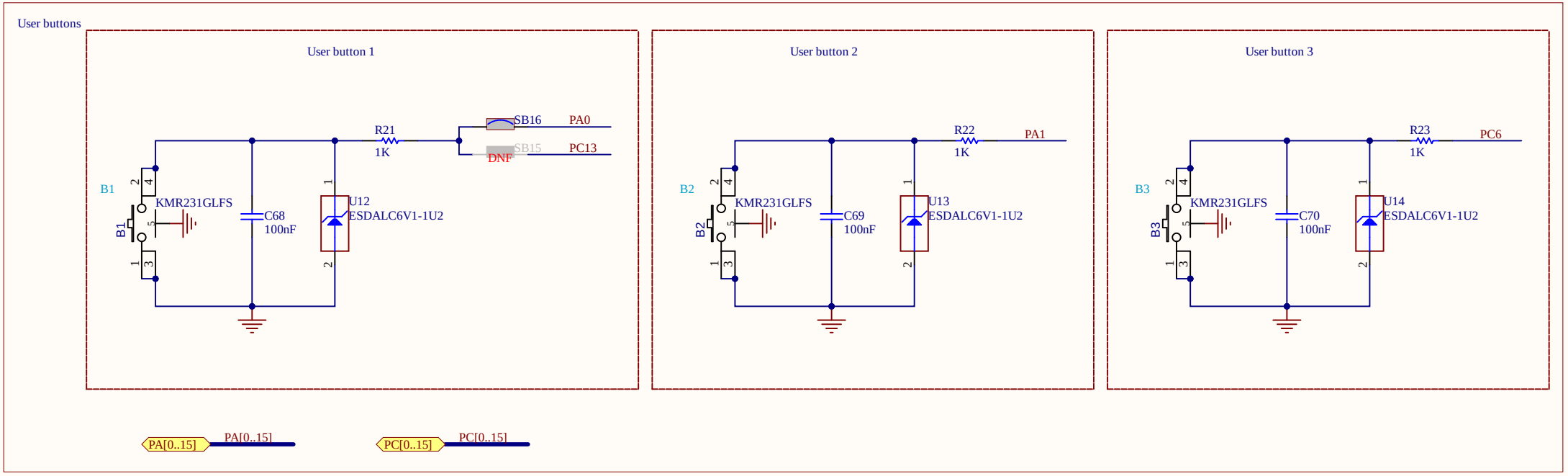
life.augmented





Title: **STM32 microcontroller power**		
Project: **NUCLEO-WL5JC**		
Variant: High-band		
Revision: D-04		Reference: MB1389
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VDD_RF
R33 close to L13 to avoid stub on VLXSMPS track
R33 0R DNF
CN13 DNF
header 2x1
U6B
VDDSMPS
VLXSMPS
VFBSMPS
VSSSMPS
STM32WL55JCI7
A2
B1
B2
A1
R32 0R
CC0603KRX5R7BB475
C35 4.7uF
C37 100nF CC0402KRX7R7BB104
15uH L13 MLZ2012M150W
C85 470nF CC0603KRX7R7BB474
SB23
SB22
PB0_VDD_TCXO
C77 100nF CC0402KRX7R7BB104
C79 47pF CC0402JRNPO9BN470
VDDRF
C82 33pF CC0402GRNPO9BN330
C93 3.3pF CC0402BRNPO9BN3R3
GJM1555C1H1R2WB01D
VDDPA
C78 33pF CC0402GRNPO9BN330
VDDRF1V55
C80 33pF CC0402GRNPO9BN330
Capacitors close to MCU
FE_CTRL1
FE_CTRL2
FE_CTRL3

RF front-end configuration	FE_CTRL1	FE_CTRL2	FE_CTRL3
Transmit high output power	Low	High	High
Transmit low output power	High	High	High
Receive	High	Low	High

VDD_APP
U3 NX3L1T3157GM
VCC
Y0
Y1
Z
SEL
GND
R37 0R
R38 0R
VDDPA
FE_CTRL1
EXTERNAL HSE CLK
TCXO Configuration
PB0_VDD_TCXO
XTA
R41 DNF 10R
C31 10pF
L12 1400R@1GHz
R2 220R
X4 32MHz
VDD OUT EN GND
NT2016SF-32M-END5875A
C27 10pF
C31 must be placed in order to avoid stubs on XTA path when C31 not fitted.
C92 1.2pF GJM1555C1H1R2WB01D
CC0402KRX7R8BB473
C74 47nF
C76 68pF CC0402JRNPO9BN680
VDD_APP
U4 NX3L1T3157GM
CC0402GRNPO9BN330
C24 33pF
LQW15AN33NG00
L7 33nH
L8 47nH LQW15AN47NJ00#
C25 33pF CC0402GRNPO9BN330
CC0402BRNPO9BN2R2
C15 2.2pF
L5 3.6nH LQW15AN3N6C10
CC0402JRNPO9BN680
C12 68pF
L3 8.7nH LQW15AN8N7H00
C22 1.2pF GJM1555C1H1R2WB01D
C11 5.6pF CC0402BRNPO9BN5R6
C7 1.2pF GJM1555C1H1R2WB01D
CC0402BRNPO9BN2R7
C16 2.7pF
L6 3nH LQW15AN3N0B00
CC0402GRNPO9BN330
C13 33pF
L4 8.7nH LQW15AN8N7H00
C21 5.6pF CC0402BRNPO9BN5R6
C14 3.3pF CC0402BRNPO9BN3R3
C8 1.3pF CC0402BRNPO9BN1R3
U6A
STM32WL55JCI7
VDDRF1V55
VDDPA
VDDRF
VSSRF
VSSRF
VSSRF
VSSRF
PB0-VDD_TCXO
OSC_IN
OSC_OUT
VR_PA
RFO_HP
RFO_LP
RFI_P
RFI_N
L9 0R RC0402JR-070RL
L10 3.3nH LQW15AN3N3C80
PB0
SB20
EXTERNAL HSE CLK (XO back-up)
C30 DNF 6.8pF
R39 0R DNF
R40 DNF 0R DNF
X3 NX2016SA 32MHz
32 MHz
C38 DNF 6.8pF
CC0402BRNPO9BN3R6
C20 3.6pF
L11 LQW15AN11NG00 11nH
C19 2.7pF CC0402BRNPO9BN2R7
DNF C17 1pF
RC0402FR-07100RL
R28 100R
C71 1nF CC0402KRX7R7BB102
R27 100R
C72 1nF CC0402KRX7R7BB102
R29 100R
C73 1nF CC0402KRX7R7BB102
SB18
U1 BGS13S4N9
V1 V2 VDD
RF3
RF2
RF1
RFin
GND DGND
SC1 SC7 SC5 SC9 SC2
SC4 SC3 SC6 SC8
S0951-46R
S0981-46R
S0911-46R
Shield clips for metal RF cavity
HW103
RF shield (17,2x17,2x3mm)
CN12
GND GND RF GND GND
SMA-J-P-H-ST-EM1
LQW15AN8N7H00
L2 8.7nH
C5 3.3pF CC0402BRNPO9BN3R3
C6 3.3pF CC0402BRNPO9BN3R3
C2 33pF CC0402GRNPO9BN330

Title:	**STM32 microcontroller RF**
Project:	**NUCLEO-WL5JC**
Variant:	High-band
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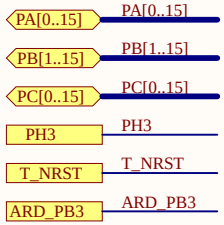
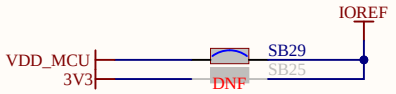
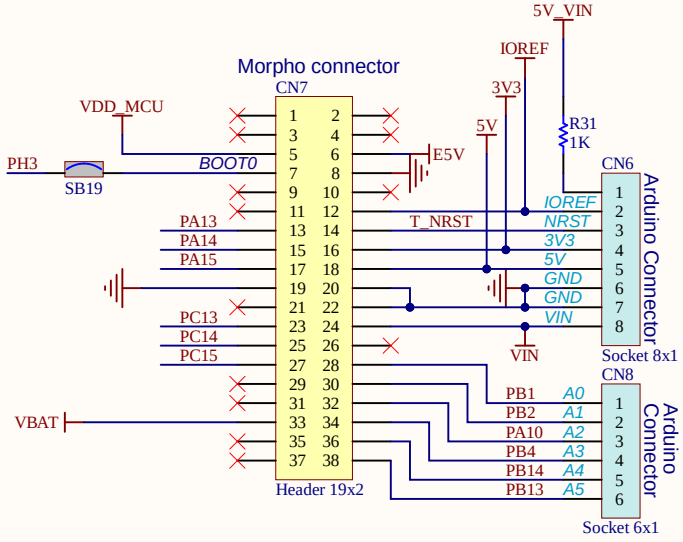
life.augmented

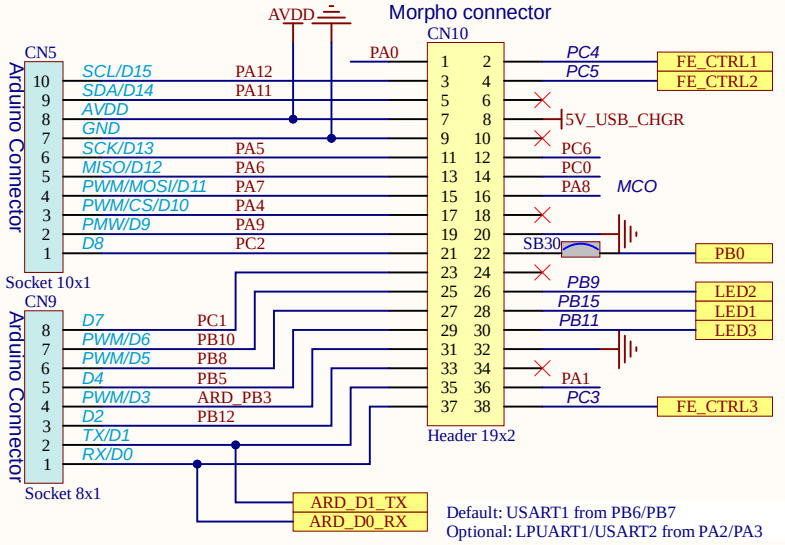


WARNING voltage applied to VIN <11.5V





MCU



Title: **Arduino & Morpho extension connectors**			
Project: **NUCLEO-WL5JC**			
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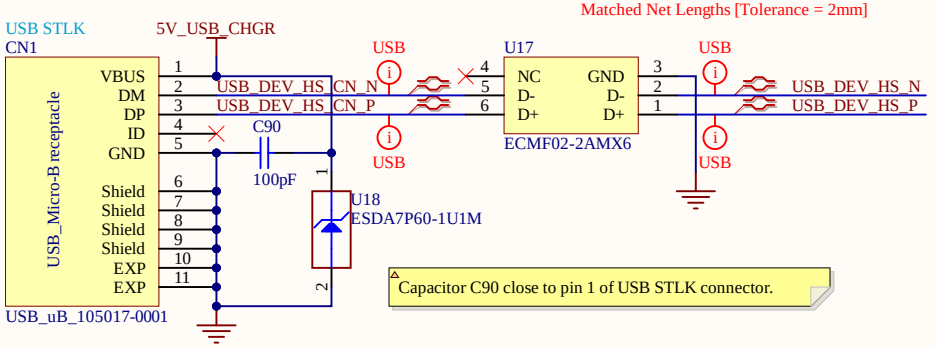
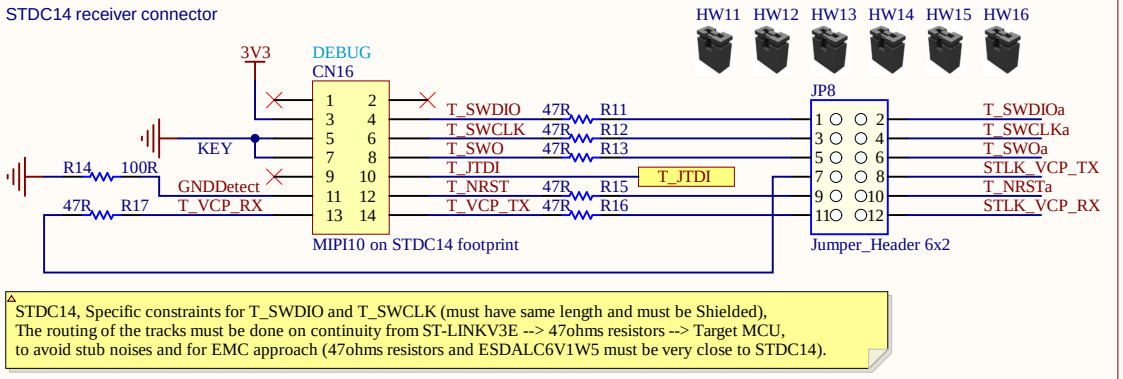
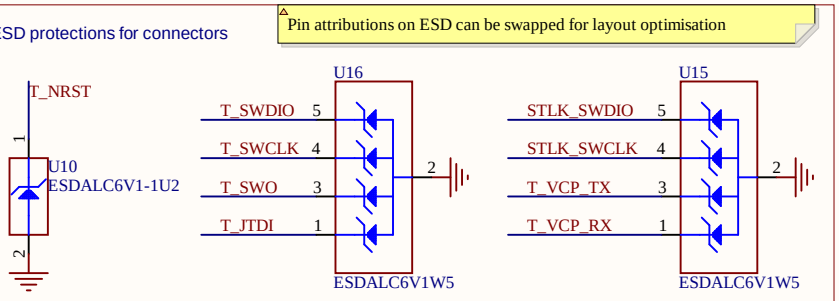
STLK USB HS & 5V USB charger



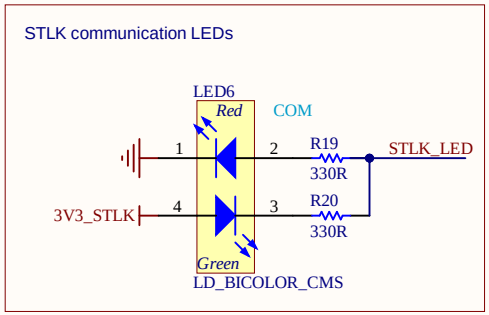
STDC14 receiver connector



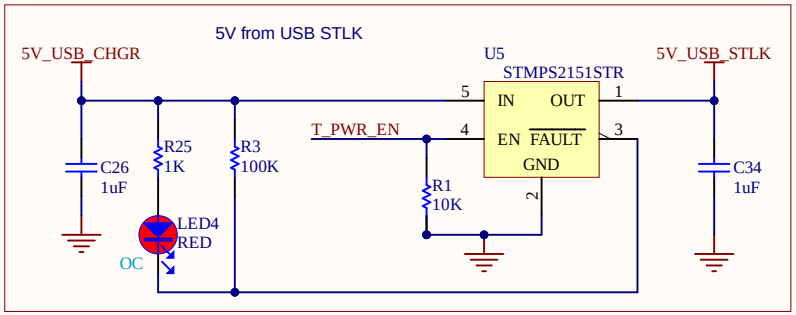
ESD protections for connectors



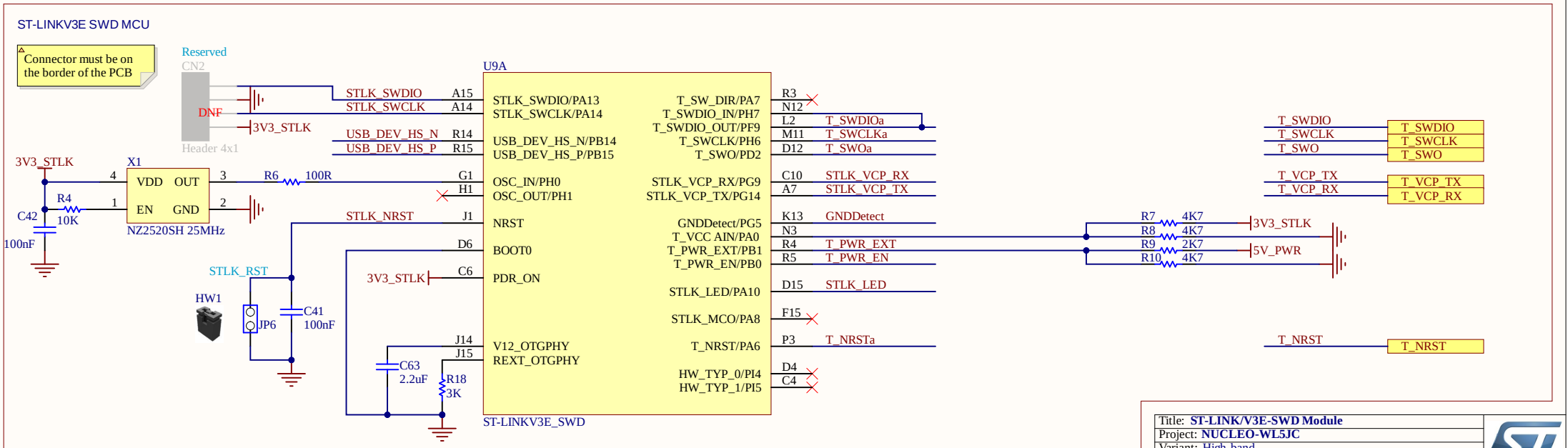
STLK communication LEDs



5V from USB STLK



ST-LINKV3E SWD MCU



Title: **ST-LINK/V3E-SWD Module**		
Project: **NUCLEO-WL5JC**		
Variant: High-band		
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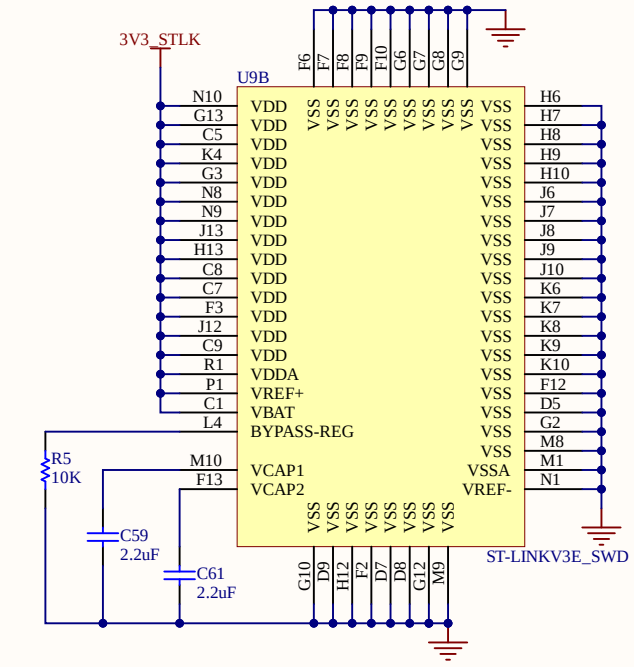
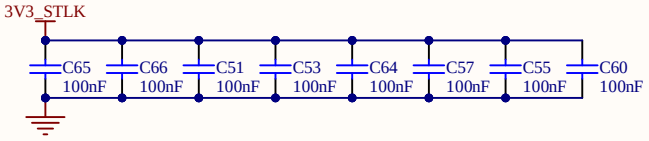
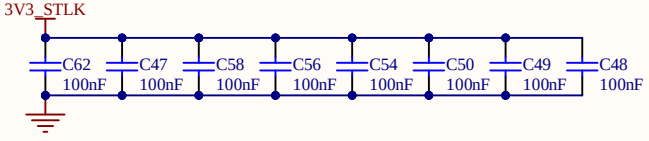
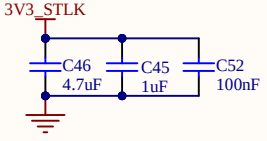
ST-LINKV3E SWD MCU POWER

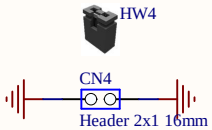




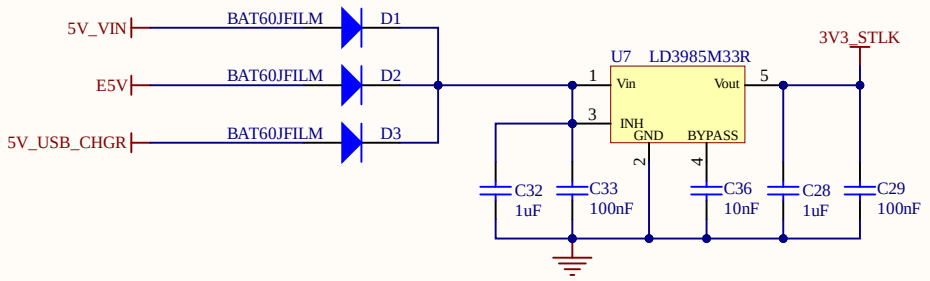




GND

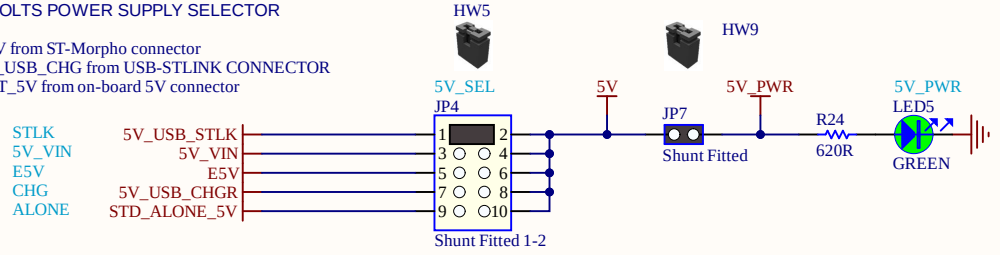


3.3 VOLTS POWER SUPPLY FOR ST-LINK



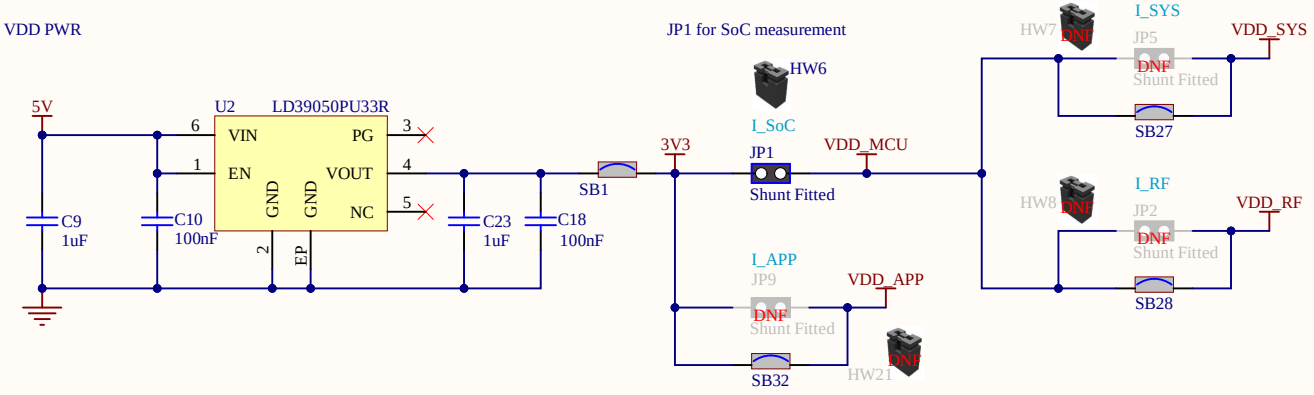
5 VOLTS POWER SUPPLY SELECTOR

E5V from ST-Morpho connector
5V_USB_CHG from USB-STLINK CONNECTOR
EXT_5V from on-board 5V connector

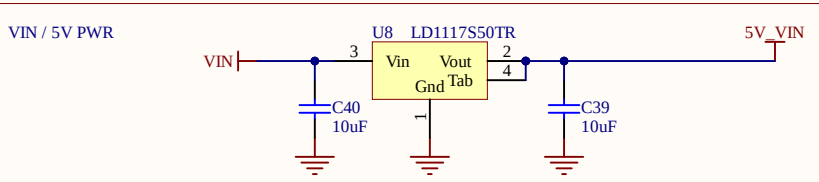


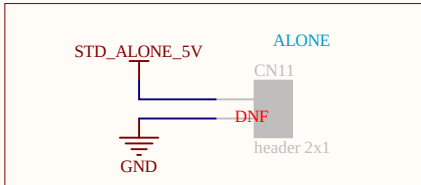
VDD PWR

JP1 for SoC measurement



VIN / 5V PWR





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Project: **NUCLEO-WL5JC**		
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