NUCLEO-64

MB1814

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Sheet 7: USB User

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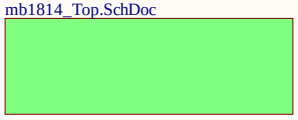
U_mb1814_Top
mb1814_Top.SchDoc



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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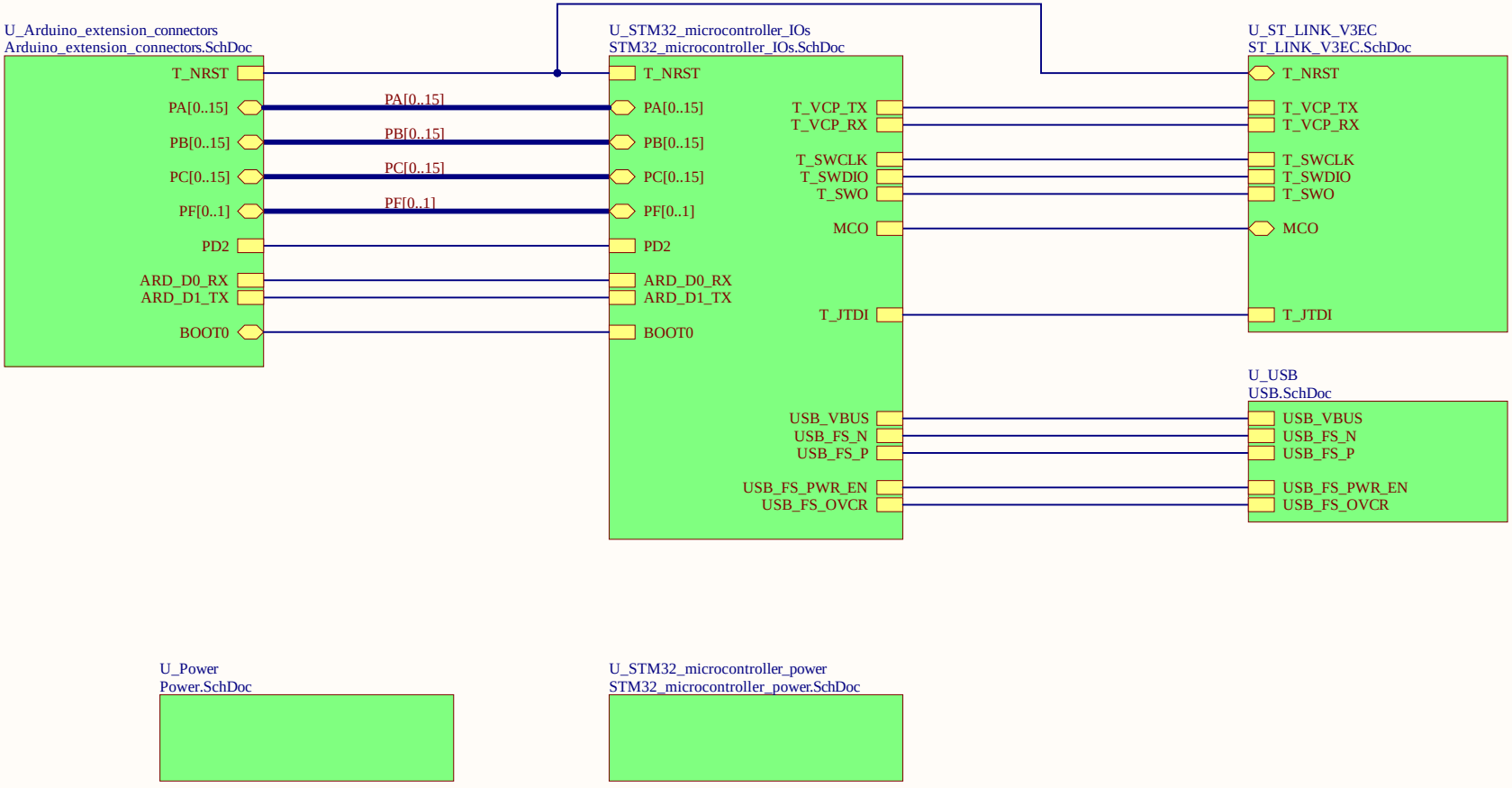
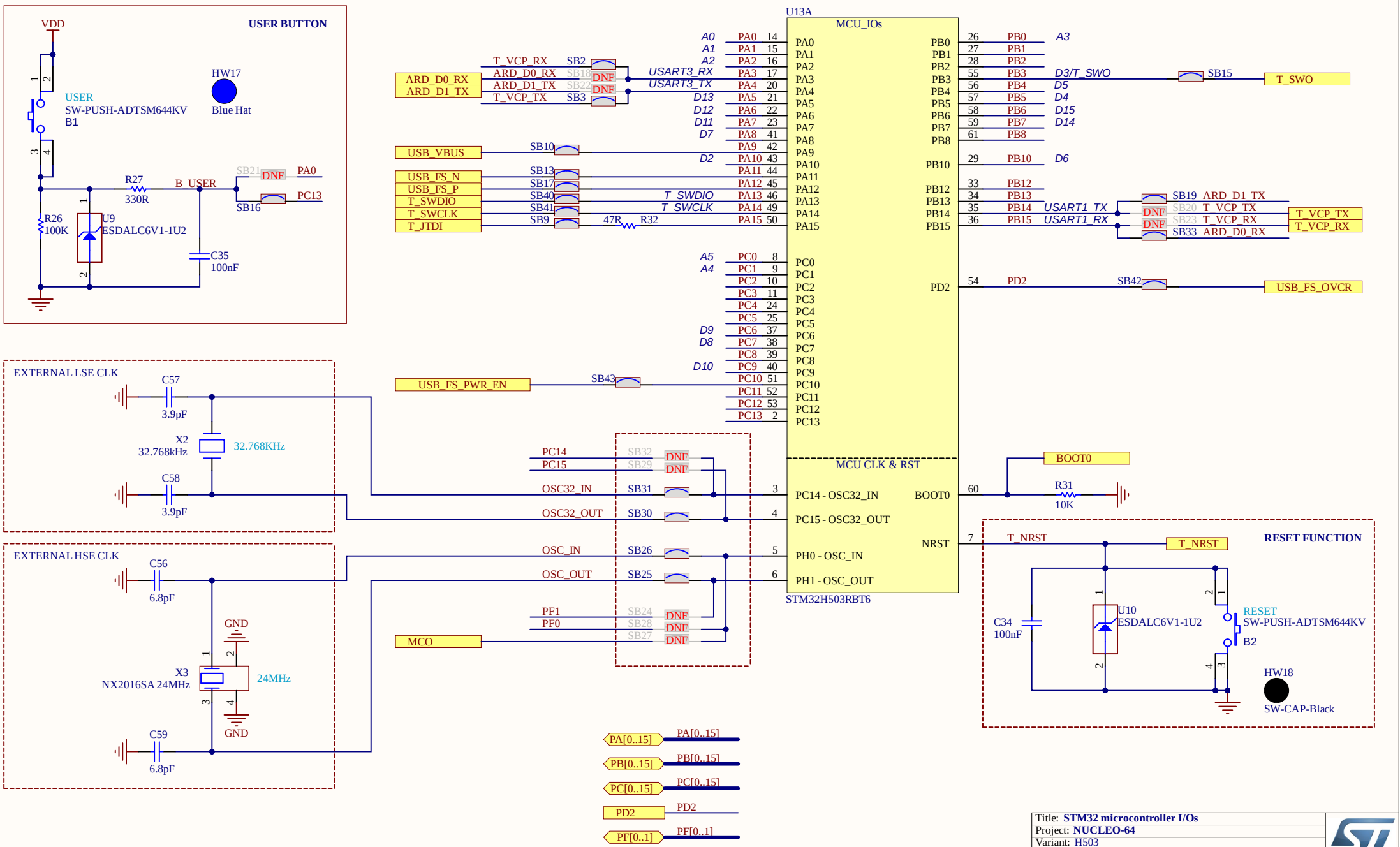
Title: **Project overview**			
Project: **NUCLEO-64**			
Variant: H503			
Revision: B-01		Reference: MB1814	
Size: A4	Date: 23-FEB-07	Sheet: 1 of 8	

life.augmented

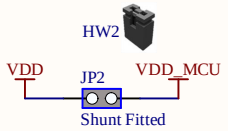


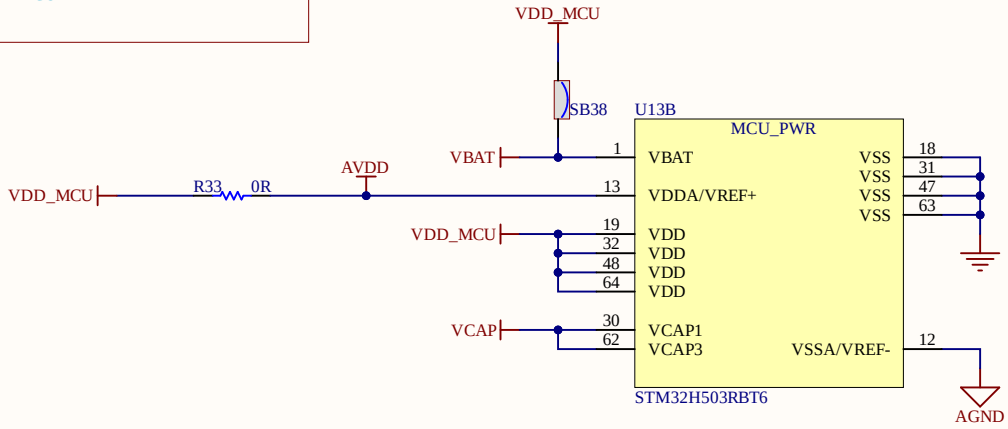
Title: **Top hierarchical view**		
Project: **NUCLEO-64**		
Variant: H503		
Revision: B-01		Reference: MB1814
Size: A4	Date: 23-FEB-07	Sheet: 2 of 8

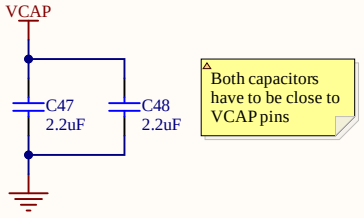
life.augmented

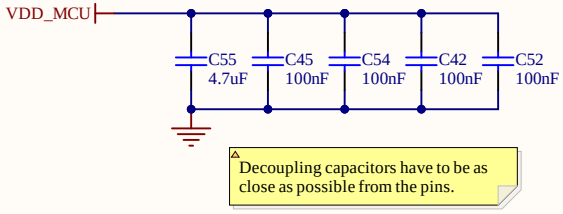

USER BUTTON
VDD
HW17
Blue Hat
USER
SW-PUSH-ADTSM644KV
B1
R27
330R
B_USER
SB21
DNF
PA0
PC13
SB16
R26
100K
U9
ESDALC6V1-1U2
C35
100nF
U13A
MCU_IOs
ARD_D0_RX
ARD_D1_TX
T_VCP_RX
T_VCP_TX
SB2
SB18
SB22
SB3
USART3_RX
USART3_TX
D13
D12
D11
D7
USB_VBUS
SB10
D2
USB_FS_N
USB_FS_P
T_SWDIO
T_SWCLK
T_JTDI
SB13
SB17
SB40
SB41
SB9
47R
R32
A0
A1
A2
A5
A4
D9
D8
D10
USB_FS_PWR_EN
SB43
PA0 14
PA1 15
PA2 16
PA3 17
PA4 20
PA5 21
PA6 22
PA7 23
PA8 41
PA9 42
PA10 43
PA11 44
PA12 45
PA13 46
PA14 49
PA15 50
PC0 8
PC1 9
PC2 10
PC3 11
PC4 24
PC5 25
PC6 37
PC7 38
PC8 39
PC9 40
PC10 51
PC11 52
PC12 53
PC13 2
PB0 26
PB1 27
PB2 28
PB3 55
PB4 56
PB5 57
PB6 58
PB7 59
PB8 61
PB10 29
PB12 33
PB13 34
PB14 35
PB15 36
PD2 54
A3
D3/T_SWO
D5
D4
D15
D14
D6
USART1_TX
USART1_RX
SB15
T_SWO
SB19
SB20
SB23
SB33
ARD_D1_TX
T_VCP_TX
T_VCP_RX
ARD_D0_RX
SB42
USB_FS_OVCR
MCU CLK & RST
PC14 - OSC32_IN
PC15 - OSC32_OUT
PH0 - OSC_IN
PH1 - OSC_OUT
NRST
BOOT0
60
R31
10K
7
T_NRST
STM32H503RBT6
EXTERNAL LSE CLK
C57
3.9pF
X2
32.768kHz
32.768KHz
C58
3.9pF
PC14
PC15
SB32
SB29
SB31
SB30
OSC32_IN
OSC32_OUT
3
4
EXTERNAL HSE CLK
C56
6.8pF
GND
X3
NX2016SA 24MHz
24MHz
C59
6.8pF
OSC_IN
OSC_OUT
SB26
SB25
5
6
PF1
PF0
SB24
SB28
SB27
MCO
RESET FUNCTION
C34
100nF
U10
ESDALC6V1-1U2
RESET
SW-PUSH-ADTSM644KV
B2
HW18
SW-CAP-Black
PA[0..15]
PB[0..15]
PC[0..15]
PD2
PF[0..1]
Title: STM32 microcontroller I/Os
Project: NUCLEO-64
Variant: H503
Revision: B-01
Reference: MB1814
Size: A4
Date: 23-FEB-07
Sheet: 3 of 8
life.augmented

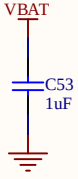
IDD Measurement

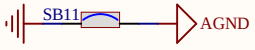


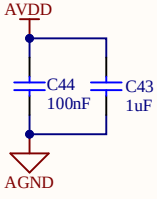








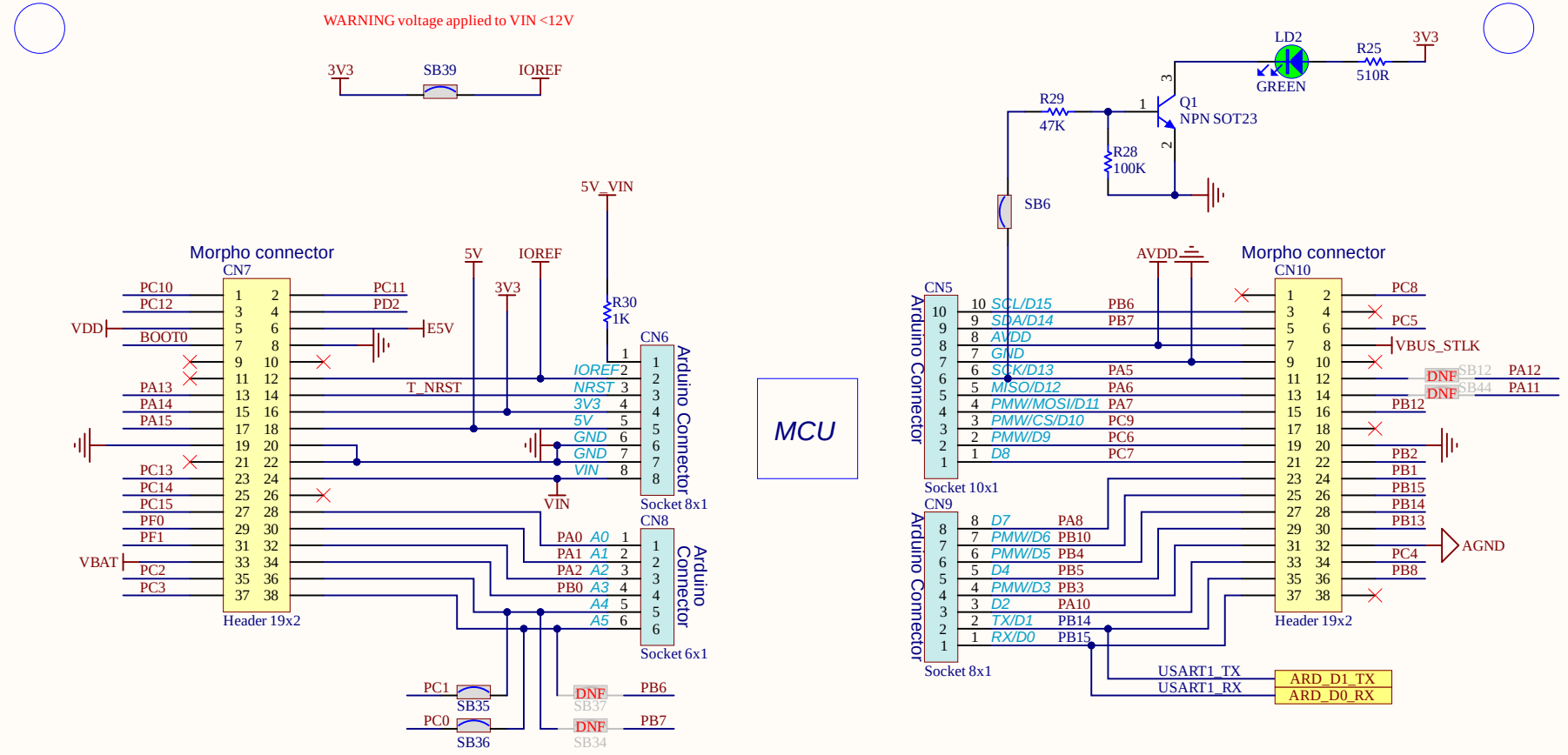




Ceramic capacitor (Low ESR, ESR<1ohm)

Title: **STM32 microcontroller power part**			
Project: **NUCLEO-64**			
Variant: H503			
Revision: B-01		Reference: MB1814	
Size: A4	Date: 23-FEB-07	Sheet: 4 of 8	

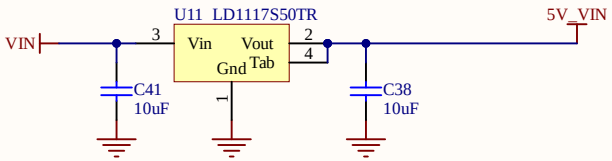
life.augmented



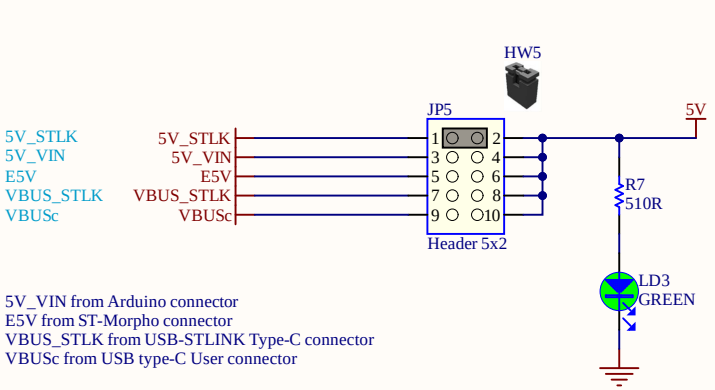
Title: **Arduino & Morpho extension connectors**		
Project: **NUCLEO-64**		
Variant: H503		
Revision: B-01		Reference: MB1814
Size: A4	Date: 23-FEB-07	Sheet: 5 of 8

life.augmented

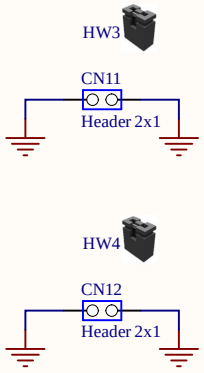
VIN / 5V POWER



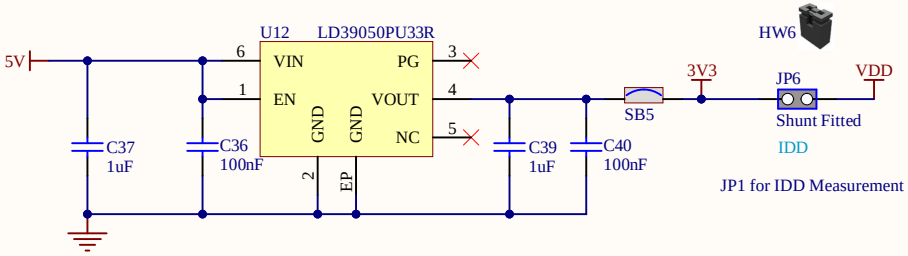
5V POWER SOURCE SELECTION



5V_VIN from Arduino connector
E5V from ST-Morpho connector
VBUS_STLK from USB-STLINK Type-C connector
VBUSc from USB type-C User connector



VDD POWER

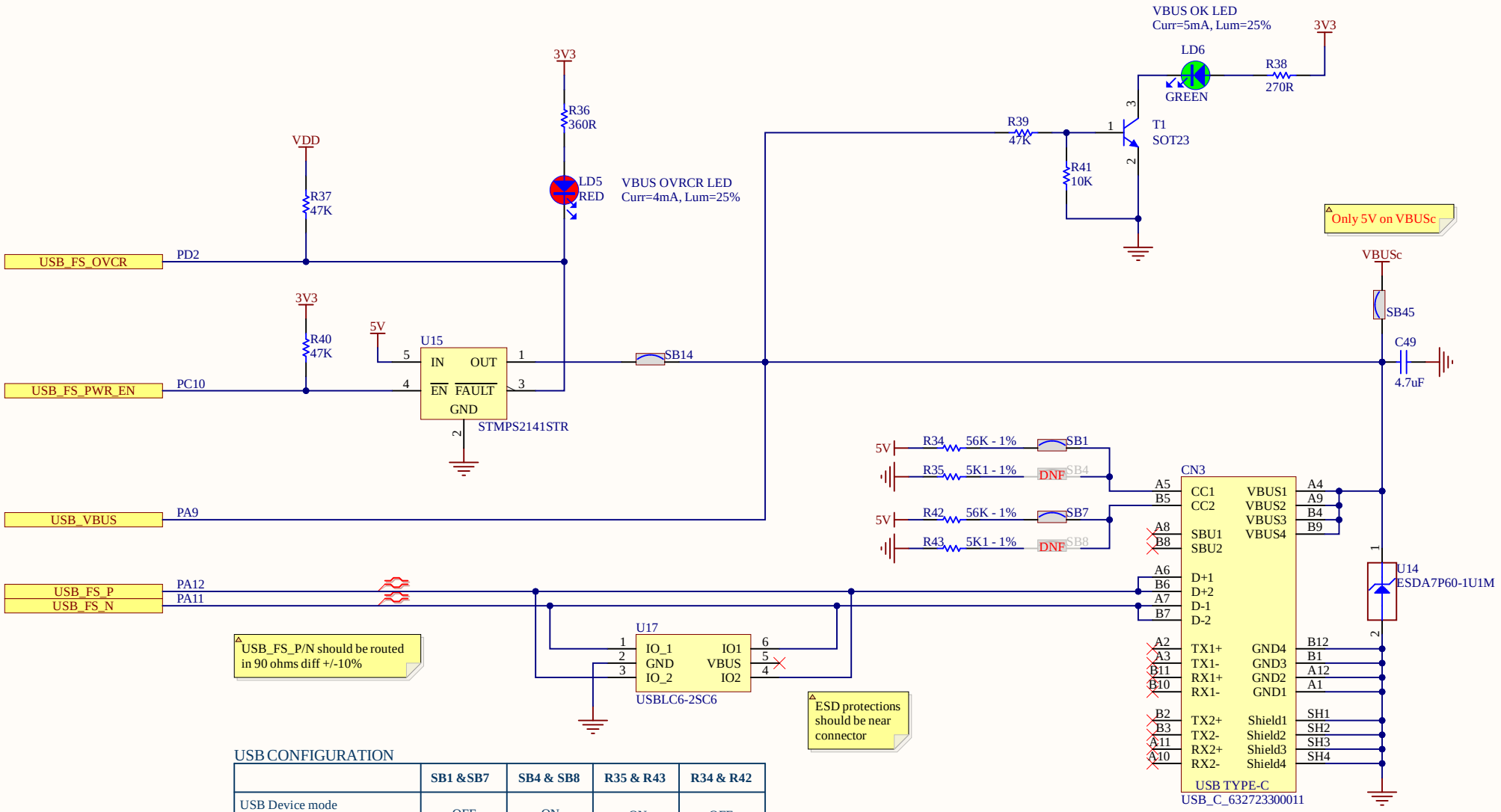


JP1 for IDD Measurement

Title: **Main power 5V / 3V3**		
Project: **NUCLEO-64**		
Variant: H503		
Revision: B-01		Reference: MB1814
Size: A4	Date: 23-FEB-07	Sheet: 6 of 8

life.augmented

USB



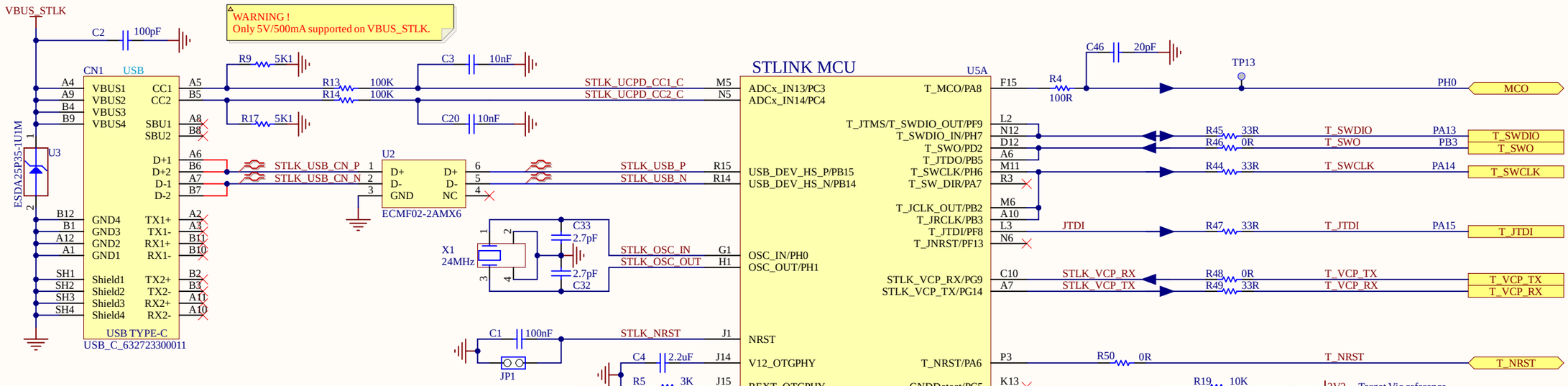
USB CONFIGURATION

	SB1 &SB7	SB4 & SB8	R35 & R43	R34 & R42
USB Device mode Recommended	OFF	ON	ON	OFF
USB Host mode **(Default)** Not to be used	**ON**	**OFF**	**OFF**	**ON**

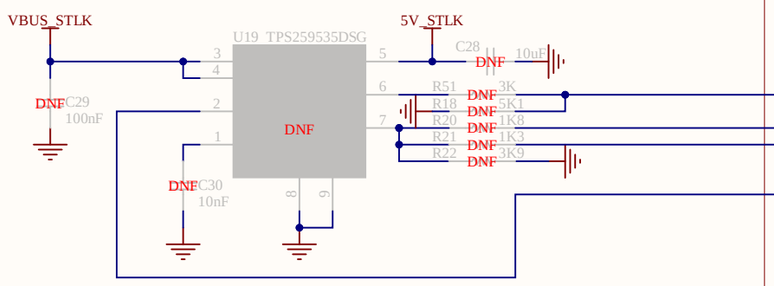
Title: **USB**		
Project: **NUCLEO-64**		
Variant: H503		
Revision: B-01		Reference: MB1814
Size: A4	Date: 23-FEB-07	Sheet: 7 of 8

life.augmented

ST-LINK USB CONNECTOR



5V_STLK OVERVOLTAGE AND OVERCURRENT PROTECTION

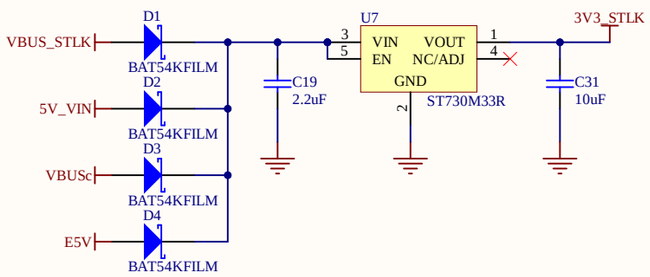


5V_STLK OVERCURRENT PROTECTION MANAGMENT

	T_PWR_SEL2/PD5	T_PWR_SEL1/PD4
PowerDefault SNK *(Current limit: 550mA)*	Hi-Z	Hi-Z
Power1.5.SNK *(Current limit: 1.66A)*	Hi-Z	0
Power3.0.SNK *(Current limit: 3.2A)*	0	0

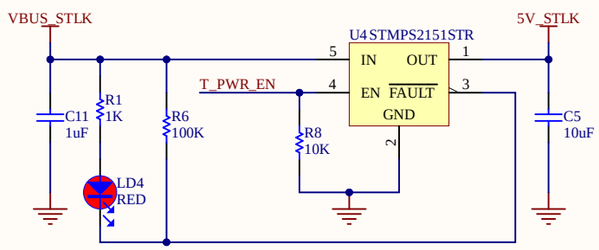
HZ= IO set in high impedance

ST-LINK POWER (3V3/300mA)

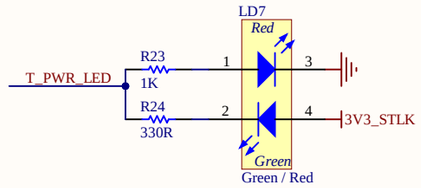


5V ST-LINK PROTECTION for legacy

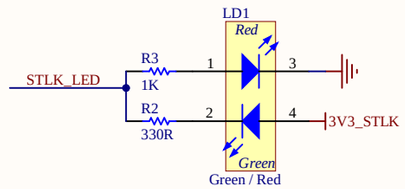
STMPS2151STR is backup of the TPS259535DSG



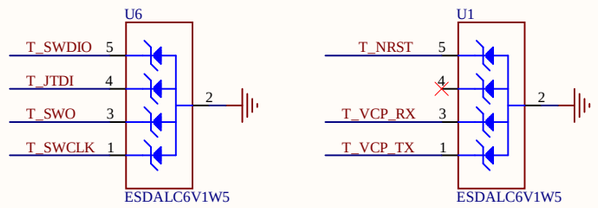
LED POWER STATUS



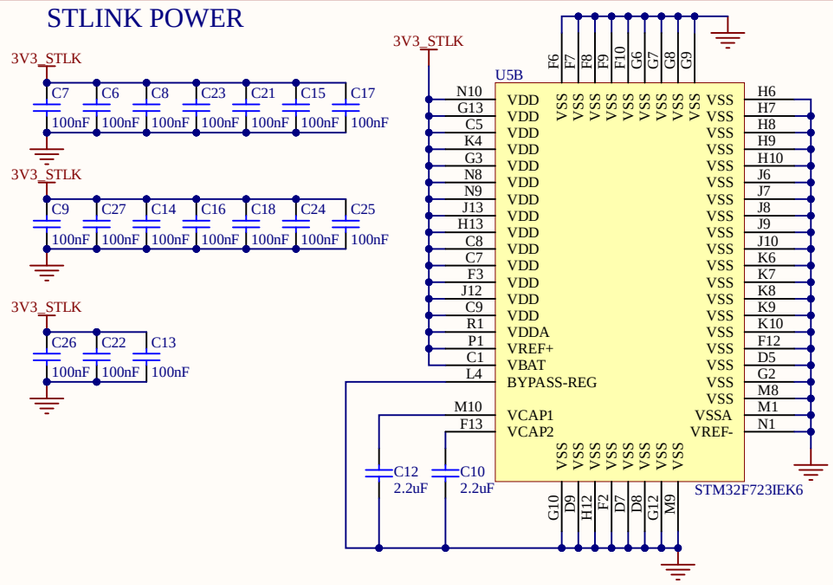
LED STLINK



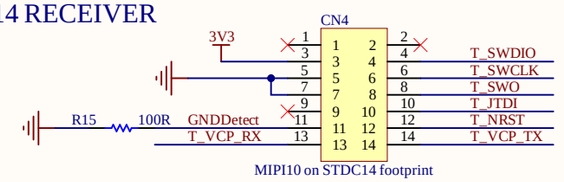
ESD PROTECTIONS



STLINK POWER



STDC14 RECEIVER

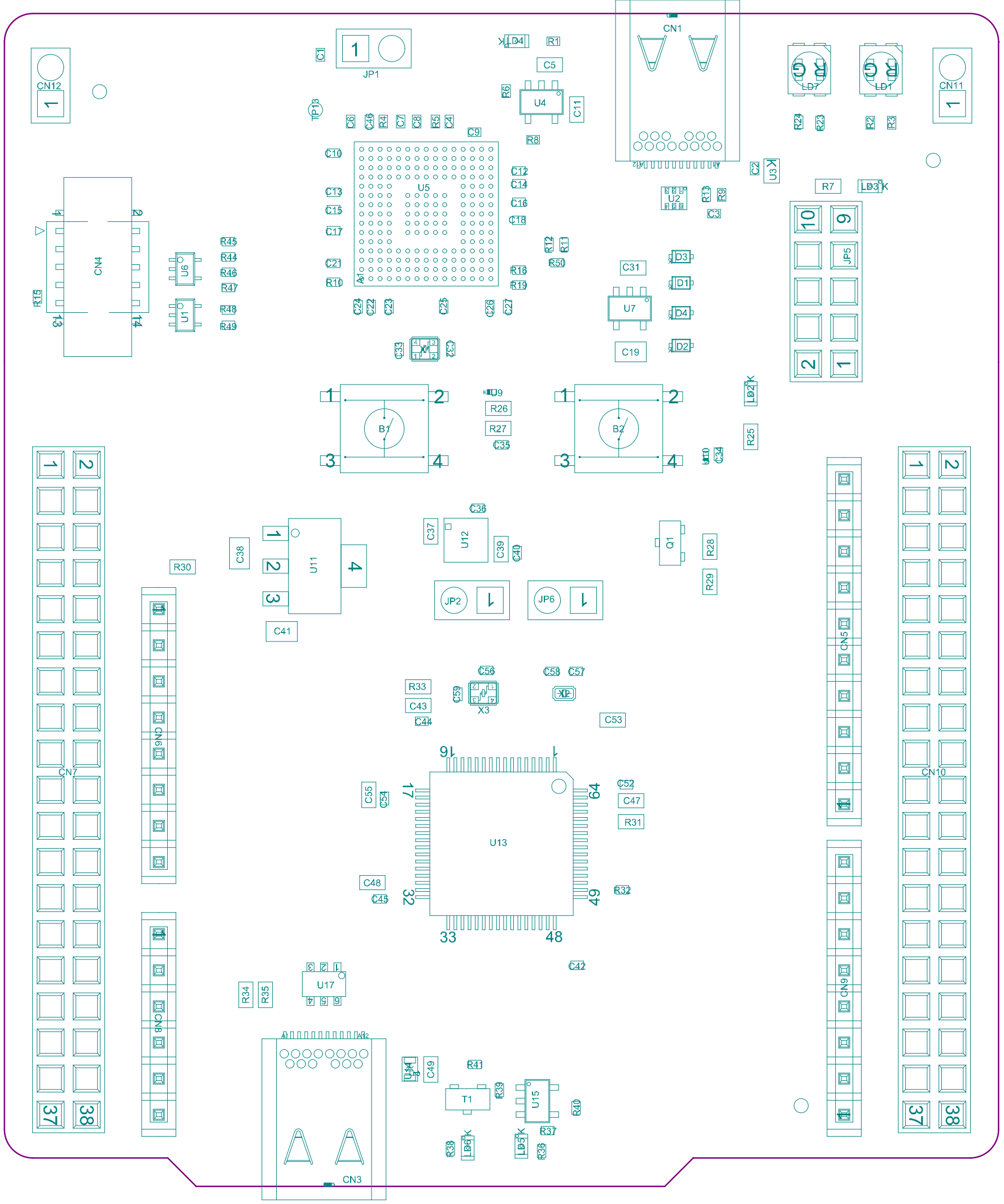


MIPI10 on STDC14 footprint

JP1 to be ON when an external probe is connected to the STDC14

Title: **STLINK-V3EC**		
Project: **NUCLEO-64**		
Variant: H503		
Revision: B-01		Reference: MB1814
Size: A3	Date:	Sheet: 8 of 8

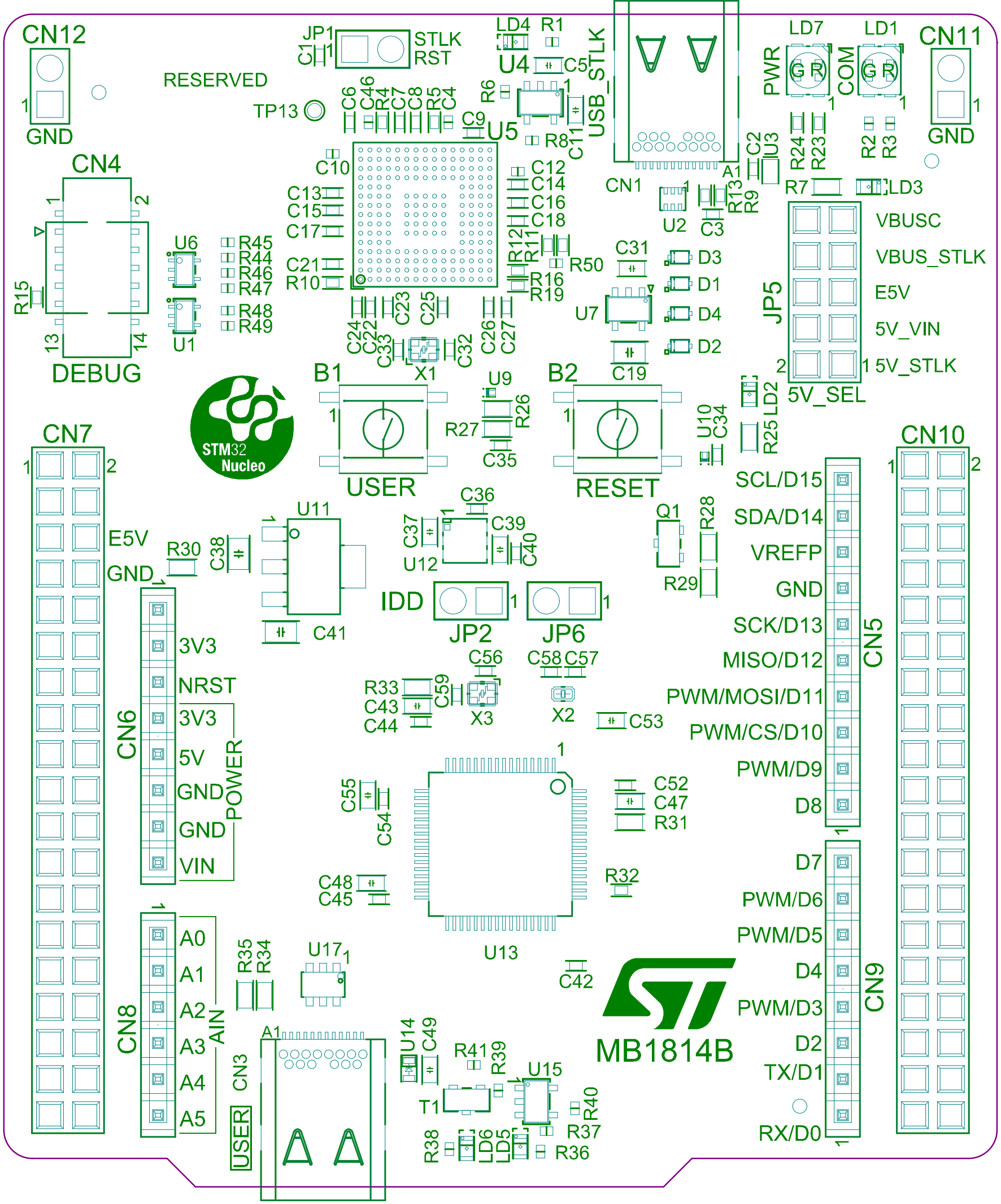
life.augmented



Project: NUCLEO-64	
Layer: M14-Top Assembly	Gerber: .GM14
Variant: H503	MB1814
Date: 23-FEB-07	Rev: B

SB45
R17
R14
C20
SB5
SB6
SB39
SB11
SB2
SB38
SB31
SB30
SB26
SB25
SB16
SB3
SB15
SB42
SB43
SB9
SB41
SB40
SB17
SB13
SB10
SB33
SB19
SB1
SB14
SB35
SB36
R42
SB7
R43

Project: NUCLEO-64	
Layer: M15-Bottom Assembly	Gerber:.GM15
Variant: H503	MB1814
Date: 23-FEB-07	Rev: B

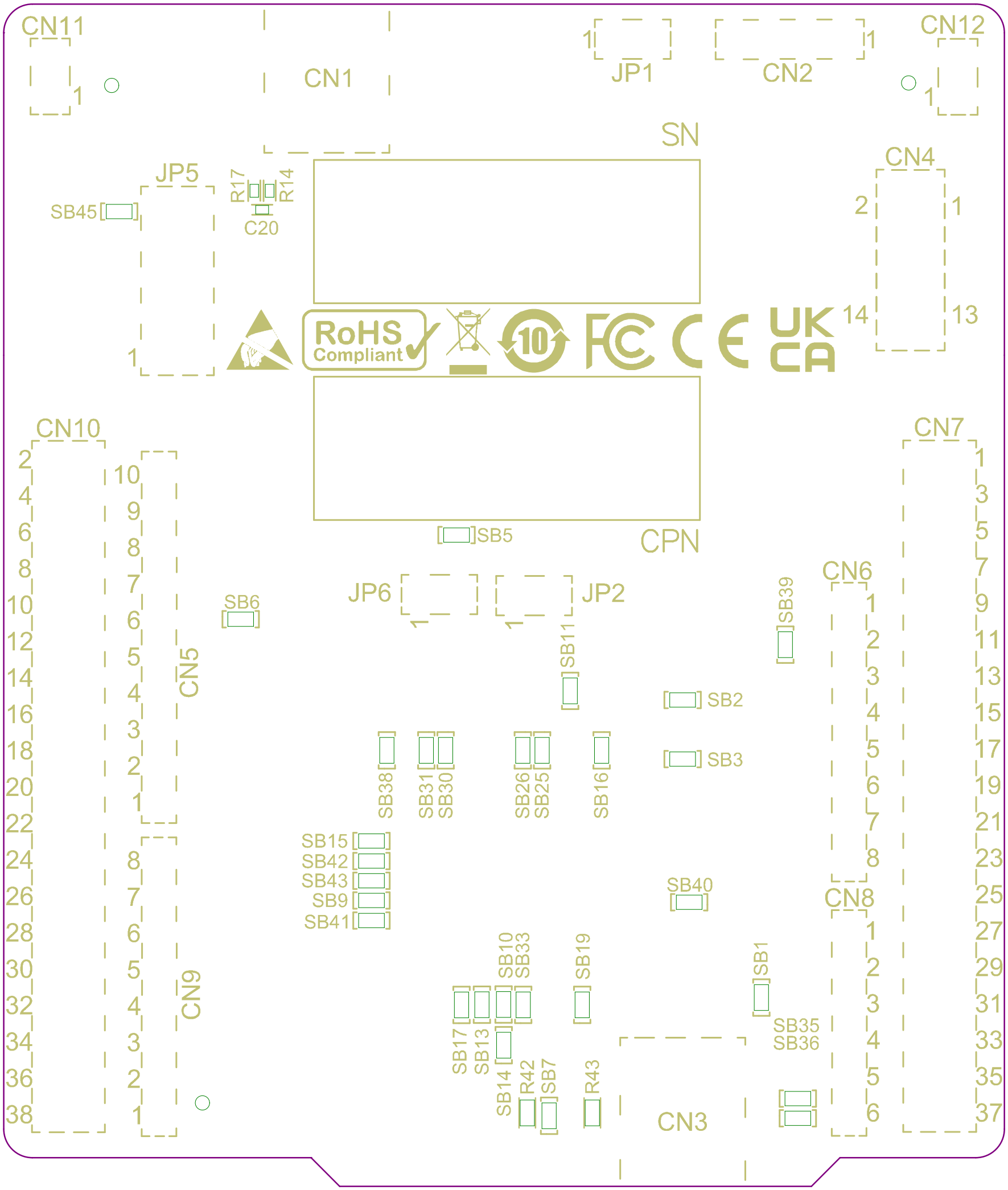


Top Overlay

Mid-1 Assembly

.GTO

.GM1



M15-Bottom Assembly .GM15