

# NUCLEO64 ext-SMPS

MB1319

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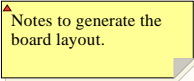
Sheet 8: ST-Link/V2-1

U\_mb1319\_Top  
mb1319\_Top.SchDoc



## Legend

- General comment such as function title, configuration, ...
- Text to be added to silkscreen.
- Warning text.



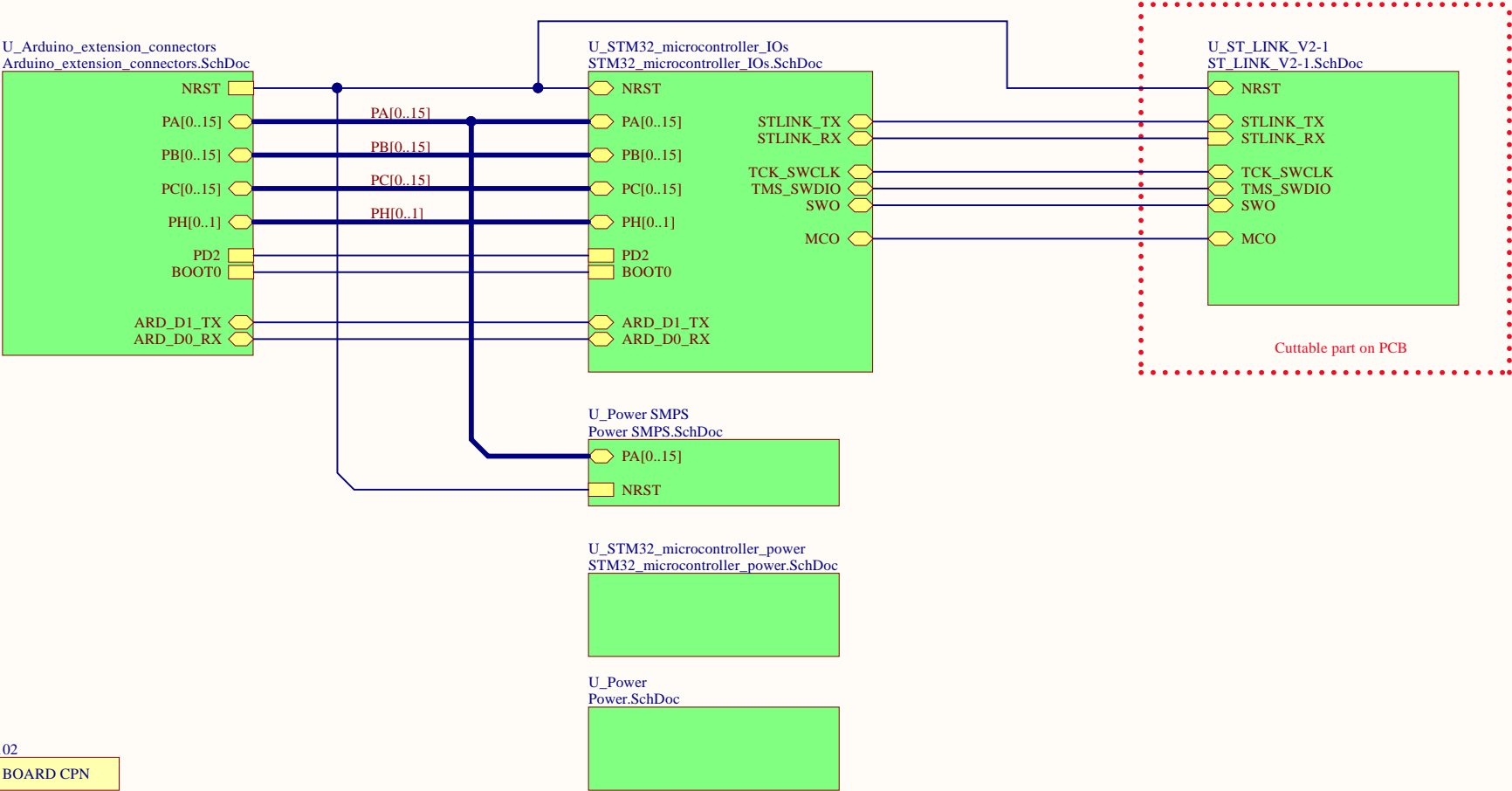
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HW101

BOARD REF

MB1319C-01 xxxx

HW102

BOARD CPN

NUCLEO-L412RB-P

HW100

PCB

MB1319C

HW103

BLISTER

NUCLEO64\_BLISTER

HW104

DNF

LOGO NUCLEO

HW105

DNF

LOGO ST

HW106

DNF

LOGO CE

HW107

DNF

LOGO ESD

HW108

DNF

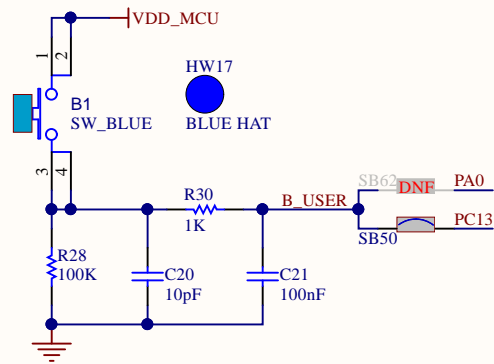
LOGO ROHS

HW109

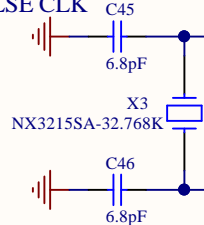
DNF

LOGO STM32

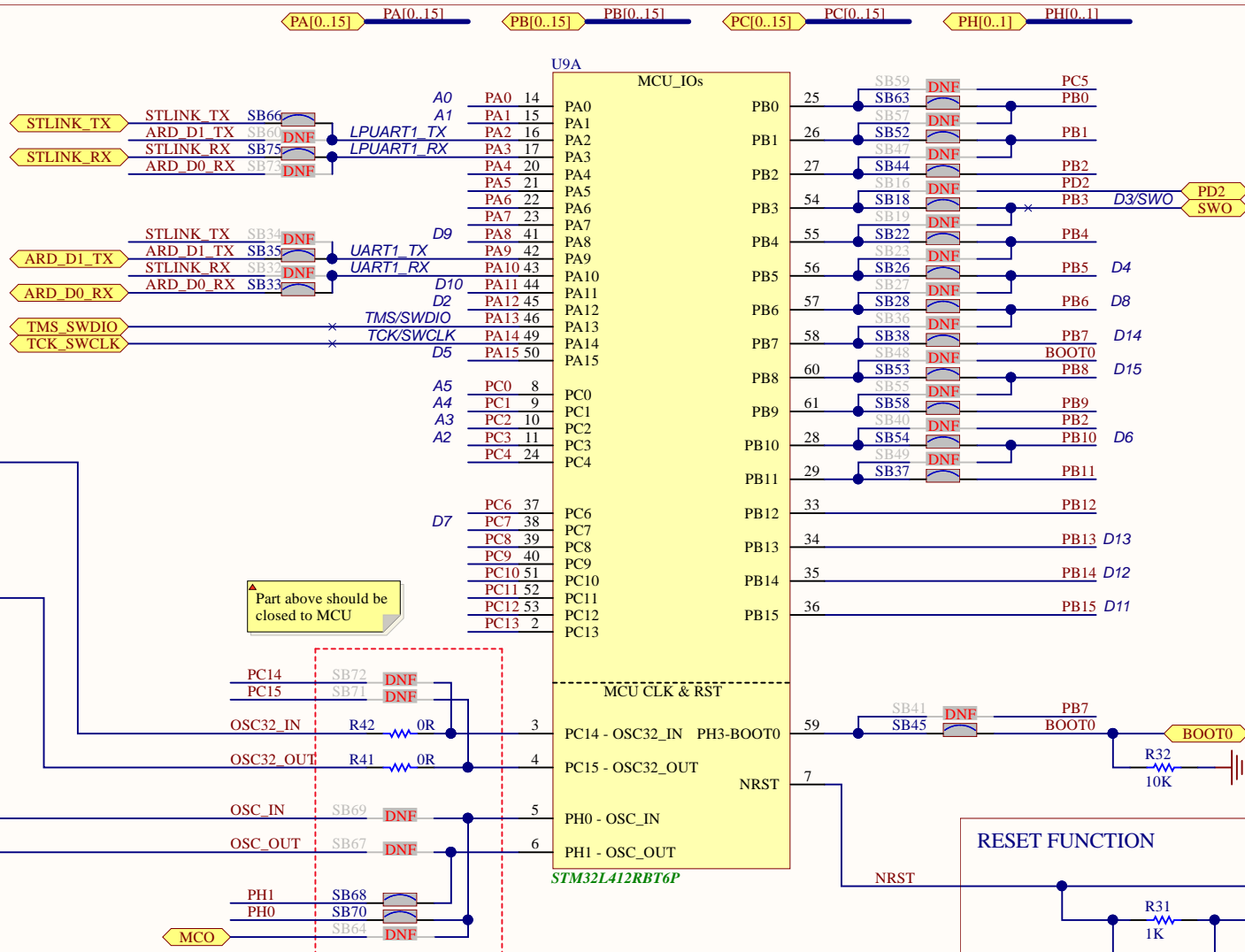
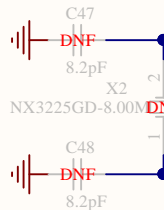
## USER BUTTON



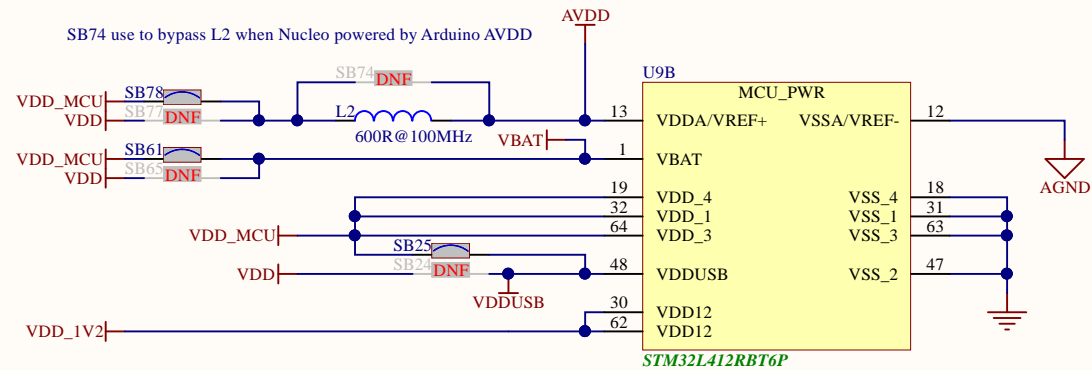
## EXTERNAL LSE CLK



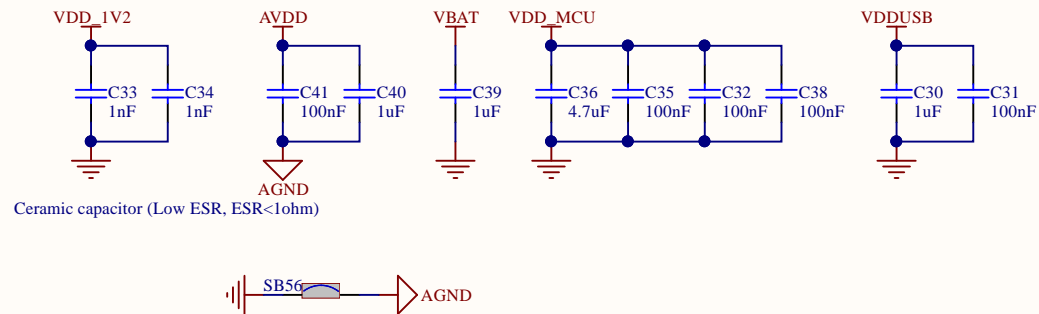
## EXTERNAL HSE CLK



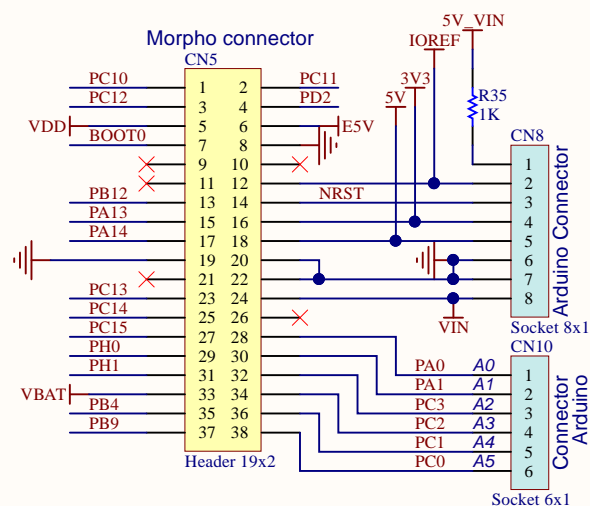
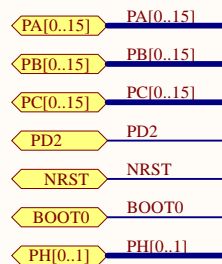
MCU PWR SUPPLIES



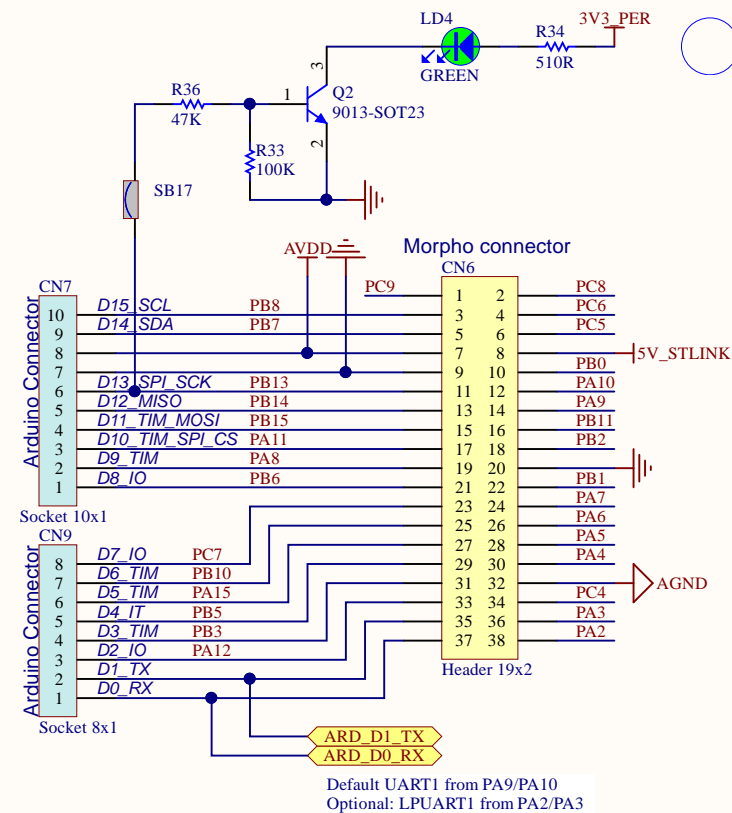
DECAPS



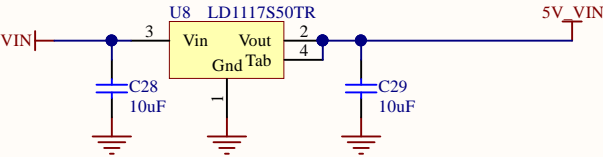
IOREF SELECTION	SB21	SB15	SB14	
IOREF= 3V3	Closed	Open	Open	
IOREF = 3V3_PER	Open	Closed	Open	
IOREF = VDD_MCU Mainly for 1V8 compatibility	Open	Open	Closed	Default



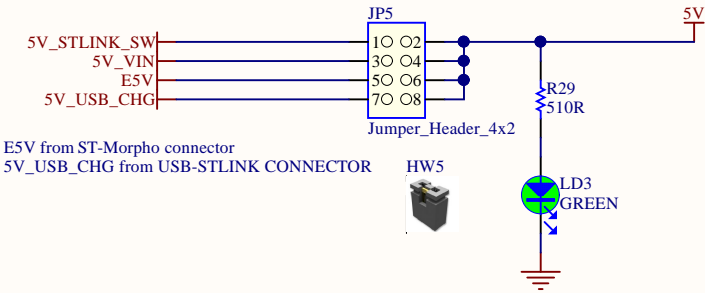
MCU



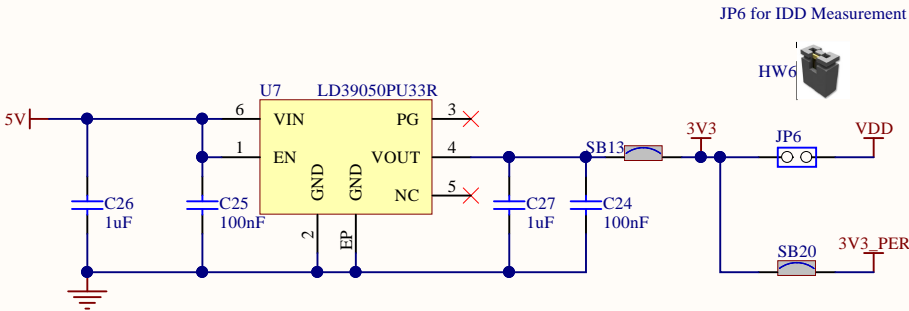
VIN / 5V PWR



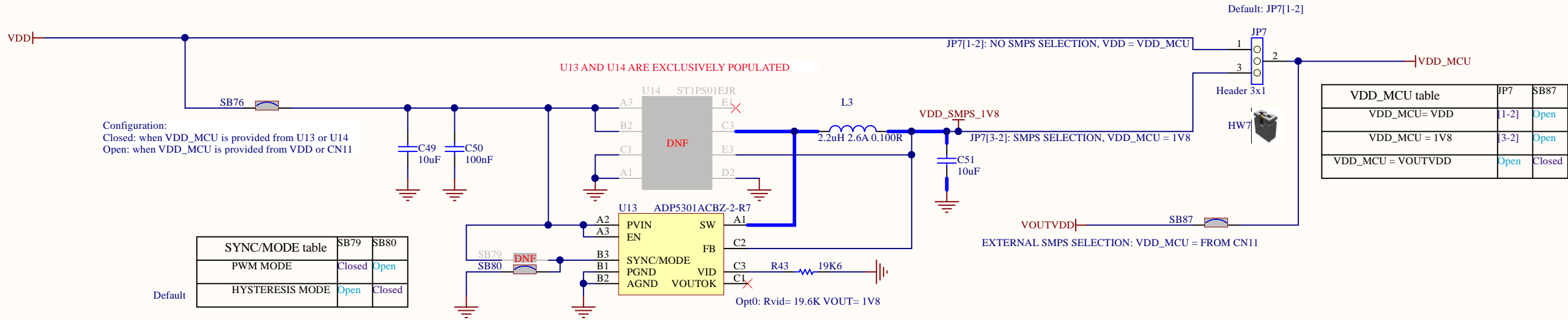
5V PWR SELECTION



3V3 PWR

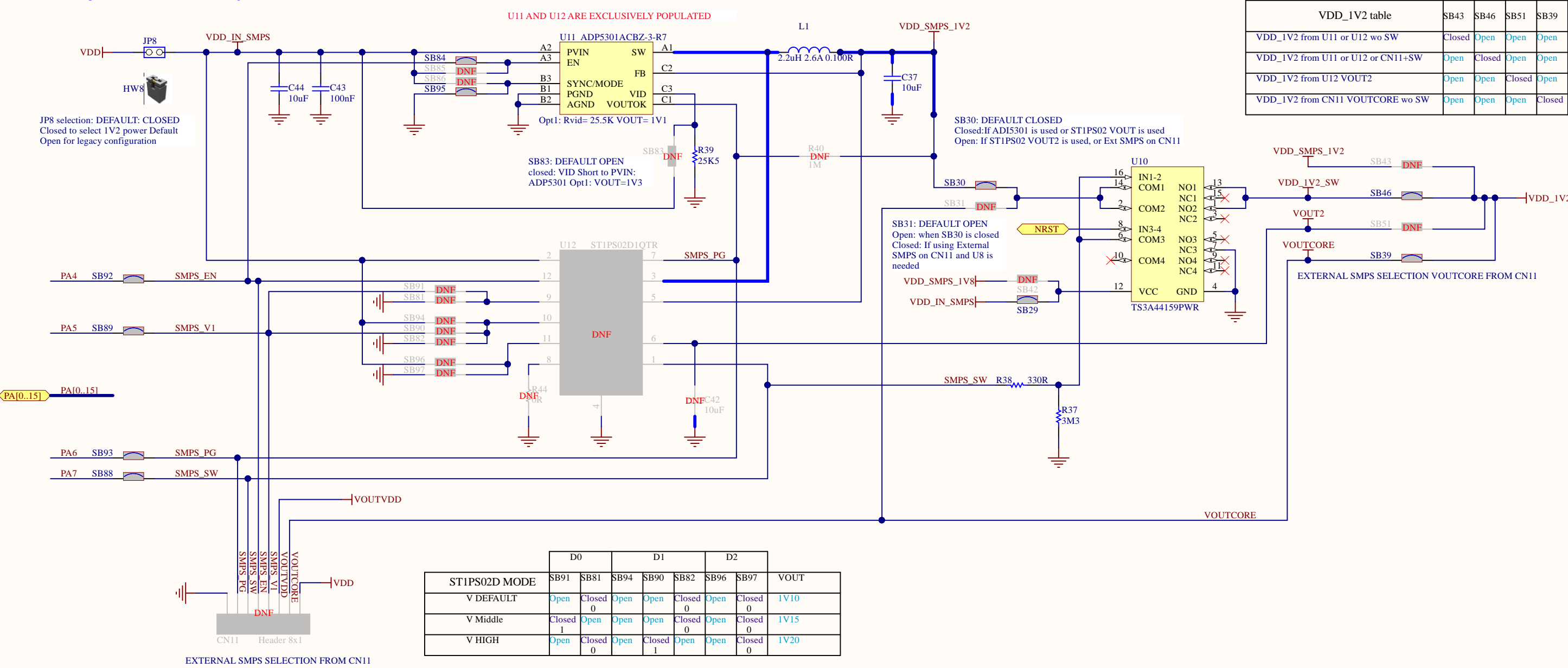


VDD\_MCU\_SELECTION



SMPS SELECTION, VDD\_1V2

Comment on this part are for Ext 1V2 SMPS configuration



[illegible]

### UART\_TX LEVEL SHIFTER for MCU\_1V8

The diagram illustrates a UART\_TX Level Shifter circuit for an MCU\_1V8. The circuit is powered by a 3V3 supply (ST\_LINK\_3V3) and a 1V8 supply (MCU\_1V8/3V3). The level shifter is implemented using an SN74LVC2T45DCUT (U5). The input signal (STLINK\_TX) is connected to the input pin (pin 5). The output signal (STLK\_RX) is connected to the output pin (pin 4). The circuit includes two 100nF capacitors (C17, C16) and a 0R resistor (R26). A DNE component (SB12) is also shown.

The diagram shows a level shifter circuit (U6: SN74LVC2T45DCUT) connecting a 1V8 MCU to a 3V3 ST-Link. The MCU side (left) has pins 8 (VccB), 7 (B1), 6 (B2), and 5 (DIR) connected to VDD\_MCU, T\_JTMS, SWO\_MCU, and GND respectively. The ST-Link side (right) has pins 1 (VccA), 2 (A1), 3 (A2), and 4 (GND) connected to 3V3\_ST\_LINK, T\_SWDIO\_IN, T\_SWO, and GND respectively. Two 100nF capacitors (C19, C18) are placed between the supply rails. A blue arrow points to the bottom of the diagram.

LED\_STLINK

R9  
330R

R10  
330R

LD1  
Yellow

3

4

3V3\_ST\_LINK

2

1

Red

LD\_BICOLOR\_CMS

[illegible]

### ST-LINK POWER 3V3 / 150mA

5V\_VIN BAT60JFILM D5

E5V BAT60JFILM D4

5V\_STLINK BAT60JFILM D3

U3 LD3985M33R

Vin 1

INH 3

GND 4

BYPASS

Vout 5

3V3\_ST\_LINK

C5 1uF

C6 100nF

C8 10nF

C4 1uF

C3 100nF

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### GND


JP2

HW2

JP3

HW3

The diagram illustrates a USB 5V Power Switch circuit. It features a 5V\_STLINK input connected to the IN pin (pin 5) of the STMP52141STR IC (U4). A 1uF capacitor (C13) is connected between the input and the IN pin. The EN pin (pin 4) is connected to a 10K resistor (R25) which is tied to ground, and also to a PWR\_ENn control signal. The OUT pin (pin 1) is connected to the 5V\_STLINK\_SW output. A 100nF capacitor (C15) is connected between the output and ground. The FAULT pin (pin 3) is connected to ground. The GND pin is also connected to ground. A 1K resistor (R21) is connected between the input and ground, and a red LED (LD2) is connected between the input and ground.

Title: <b>ST-LINK/V2-1</b>		 <a href="http://life.augmented.com">life.augmented.com</a>
Project: <b>NUCLEO64 ext-SMPS</b>		
Variant: <b>L412RB_P</b>		
Revision: <b>C-01</b>	Reference: <b>MBI319</b>	
Size: <b>A3</b>	Date: <b>05-January-2018</b>	
Sheet: <b>8 of 8</b>		

