

Nucleo-64 SMPS

MB1841

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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.

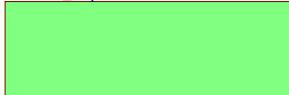
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U_mb1841_Top
mb1841_Top.SchDoc

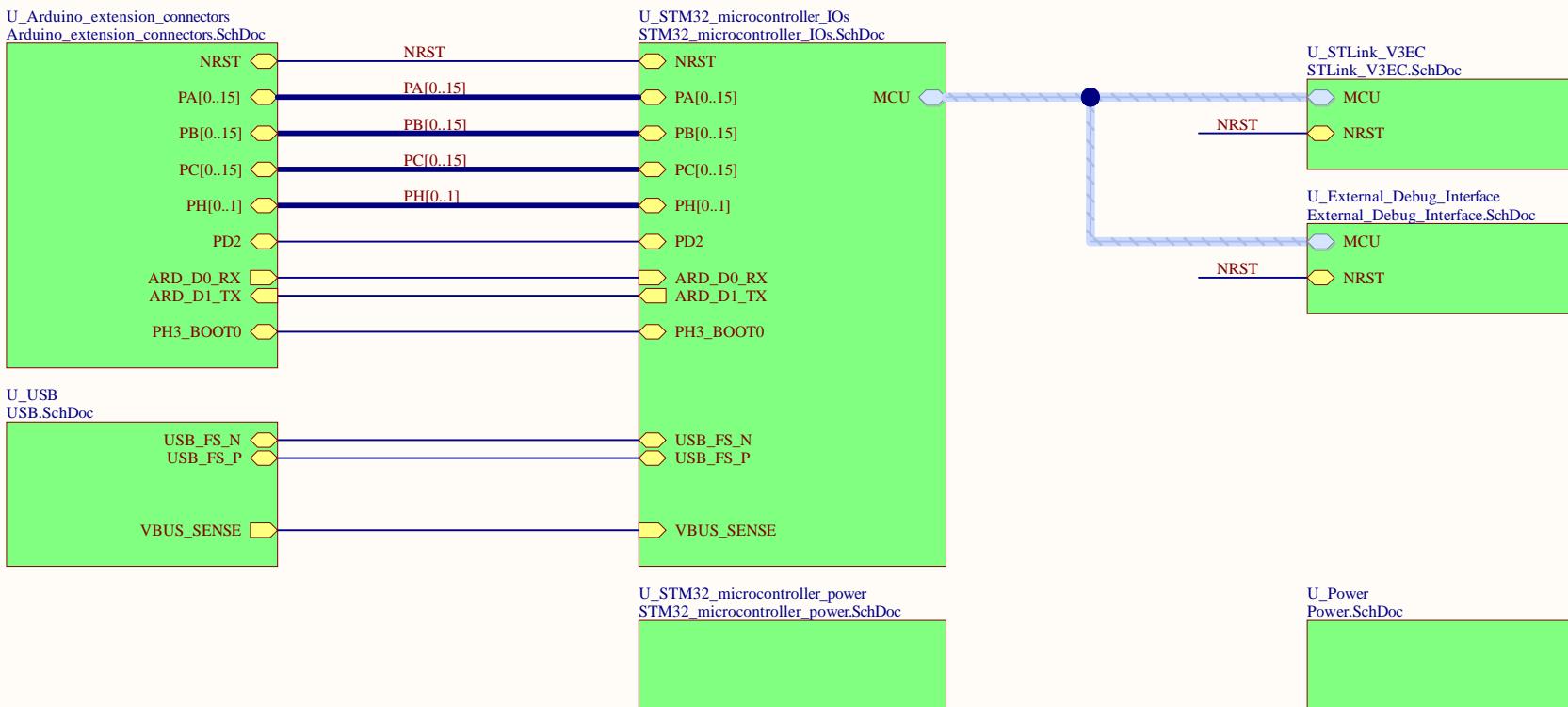


HW1
STICKER PRODUCT
Sticker product

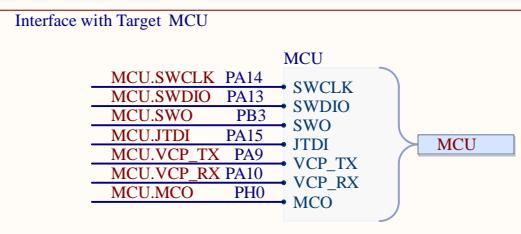
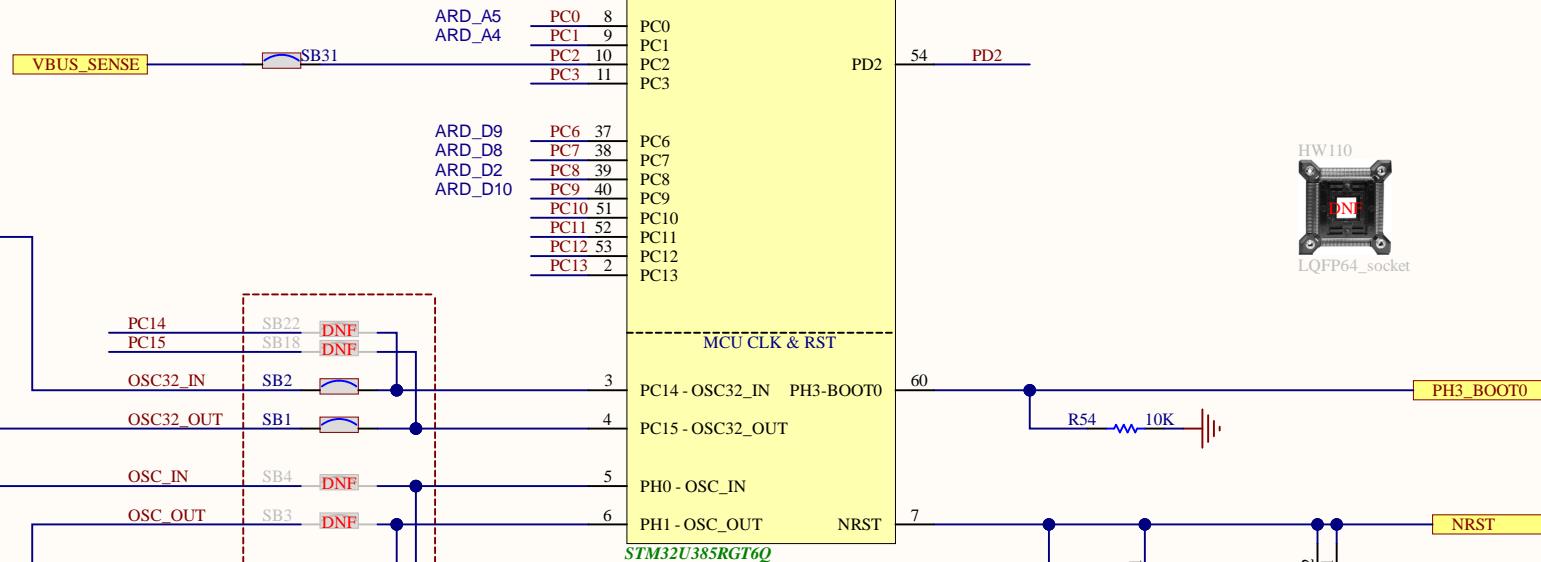
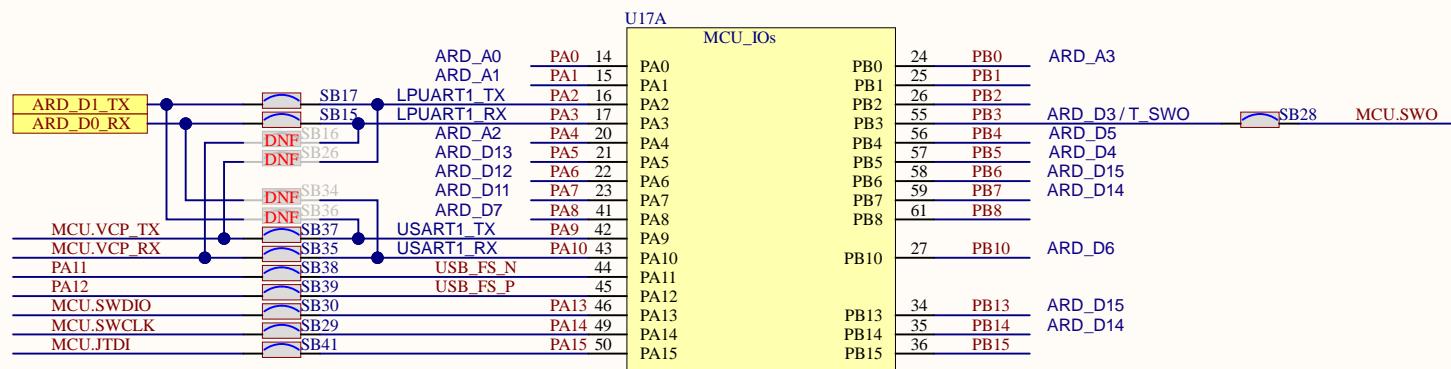
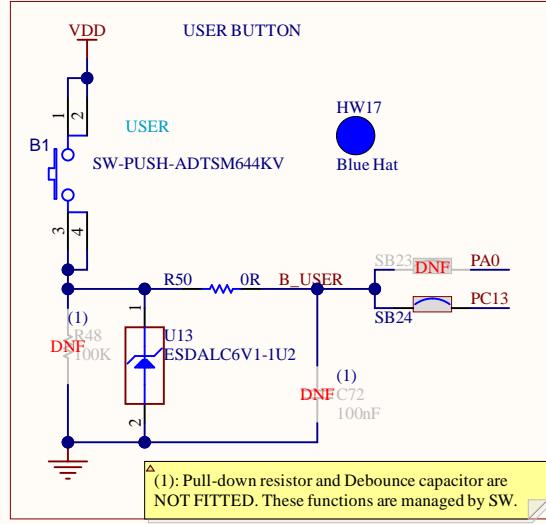
HW7
PCB
MB1841

Title: Project overview	
Project: Nucleo-64 SMPS	
Variant: U385RGQ	
Revision: E-01	Reference: MB1841
Size: A4	Date: 16-DEC-24
	Sheet: 1 of 9





MCU IOs



Title: STM32 microcontroller I/Os
Project: Nucleo-64 SMPs
Variant: U385RGQ
Revision: E-01
Size: A4 Date: 16-DEC-24 Reference: MB1841
Sheet: 3 of 9

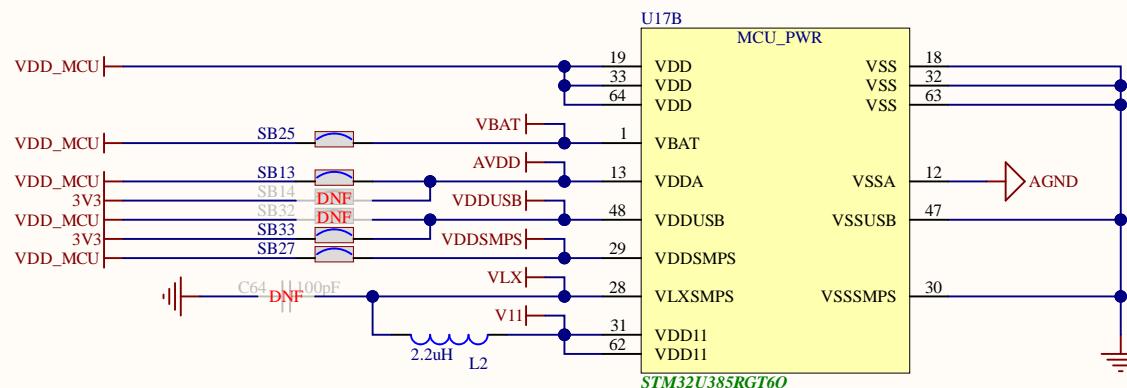


MCU PWR SUPPLIES

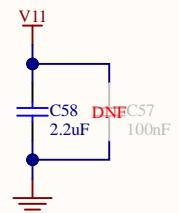
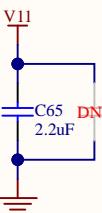
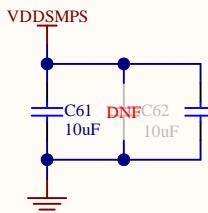
Operating range: $1V71 < VDD < 3V6$
 Operating range: $1V65 < VBAT < 3V6$
 Operating range: $1V62 < VDDA < 3V6$
 Operating range: $1V71 < VDDSMPS < 3V6$

Operating range: $3V0 < VDDUSB < 3V6$

VDDUSB on 3V3 instead of VDD_MCU to be 1V8 compatible



Decoupling capacitors have to be as close as possible from the MCU pins.

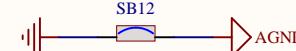


IDD Measurement



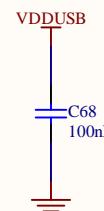
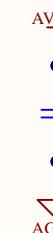
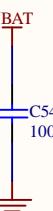
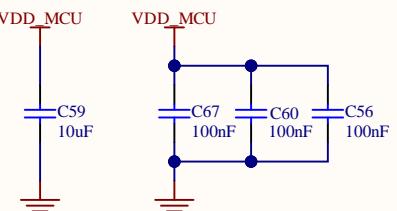
Used to give access to VDD MCU consumption only

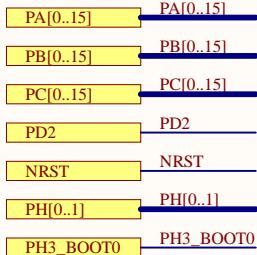
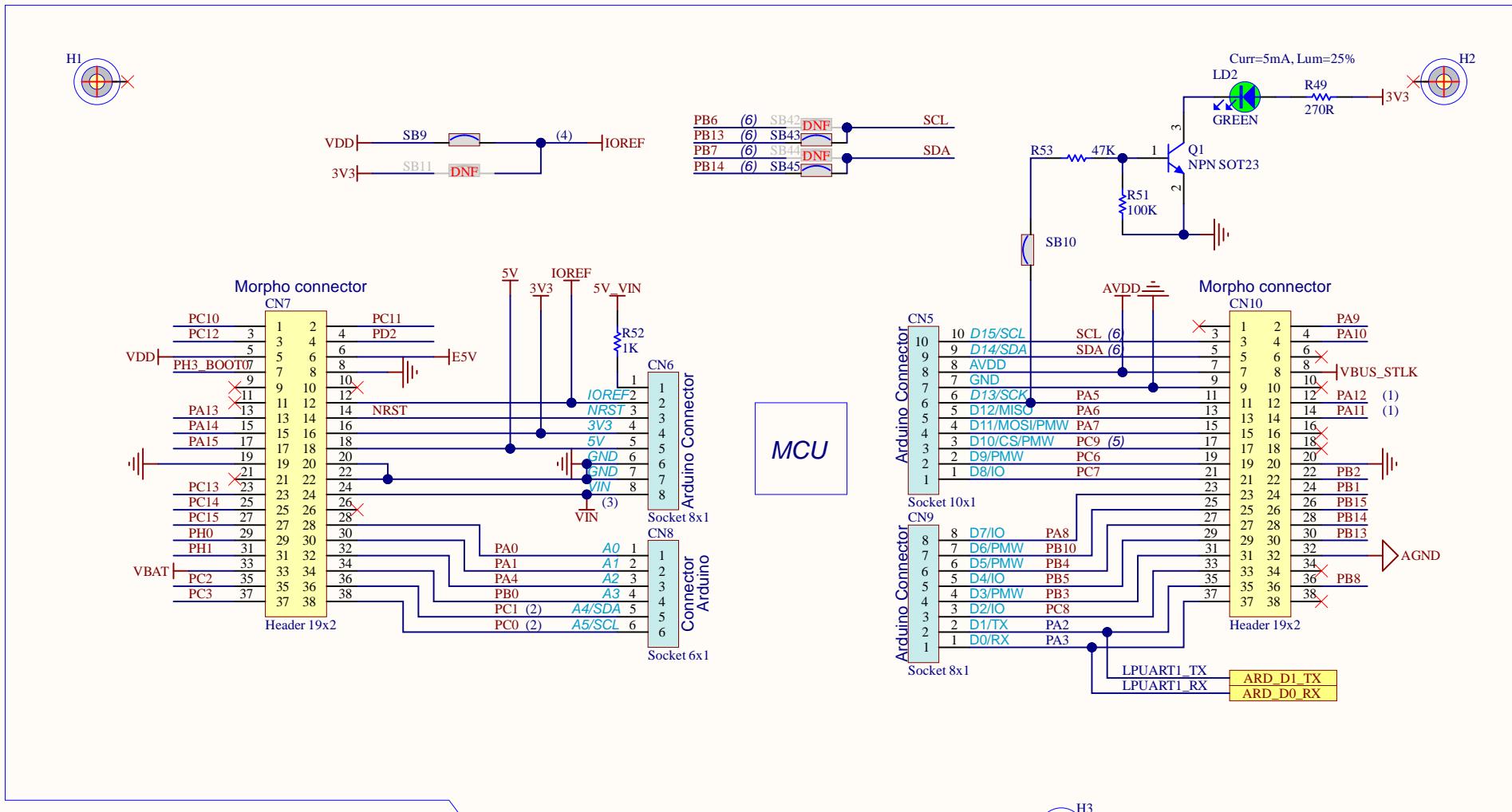
GND / AGND



MCU DECAPS

Ceramic capacitor (Low ESR, ESR<1ohm)



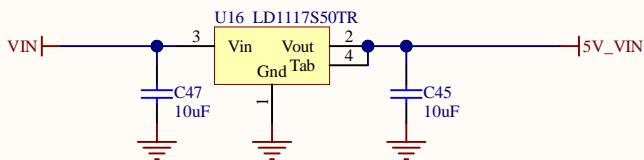


- (1): IO exclusive with USB, SB on sheet 3 disconnected
- (2): PC0/PC1 compatible ADC and I2C
- (3): WARNING voltage applied to VIN <12V
- (4): 1V8 < VDD < 3V3: Default ARDUINO-UNO-V3 only 3V3
- (5) Due to muxing constraint, the SPI_NSS is not available as an alternate on this IO, so this pin is affected with an I/O function to do the Chip Select
- (6) I2C and I3C feature:
PB6 and PB7 fitted for U5, only I2C supported.
PB13 and PB14 fitted for U3, I2C and I3C compatible.

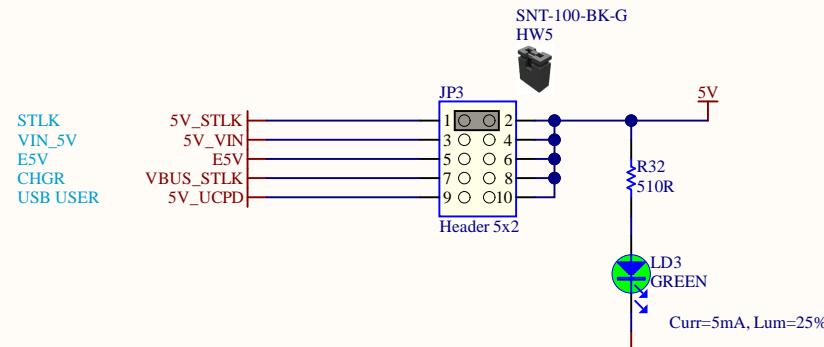
Title: Arduino & Extension Connectors	
Project: Nucleo-64 SMPS	
Variant: U385RGQ	
Revision: E-01	
Size: A4	Date: 16-DEC-24
Sheet: 5	of 9



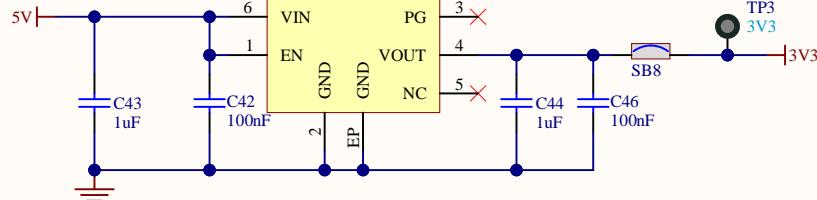
VIN / 5V PWR



5V PWR SELECTION

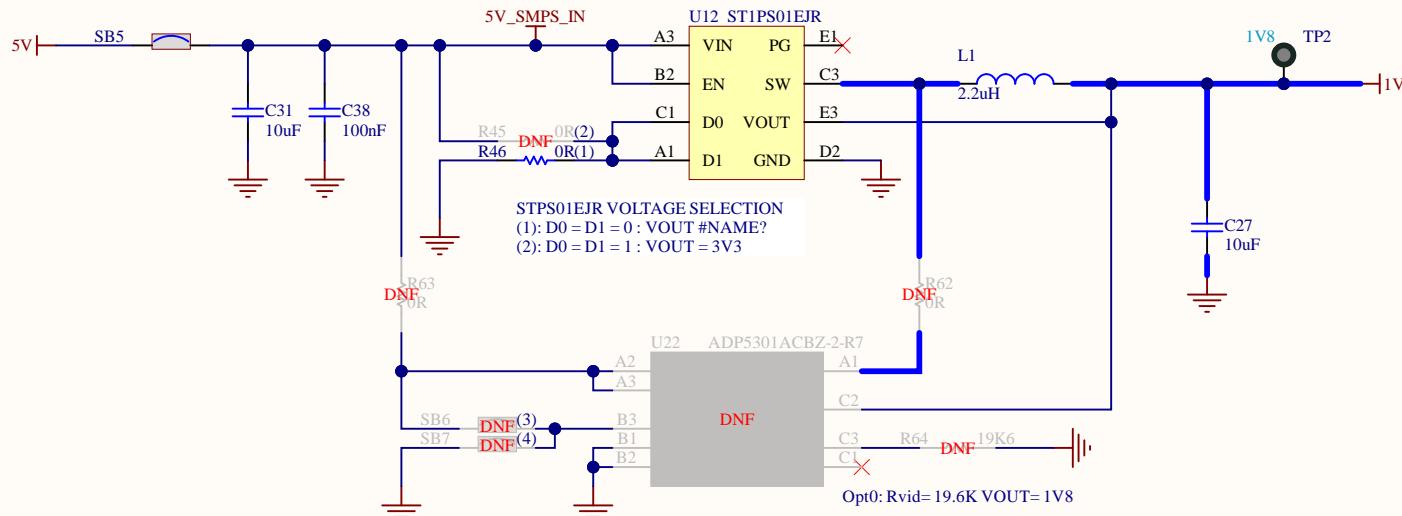


3V3 PWR : 500mA



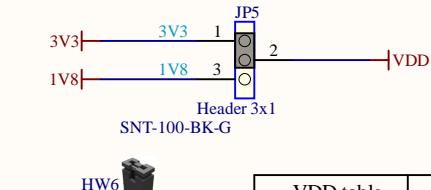
STLK (5V_STLK): 5V from USB-STLINK CONNECTOR WITH VOLTAGE AND CURRENT PROTECTION
 VIN (5V_VIN): 5V from ARDUINO VIN (7-12V) WITH VOLTAGE REGULATION TO 5V
 E5V (E5V): 5V from MORPHO CONNECTOR
 CHGR (VBUS_STLK): 5V from USB-STLINK CONNECTOR WITHOUT VOLTAGE AND CURRENT PROTECTION. CAN BE USED WITH WALL CHARGER.
 USB USER (5V_UCPD): 5V from USB USER CONNECTOR

1V8 PWR : 400mA

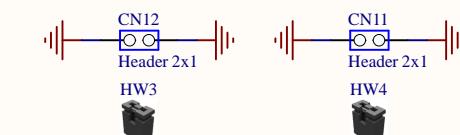


ADP5301 MODE SELECTION
 (3): SYNC/MODE = 1 = PWM MODE (500mA)
 (4): SYNC/MODE = 0 = HYSTERESIS MODE (50mA)

VDD_SELECTION AND CURRENT MEASUREMENT



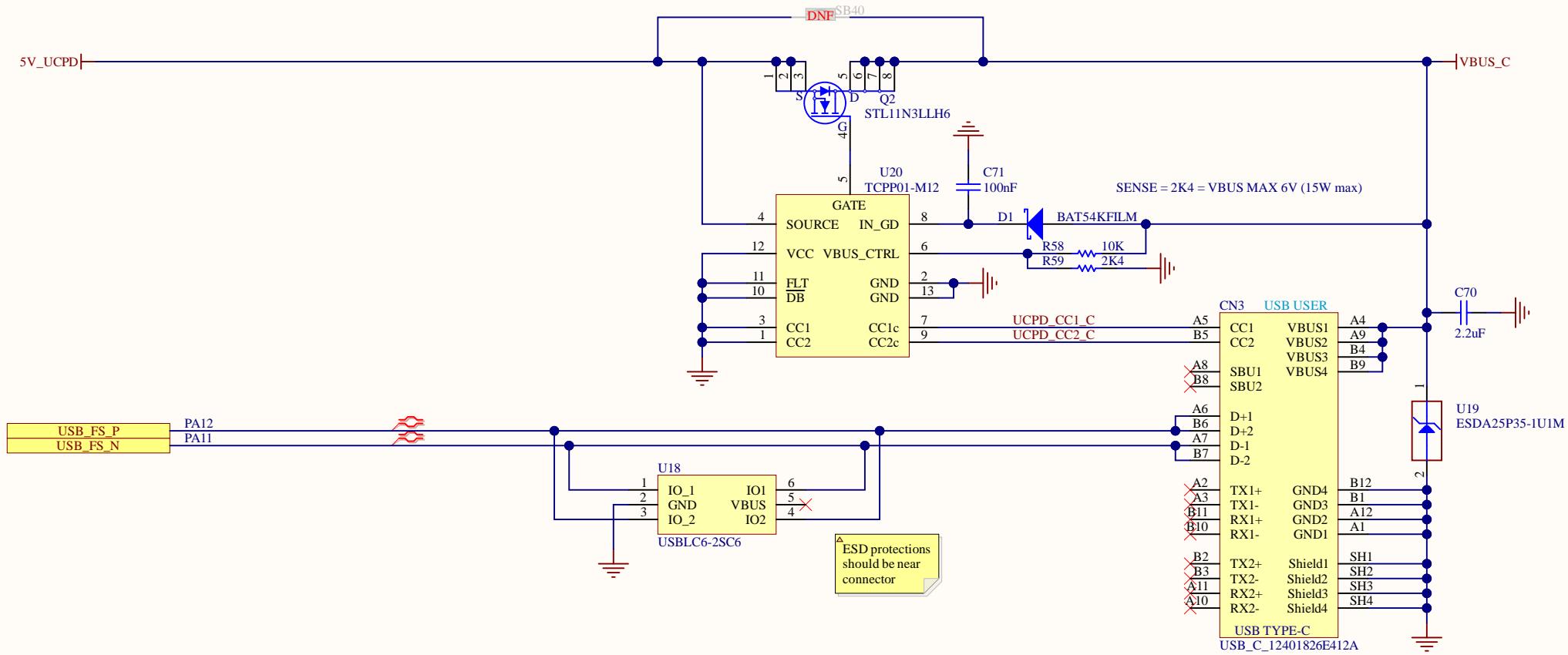
GND



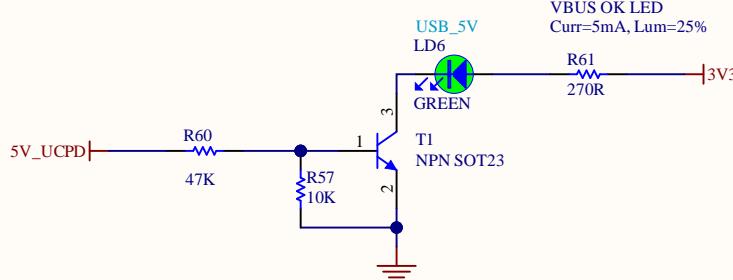
USB USER

USB_TYPE_C SINK ONLY: 2.5W 5V/500mA

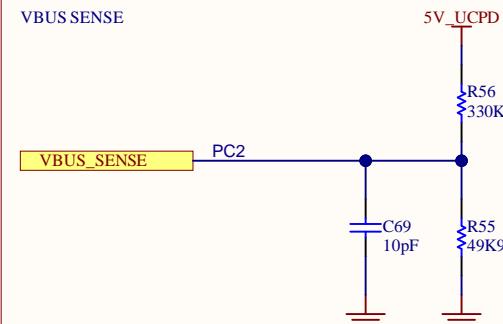
TCPP01 USED AS OVER VOLTAGE PROTECTION



5V_USB_LED



VBUS SENSE



Title: USB USER

Project: Nucleo-64 SMPS

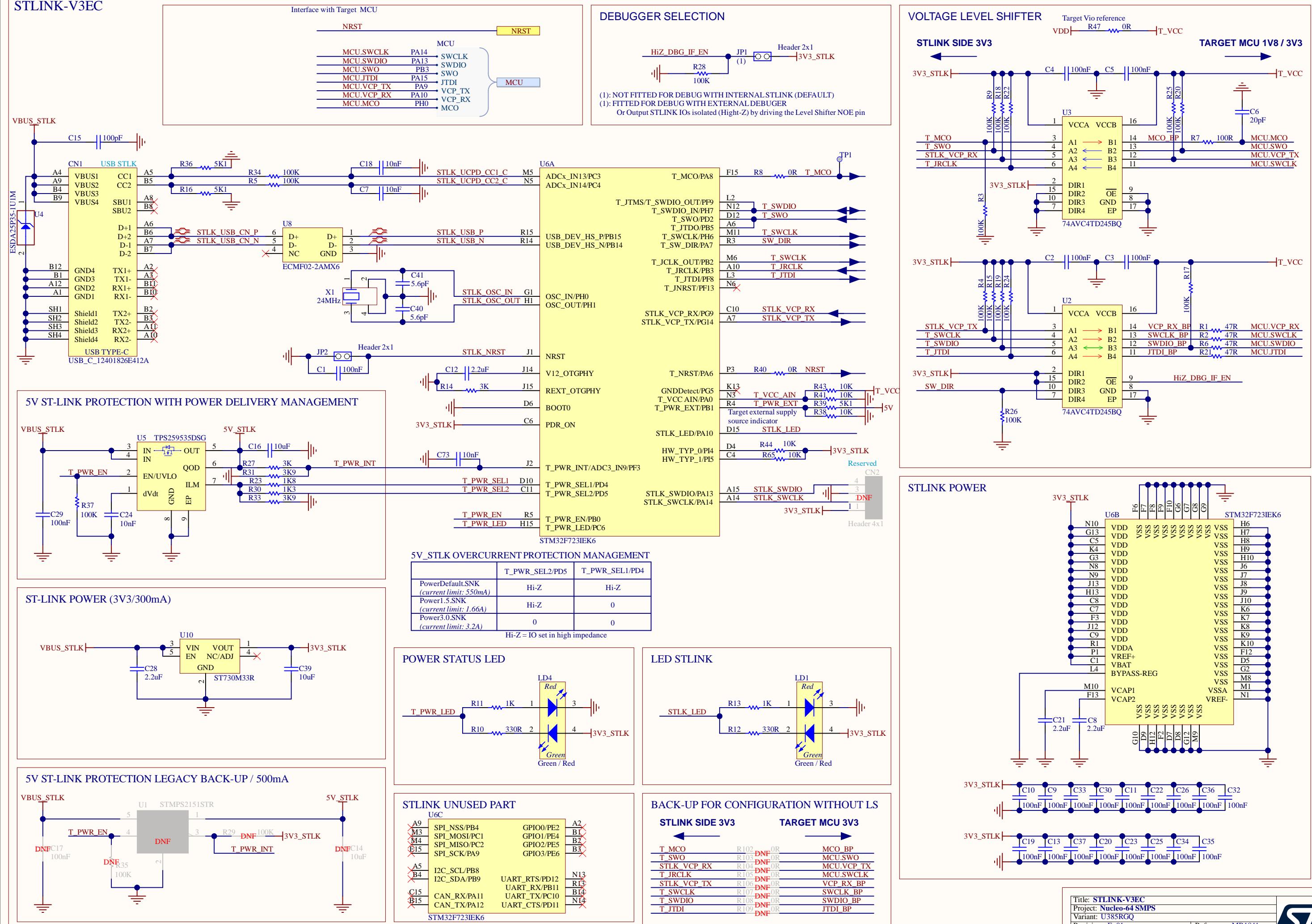
Variant: U385RGQ

Revision: E-01 Reference: MB184I

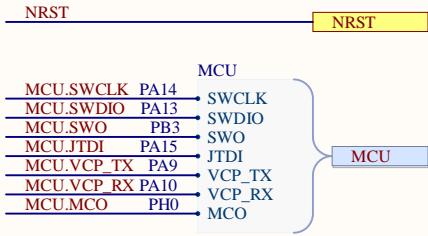
Size: A4 Date: 16-DEC-24 Sheet: 7 of 9



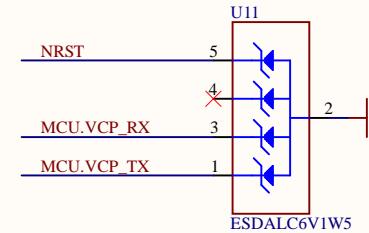
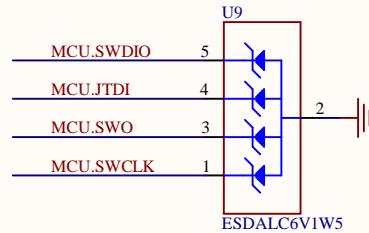
STLINK-V3EC



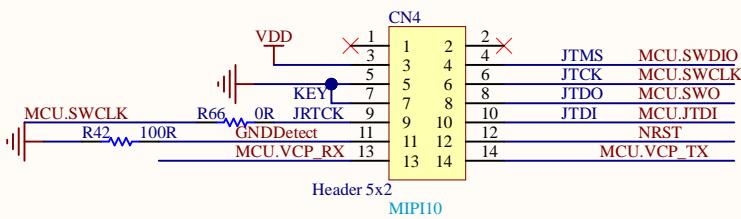
EXTERNAL DEBUGER INTERFACE



ESD PROTECTIONS



STDC14 RECEIVER



[△] Specific constraints for MCU.SWDIO and MCU.SWCLK (must be same length and must be

Title: External Debugger Interface

Project: Nucleo-64 SMPS

Variant: U385RGQ

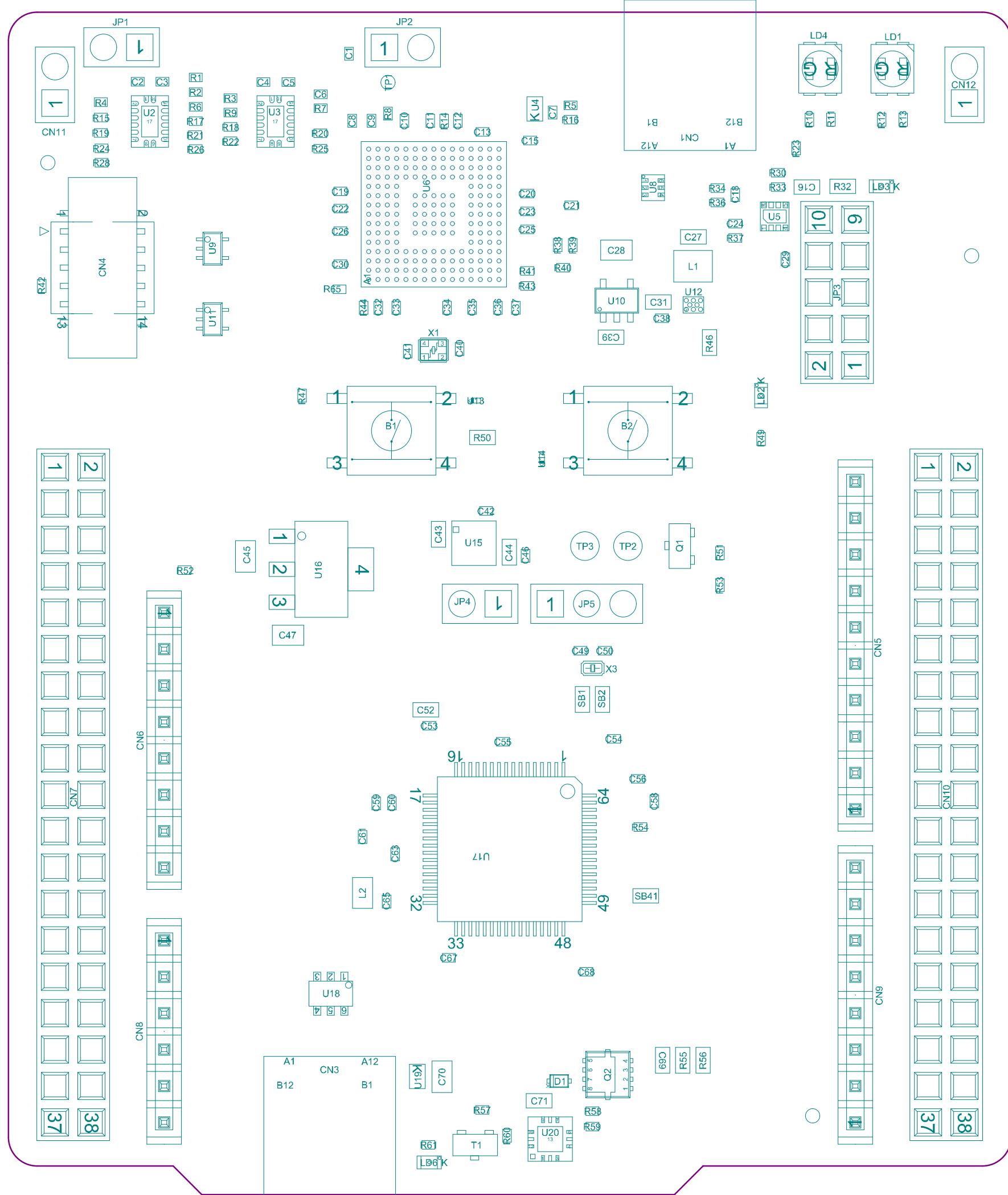
Revision: E-01

Reference: MB1841

Size: A4 Date: 16-DEC-24



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Project: Nucleo-64 SMPS

Layer: M14-Top Assembly

Variant: U385RGQ

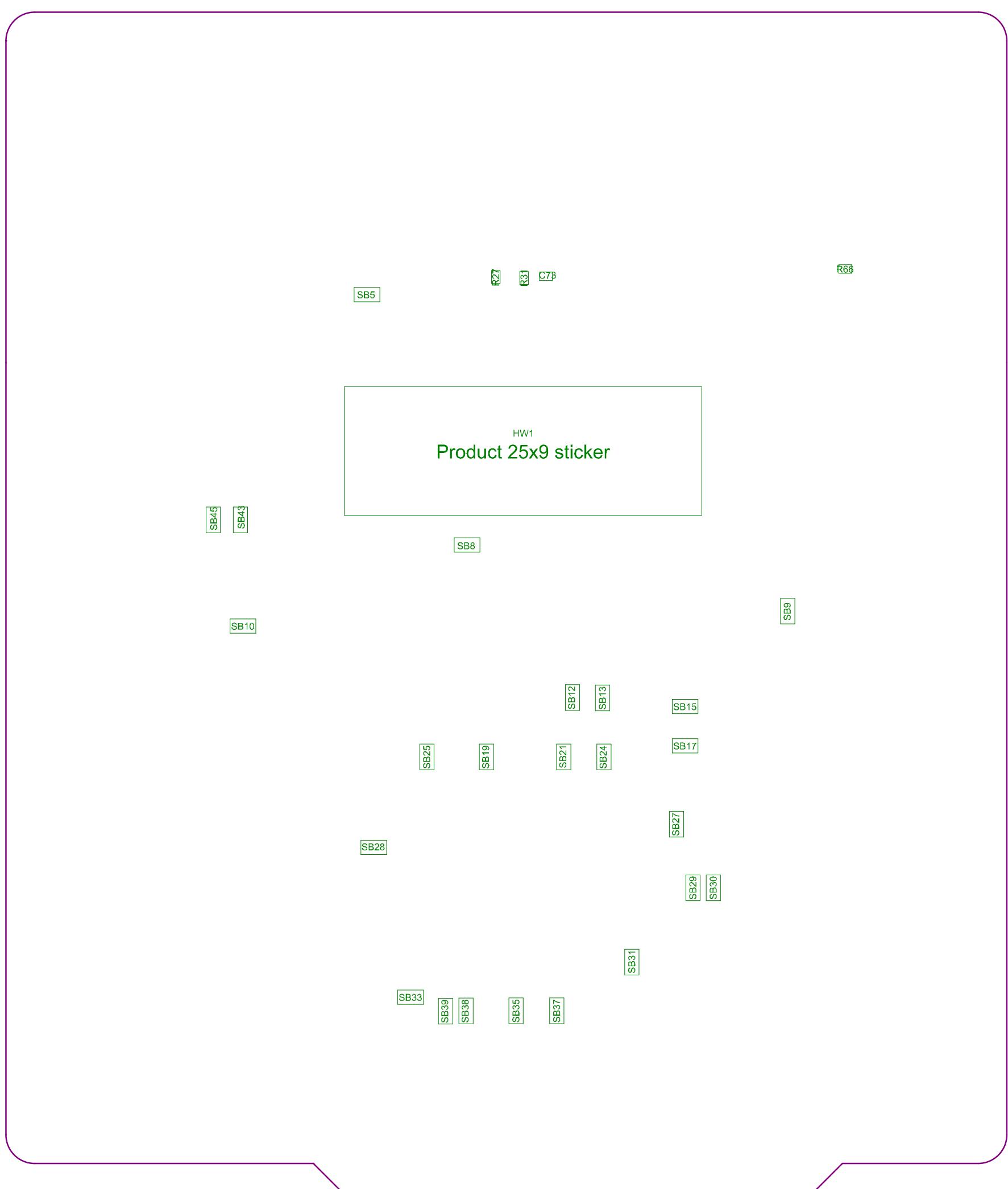
Date: 16-DEC-24

Gerber: .GM14

MB1841

Rev: E





Project: Nucleo-64 SMPS

Layer: M15-Bottom Assembly

Gerber: GM15

Variant: U385RGQ

MB1841

Date: 16-DEC-24

Rev: E



