

STM32H7B3I-EVAL

MB1331

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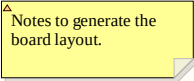
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Legend

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

Text to be added to silkscreen.

Warning text.



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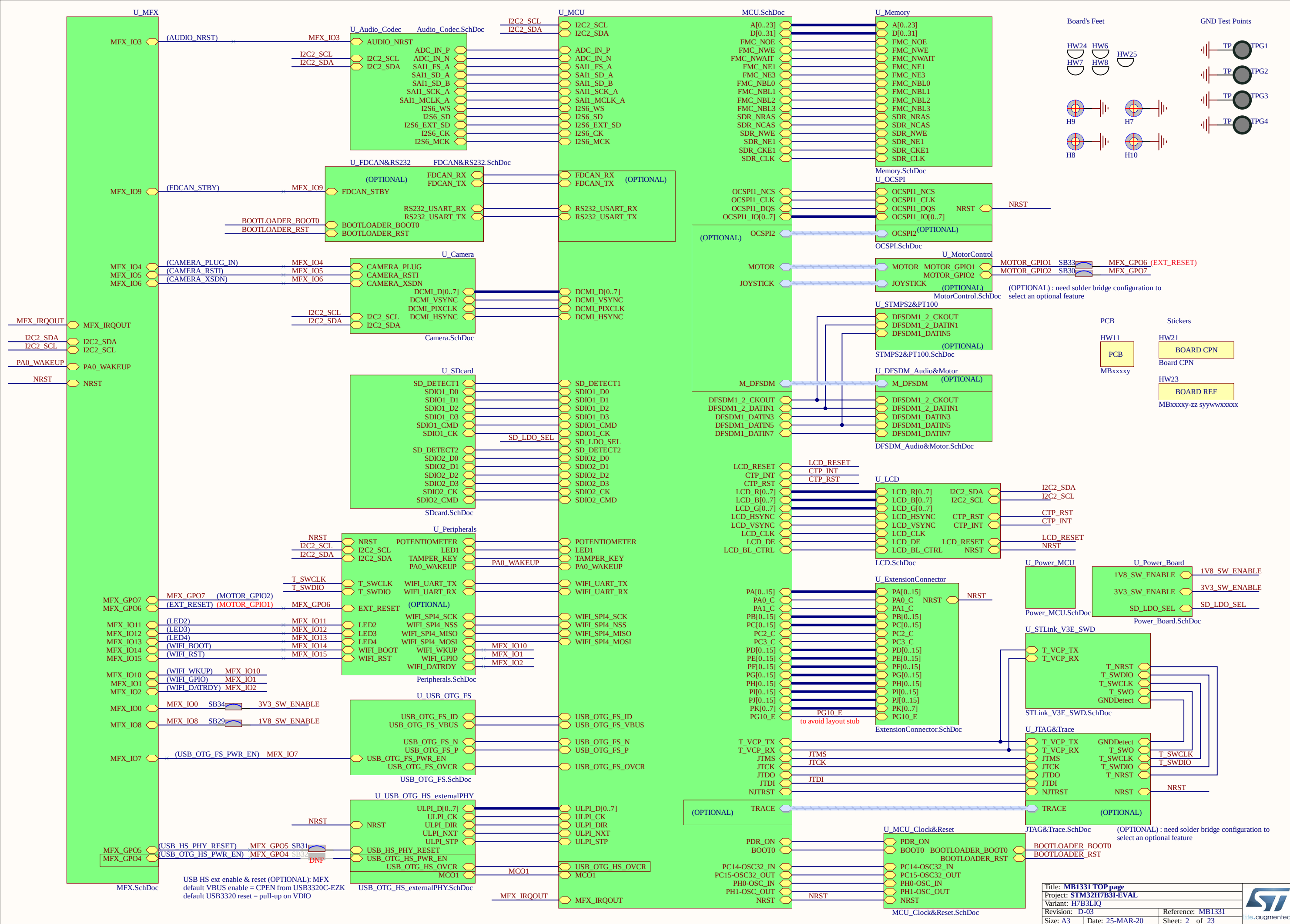
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U_Top
MB1331_TOP.SchDoc



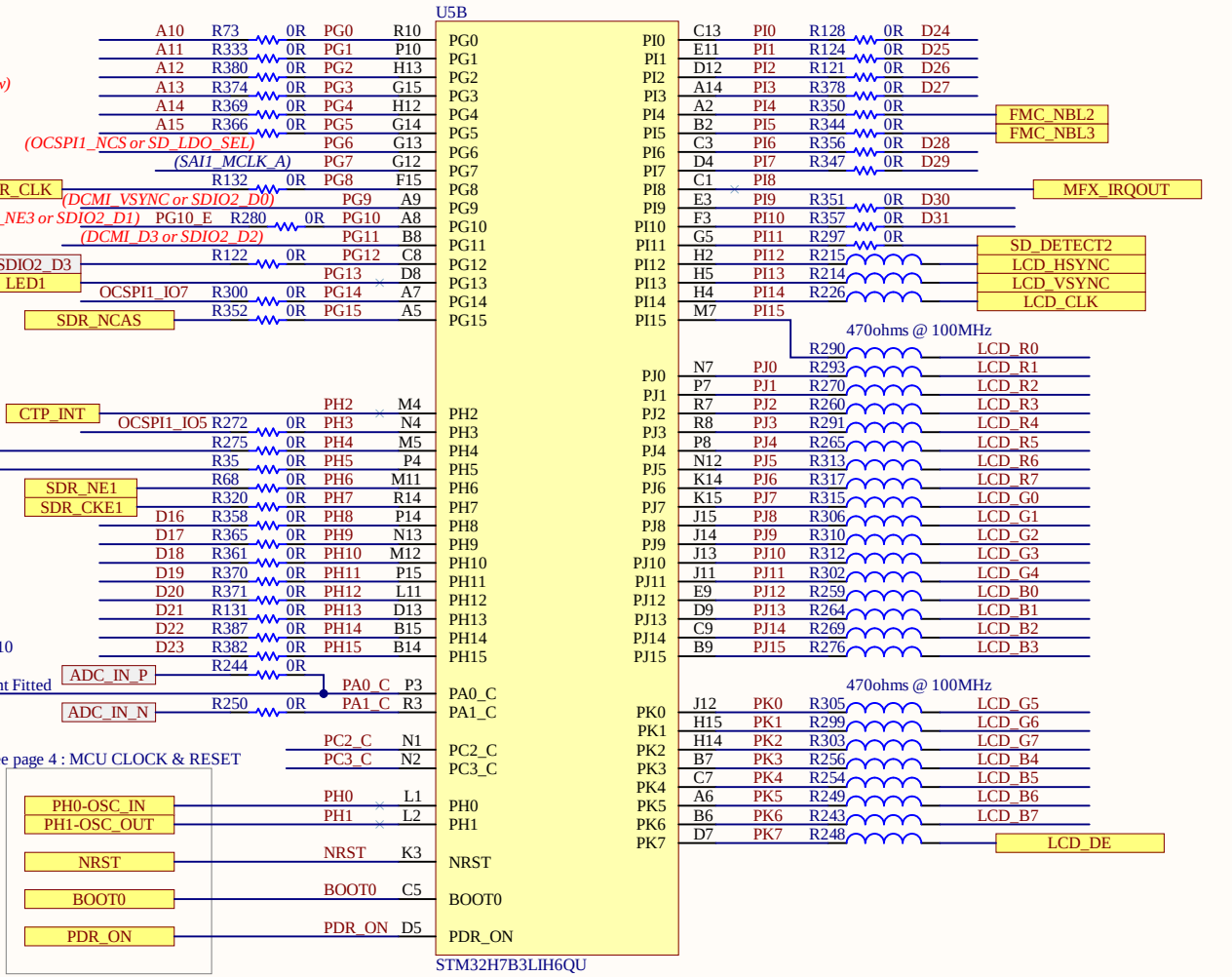
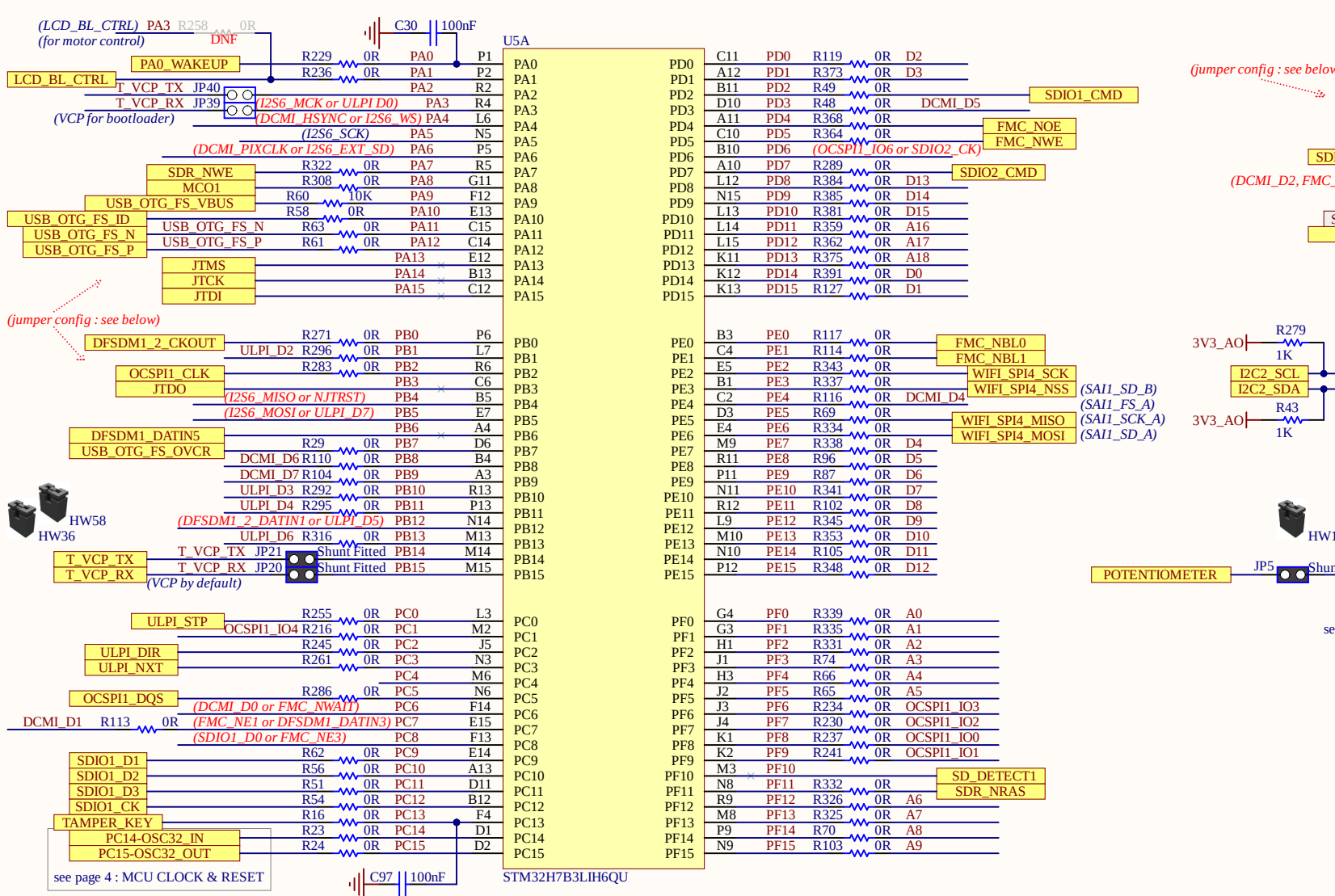
Title: Project overview		
Project: STM32H7B3I-EVAL		
Variant: H7B3LIQ		
Revision: D-03	Reference: MB1331	
Size: A4	Date: 25-MAR-20	Sheet: 1 of 23



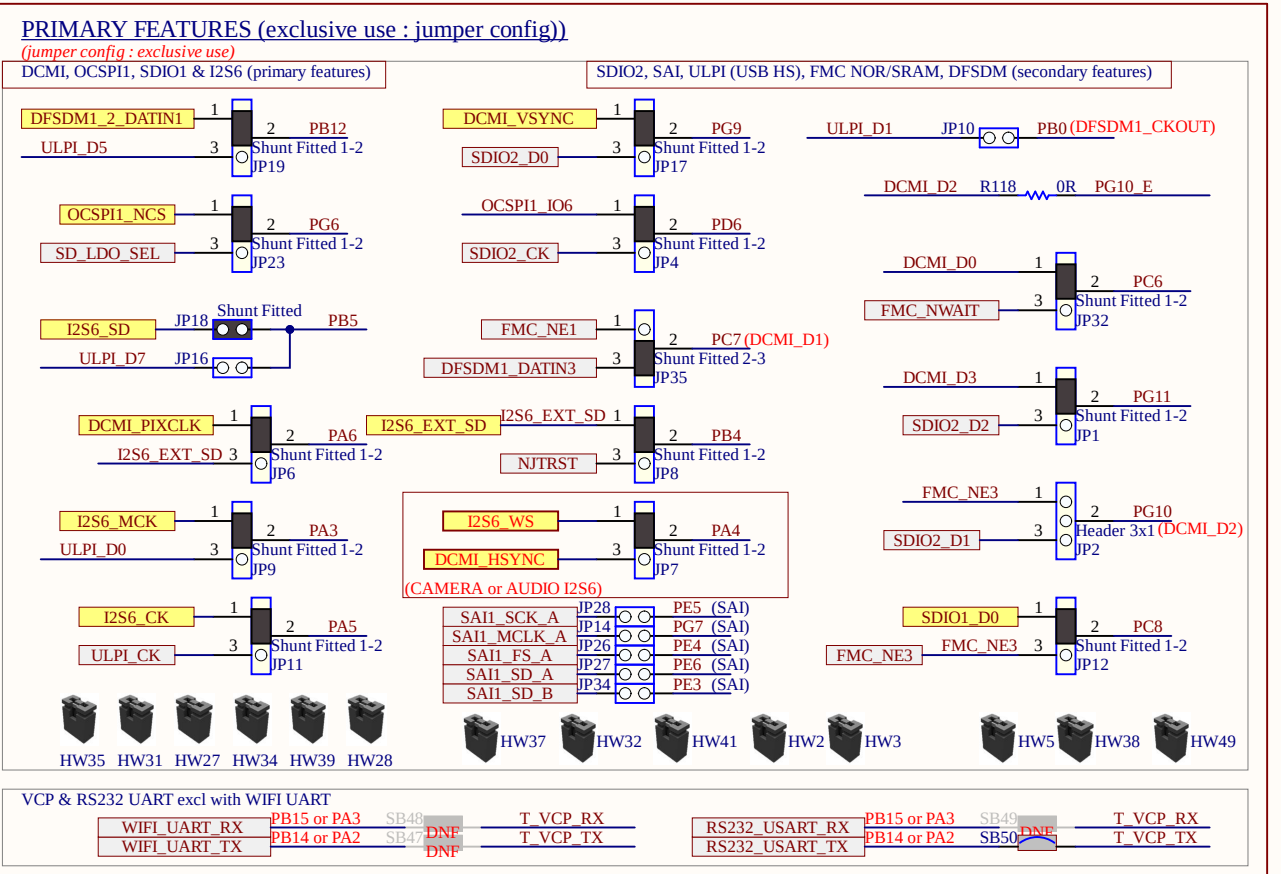
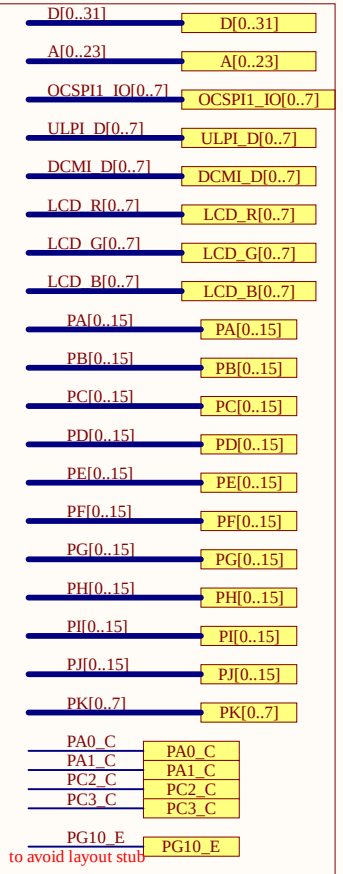
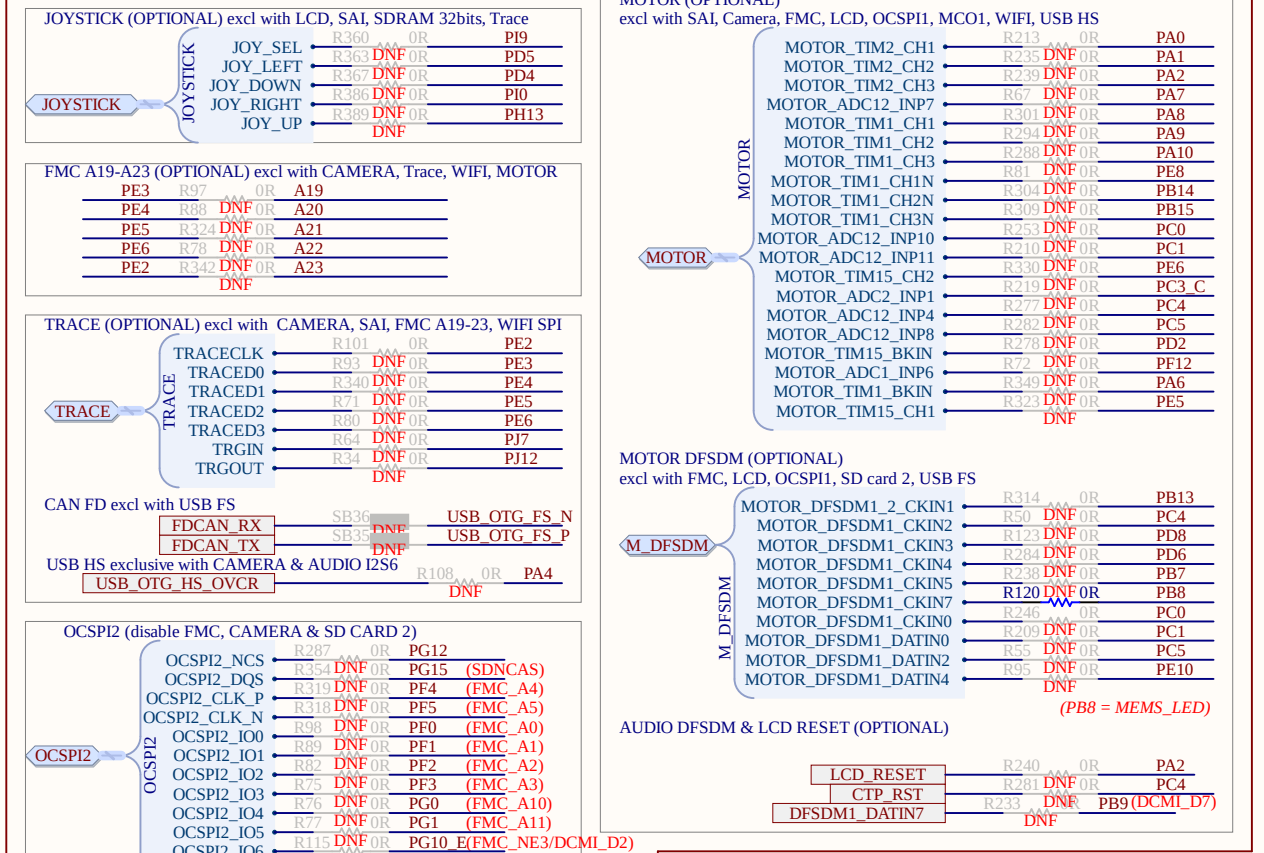


STM32H7B3LIH6Q MCU I/Os

PRIMARY FEATURES (fitted by default)

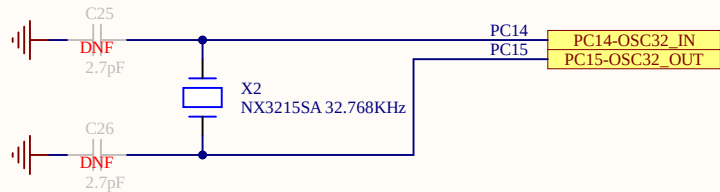


SECONDARY FEATURES (not fitted by default)

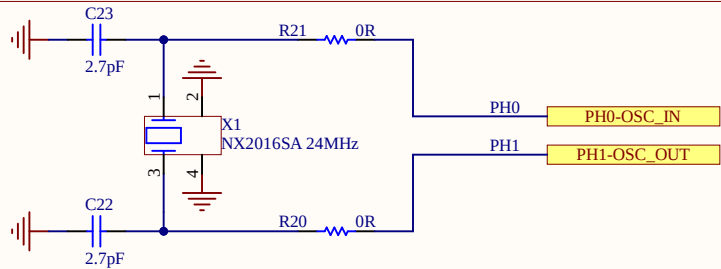


STM32H7B3LIH6Q MCU CLOCK, RESET & BOOT

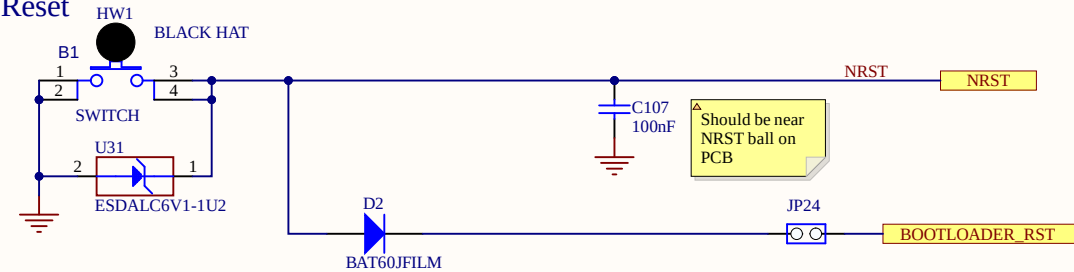
32kHz Clock



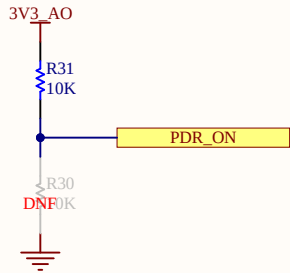
24MHz Clock



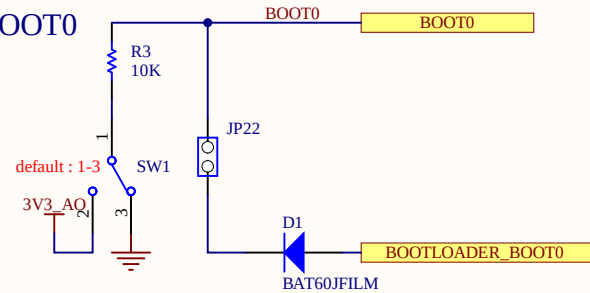
Reset



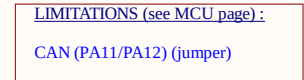
PDR ON



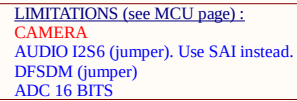
BOOT0



(Always $\overline{ON}$)

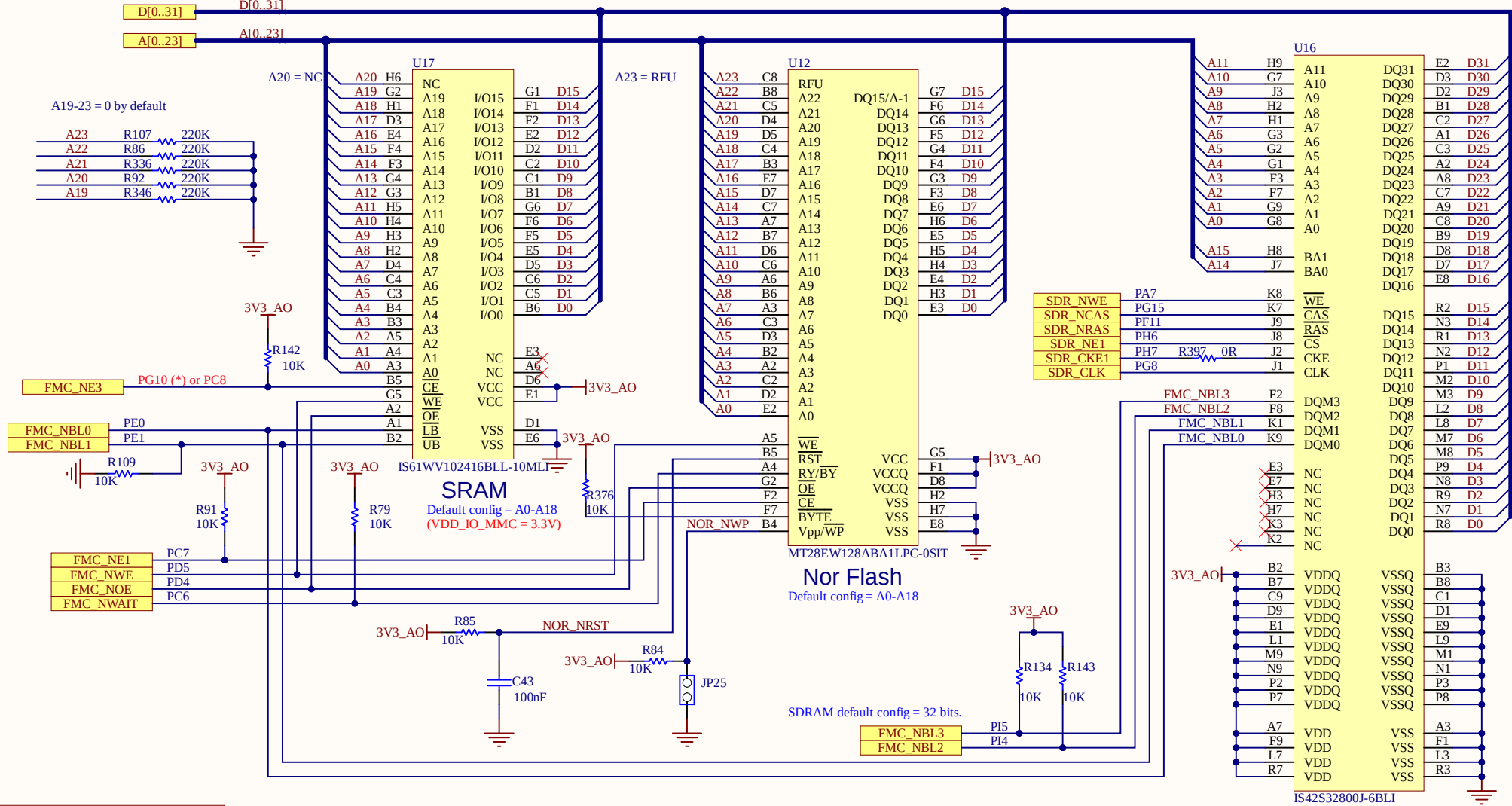


(Always $\overline{ON}$)



MEMORIES
(Always ON)

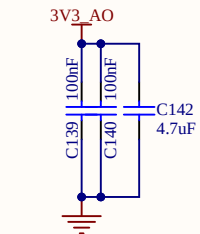
(*) Some SRAM I/Os are supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)



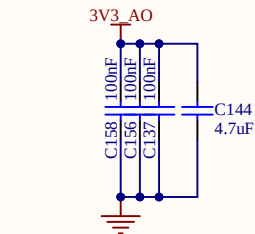
LIMITATIONS (SDRAM):
OCSPI2

LIMITATIONS (NOR):
CAMERA
OCSPI2, DFSDM DATIN3

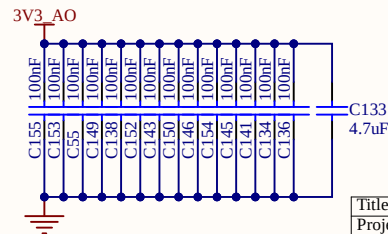
LIMITATIONS & BACK-UP (SRAM):
CAMERA
SD CARD : NE3 = PG10 (if SD CARD 1 is used) / PC8 (if SD CARD 2 is used)
OCSPI2
(*) Make sure to set VDD_IO_MMC = 3.3V



Place close to SRAM



Place close to Nor Flash

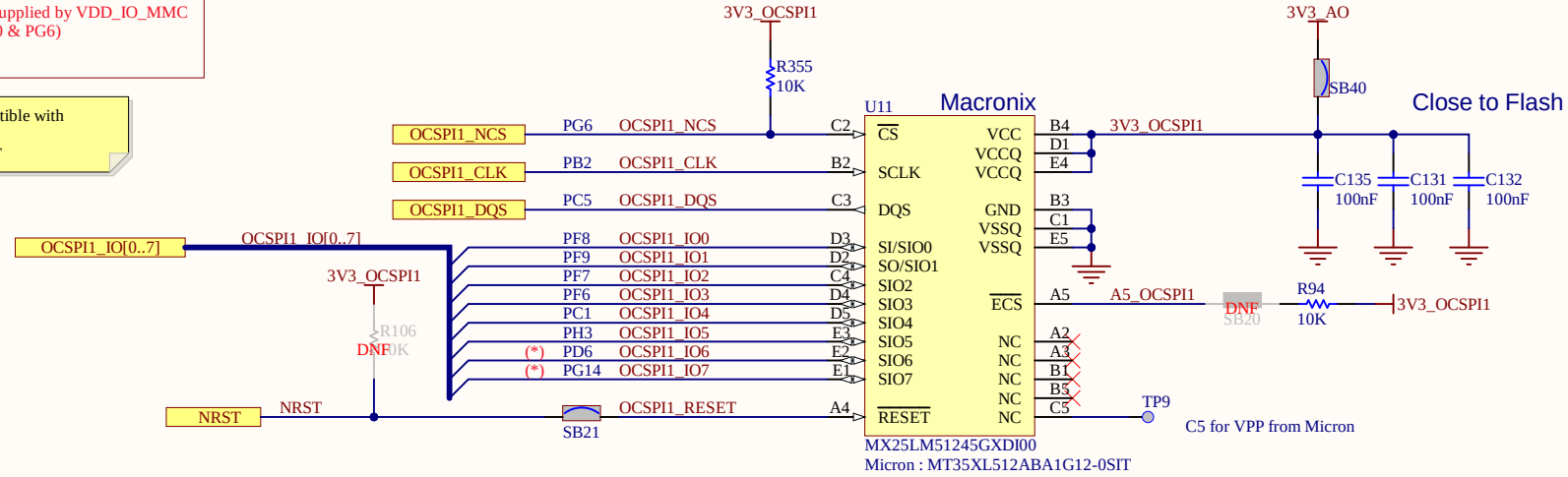


Place close to SDRAM

OCSPI 1

(*) Some OCSPI1 I/Os are supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)

Double footprint to be compatible with
Macronix and Micron
MT35XL512ABA1G12-0SIT

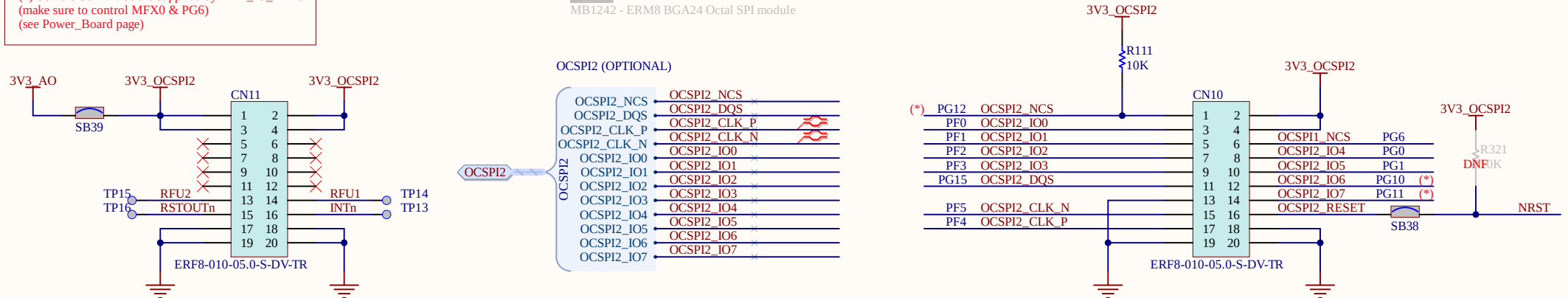


LIMITATIONS (see MCU page):
SD CARD 2 (jumper)
(*) Make sure to set VDD_IO_MMC = 3.3V

(RESET pins of Flash have internal pull-up (both) by default and VPP connection is tbc on Micron)

OCSPI 2 (MB1242 Module connector)

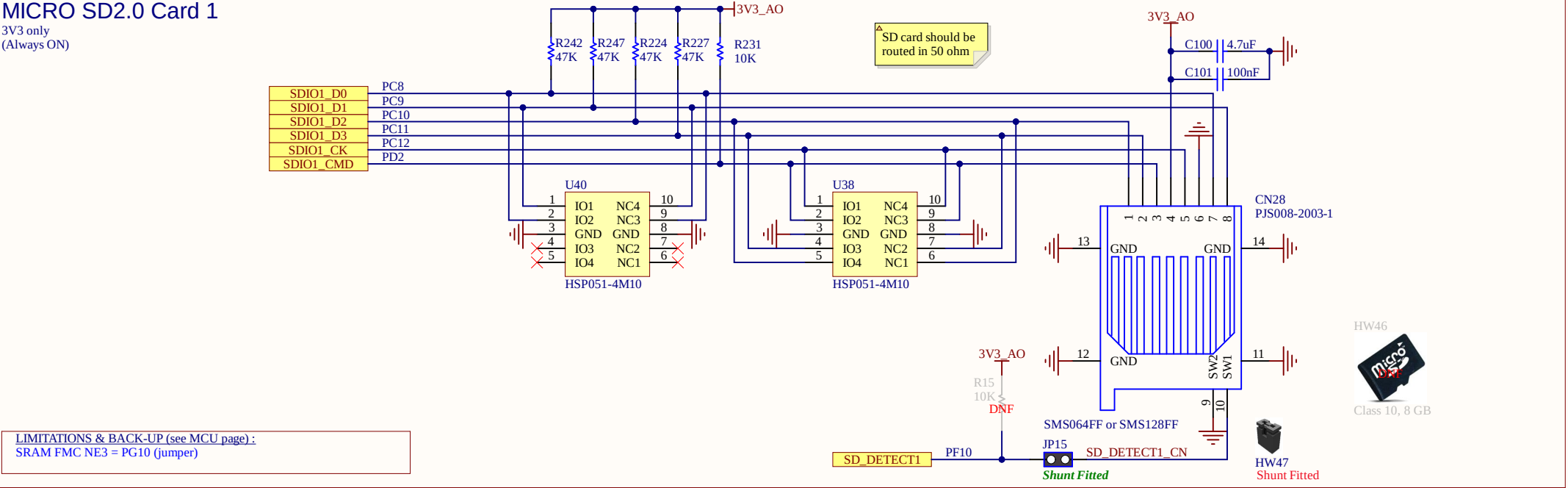
(*) Some OCSPI2 I/Os are supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)



LIMITATIONS & BACK-UP (see MCU page):
FMC (NOR, SRAM & SDRAM)
SD CARD 2 (jumper)
 (*) Make sure to set VDD_IO_MMC = 3.3V

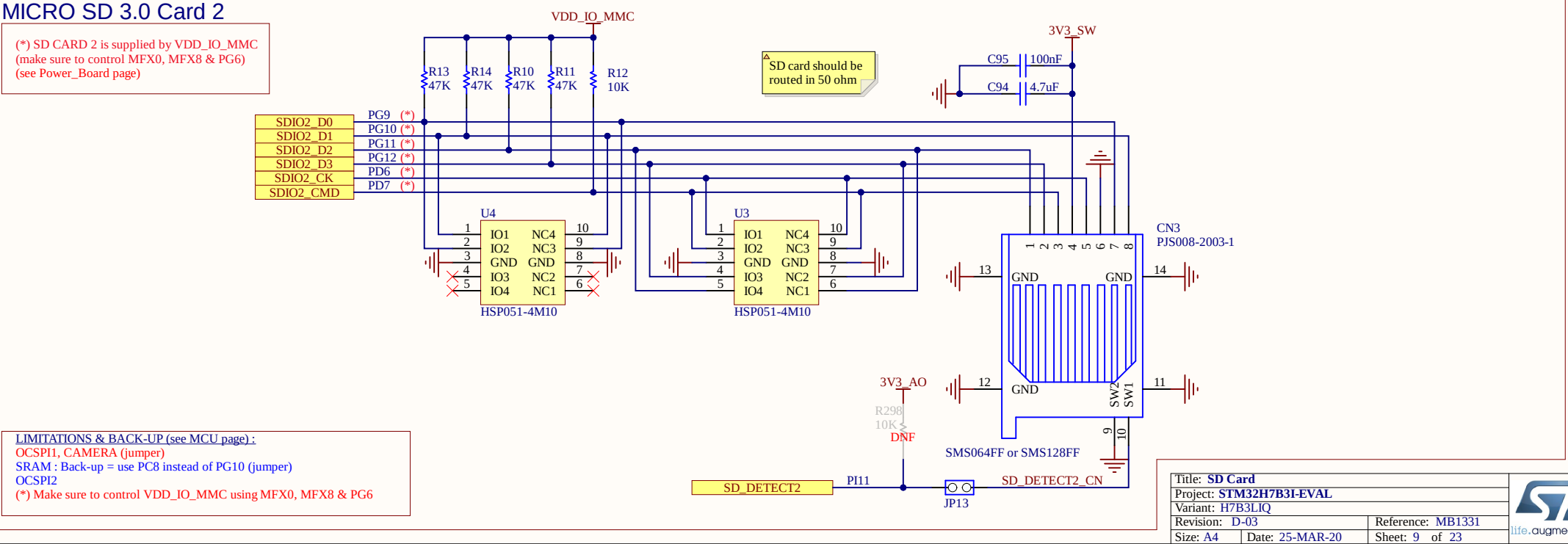
MICRO SD2.0 Card 1

3V3 only
(Always ON)



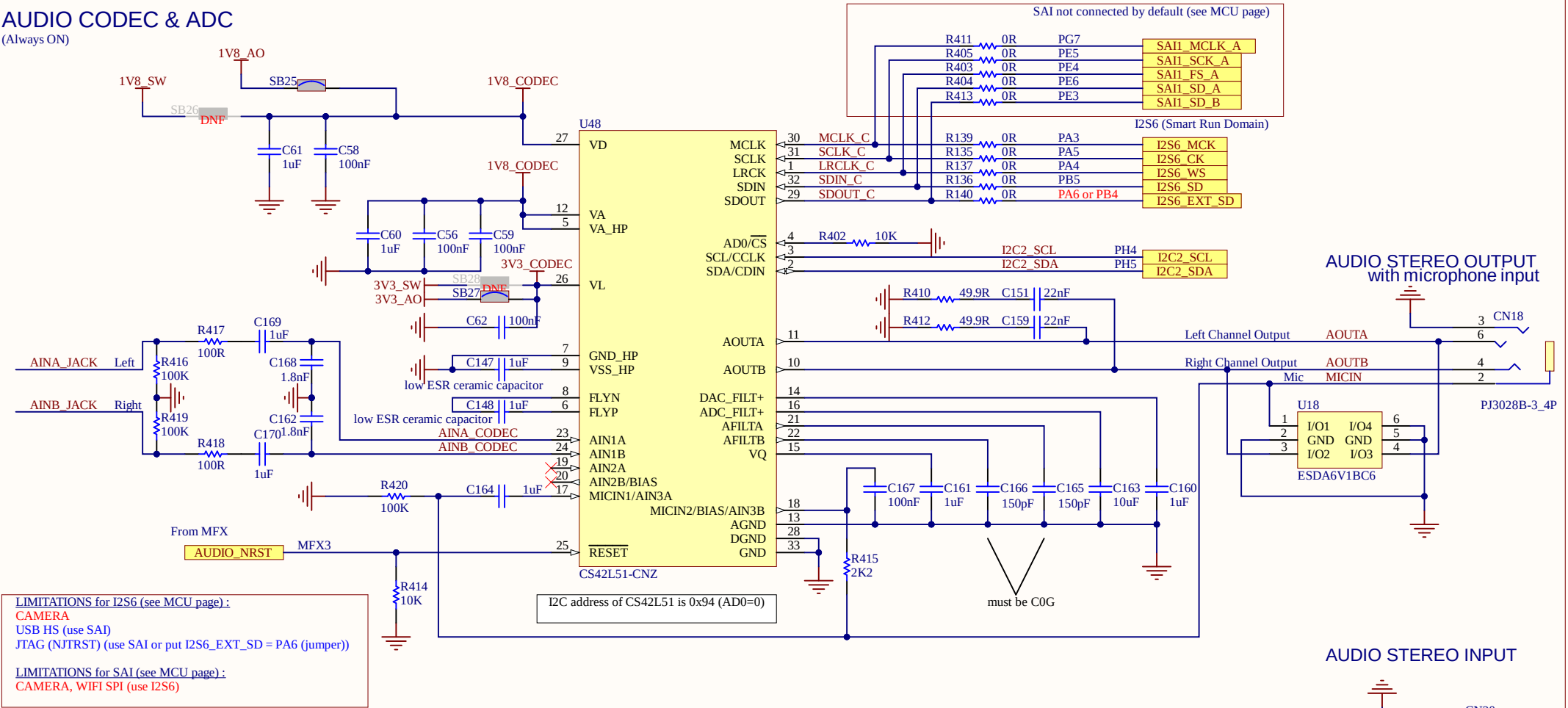
MICRO SD 3.0 Card 2

(*) SD CARD 2 is supplied by VDD_IO_MMC
(make sure to control MFX0, MFX8 & PG6)
(see Power_Board page)



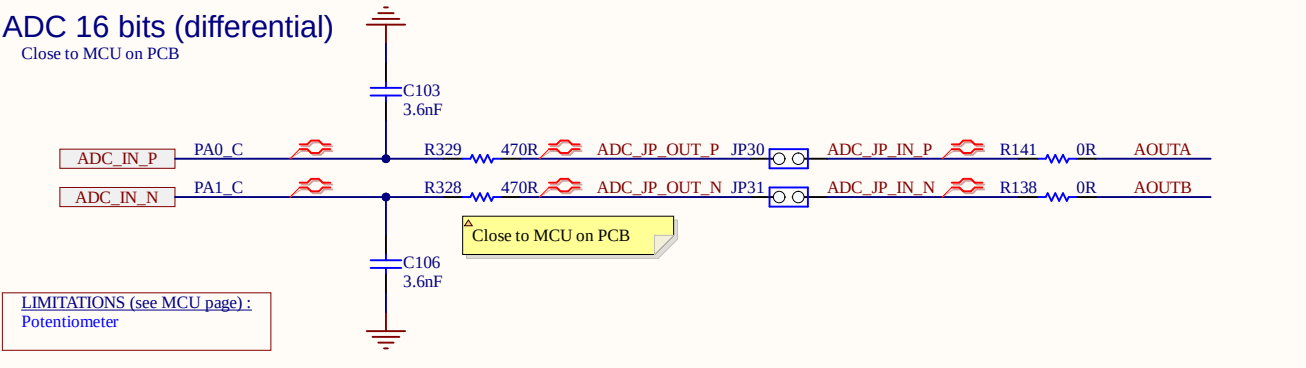
AUDIO CODEC & ADC

(Always ON)



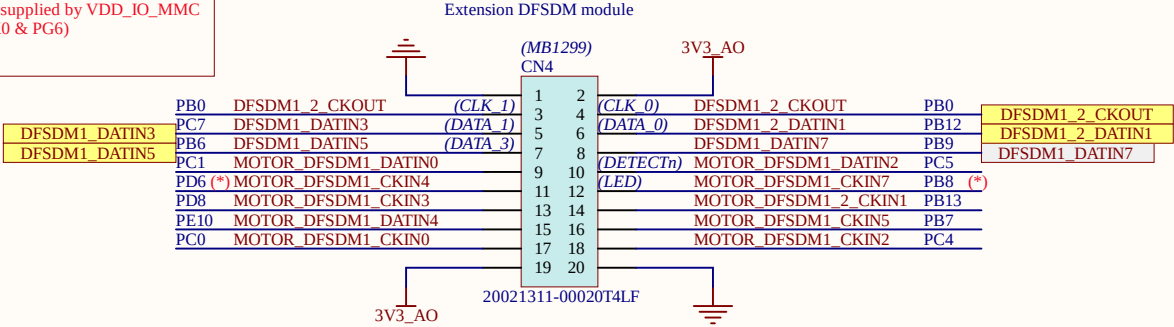
ADC 16 bits (differential)

Close to MCU on PCB

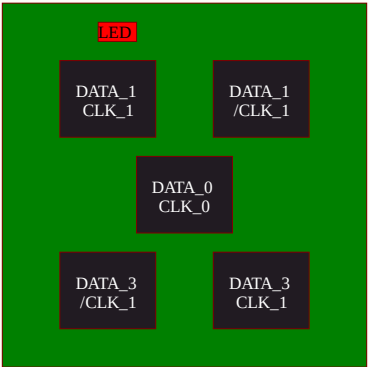


DFSDM AUDIO & MOTOR

(*) Some DFSDM I/Os are supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)



HW30
DNF
MB1299-5_MEMS_Microphone_Expansion_Board



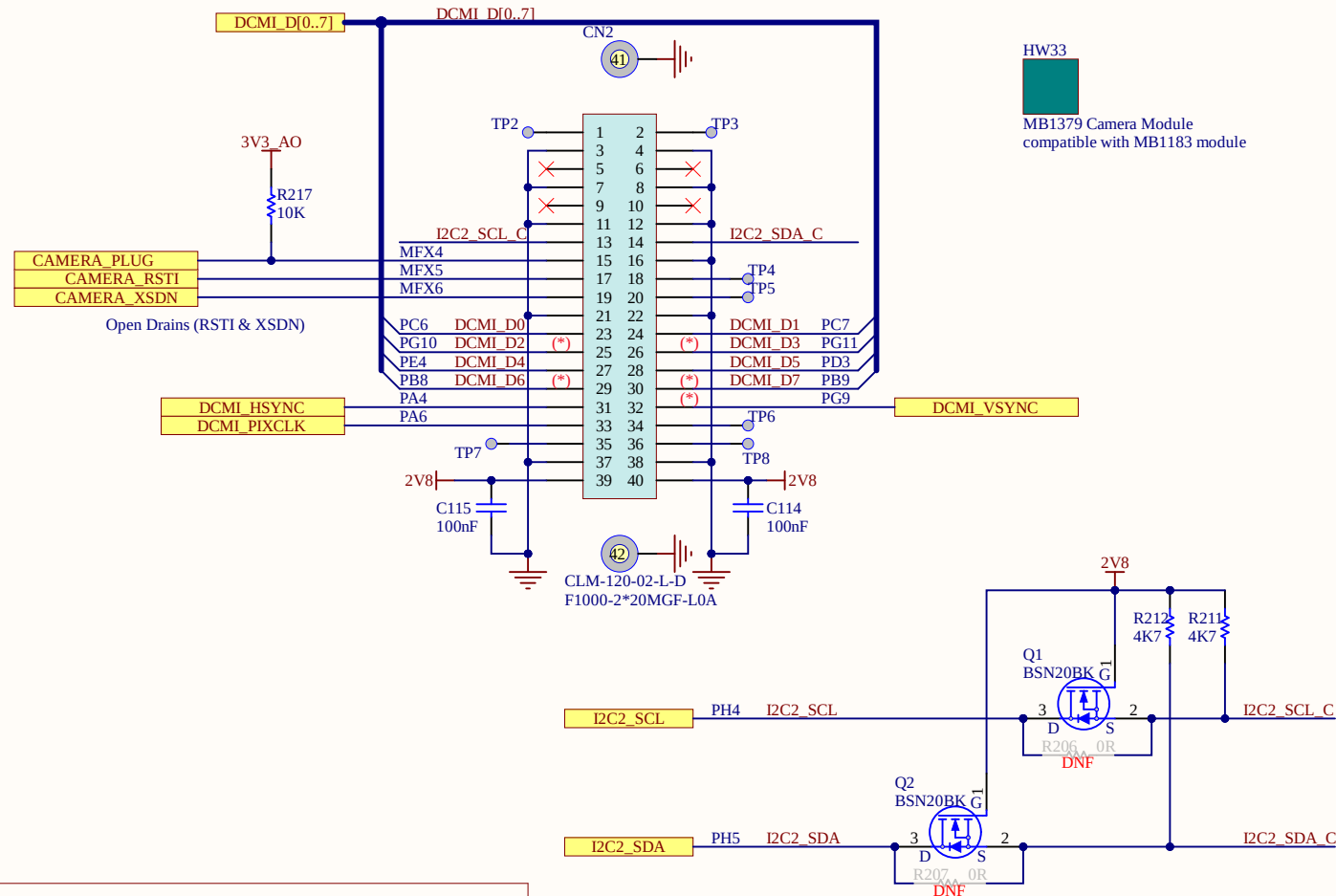
(MB1299)
CLK0 & CLK1 = data valid when clk is high
/CLK1 = data valid when clk is low

LIMITATIONS AUDIO DFSDMx4 (see MCU page):

(*) Make sure to set VDD_IO_MMC = 3.3V
CAMERA
USB HS, FMC NOR (jumper)

CAMERA MODULE CONNECTOR

(*) Some DCMI I/O are supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)



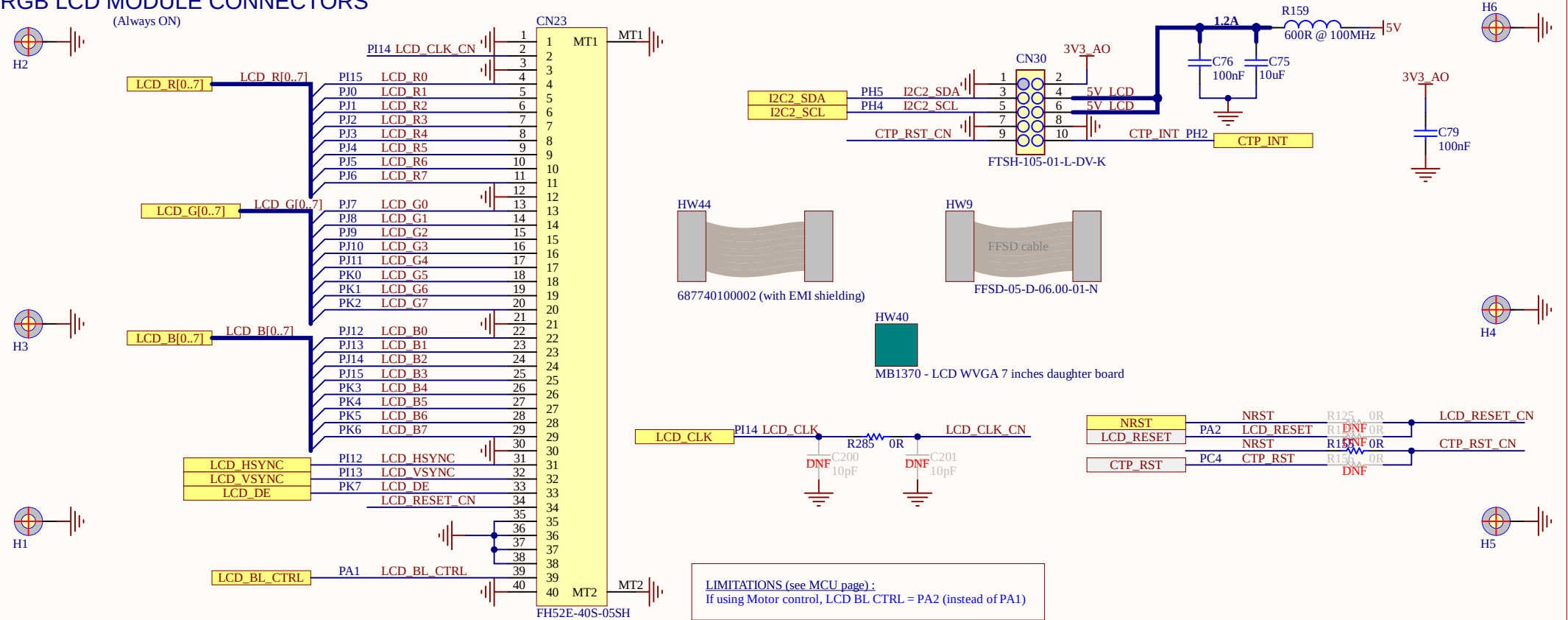
LIMITATIONS (see MCU page):

AUDIO (I2S6), DFSDM

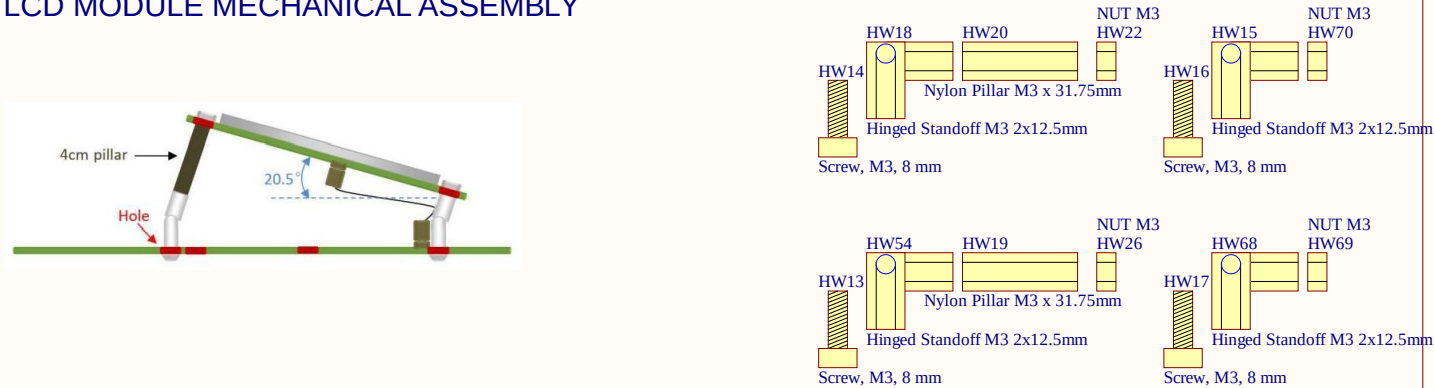
AUDIO (SAD), SRAM, NOR, SD CARD 2, OCSPi2

(*) Make sure to set VDD_IO_MMC = 3.3V

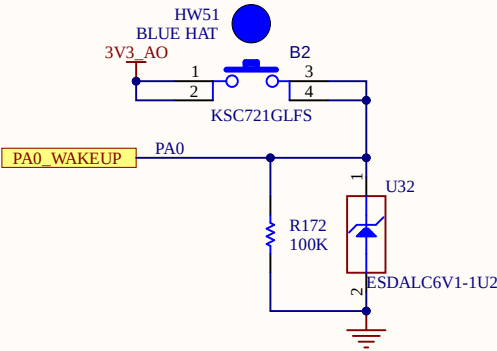
RGB LCD MODULE CONNECTORS



LCD MODULE MECHANICAL ASSEMBLY

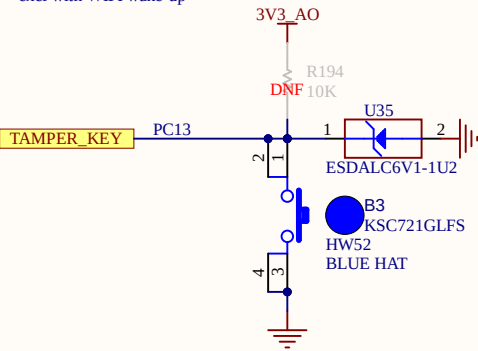


USER WAKE-UP BUTTON

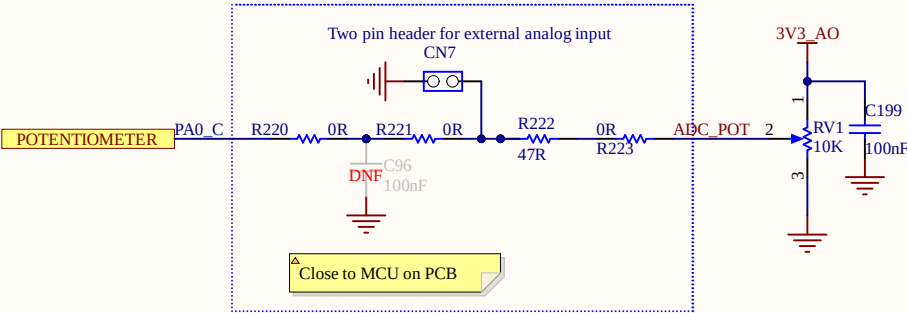


TAMPER & KEY BUTTON

excl with WIFI wake-up

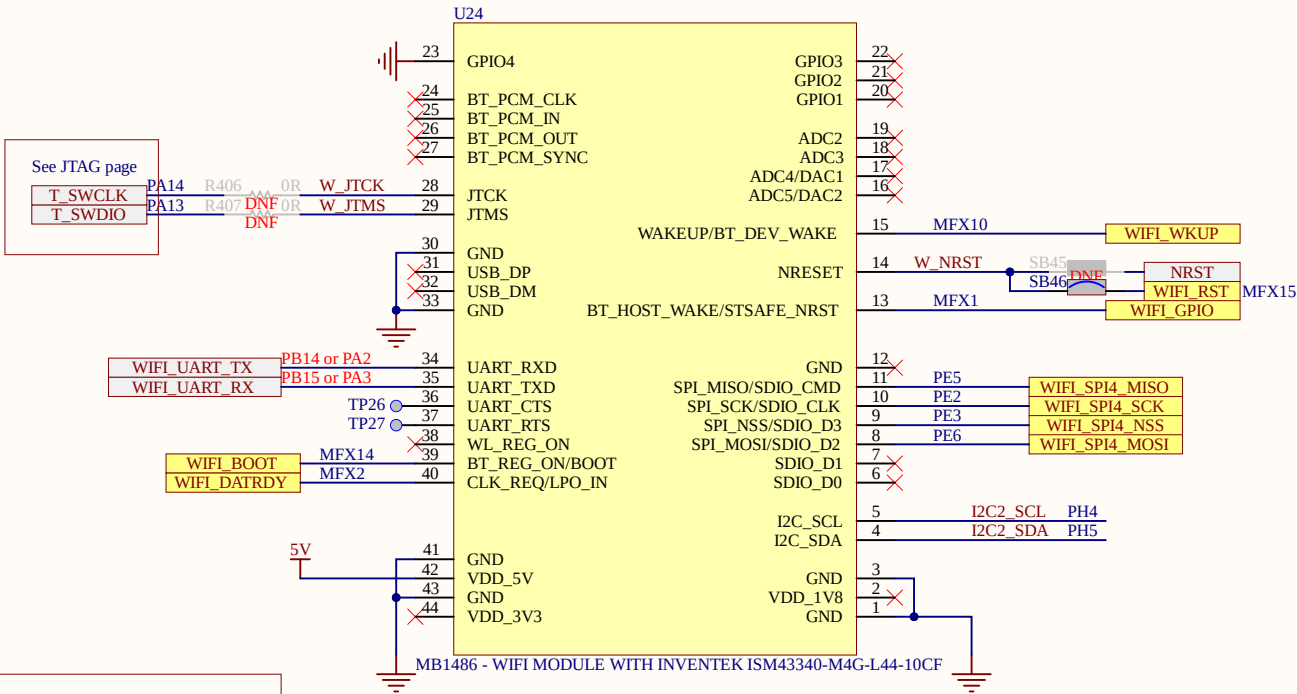


POTENTIOMETER



MB1486 - WIFI MODULE WITH INVENTEK ISM43340-M4G-L44-10CF

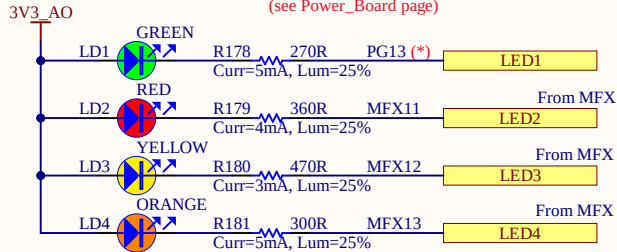
(WIFI SPI by default)
(Always ON)



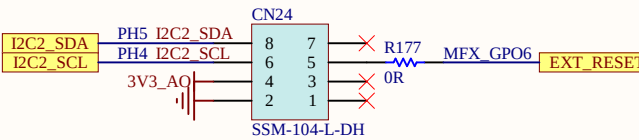
LIMITATIONS (see MCU page):
EXT I2C

LEDs

(*) LED1 I/O is supplied by VDD_IO_MMC
(make sure to control MFX0 & PG6)
(see Power_Board page)



EXT_I2C



LIMITATIONS (see MCU page):
WIFI

(Always ON)



PB14/PB15 : not a bootloader compatible UART

PA2/PA3 : AUDIO I2S6, USB HS, MOTOR CONTROL

(optional : not fitted)
(Always ON)



USB FS



(optional : not fitted)

external generator input : pins 1 and 3
voltage of complex load : pins 2 and 3
shunt voltage : pins 1 and 2

JPME1

3

2

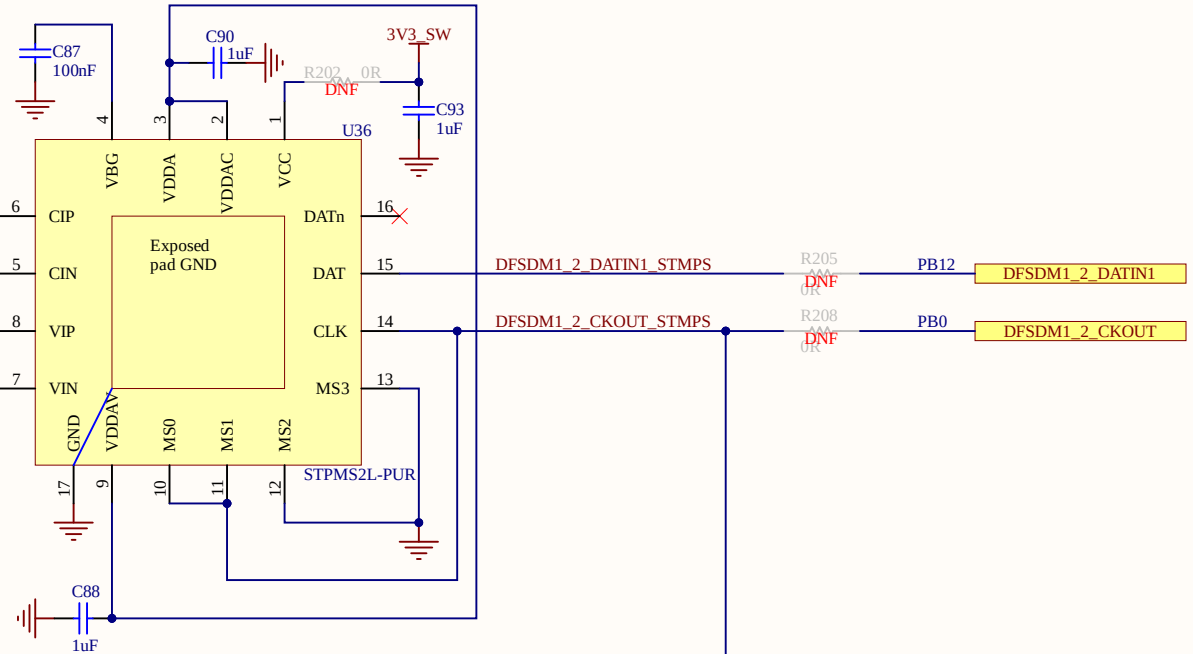
1

R197
1K

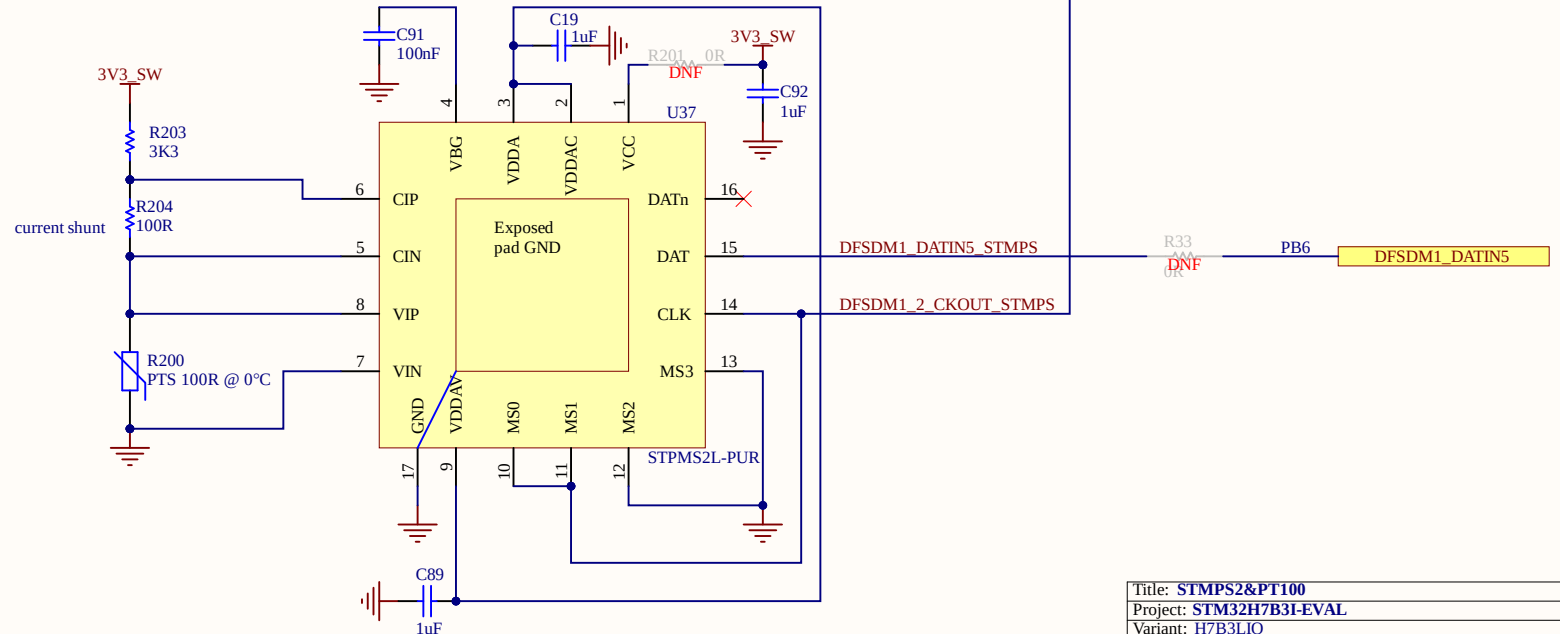
C86
4.7uF

R198
1K

R+jX Load



(optional : not fitted)



LIMITATIONS :

See user manual

Title: STMP2S2&PT100		
Project: STM32H7B3I-EVAL		
Variant: H7B3LIQ		
Revision: D-03		Reference: MB1331
Size: A4	Date: 25-MAR-20	Sheet: 16 of 23



MOTOR CONTROL
(optional : not fitted)

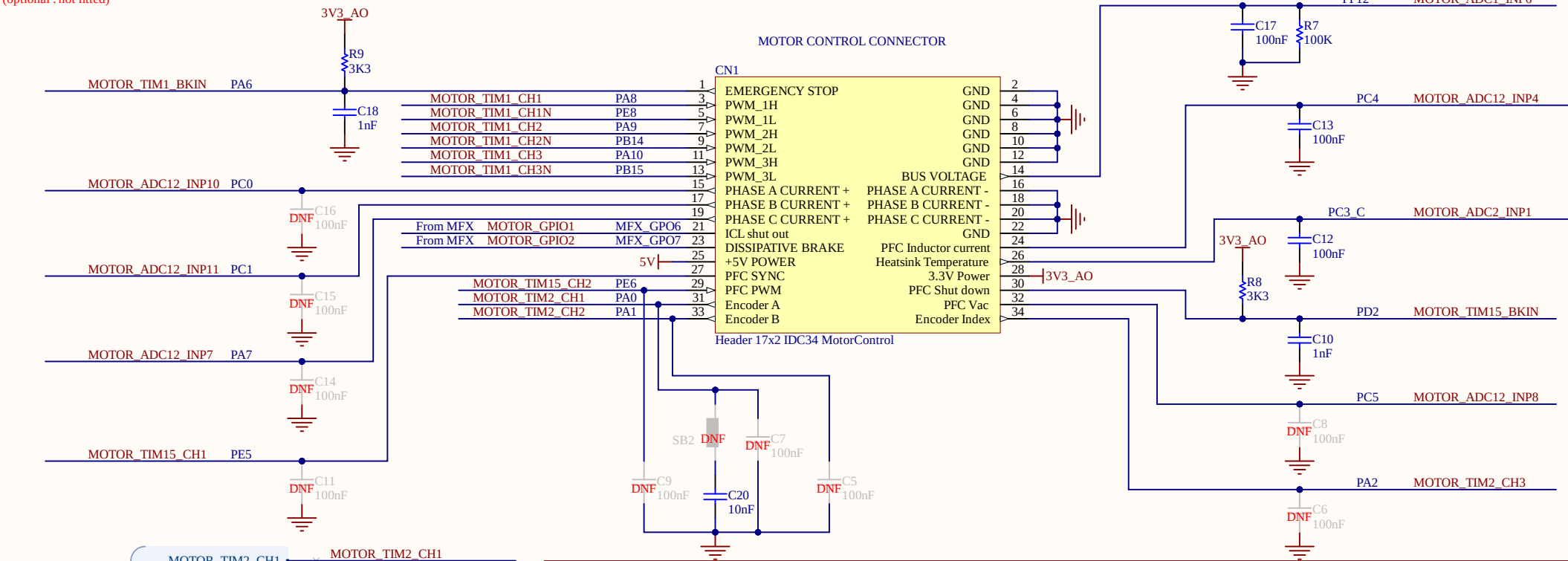
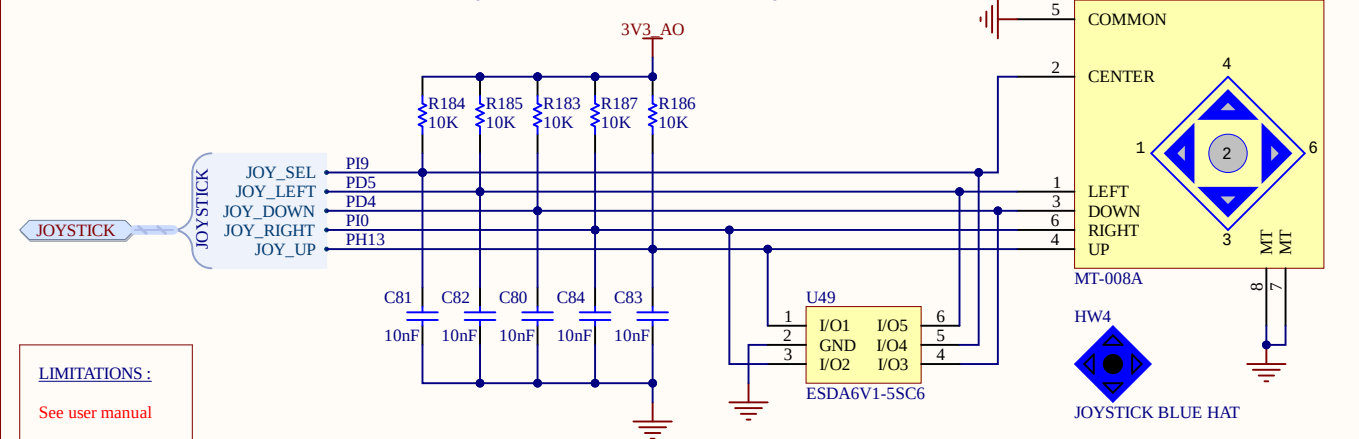


Table mapping MOTOR pins to MOTOR control signals. Includes pins like MOTOR_TIM1_CH1, MOTOR_TIM1_CH1N, MOTOR_TIM1_CH2, etc., and their corresponding control signals.

LIMITATIONS :
See user manual

MOTOR CONTROL JOYSTICK (OPTIONAL : not fitted)

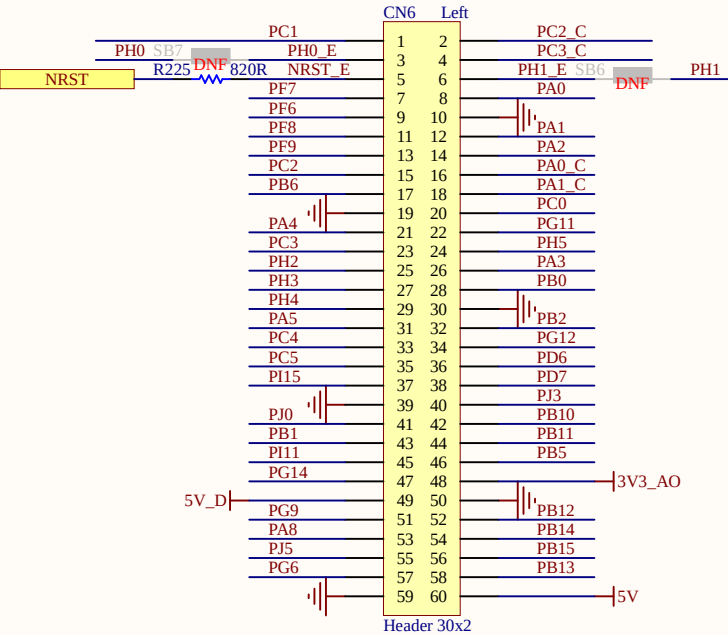


LIMITATIONS :
See user manual

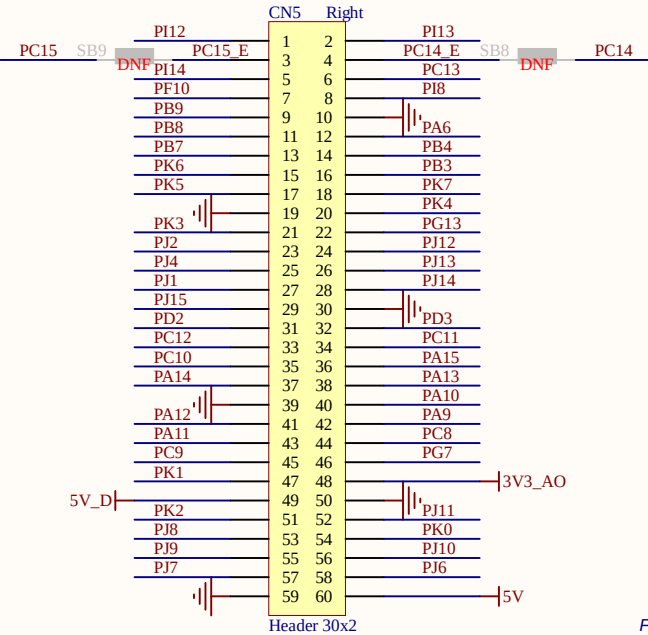
(Always ON)



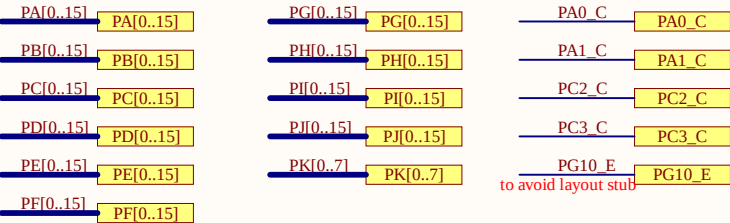
MCU EXTENSION CONNECTORS



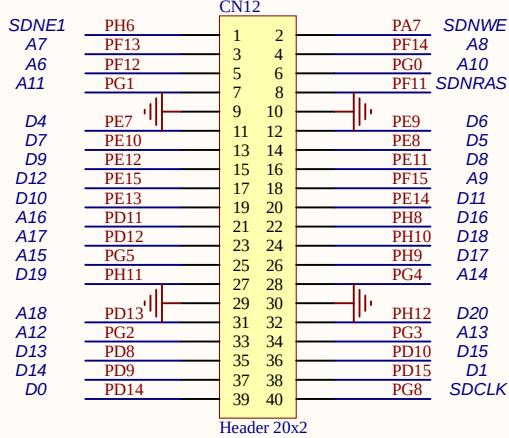
FTR-130-03-L-D-LC (Samtec)
or FTR-130-53-L-D-LC (Samtec) ?



FTR-130-03-L-D-LC (Samtec)
or FTR-130-53-L-D-LC (Samtec) ?

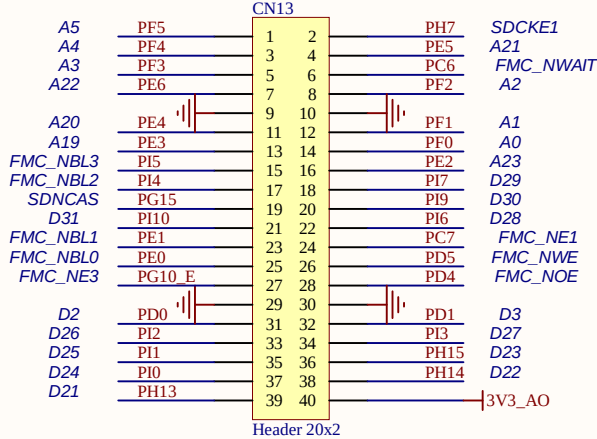


Place close Memory



FTR-120-03-L-D-LC (Samtec)
or FTR-120-53-L-D-LC (Samtec) ?

Place close Memory

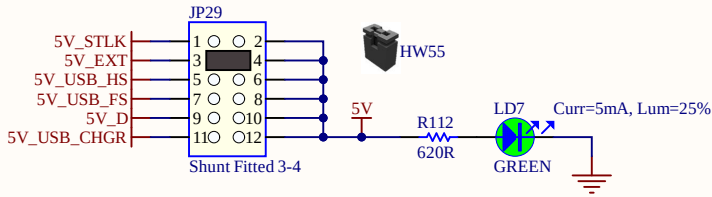


FTR-120-03-L-D-LC (Samtec)
or FTR-120-53-L-D-LC (Samtec) ?

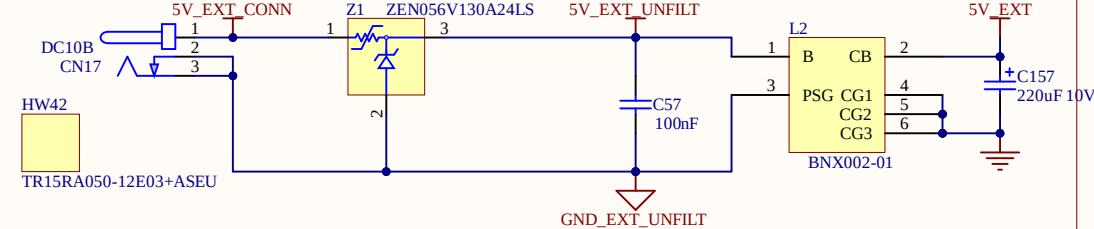


BOARD POWER

5V Power Supply options

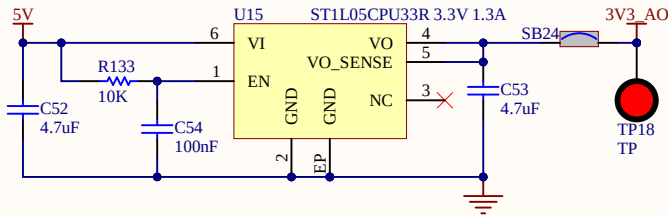


5V External supply (Always ON)

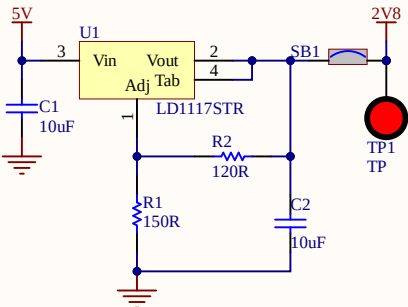


3V3 Supply (Always ON)

See Power MCU page
(also provides power to MCU VDD)

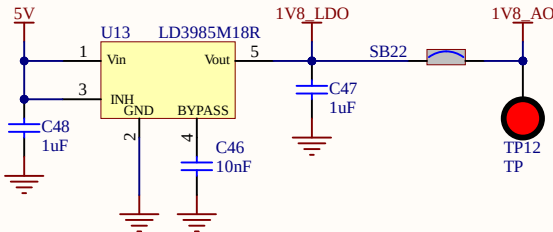


2V8 supply (Always ON)

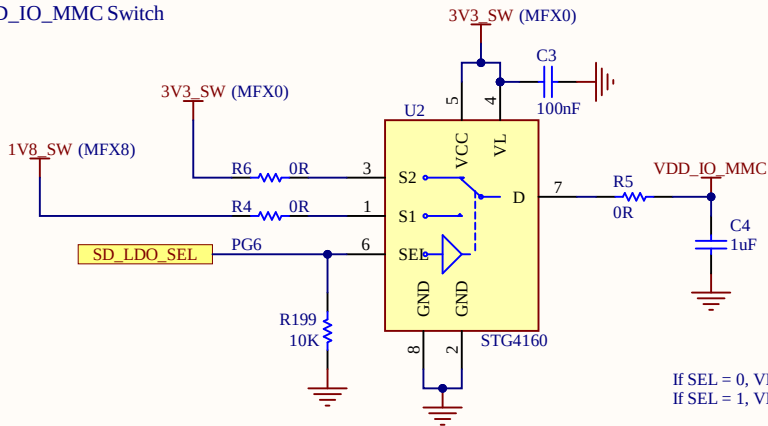


1V8 (Always ON)

See Power MCU page : can be replaced by MCU internal SMPS



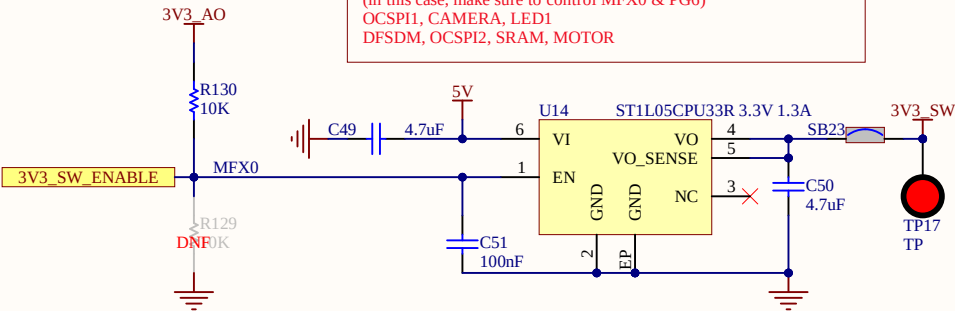
VDD_IO_MMC Switch



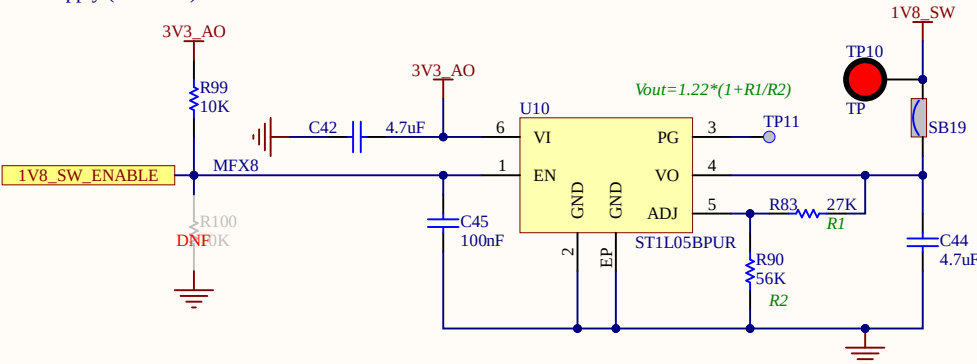
If SEL = 0, VDD_MMC = 3V3 (default)
If SEL = 1, VDD_MMC = 1V8

3V3 Supply (Switched)

SD CARD 2 is supplied by VDD_IO_MMC
(in this case, make sure to control MFX0, MFX8 & PG6)
Following interfaces are supplied by VDD_IO_MMC = 3.3V only
(in this case, make sure to control MFX0 & PG6)
OCSP11, CAMERA, LED1
DFSMD, OCSP12, SRAM, MOTOR

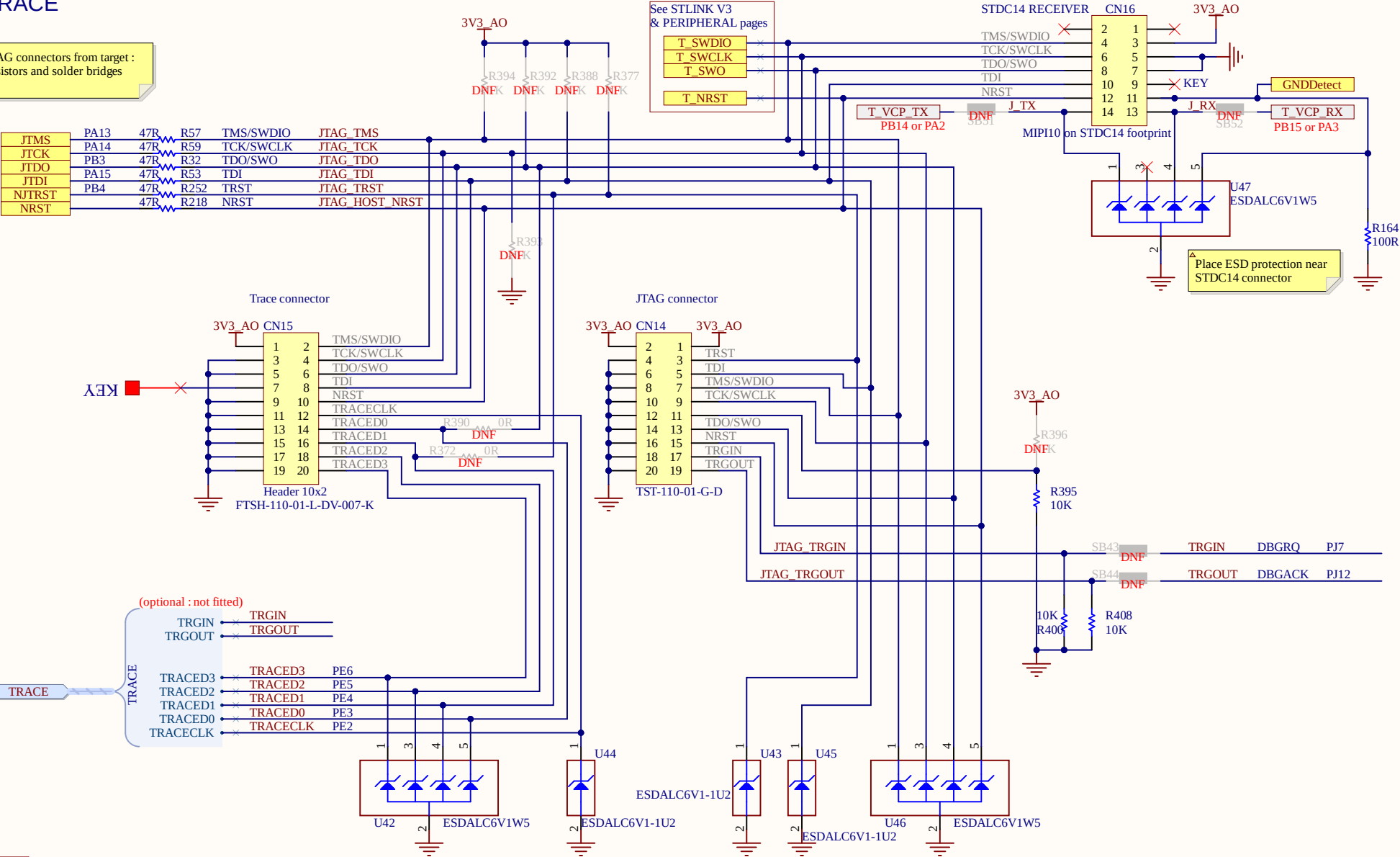


1V8 Supply (Switched)



JTAG & TRACE
(Always ON)

To disconnect JTAG connectors from target :
- Remove 47R resistors and solder bridges



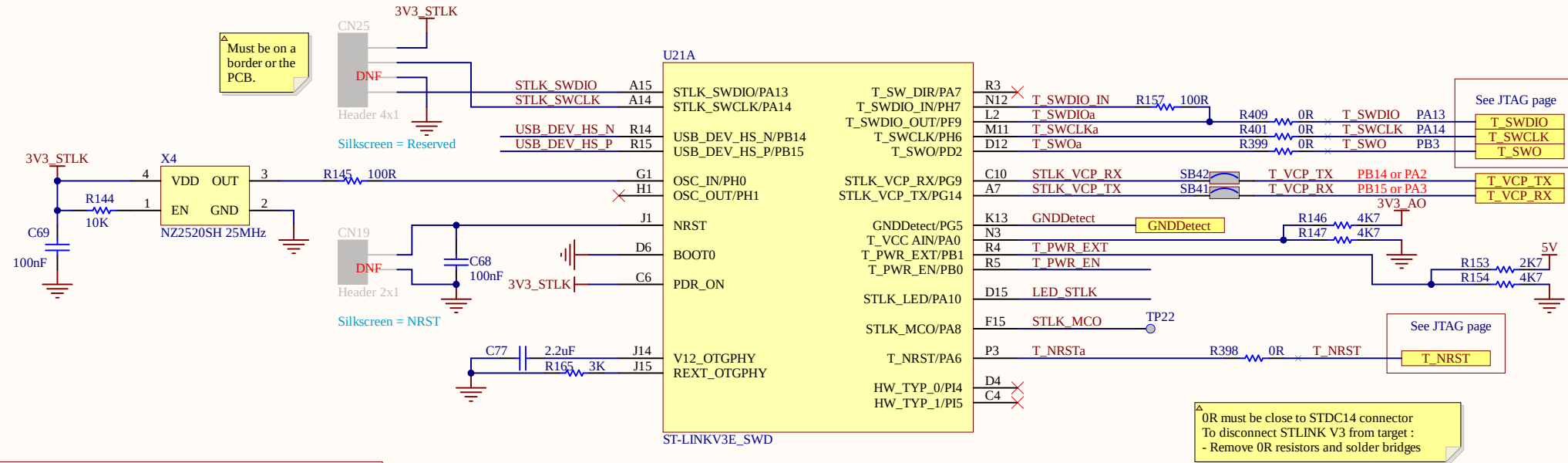
LIMITATIONS :

see User Manual



STLINK V3E SWD
(Always ON)

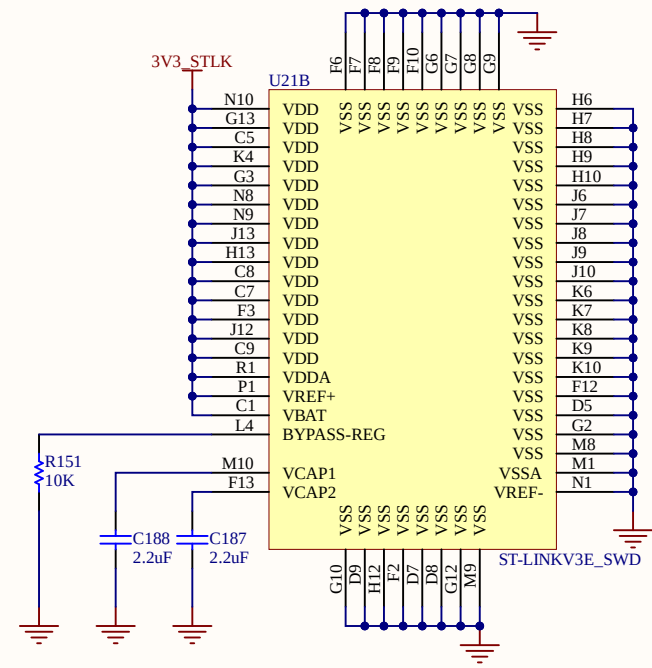
STLINK V3E



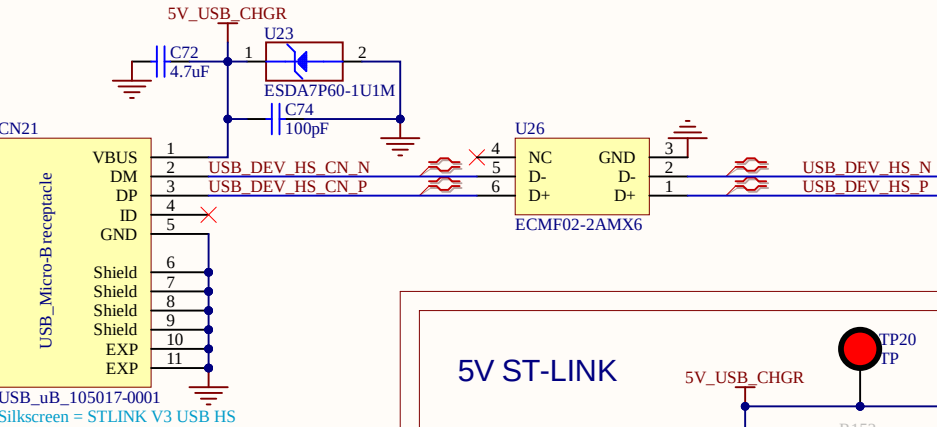
LIMITATIONS (see MCU page):

Back up : if SD CARD 2, use UART VCOM back-up (PB14/PB15)

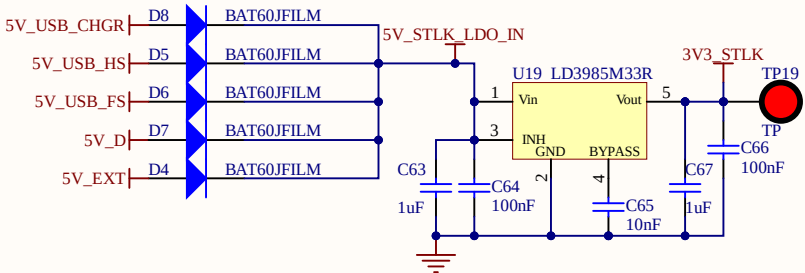
POWER



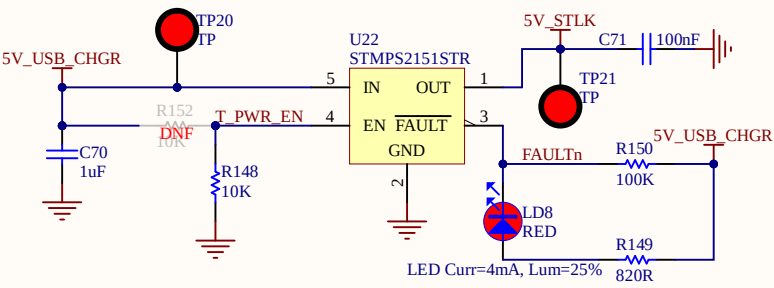
STLINK USB HS & 5V USB CHARGER



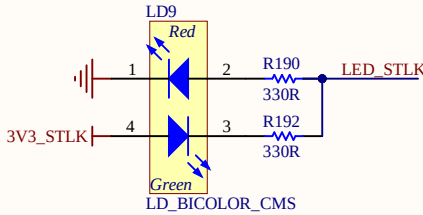
3.3V ST-LINK

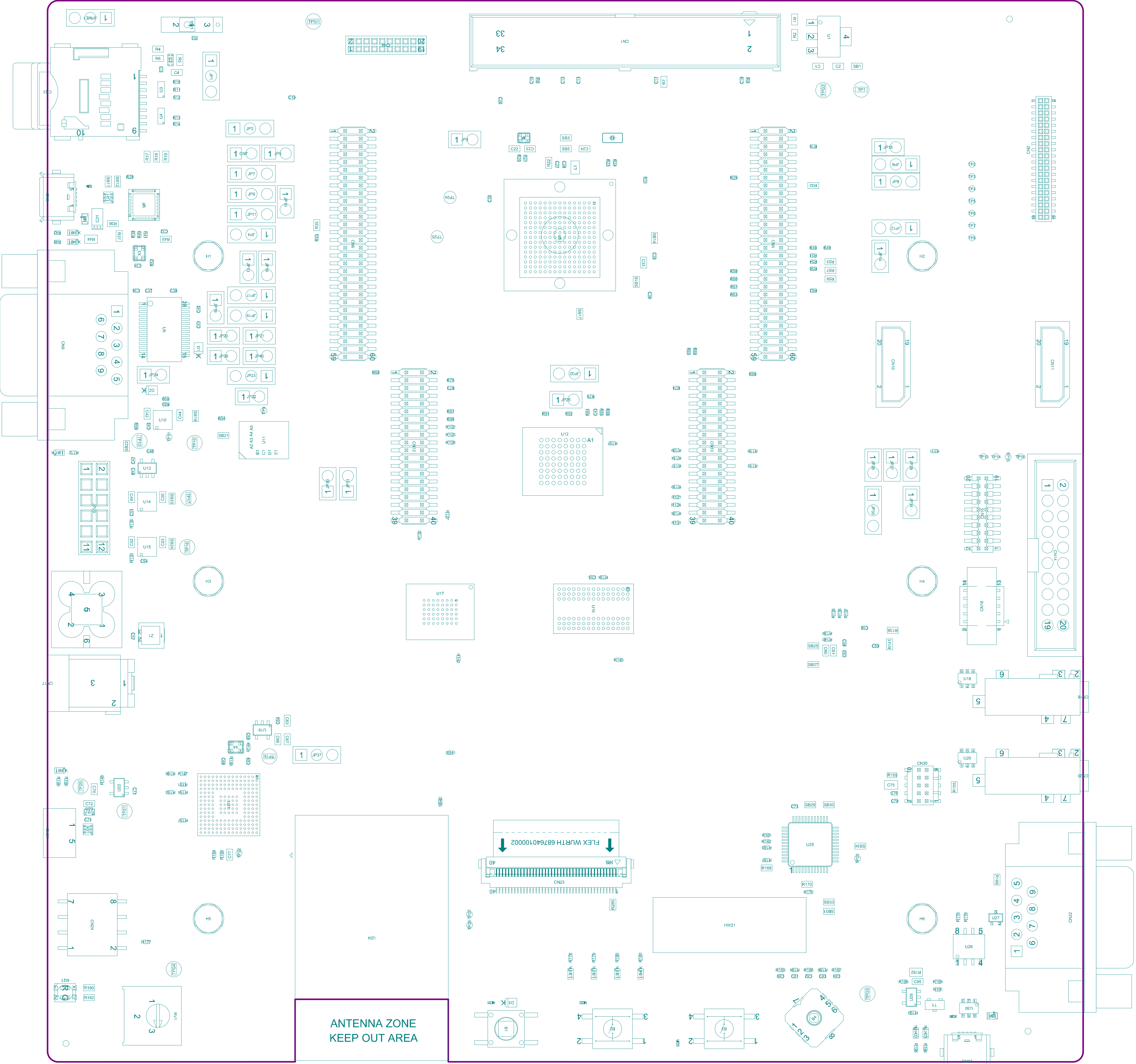


5V ST-LINK



LED





Project: STM32H7B3I-EVAL

Layer: M14-Top Assembly

Variant: H7B3LIQ

Date: 25-MAR-20

Gerber: .GM14

Ref: MB1331

Rev: D



