

STM32L552E-EVAL

MB1372

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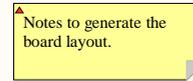
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Legend

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

Text to be added to silkscreen.

Warning text.



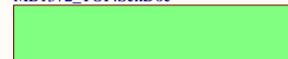
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U_MB1372_TOP
MB1372_TOP.SchDoc

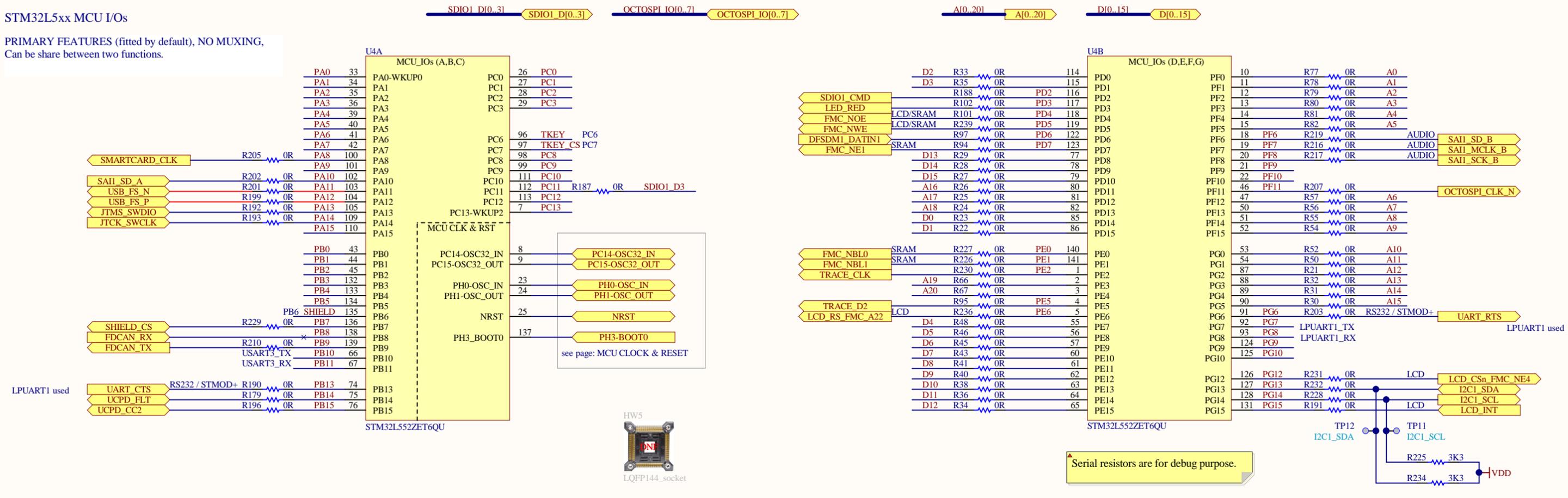


Title: Project overview		
Project: STM32L552E-EVAL		
Variant: L552ZEQ		
Revision: C-02	Reference: MB1372	
Size: A4	Date: 27 MAY 2019	Sheet: 1 of 23





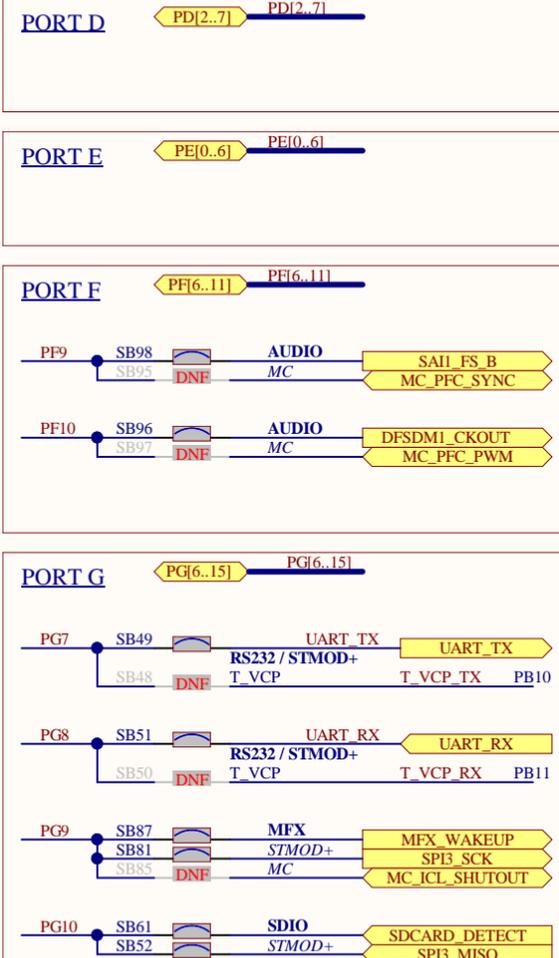
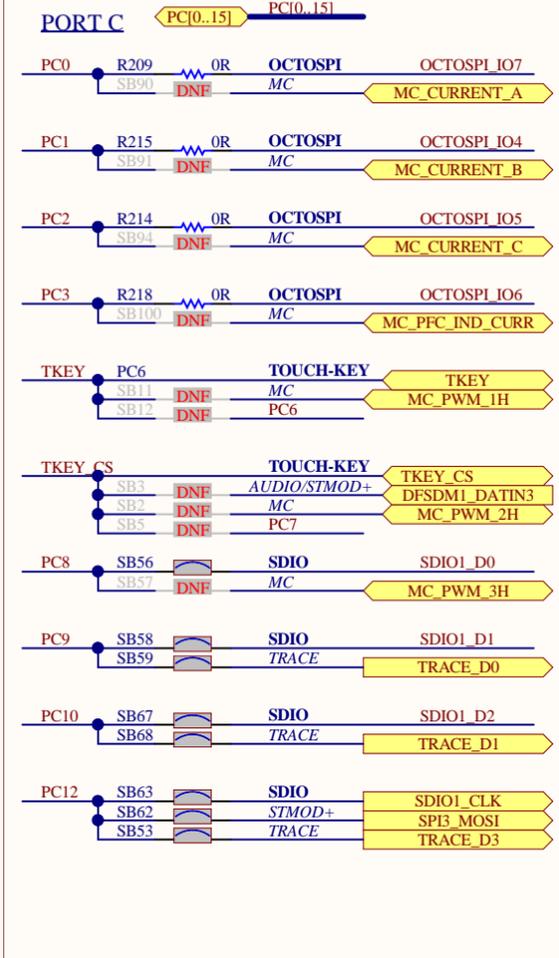
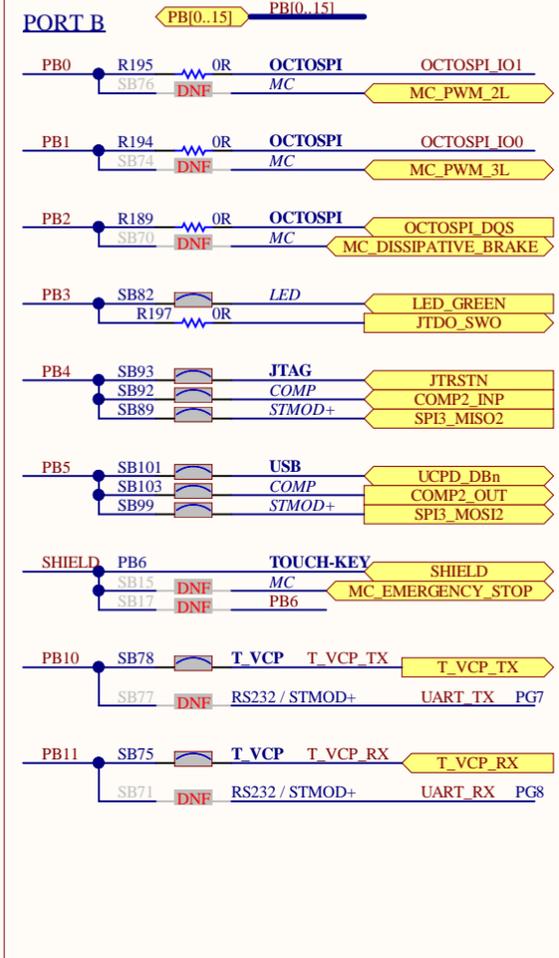
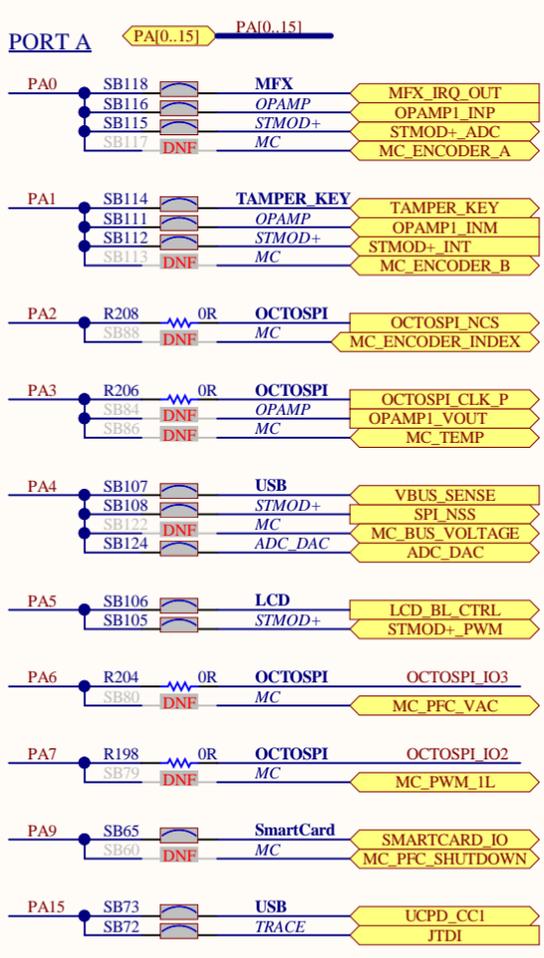
PRIMARY FEATURES (fitted by default), NO MUXING, Can be share between two functions.



IO PORT MUXING TABLE

BOLD: PRIMARY FEATURES (exclusive use : SB fitted)

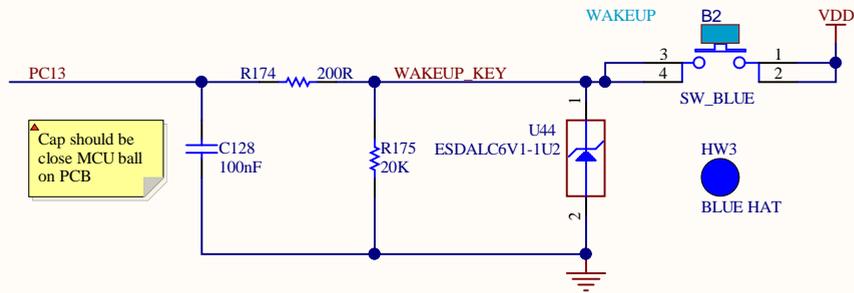
"ITALIC" front: SECONDARY FEATURES (can be not fitted by default)



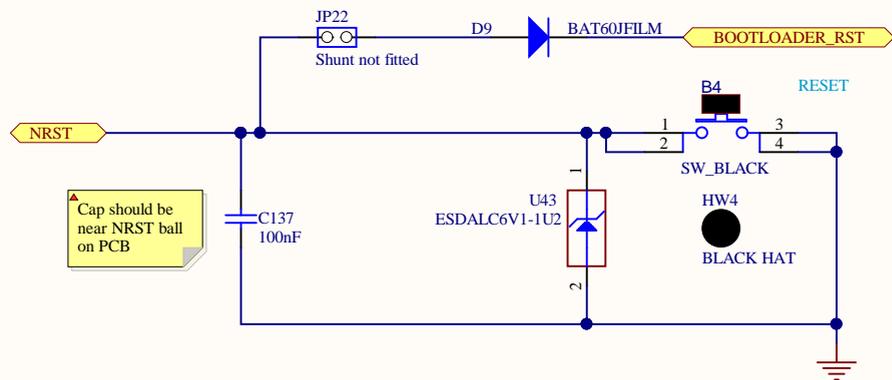
LIMITATIONS : Please refer to the User Manual for more detail

- TRACE exclusif with SDCARD
- JTAG exclusif with USB_PWR_Detection, COMP and STMOD+
- MFX exclusif with OpAmp, STMOD+ and MotorControl
- LCD BackLight exclusif with STMOD+
- OCTOSPI exclusif with OpAmp and MotorControl
- AUDIO_DFSDM exclusif with USB_DB, STPMS2, STMOD+ MotorControl
- SDCARD exclusif with TRACE, STMOD+ and MotorControl
- AUDIO_CODEC exclusif with Motor Control
- USB PWR Detection exclusif with JTAG_TDI
- USB DeadBattery exclusif with DFSDM, COMP and STMOD+
- SmartCard exclusif with UserLED and MotorControl
- UserLed exclusif with SmartCard and MotorControl
- TouchKey exclusif with STMOD+ and MotorControl
- COMP exclusif with JTAG, USB_DB and STMOD+
- OpAmp exclusif with MFX, OCTOSPI, STMOD+ and MotorControl
- RS232 exclusif with STMOD+
- STPMS2 exclusif with AUDIO_DFSDM, STMOD+

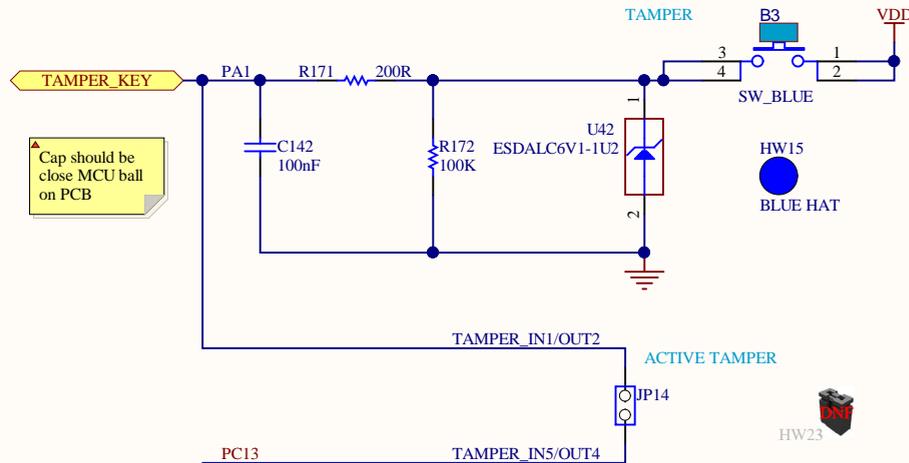
WAKEUP KEY



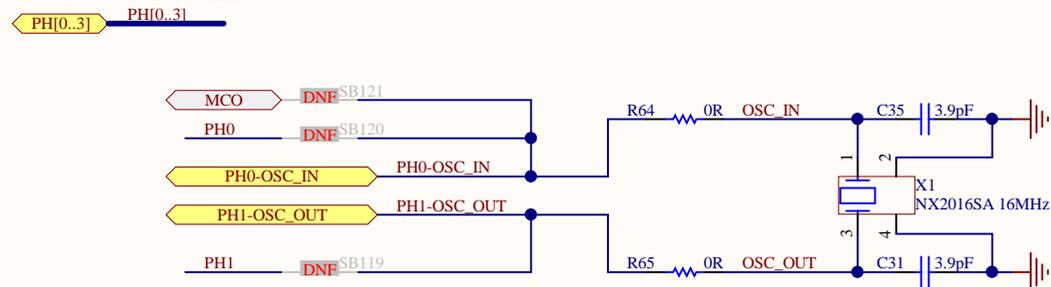
RESET FUNCTION



TAMPER FUNCTION

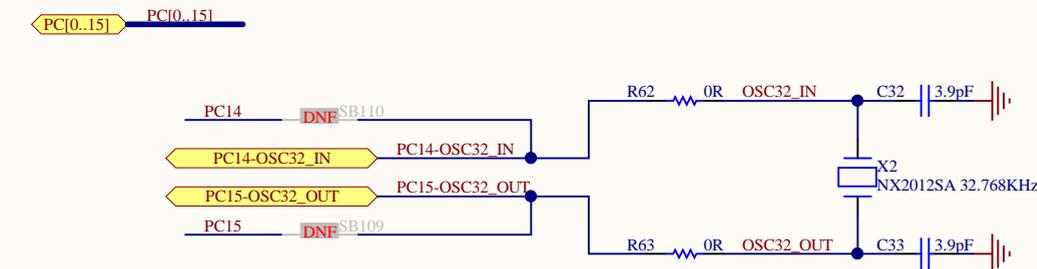


EXTERNAL HSE CLK



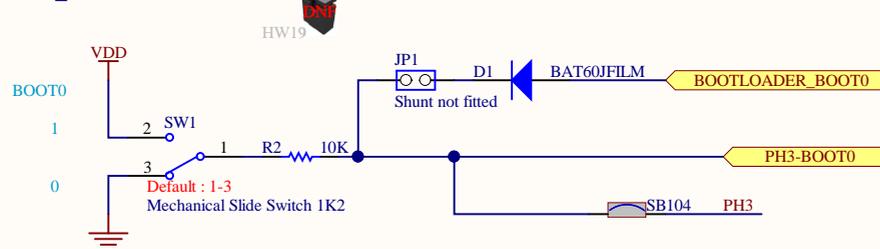
Please refer to STM AN2867: Oscillator design guide for STM32 microcontrollers

EXTERNAL LSE CLK



With SOCKET, update C32 and C33 to 1.8pF

PH3_BOOT0

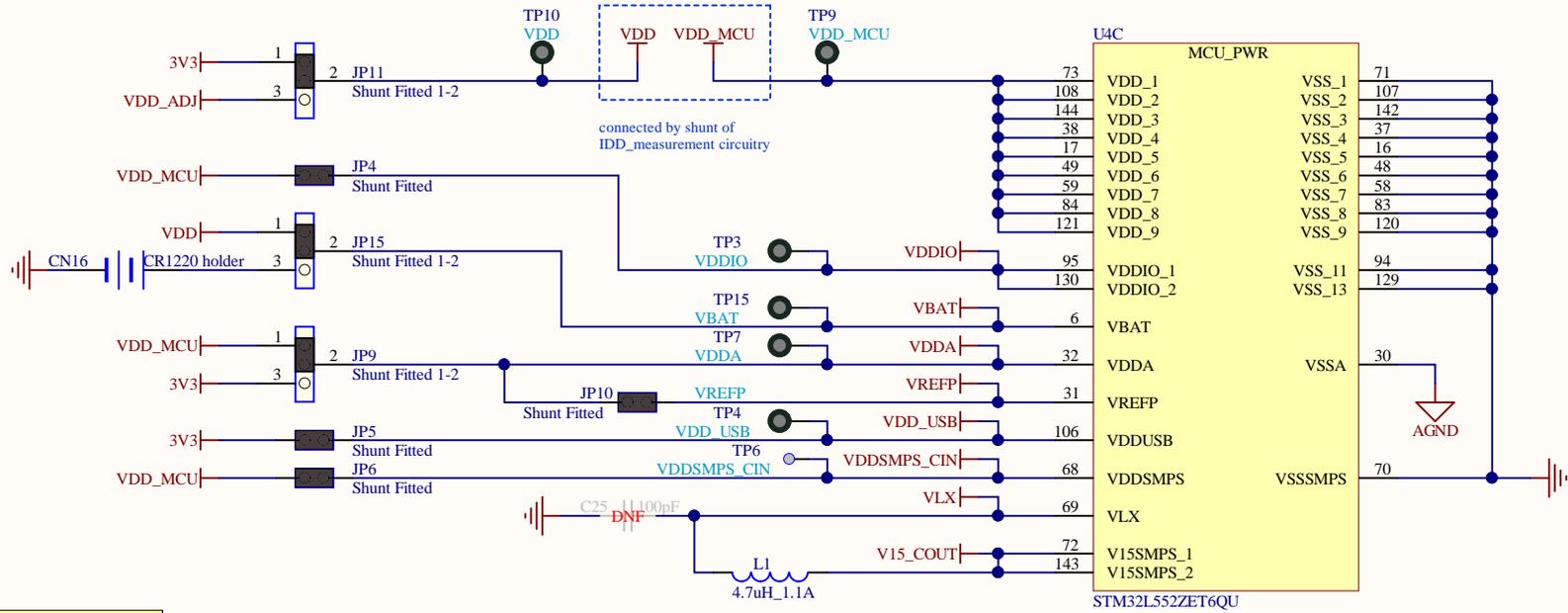


LIMITATIONS: see IO muxing sheet and User Manual for more detail

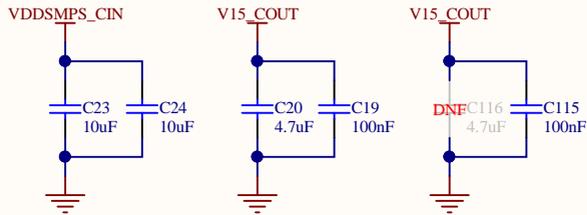
NO LIMITATION

MCU PWR SUPPLIES

- HW24
- HW25
- HW26
- HW18
- HW27
- HW28
- HW29



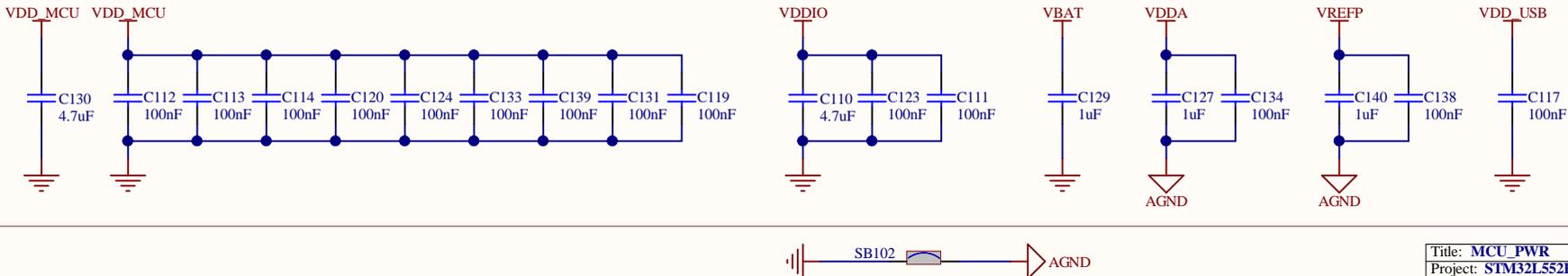
"CIN" and "COUT" should be as closed as possible to the LQFP associated pad. COUT 10µF should be place near L1. Or 1 couple of capacitors per pad (4.7µF / 100nF)



Operating range: $1V71 < VDD < 3V6$
 Operating range: $1V08 < VDDIO2 < 3V6$ (only for IO G[15:2])
 Operating range: $1V55 < VBAT < 3V6$
 Operating range: $1V62 < VDDA < 3V6$
 Operating range: $1V62 < VREFP < 3V6$ (depend of VDDA)
 Operating range: $1V71 < VDD_SMPS < 3V6$
 Operating range: $3V0 < VDDUSB < 3V6$

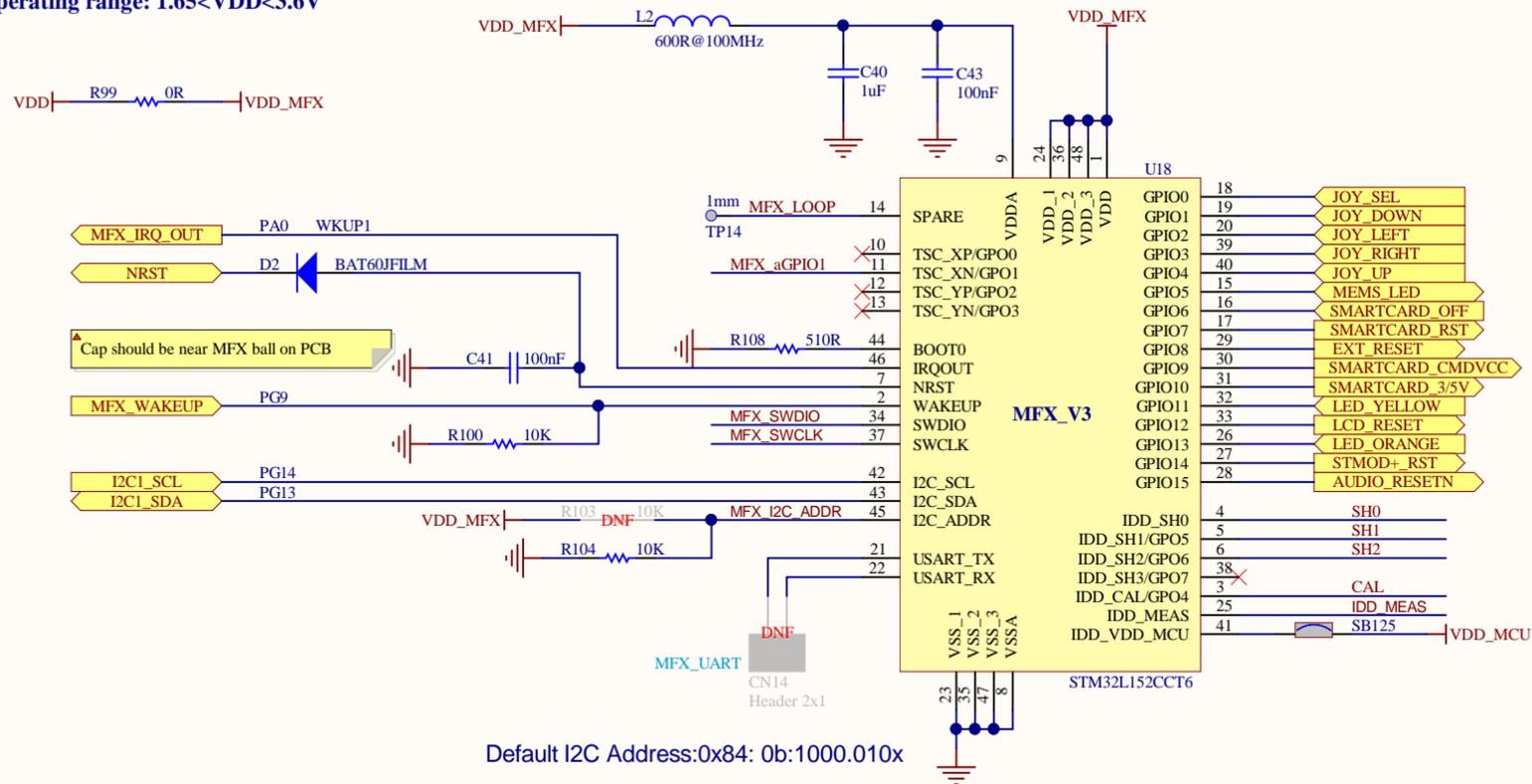
MCU DECAPS

Ceramic capacitor (Low ESR, ESR<10hm)



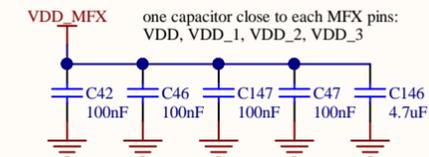
MFX I/O EXPANDER

Operating range: 1.65 < VDD < 3.6V

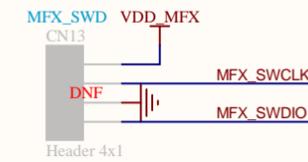


Default I2C Address: 0x84: 0b:1000.010x

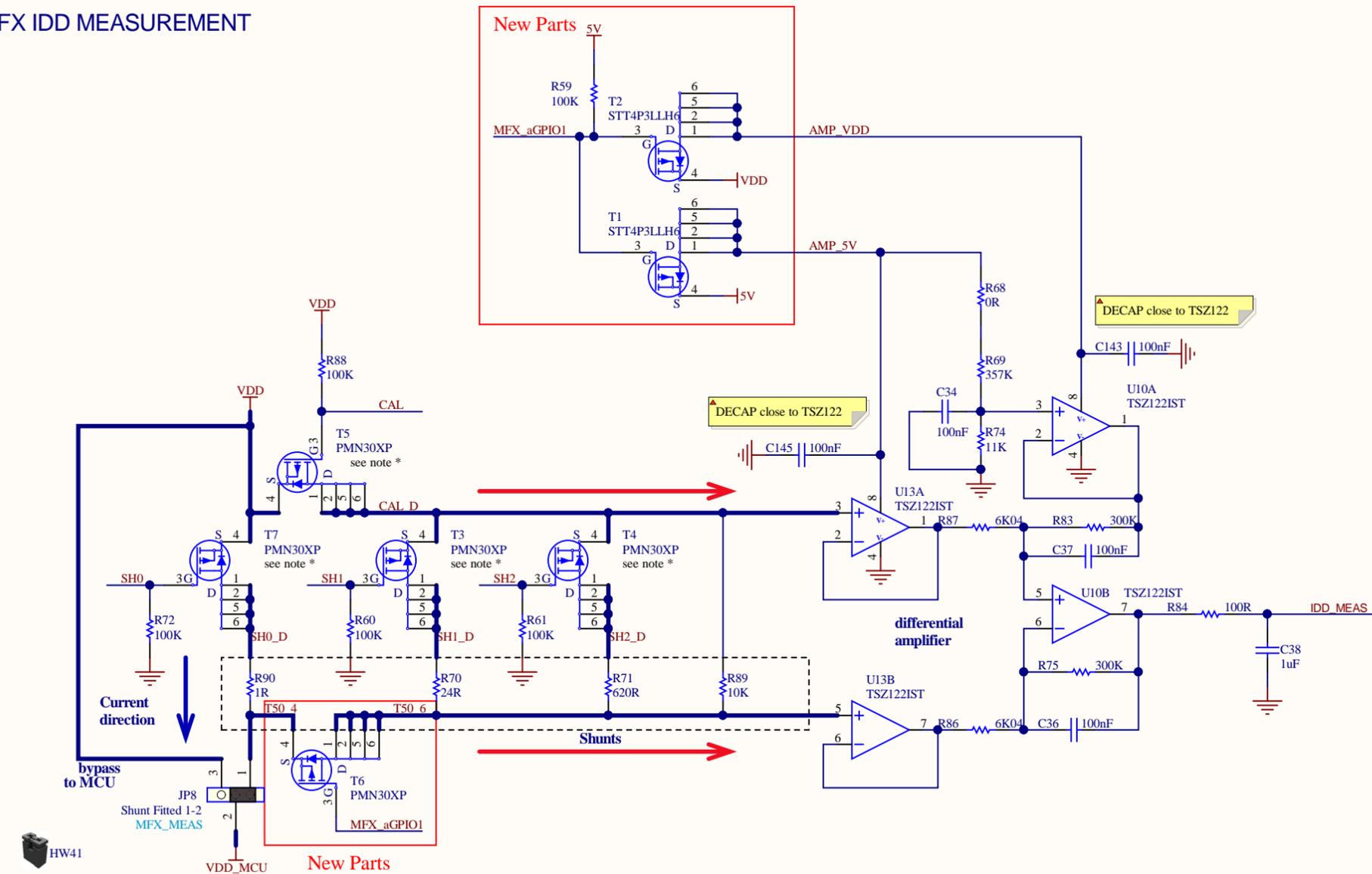
MFX DECAPS



MFX DEBUG SWD INTERFACE



MFX IDD MEASUREMENT



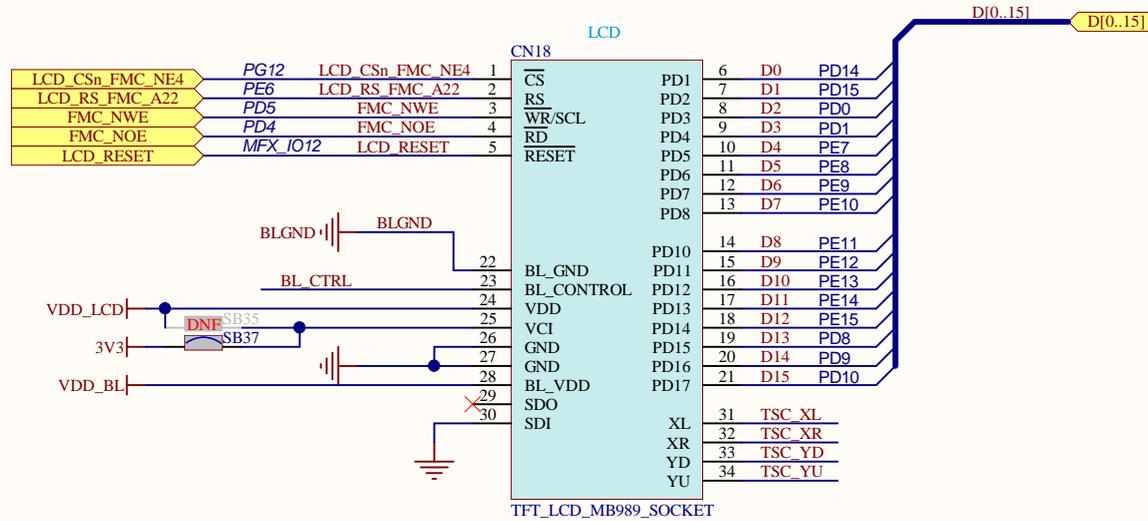
LIMITATIONS: see IO muxing sheet and User Manual for more detail
 MFX_WAKEUP (prio1) exclusif with STMOD+ and MC (prio2)
 MFX_IRQ_OUT (prio1) exclusif with OpAmp, STMOD+ and MC (prio2)



TFT LCD SOCKET CONNECTOR

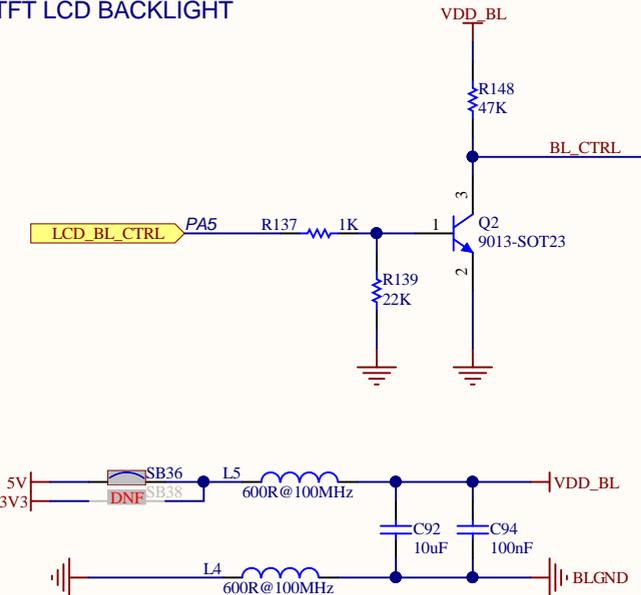
Operating range: $2.5 < V_{CI} < 3.3V$

Operating range: $1.65 < V_{DD} < 3.3V$



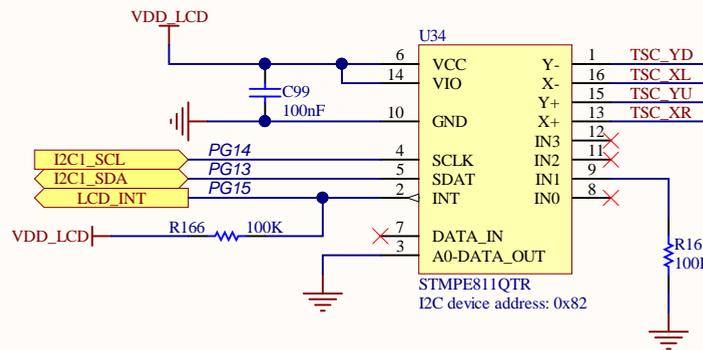
LCD DATA bus should be routed in 50 ohm +/- 15%

TFT LCD BACKLIGHT

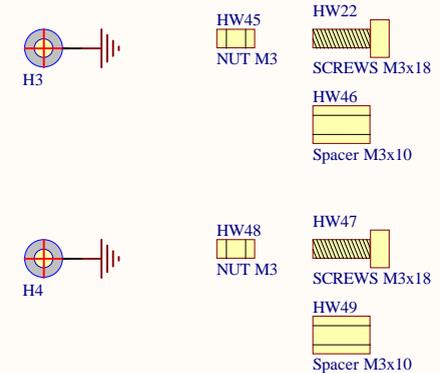


TOUCHSCREEN CONTROLLER

Operating range: $1V65 < V_{CC} < 3V6$



LCD MECHANICAL PARTS



LIMITATIONS: see IO muxing sheet and User Manual for more detail

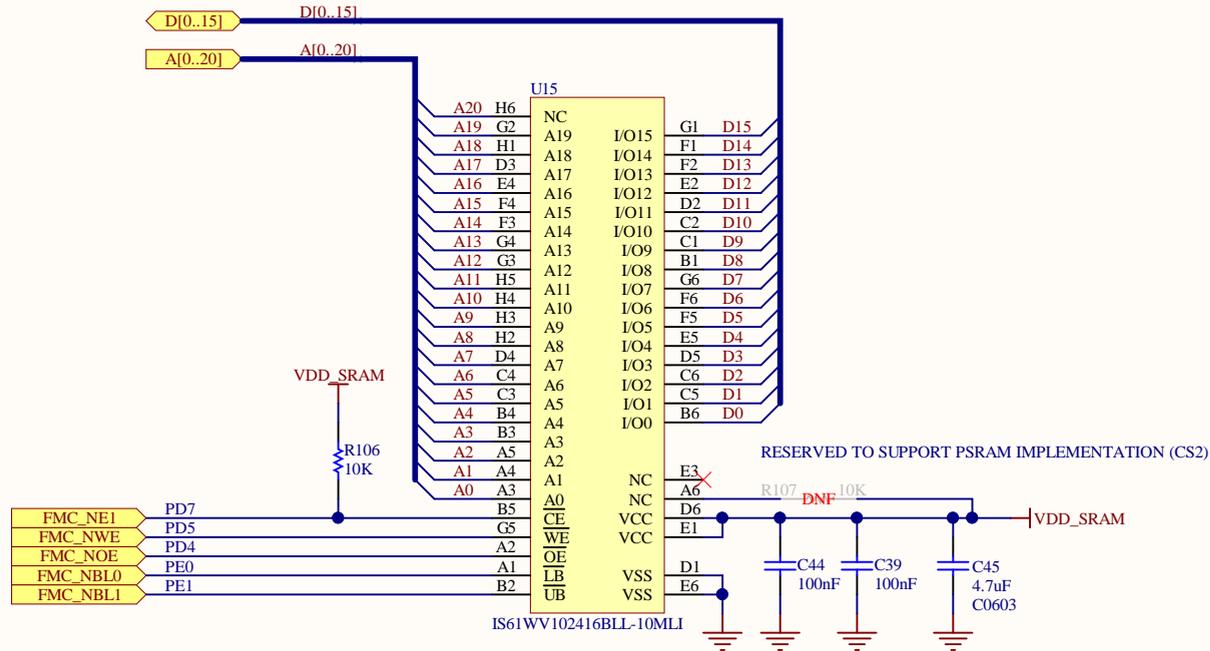
LCD_BL_CTRL (prio1) exclusiv with STMOD+ (prio2)

Title: LCD	
Project: STM32L552E-EVAL	
Variant: L552ZEQ	
Revision: C-02	Reference: MB1372
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SRAM

Operating range: $2.4 < VDD < 3.6V$

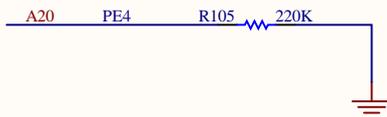


Other memory compatible:
 SRAM 512Kx16: IS61WV51216BLL-10MLI
 PSRAM 512Kx16: IS66WV51216EBLL-55BLI

Place CAPS close to SRAM PWR pin

Default config = A0-A19

A20 = 0 by default (depend of the memory size)

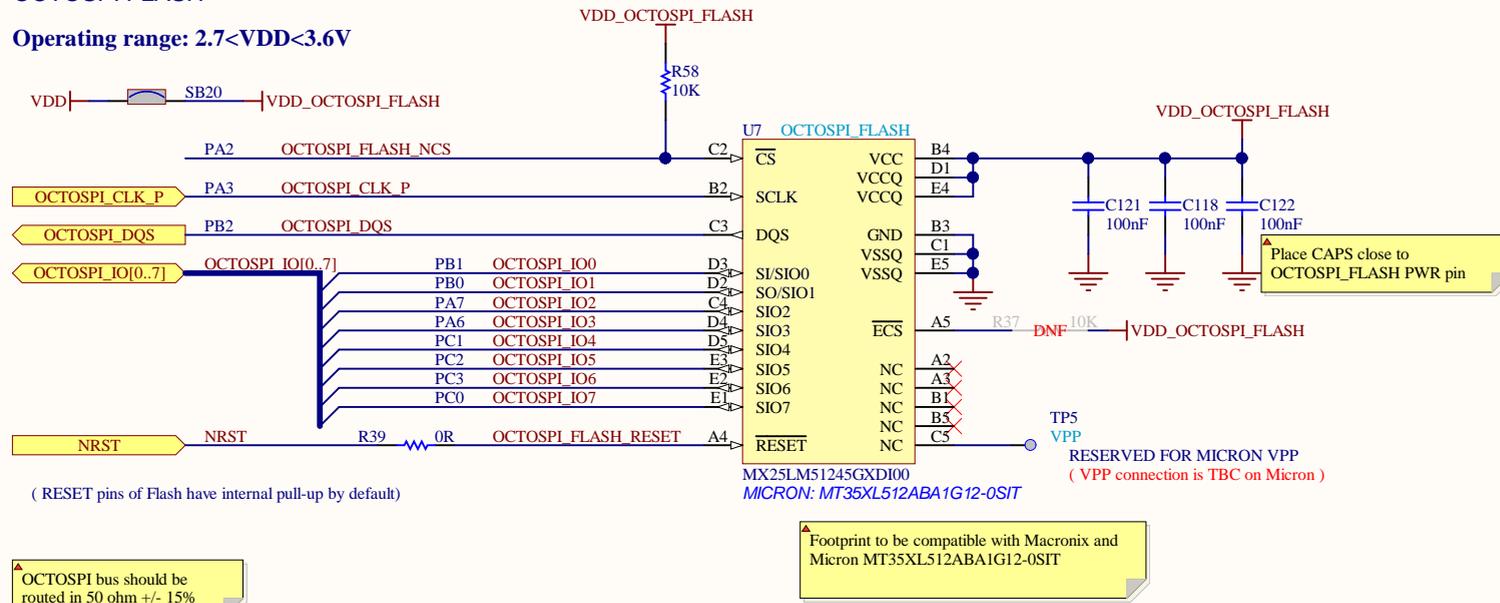


SRAM bus should be routed in 50 ohm +/- 15%

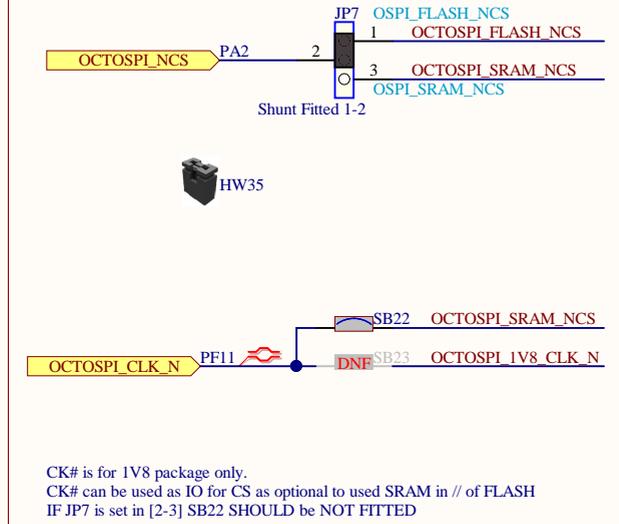
LIMITATIONS : see IO muxing sheet and User Manual for more detail
 Memory size limited to max 32Mbits by design

OCTOSPI FLASH

Operating range: $2.7 < VDD < 3.6V$

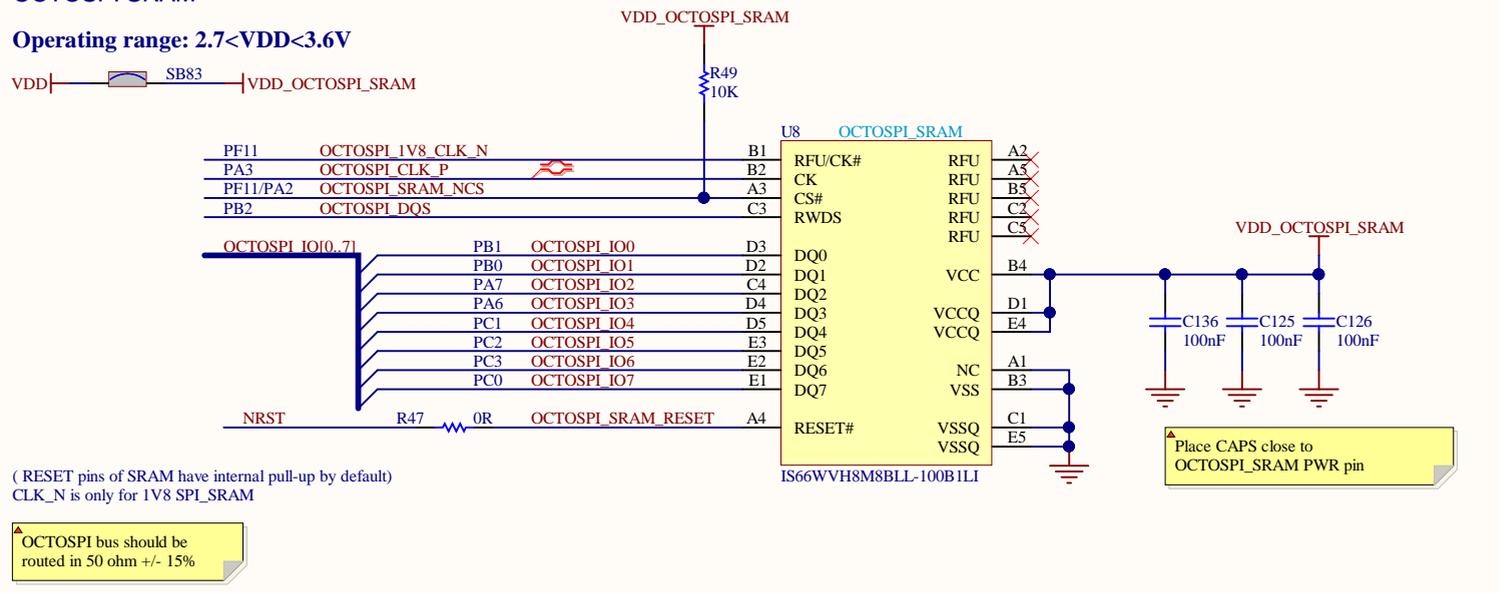


OCTOSPI NCS SELECTION



OCTOSPI SRAM

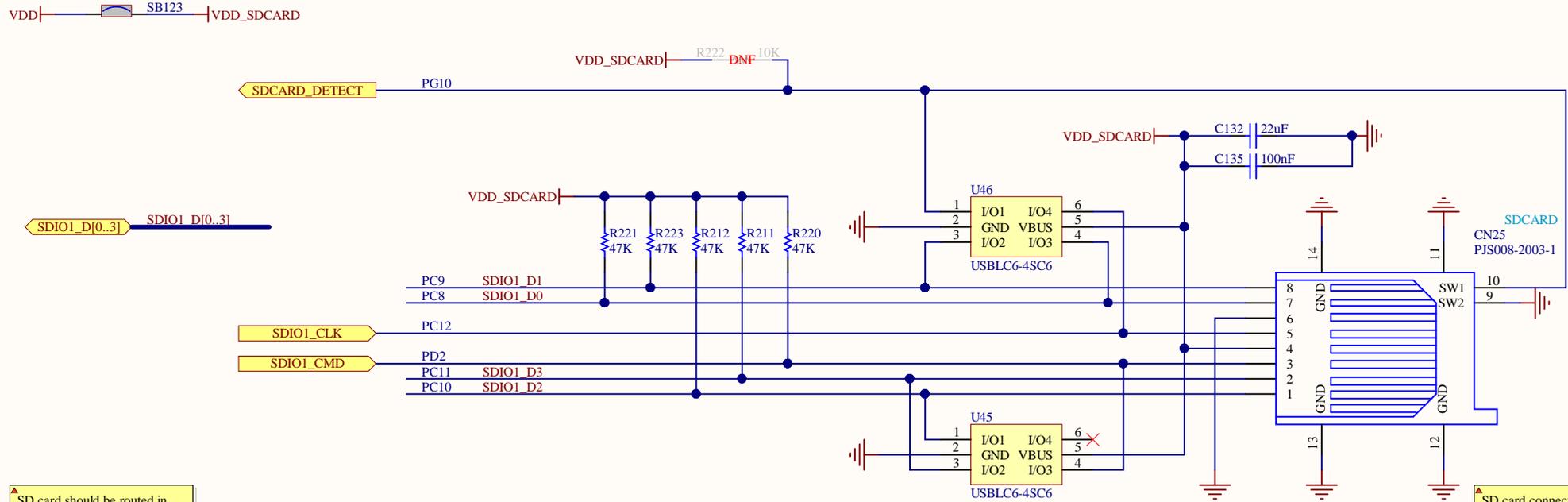
Operating range: $2.7 < VDD < 3.6V$



LIMITATIONS: see IO muxing sheet and User Manual for more detail

All OCTOSPI IO shared with MC.
 OCTOSPI (prio1) exclusif with MC (prio2)
 OCTOSPI_CLK (prio1) exclusif with OpAmp (prio2)

SD CARD
Operating range: 2.7<VDD<3.6V



▲ SD card should be routed in 50 ohm +/- 15%

▲ SD card connector mechanical part should be connected to GND

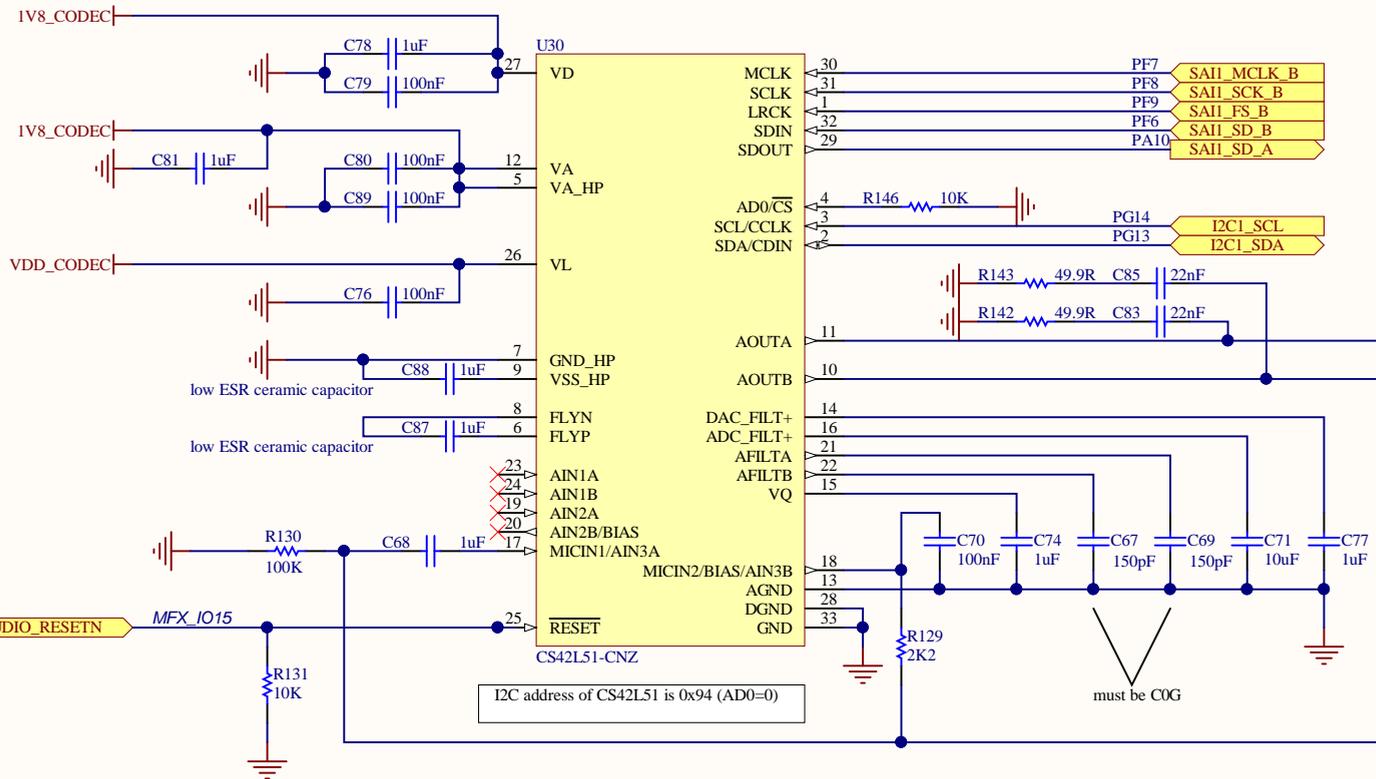
LIMITATIONS : see IO muxing sheet and User Manual for more detail

SDIO_CLK/D1/D2 (prio1) exclusif with TRACE_D0/D1/D3 (prio2)
SDIO_D0 (prio1) exclusif with MC (prio2)
SDIO_CLK and SD_CARD_DETECT (prio1) exclusif with STMOD+ (prio2)

Title: SDCARD	
Project: STM32L552E-EVAL	
Variant: L552ZEQ	
Revision: C-02	Reference: MB1372
Size: A4	Date: 27 MAY 2019
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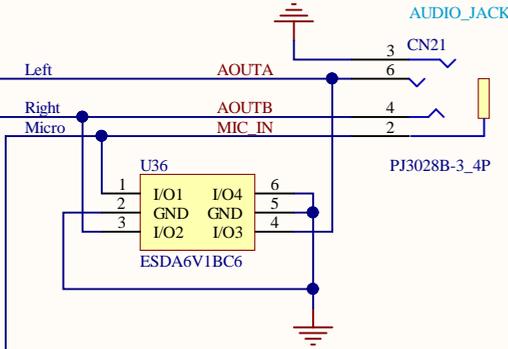


AUDIO CODEC



Operating range: $1.65 < V_L < 3.47V$
 Operating range: $1.65 < V_A / V_D < 2.63V$

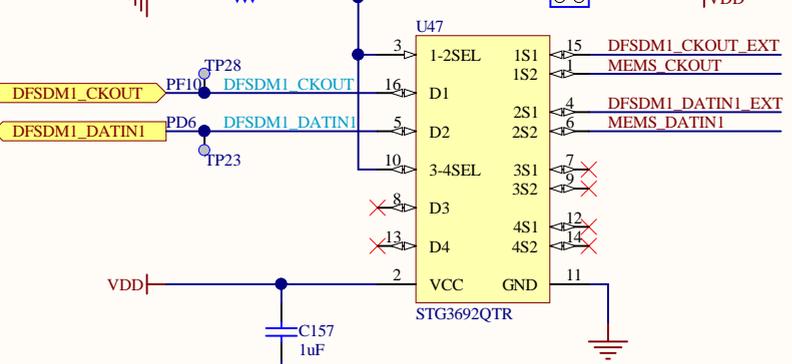
AUDIO STEREO OUTPUT with microphone input



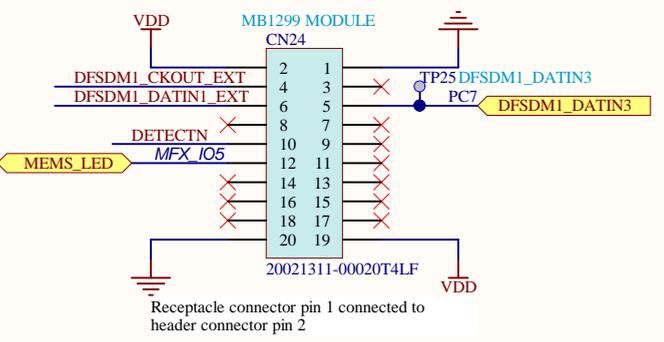
LIMITATIONS: see IO muxing sheet and User Manual for more detail
 SAI_FS_B (prio1) exclusif with MotorControl (prio2)

Extension microphones module

Operating range: $1.64 < V_{DD} < 3.6V$



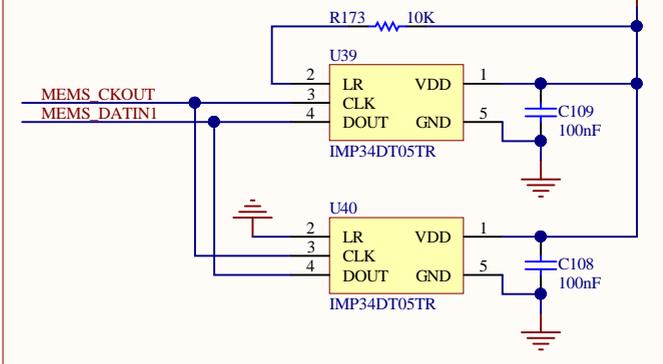
SEL = 0 : Dx connected to xS2
 SEL = 1 : Dx connected to xS1



LIMITATIONS: see IO muxing sheet and User Manual for more detail
 DFSDM1_CKOUT shared between MEMS, ext MEMS, STPMS2, STMOD+
 DFSDM1_CKOUT (pio1) exclusif with MC (prio2)
 DFSDM1_DATIN1 (prio1) shared between MEMS, STPMS2 and STMOD+

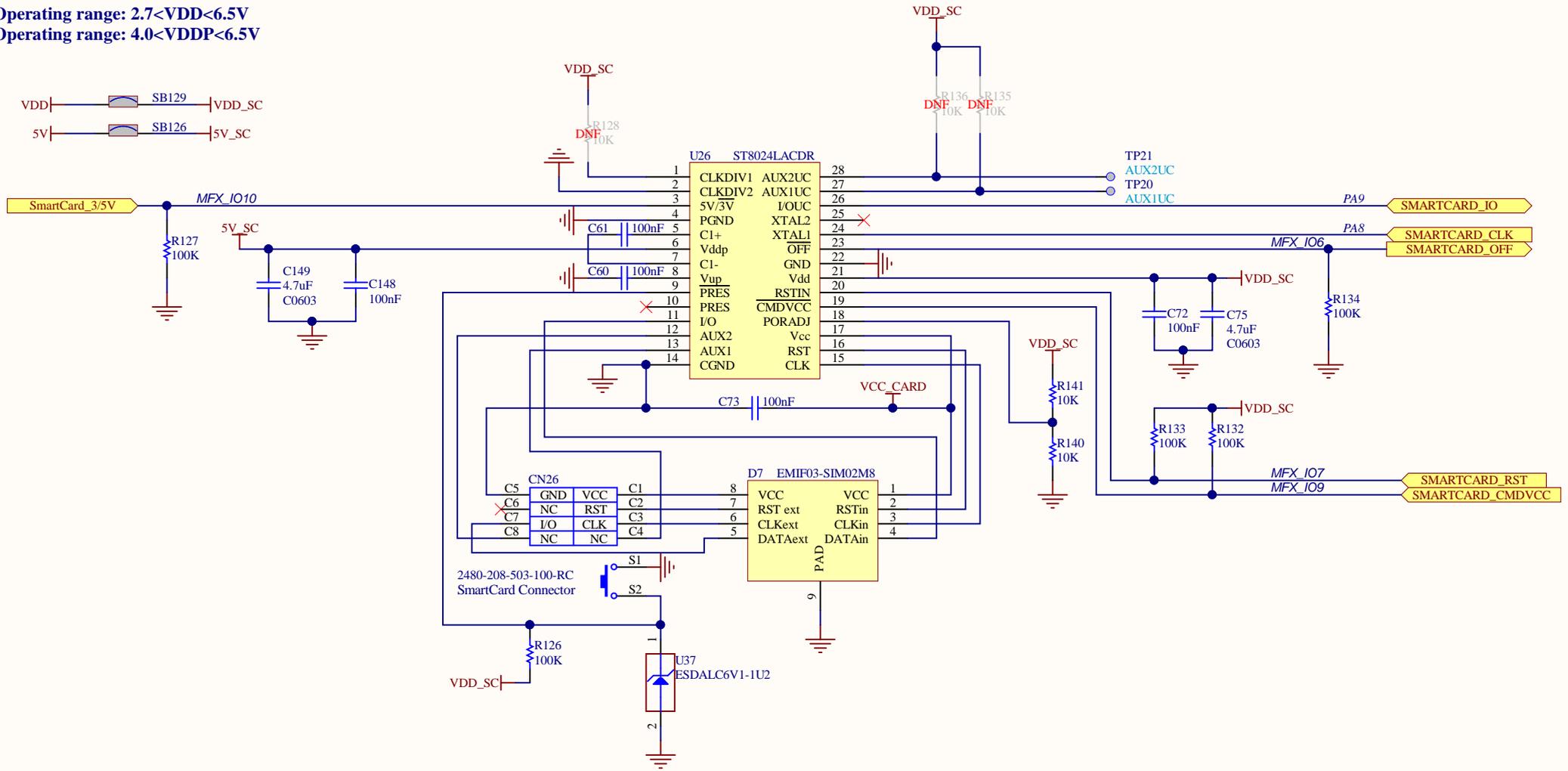
MEMS

Operating range: $1.64 < V_{DD} < 3.6V$



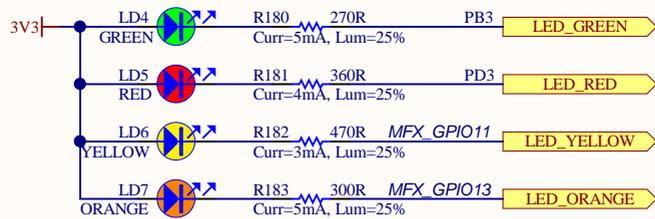
SmartCard

Operating range: $2.7 < VDD < 6.5V$
 Operating range: $4.0 < VDDP < 6.5V$

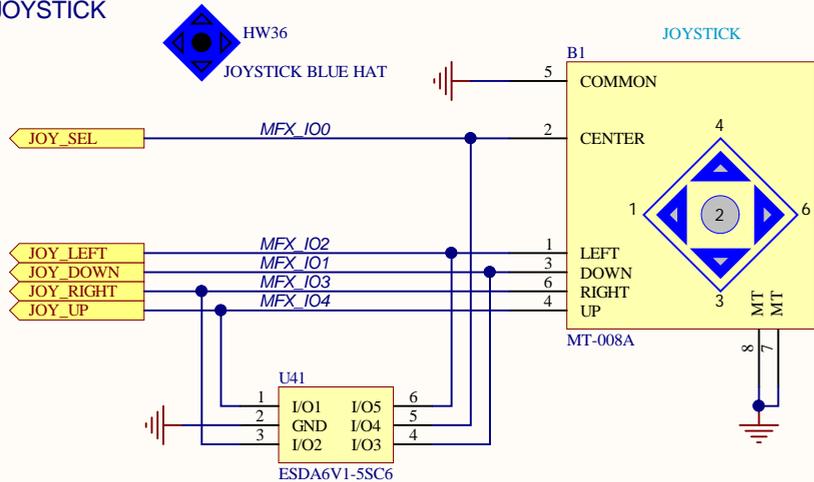


LIMITATIONS : see IO muxing sheet and User Manual for more detail
 SmartCard_CLK (prio2) exclusif with UserLED Red (prio1)
 SmartCard_TX (prio2) exclusif with UserLED Green (prio1) and MC (prio2)

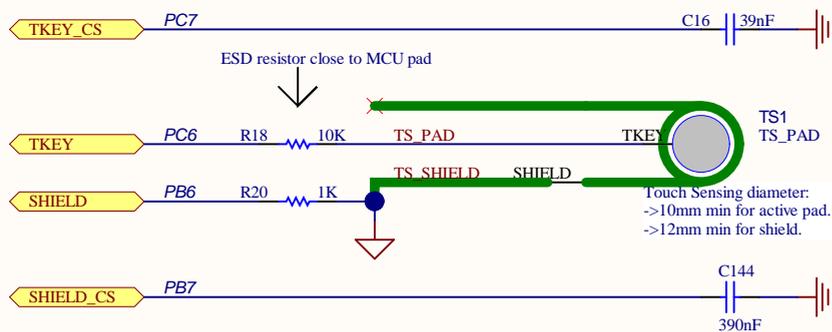
LEDs



JOYSTICK



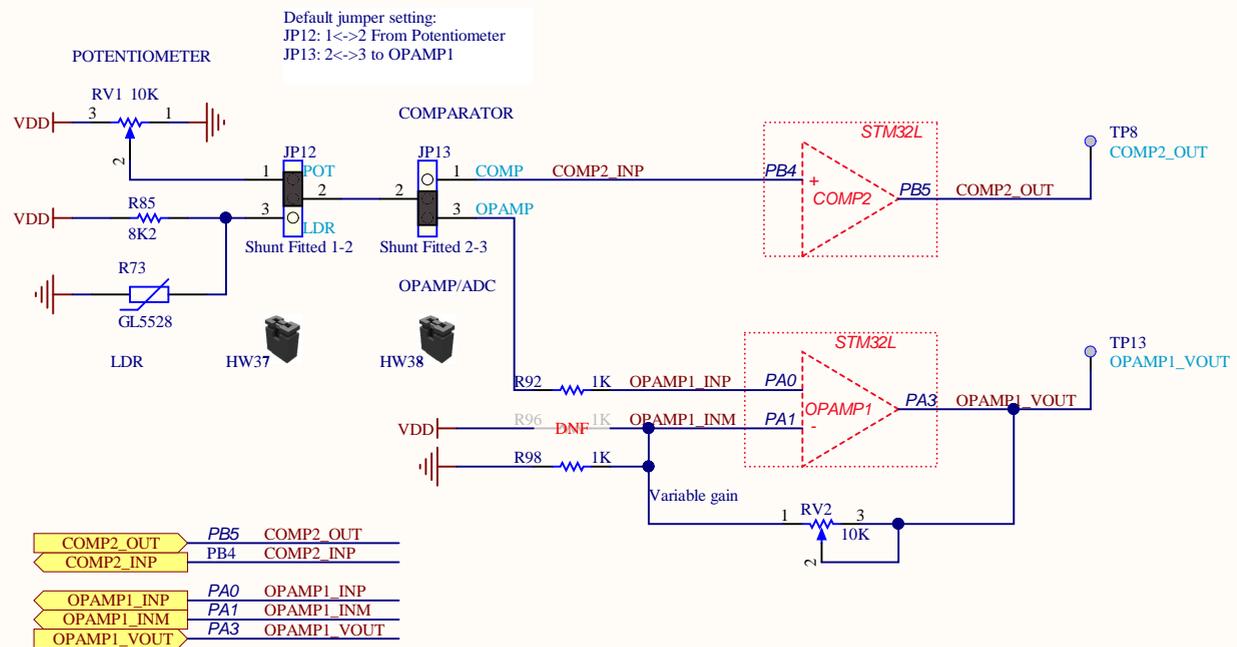
TOUCH_KEY



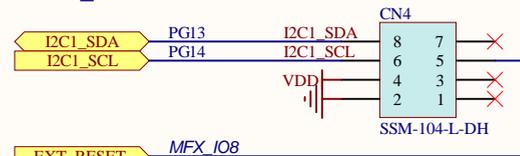
Please refer to **STM AN4312: Guidelines for designing touch sensing applications with surface sensors**



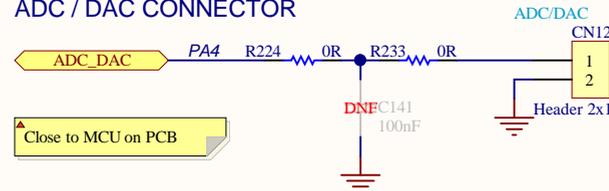
LDR / POTENTIOMETER



EXT_I2C



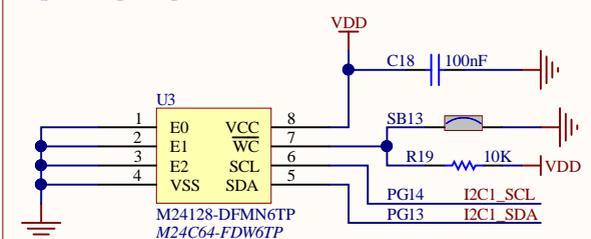
ADC / DAC CONNECTOR



Two pin header for external analog input

I2C EEPROM

Operating range: 1.7V < VCC < 5.5V



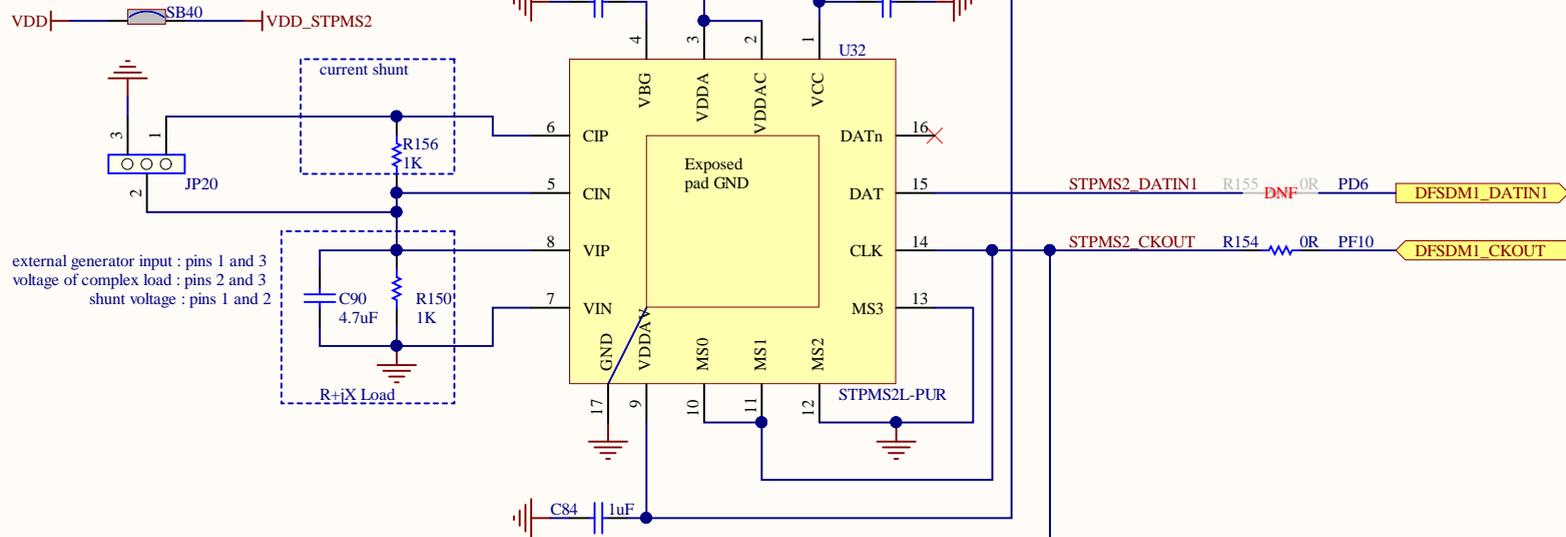
I2C address: 0xA0

LIMITATIONS: see IO muxing sheet and User Manual for more detail

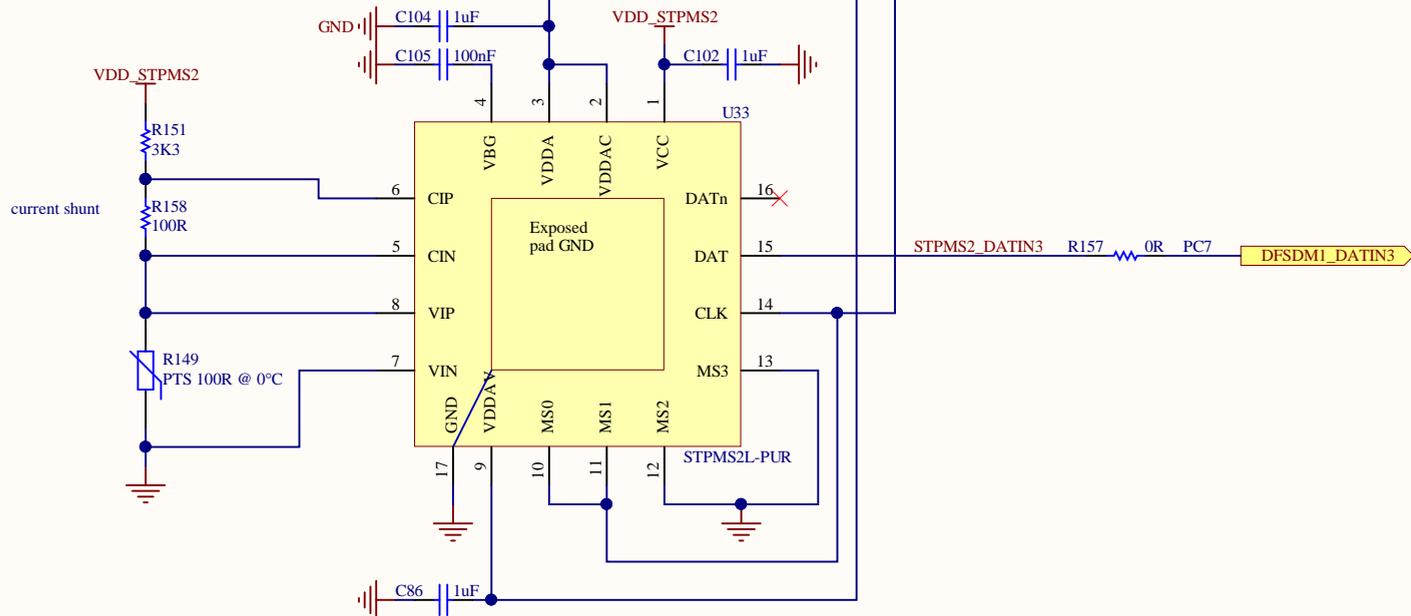
UserLED Green and Red (prio1) exclusif with SmarCard (prio2)
TouchKey exclusif with STMOD+ and MotorControl
COMP exclusif with JTAG, USB_DBn and STMOD+
OpAmp exclusif with MFX, OCTOSPI, STMOD+ and MotorControl

STPMS2 power metering

Operating range: $3.2 < VDD < 5.5V$



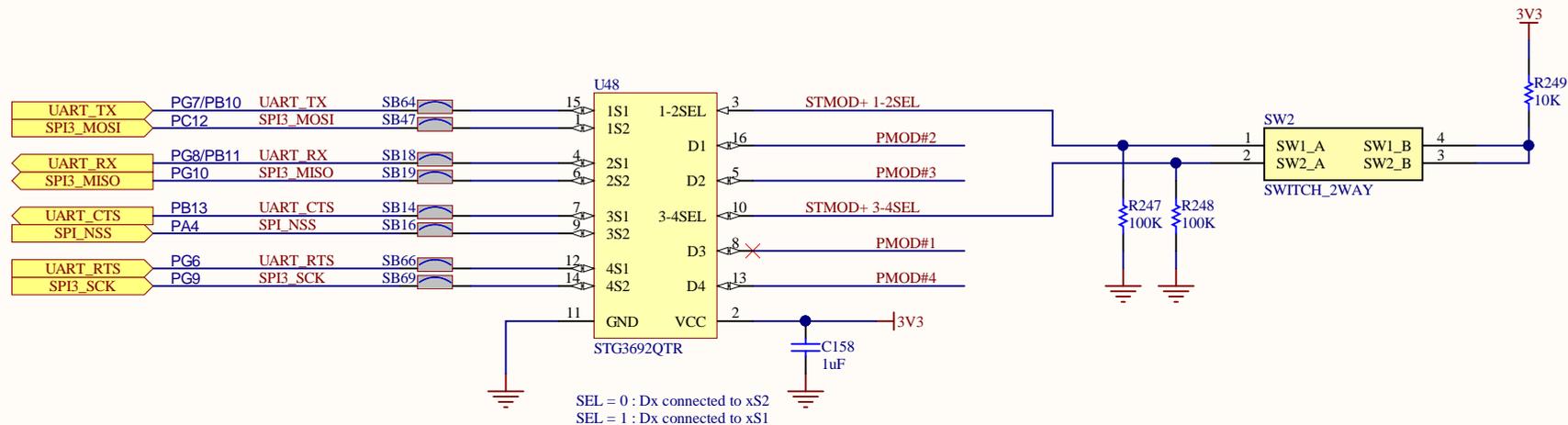
Measurement using SigmaDelta STPMS2



LIMITATIONS : see IO muxing sheet and User Manual for more detail

DFSDM1_CKOUT shared between MEMS, ext MEMS, STPMS2, STMOD+
 DFSDM1_CKOUT (pio1) exclusif with MC (prio2)
 DFSDM1_DATIN1 shared between MEMS, STPMS2 and STMOD+
 DFSDM1_DATIN3 exclusif with TouchKey and MC

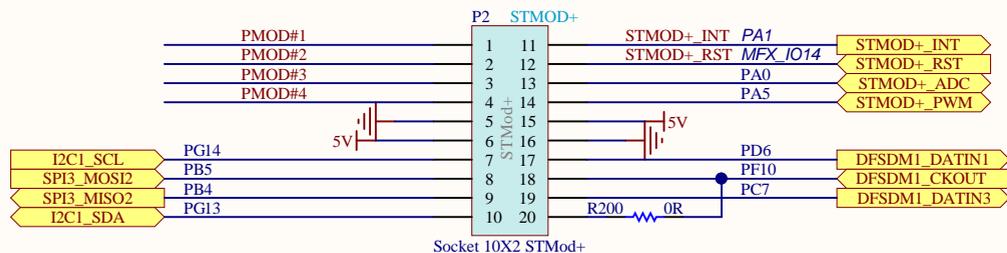
PMOD / STMOD+ SWITCH



	SPI	SPI/UART (*)	UART
STMOD+ 1-2SEL	0	1 (*)	1
STMOD+ 3-4SEL	0	0 (*)	1
PMOD#1	NSS	NSS	CTS
PMOD#2	MOSIp	TX	TX
PMOD#3	MISO _p	RX	RX
PMOD#4	SCLK	SCLK	RTS

(*) default configuration to support MikroBus using STMOD+ MB1280 fan-out board

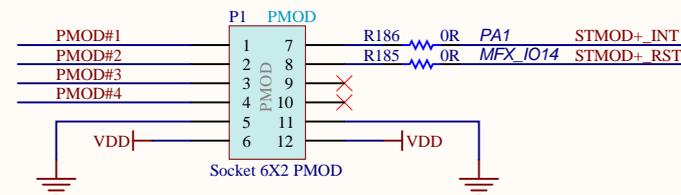
STMOD+



LIMITATIONS: see IO muxing sheet and User Manual for more detail

PMOD exclusif with MFX, SDCARD, RS232, OpAmp, STMOD+, MC

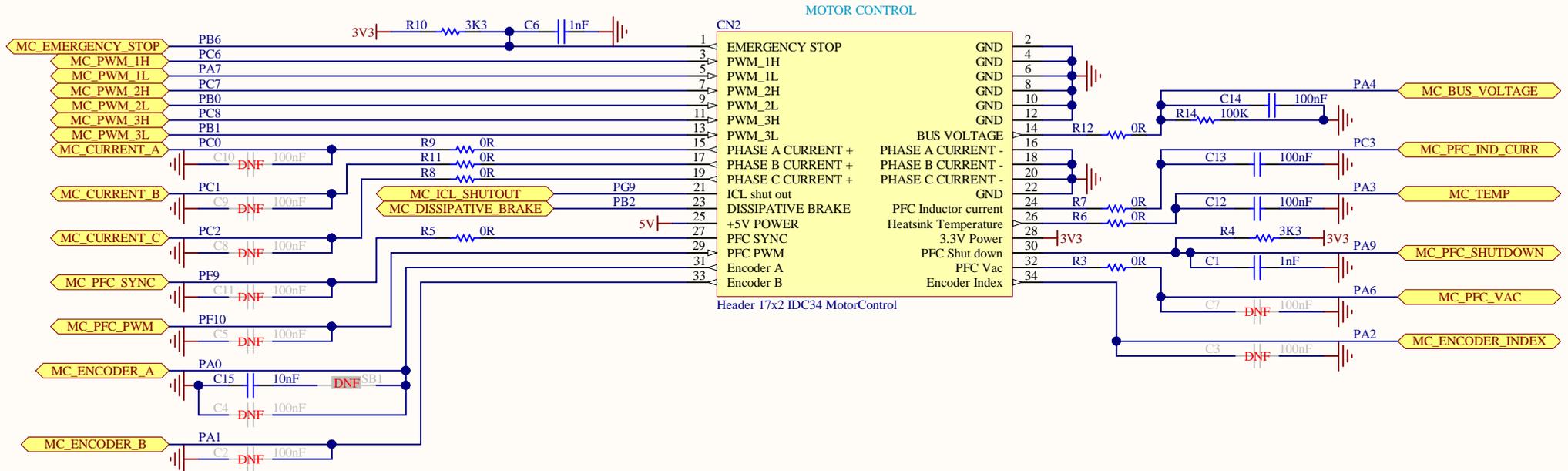
PMOD



LIMITATIONS: see IO muxing sheet and User Manual for more detail

STMOD+ exclusif with MFX, LCD_BL, SDCARD, USB, JTAG, MEMS, RS232, COMP, OpAmp, PMOD, MC

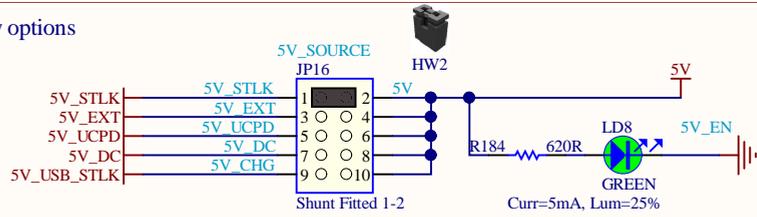
MOTOR CONTROL



LIMITATIONS: see IO muxing sheet and User Manual for more detail

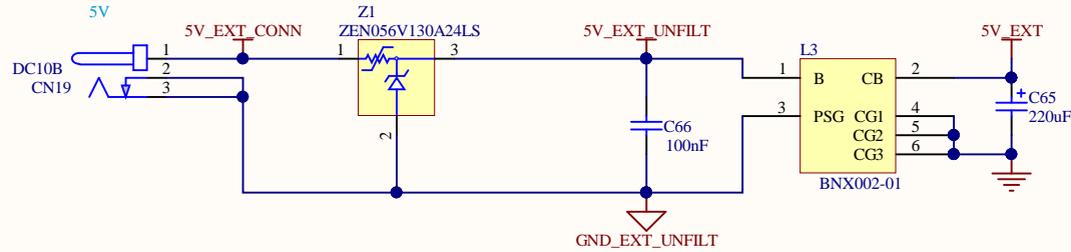
MotorControl exclusif with OCTOSPI, MFX, AUDIO_CODEC, MEMS, TouchKey, SDCARD, OpAmp, UserLED, SmartCard, STMOD+

5V Power Supply options

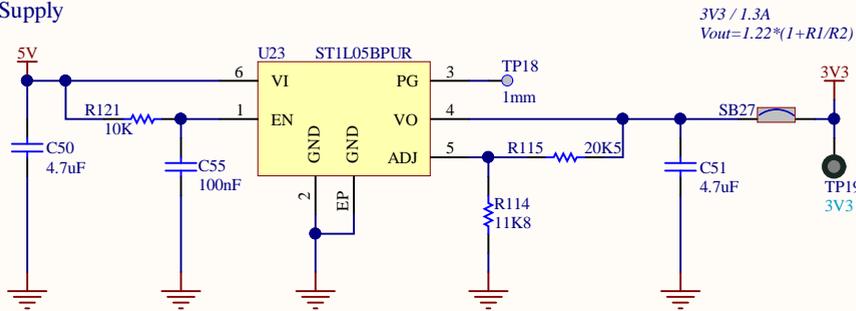


MAX CURRENT 500mA WHEN USING POWER INPUT 5V_STLK

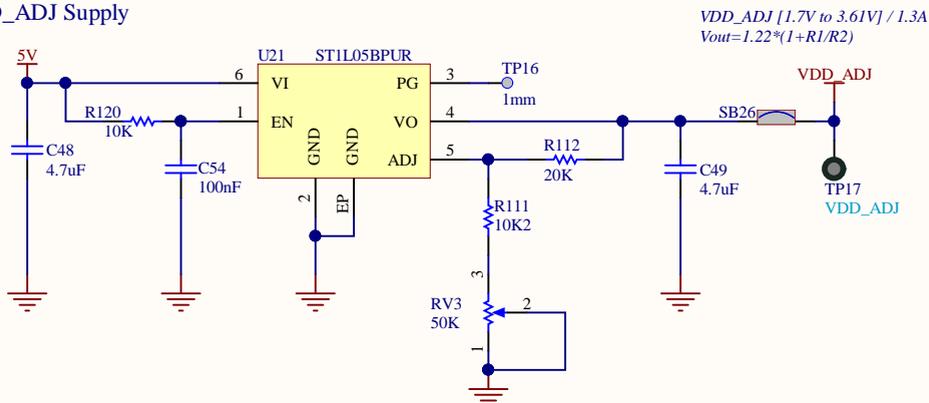
5V External supply



3V3 Supply

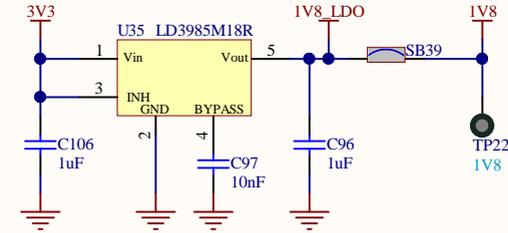


VDD_ADJ Supply

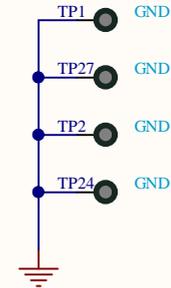


1V8_LDO: AUDIO_CODEC

1V8 / 150mA



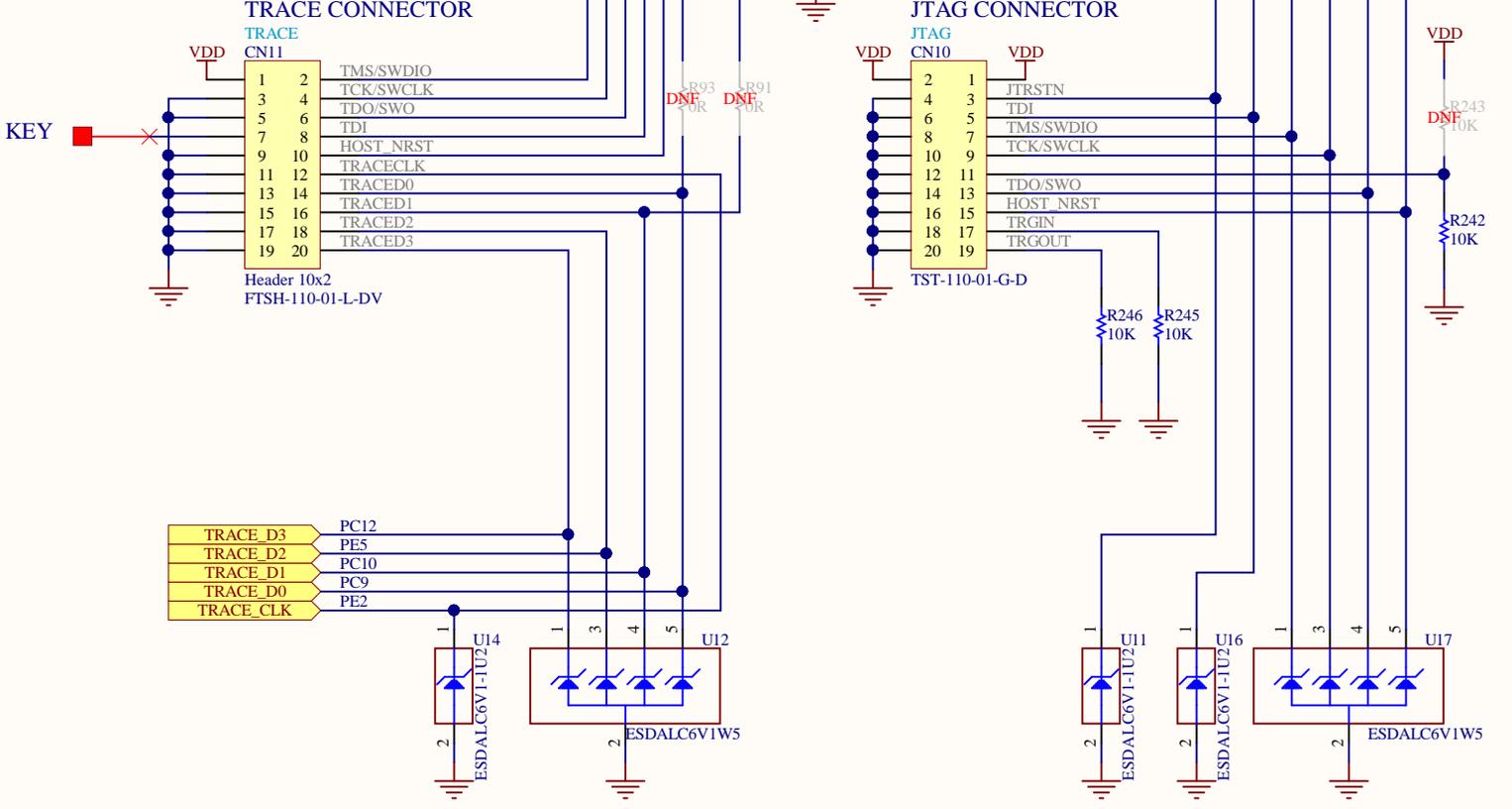
GND TEST POINT



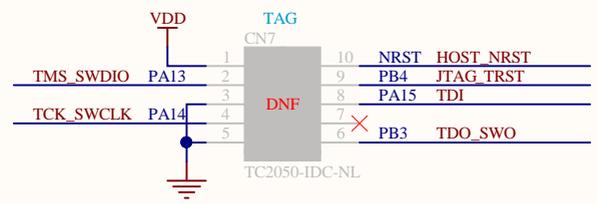
JTAG & TRACE

To disconnect JTAG connectors from target :
- Remove 22R resistors

JTMS_SWDIO	PA13	22R	R119	TMS_SWDIO
JTCK_SWCLK	PA14	22R	R118	TCK_SWCLK
JTDO_SWO	PB3	22R	R116	TDO_SWO
JTDI	PA15	22R	R110	TDI
JTRSTN	PB4	22R	R76	JTAG_TRST
NRST	NRST	22R	R109	HOST_NRST
T_VCP_TX	PB10/PG7			T_VCP_TX
T_VCP_RX	PB11/PG8			T_VCP_RX

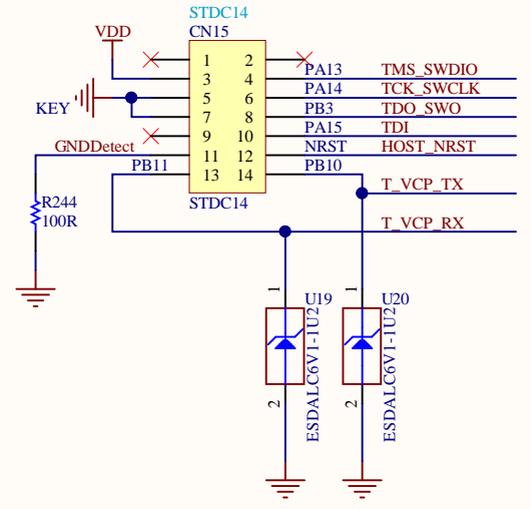


TAG CONNECTOR



TAG: Only footprint with cable: TC2050-IDC-NL

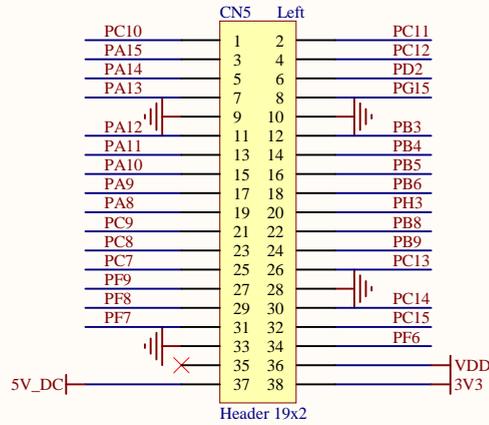
STDC14 RECEIVER



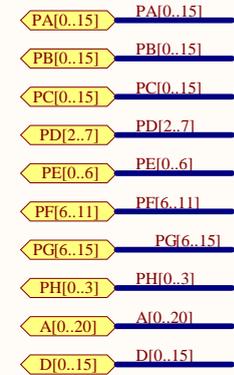
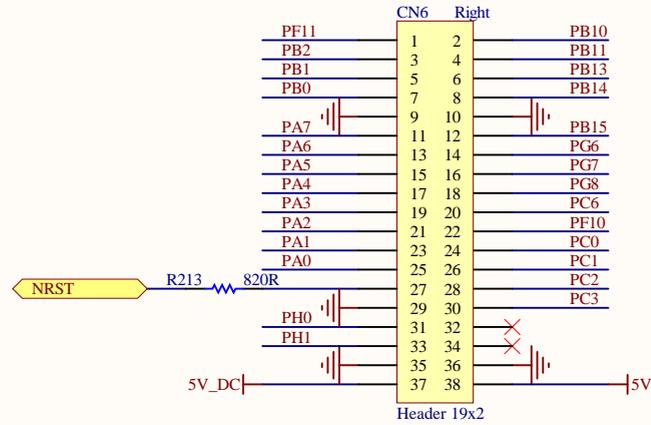
LIMITATIONS : see IO muxing sheet and User Manual for more detail

JTAG_TDI (prio2) exclusif with USB_CC1 (prio1)
 JTAG_JTRSTN exclusif with COMP and STMOD+ (prio2)
 TRACE_D0/D1/D3 exclusif with SDIO_CK/D1/D2 (prio1)

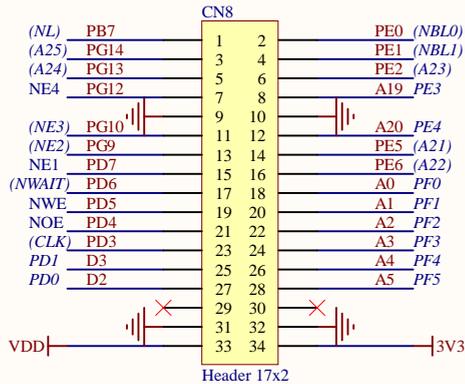
Placed close to MCU



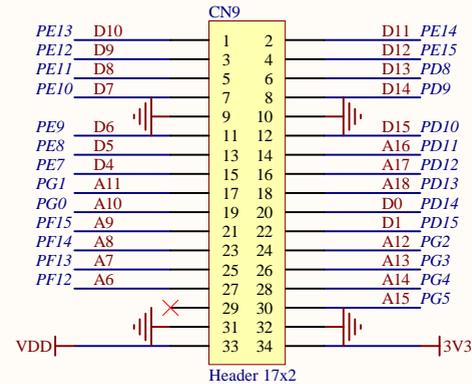
Placed close to MCU



Placed close to memory



Placed close to memory



STICKERS / LOGO

HW100

BOARD REF

MB1372B-01 sywwxxxxx

HW101

BOARD CPN

STM32L552E-EVAL

HW103

PCB

MB1372B

HW104

LOGO ST

HW105

LOGO CE

HW106

LOGO ESD

HW107

LOGO ROHS

MECHANICAL PARTS



H5

H6



H1

H2

HW30

Rubber Foot (D=10mm , H=8mm)

HW31

Rubber Foot (D=10mm , H=8mm)

HW32

Rubber Foot (D=10mm , H=8mm)

HW33

Rubber Foot (D=10mm , H=8mm)

HW34

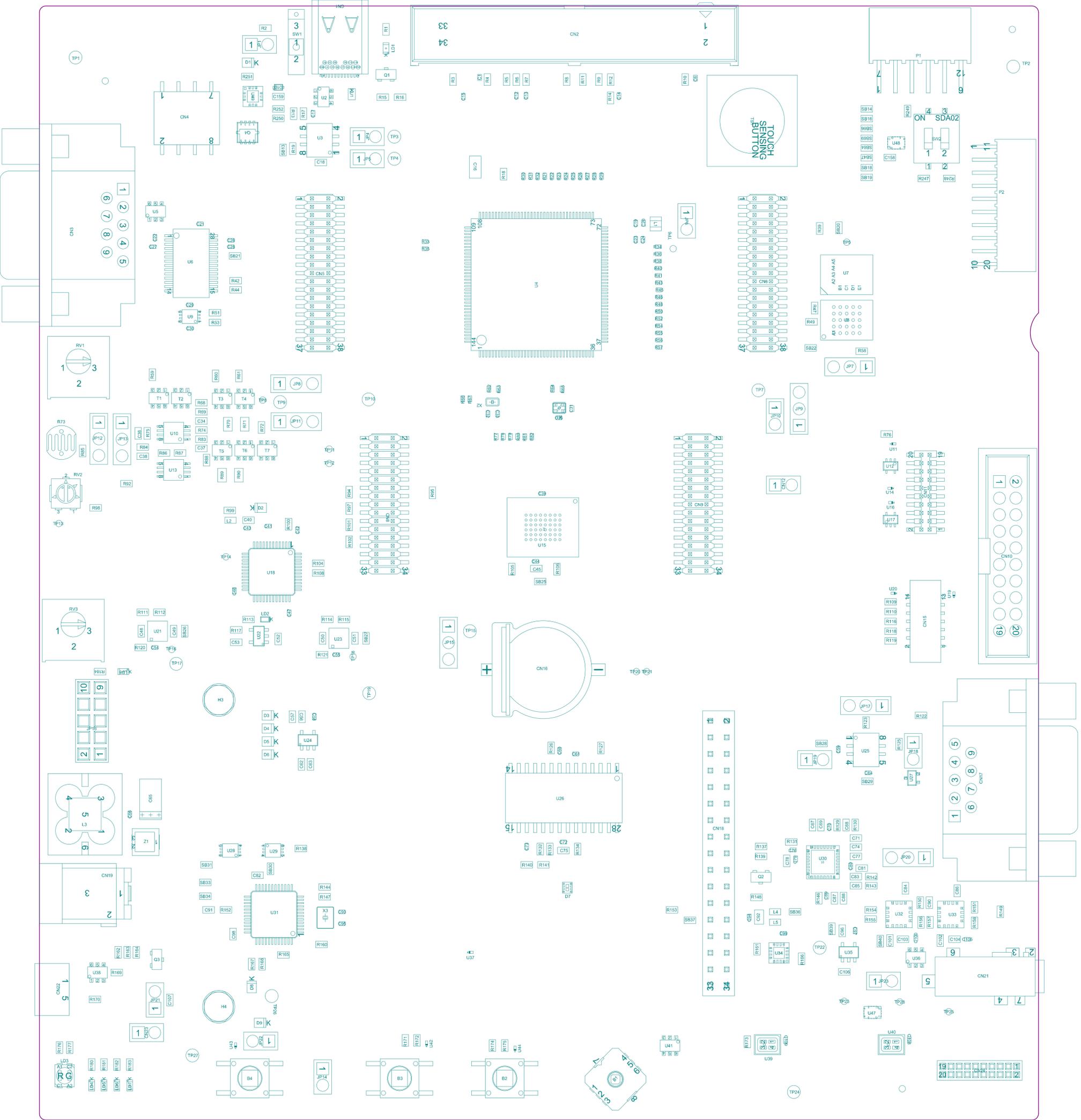
Rubber Foot (D=10mm , H=8mm)

ADDED MODULES

HW110

LCD

MB989_TFT_LCD_240x320



Project: STM32L552E-EVAL		
Layer: M14-Top Assembly	Gerber: .GM14	
Variant: L552ZEQ	Ref: MB1372	
Date: 19-FEB-21	Rev: C	

