

Sefa Unal
 Sheet: /
 File: STM32H743_SoM.kicad_sch
Title: Sketchy SoM
 Size: A4 Date: 2022-12-01
 KiCad E.D.A. kicad (6.0.9) **Rev:** Id: 1/13

X marks the pins routed to the B2B connector

U2A
STM32H743IITx

PA0	40	X	SAI2.SD_B
PA1	41	X	ETH.REF_CLK
PA2	42	X	ETH.MDIO
PA3	47	X	ADC_LDR ADC1_INP15
PA4	50	X	DCMI.HSYNC
PA5	51	X	LTDC.R4
PA6	52	X	DCMI_PIXCLK
PA7	53	X	ETH.CRS_DV
PA8	119	X	LTDC.B3
PA9	120	X	USB_DEV.VBUS
PA10	121	X	USART1_RX
PA11	122	X	USB_DEV.D-
PA12	123	X	USB_DEV.D+
PA13	124	X	DEBUG_DATA SWD.IO
PA14_JTCK/SWCLK	137	X	DEBUG_CLK SWD.CLK
PA15_JTDI	138	X	SPI1_CS

U2B
STM32H743IITx

PB0	56	X	LTDC.R3
PB1	57	X	LTDC.R6
PB2	58	X	QSPI.CLK
PB3	161	X	SPI1_SCK/SW0
PB4	162	X	SPI1_MISO
PB5	163	X	FMC.SDCKE1
PB6	164	X	I2C1_SCL
PB7	165	X	I2C1_SDA
PB8	167	X	DCMI.D6
PB9	168	X	DCMI.D7
PB10	79	X	QSPI_CS
PB11	80	X	I2C2_SDA
PB12	92	X	FDCAN2_RX
PB13	93	X	FDCAN2_TX
PB14	94	X	USB_HOST.D-
PB15	95	X	USB_HOST.D+

U2C
STM32H743IITx

PC0	32	X	LTDC.R5
PC1	33	X	ETH.MDC
PC2_C	34	X	SPI2_MISO
PC3_C	35	X	SPI2_MOSI
PC4	54	X	ETH.RXD0
PC5	55	X	ETH.RXD1
PC6	115	X	UART_TX USART6_TX
PC7	116	X	UART_RX USART6_RX
PC8	117	X	SDMMC1.D0
PC9	118	X	SDMMC1.D1
PC10	139	X	SDMMC1.D2
PC11	140	X	SDMMC1.D3
PC12	141	X	SDMMC1.CK
PC13	8	X	LED1 USER.LED1
PC14_05C32_IN	9	X	OSC32_IN
PC15_05C32_OUT	10	X	OSC32_OUT

U2D
STM32H743IITx

PD0	142	X	FMC.D2
PD1	143	X	FMC.D3
PD2	144	X	SDMMC1.CMD
PD3	145	X	USART2.CTS
PD4	146	X	USART2.RTS
PD5	147	X	USART2_TX
PD6	150	X	USART2_RX
PD7	151	X	SPI1_MOSI
PD8	96	X	FMC.D13
PD9	97	X	FMC.D14
PD10	98	X	FMC.D15
PD11	99	X	SAI2.SD_A
PD12	100	X	SAI2.FS_A
PD13	101	X	SAI2.SCK_A
PD14	104	X	FMC.D0
PD15	105	X	FMC.D1

U2E
STM32H743IITx

PE0	169	X	FMC.NBL0
PE1	170	X	FMC.NBL1
PE2	1	X	SPI4_SCK
PE3	2	X	USER.LED0
PE4	3	X	SPI4_CS
PE5	4	X	SPI4_MISO
PE6	5	X	SPI4_MOSI
PE7	68	X	FMC.D4
PE8	69	X	FMC.D5
PE9	70	X	FMC.D6
PE10	73	X	FMC.D7
PE11	74	X	FMC.D8
PE12	75	X	FMC.D9
PE13	76	X	FMC.D10
PE14	77	X	FMC.D11
PE15	78	X	FMC.D12

U2F
STM32H743IITx

PF0	16	X	FMC.A0
PF1	17	X	FMC.A1
PF2	18	X	FMC.A2
PF3	19	X	FMC.A3
PF4	20	X	FMC.A4
PF5	21	X	FMC.A5
PF6	24	X	QSPI.IO3
PF7	25	X	QSPI.IO2
PF8	26	X	QSPI.IO0
PF9	27	X	QSPI.IO1
PF10	28	X	LTDC.DE
PF11	59	X	FMC.SDRAS
PF12	60	X	FMC.A6
PF13	63	X	FMC.A7
PF14	64	X	FMC.A8
PF15	65	X	FMC.A9

U2G
STM32H743IITx

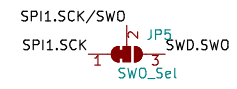
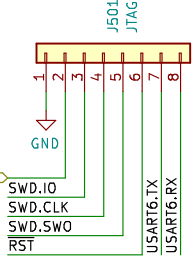
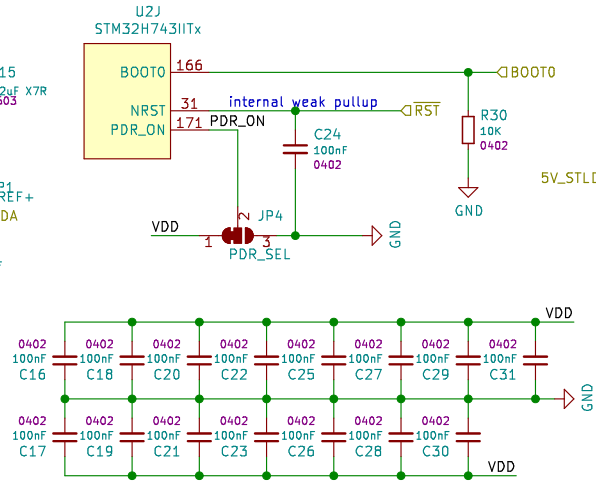
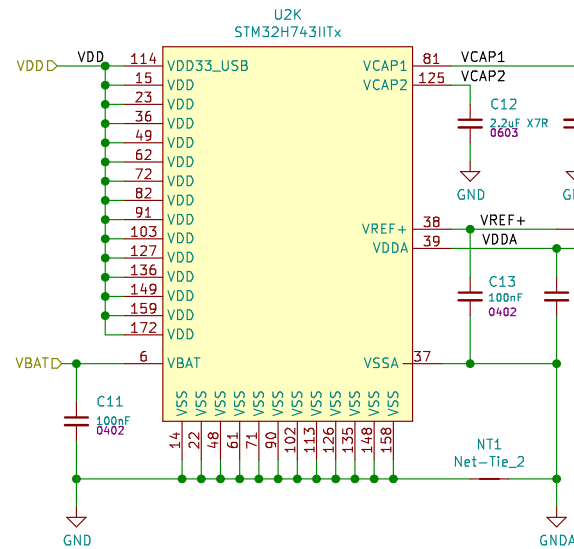
PG0	66	X	FMC.A10
PG1	67	X	FMC.A11
PG2	106	X	FMC.A12
PG3	107	X	USER.BTN1
PG4	108	X	FMC.BA0
PG5	109	X	FMC.BA1
PG6	110	X	LTDC.R7
PG7	111	X	LTDC.CLK
PG8	112	X	FMC.SDCLK
PG9	152	X	DCMI.VSYNC
PG10	153	X	LTDC.G3
PG11	154	X	ETH.TX_EN
PG12	155	X	LTDC.B4
PG13	156	X	ETH.TXD0
PG14	157	X	ETH.TXD1
PG15	160	X	FMC.SDCA5

U2H
STM32H743IITx

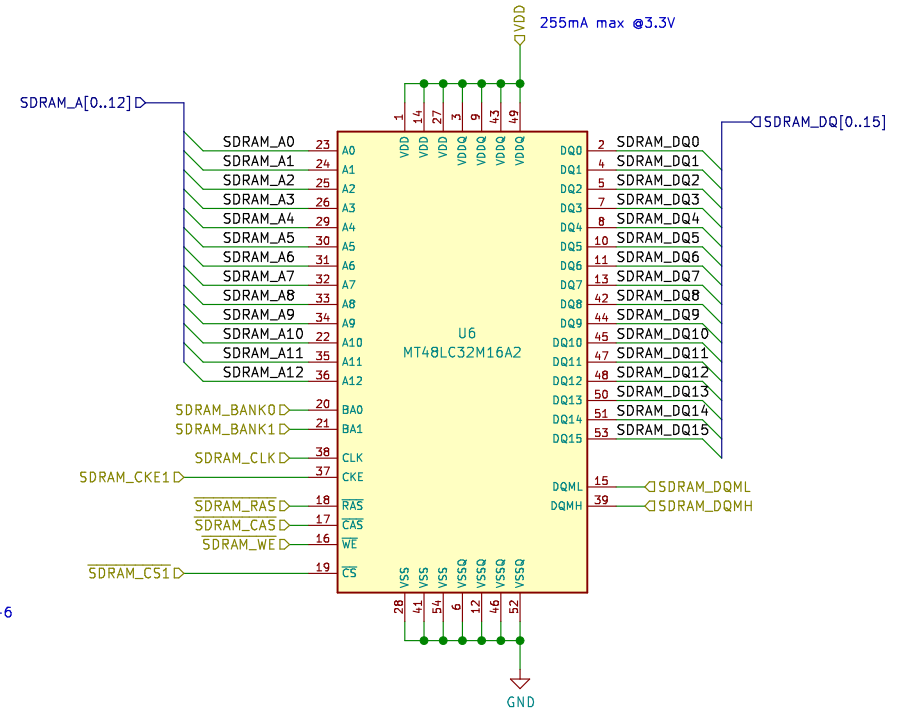
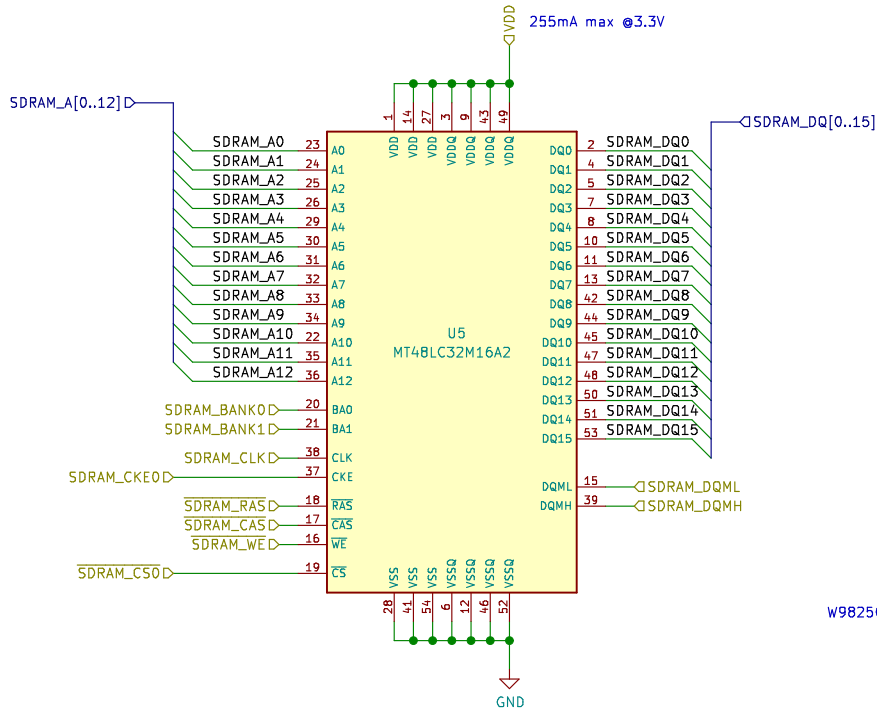
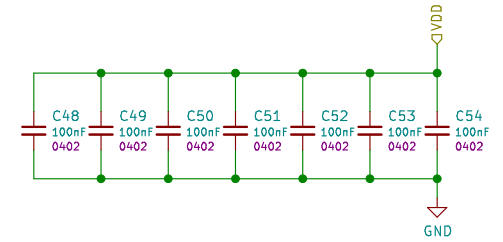
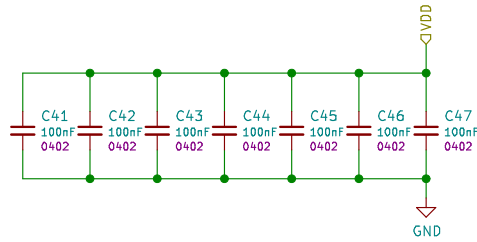
PH0_OSC_IN	29	X	OSC.IN
PH1_OSC_OUT	30	X	OSC.OUT
PH2	43	X	FMC.SDCKE0
PH3	44	X	FMC.SDE0
PH4	45	X	I2C2_SCL
PH5	46	X	FMC.SDWE
PH6	83	X	FMC.SDE1
PH7	84	X	I2C3_SCL
PH8	85	X	I2C3_SDA
PH9	86	X	DCMI.D0
PH10	87	X	DCMI.D1
PH11	88	X	DCMI.D2
PH12	89	X	DCMI.D3
PH13	128	X	LTDC.G2
PH14	129	X	DCMI.D4
PH15	130	X	LTDC.G4

U2I
STM32H743IITx

PI0	131	X	LTDC.G5
PI1	132	X	SPI2_SCK
PI2	133	X	LTDC.G7
PI3	134	X	SD_DET SDMMC1_DET
PI4	173	X	DCMI.D5
PI5	174	X	LTDC.B5
PI6	175	X	LTDC.B6
PI7	176	X	LTDC.B7
PI8	7	X	WKUP_BTN0 USER.BTN0
PI9	11	X	LTDC.VSYNC
PI10	12	X	LTDC.HSYNC
PI11	13	X	LTDC.G6

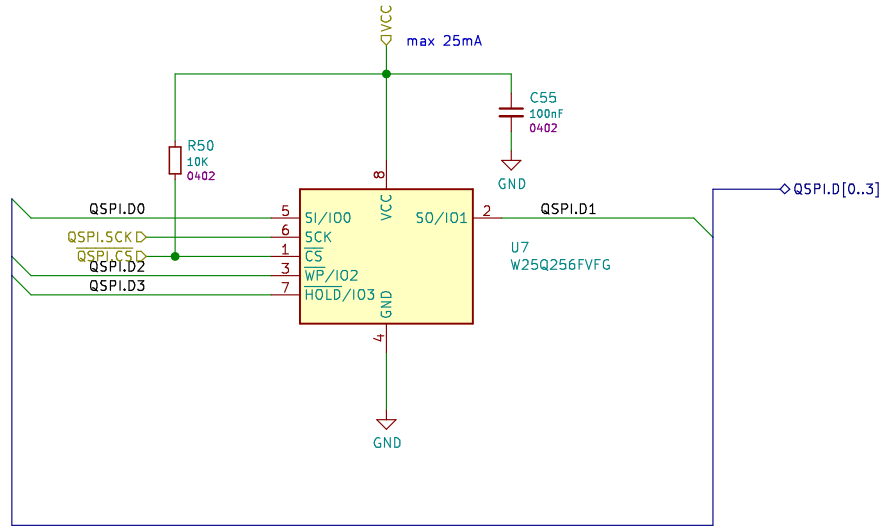


Sefa Unal
 Sheet: /Cortex-M7 Core/
 File: STM32H743_Core.kicad_sch
Title: STM32H743 Core
 Size: A4 Date: 2022-12-01
 KiCad E.D.A. kicad (6.0.9) **Rev:** Id: 2/13



W9825G6KH-6

Sefa Unal	
Sheet: /SDRAM/	
File: sdr.kicad_sch	
Title: SDRAM	
Size: A4	Date: 2022-12-01
KiCad E.D.A. kicad (6.0.9)	Rev: Id: 3/13



W74M016VZEIG?
 -1Gb(128M*8)
 -104MHz SDR
 S25FL256SAGNF1000
 - 80MHz DDR / 104MHz SDR
 - 256 Mb
 - ¥20.00 <https://item.taobao.com/item.htm?spm=a1z10.3-c.w4002-16276417592.20.24657>

Table 16. Different STM32 boards embedding Quad-SPI Flash memory

Product families	Board	Quad-SPI Flash model	Size (Mbytes)
STM32L475	B-L475E-I0701A	MX25R6435F	8
STM32L476	STM32L476G-DISCO	N25Q128A13EF840E	16
STM32L496	STM32L496G-EVAL	N25Q256A13EF840E	32
STM32F412	STM32F412G-DISCO	MX25R6435FDL0	8
STM32F413	STM32F413H-DISCO	N25Q128A13EF840F	16
STM32F446	STM32F446E-EVAL	N25Q256A13EF840E	32
STM32F469	STM32F469H-DISCO	N25Q128A13EF840F	16
	STM32469H-EVAL	MT25QL512ABASEF-QS1T	64
STM32F723	STM32F723H-DISCO	MT25QL512ABASEF-QS1T	64
STM32F746	STM32F746G-DISCO	MX25L1245G	64
	STM32F746G-EVAL	N25Q128A13EF840E	16
	STM32F746G-DISCO	MT25QL512ABASEF-QS1T	64
STM32F750	STM32F750H-DISCO	MT25QL512ABASEF-QS1T	64
STM32F756	STM32F756H-EVAL	N25Q256A13GSF40E	64
	STM32F756H-EVAL	MT25QL512ABASEF-QS1T	64
STM32F769	STM32F769H-DISCO	MT25QL512ABB1EW9	64
	STM32F769H-DISCO	MX25L1245G	64
STM32F779	STM32F779H-EVAL	N25Q256A13GSF40E	64
STM32H743/STM32H753	STM32H7xxI-EVAL	MT25TL01GHBB8ESF-QS1T	128

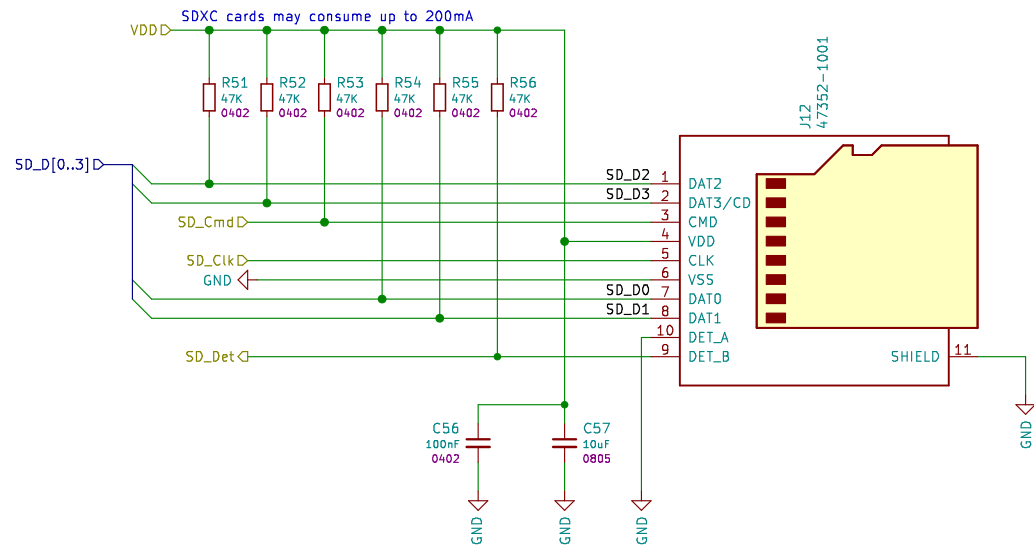
Table 2. QUADSPI availability and features across STM32 families

Products	Maximum speed (MHz) ⁽¹⁾		Dual-Flash memory	FFD size (byte)	Max addressable space ⁽²⁾	
	SDR	DDR			Memory mapped	Indirect mode
STM32F412 line	100	80				
STM32F413/423 line ⁽³⁾		60				
STM32F446 line ⁽⁴⁾	90					
STM32F469/79 line		80				
STM32F723x (except STM32F723 line ⁽⁴⁾)		80	Yes	32		
STM32F750xx STM32F745 STM32F746 STM32F747 STM32F748 STM32F749	108					
STM32H743/753 STM32H750 Value line	133	100				
STM32L471xx STM32L413xx STM32L422xx STM32L433xx STM32L445xx STM32L475xx STM32L488xx		46	No		256 Mbytes	4 Gbytes
STM32L431xx STM32L451xx STM32L452xx STM32L462xx STM32L463xx ⁽⁵⁾	60		Yes	16		
STM32L496xx STM32L4A6xx		50	No			
STM32L4R5/55 STM32L4R7/57 STM32L4R9/59 ⁽⁵⁾	86	60	Yes	32		
STM32MP1	166	90	Yes			

1. Maximum QUADSPI speed from datasheet. For more details on the QUADSPI maximum speed refer to the relevant device datasheet.
 2. 32-bit address mode should be used to reach 256 Mbytes in Memory-mapped mode and 4 Gbytes in Indirect mode.
 3. UFPFN48 does not support Quad-SPI.
 4. LQFP164 supports only Bank1 and Single-SPI/Dual-SPI only.
 5. For this set of products, Dual-Flash mode is supported only with LQFP100 and UFBGA100 packages.

Sefa Unal
 Sheet: /FLASH/
 File: qspi_flash.kicad_sch
Title: Flash

Size: A4	Date: 2022-12-01	Rev:
KiCad E.D.A. kicad (6.0.9)		Id: 4/13



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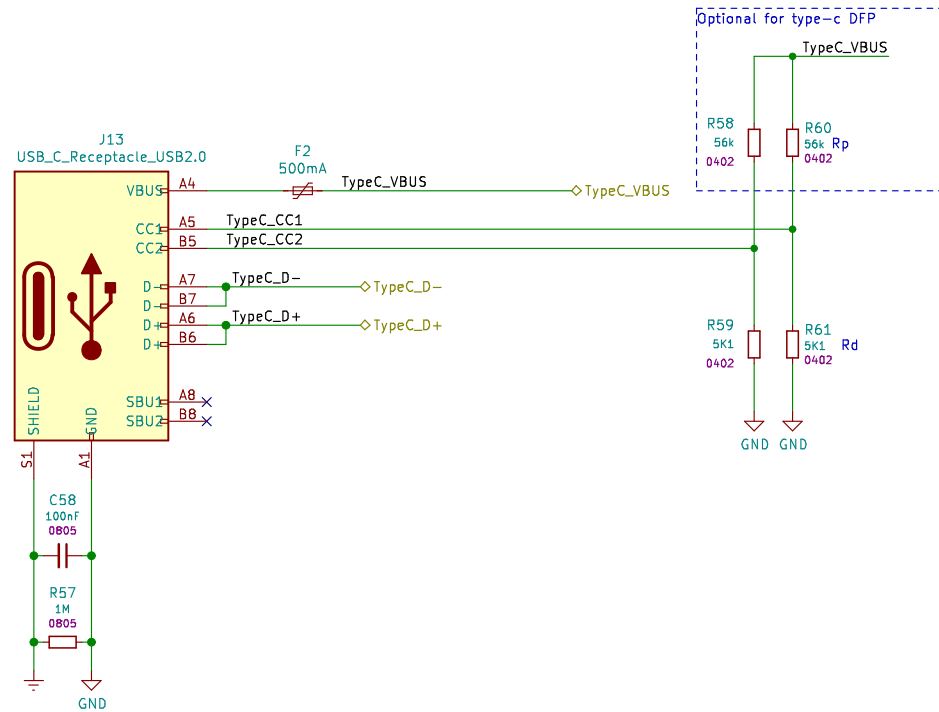
Sheet: /MicroSD/
File: microsd.kicad_sch

Title: SD Card

Size: A4 Date: 2022-12-01
KiCad E.D.A. kicad (6.0.9)

Rev:
Id: 5/13

Type-C UFP



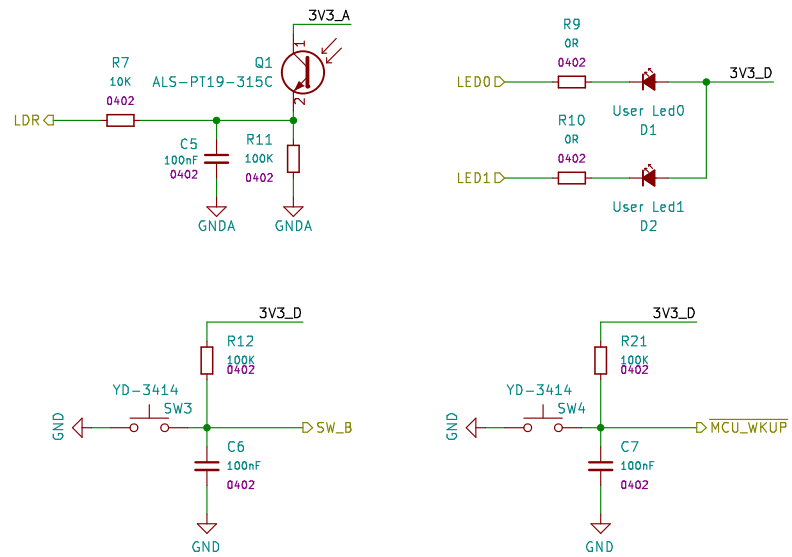
Sefa Unal

Sheet: /USB Device/
File: usb.kicad_sch

Title: USB Device FS

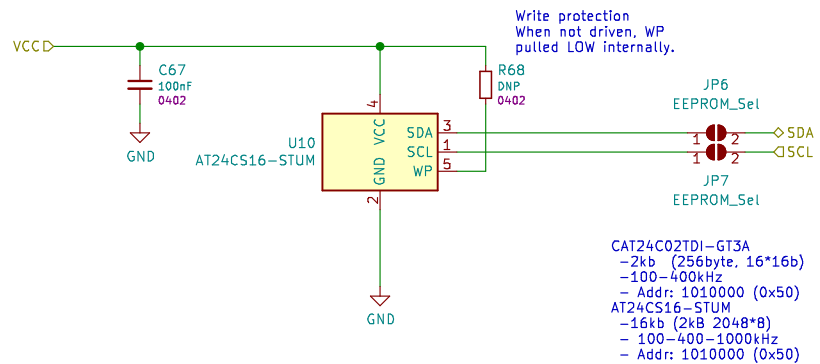
Size: A4 Date: 2022-12-01
KiCad E.D.A. kicad (6.0.9)

Rev:
Id: 6/13



3V3_D → 3V3_D
 3V3_AD → 3V3_A

Sefa Unal		
Sheet: /USER/		
File: board_io.kicad_sch		
Title: IO		
Size: A4	Date: 2022-12-01	Rev:
KiCad E.D.A. kicad (6.0.9)		Id: 7/13



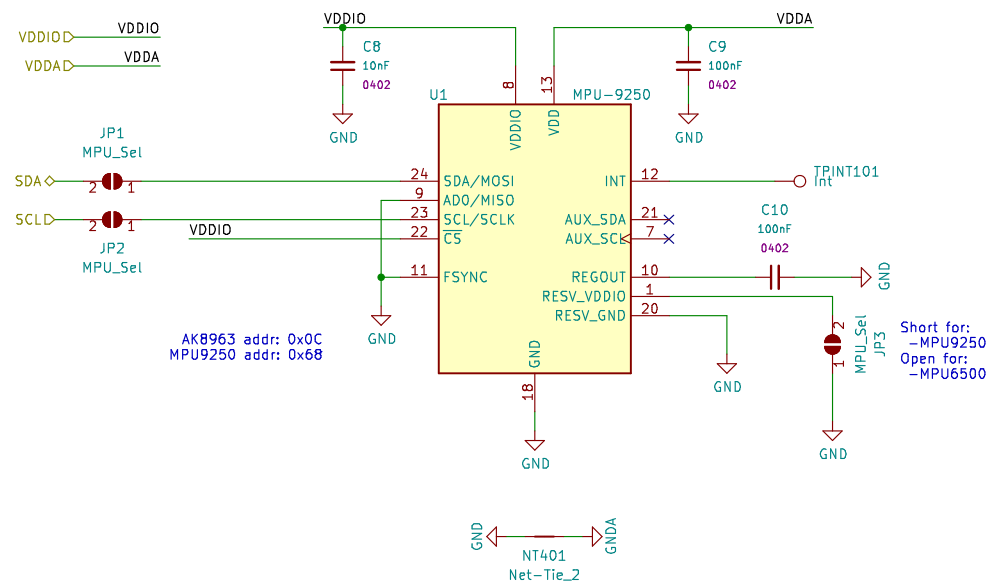
Sefa Unal

Sheet: /EEPROM/
File: eeprom.kicad_sch

Title: Eeprom

Size: A4 Date: 2022-12-01
KiCad E.D.A. kicad (6.0.9)

Rev:
Id: 8/13



Options:
 - MPU6250
 - MPU6500

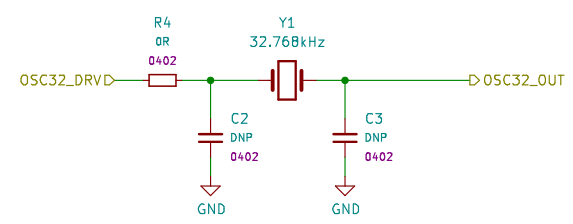
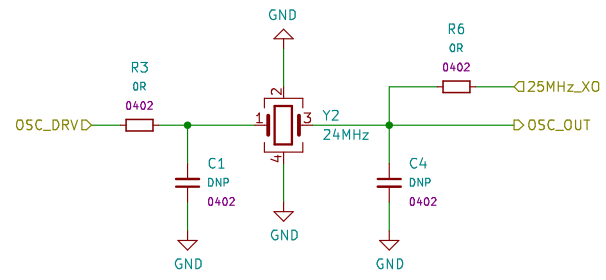
Sefa Unal

Sheet: /Motion Sensor/
 File: motion_sensor.kicad_sch

Title: Sensor

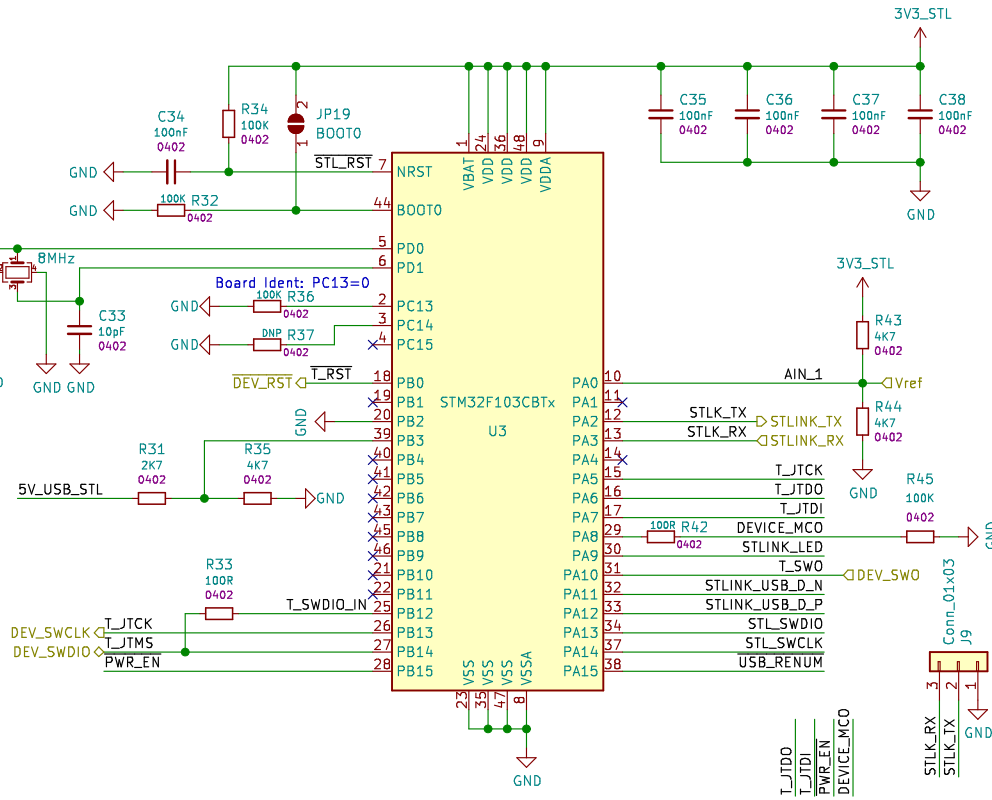
Size: A4 Date: 2022-12-01
 KiCad E.D.A. kicad (6.0.9)

Rev:
 Id: 9/13

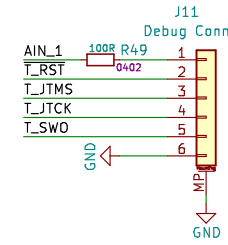


Sefa Unal		
Sheet: /Oscillators/		
File: oscillators.kicad_sch		
Title: Oscillators		
Size: A4	Date: 2022-12-01	Rev:
KiCad E.D.A. kicad (6.0.9)		Id: 10/13

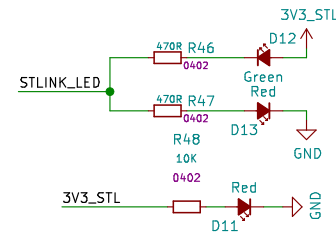
Debugger



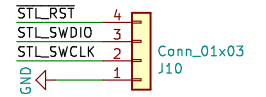
TARGET SWD



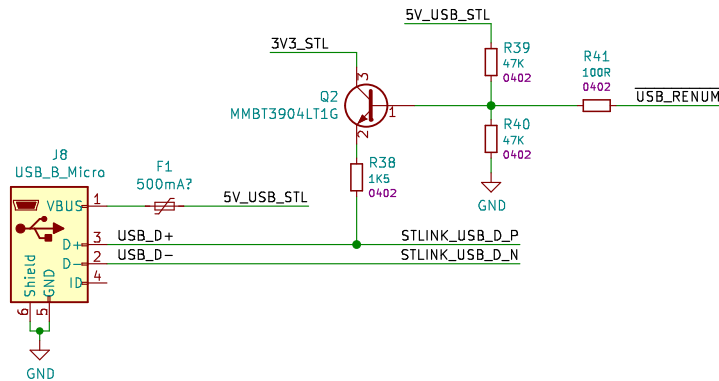
LEDs



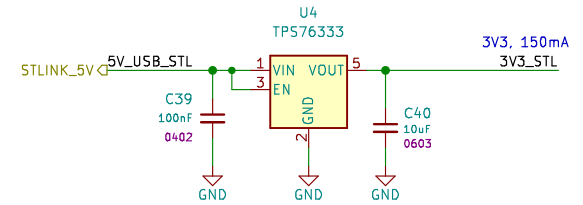
STLINK SWD



USB



Voltage Regulator



Sefa Unal

Sheet: /STLINK V2/
File: stlink2.kicad_sch

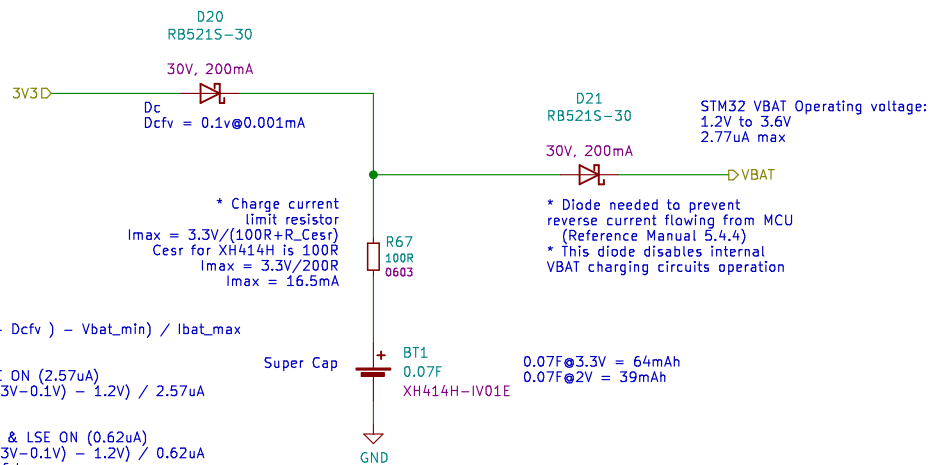
Title: Stlink v2

Size: A4 Date: 2022-12-01

KiCad E.D.A. kicad (6.0.9)

Rev:

Id: 11/13



* STM32H7 has internal VBAT charging circuit.
* Battery charging circuit must be enabled by setting VBE bit in PWR_CR3
* Charging circuit has 2 software selectable series resistors. 5k (default) and 1.5k

Sefa Unal

Sheet: /RTC Battery/
File: rtc_battery.kicad_sch

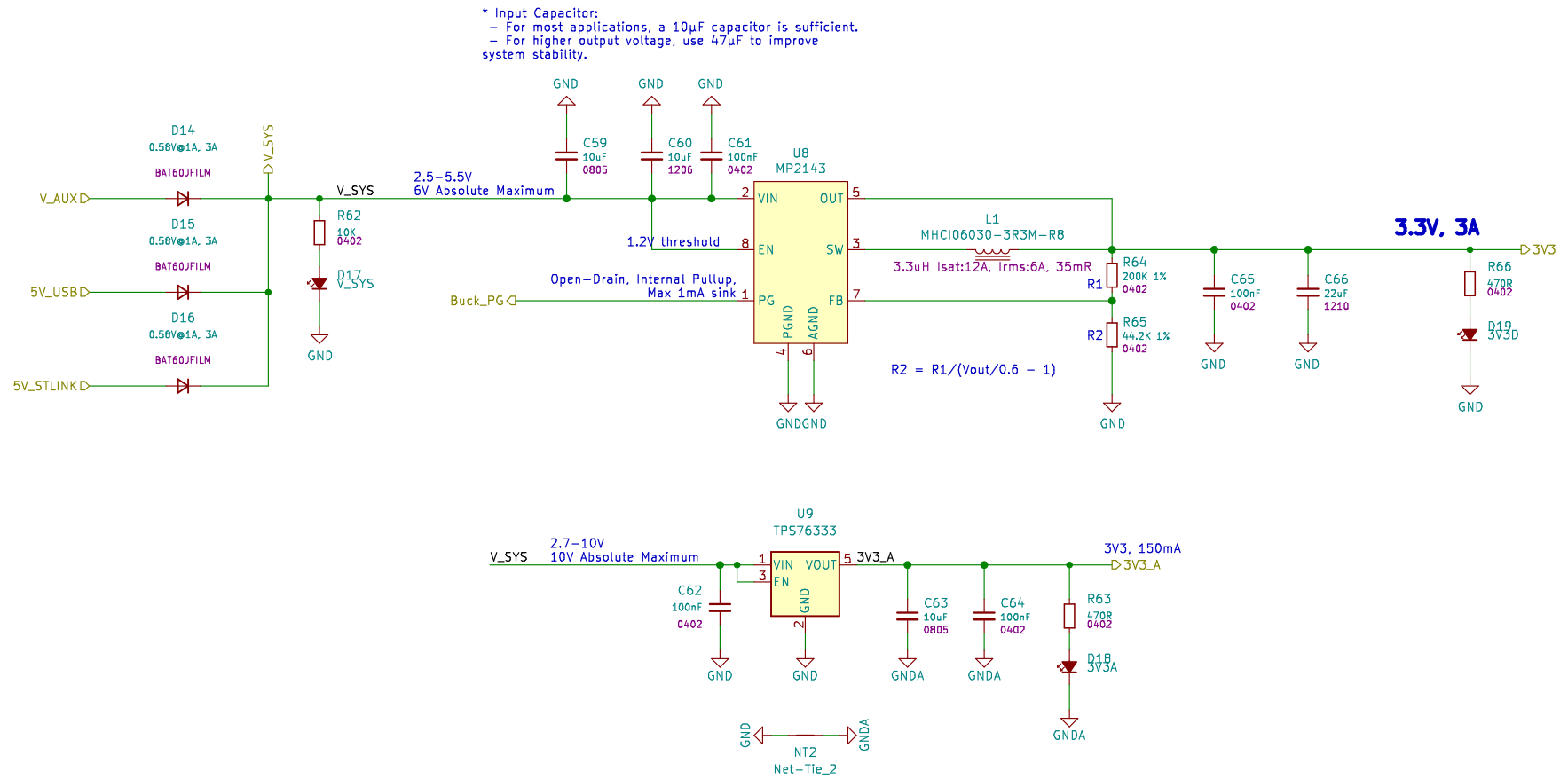
Title: RTC Power

Size: A4 Date: 2022-12-01

KiCad E.D.A. kicad (6.0.9)

Rev:

Id: 12/13



Sefa Unal	
Sheet: /Power/	
File: power.kicad_sch	
Title: Power	
Size: A4	Date: 2022-12-01
KiCad E.D.A. kicad (6.0.9)	Rev: Id: 13/13