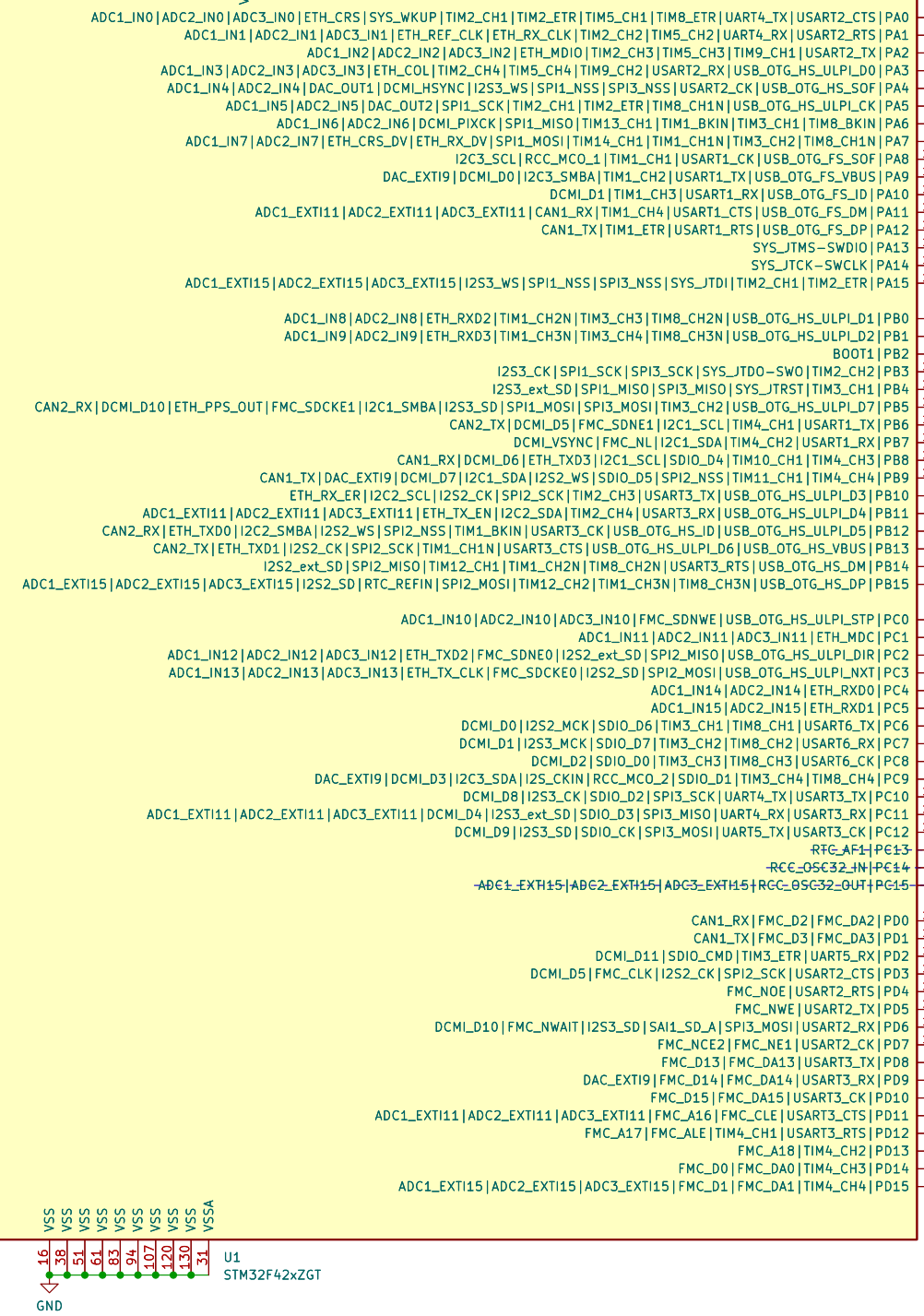


NRST	25	NRST
PDR_ON	143	
BOOT0	138	PB5_BOOT0_S1
VBAT	6	
VREF+	32	
VCAP_1	71	
VCAP_2	106	
		C41 2.2u
		C42 2.2u
		GND
		GND
		+3.3V
PH0	23	PH0 RCC_OSC_IN
PH1	24	PH1 RCC_OSC_OUT
		R28
		Y1 8MHz
		C37 18p
		C39 18p
		GND
		GND
		+3.3V
PG0	56	PG0 FMC_A10
PG1	57	PG1 FMC_A11
PG2	87	PG2 FMC_A12
PG3	88	PG3 FMC_A13
PG4	89	PG4 FMC_A14 FMC_BA0
PG5	90	PG5 FMC_A15 FMC_BA1
PG6	91	PG6 DCML_D12 FMC_INT2
PG7	92	PG7 DCML_D13 FMC_INT3 USART6_CK
PG8	93	PG8 ETH_PPS_OUT FMC_SDCLK SPI6_NSS USART6_RTS
PG9	124	PG9 DAC_EXTI9 DCML_VSYNC FMC_NCE3 FMC_NE2 USART6_RX
PG10	125	PG10 DCML_D2 FMC_NCE4_1 FMC_NE3
PG11	126	PG11 ADC1_EXTI11 ADC2_EXTI11 ADC3_EXTI11 DCML_D3 ETH_TX_EN FMC_NCE4_2
PG12	127	PG12 FMC_NE4 SPI6_MISO USART6_RTS
PG13	128	PG13 ETH_TXD0 FMC_A24 SPI6_SCK USART6_CTS
PG14	129	PG14 ETH_TXD1 FMC_A25 SPI6_MOSI USART6_TX
PG15	132	PG15 ADC1_EXTI15 ADC2_EXTI15 ADC3_EXTI15 DCML_D13 FMC_SDNCA5 USART6_CTS
PF0	10	PF0 FMC_A0 I2C_SDA
PF1	11	PF1 FMC_A1 I2C_SCL
PF2	12	PF2 FMC_A2 I2C_SMBA
PF3	13	PF3 ADC3_IN9 FMC_A3
PF4	14	PF4 ADC3_IN4 FMC_A4
PF5	15	PF5 ADC3_IN15 FMC_A5
PF6	18	PF6 ADC3_IN4 FMC_NIORD SAI1_SD_B SPI5_NSS TIM10_CH1 UART7_RX
PF7	19	PF7 ADC3_IN5 FMC_NREG SAI1_MCLK_B SPI5_SCK TIM11_CH1 UART7_TX
PF8	20	PF8 ADC3_IN6 FMC_NIOWR SAI1_SCK_B SPI5_MISO TIM13_CH1
PF9	21	PF9 ADC3_IN7 DAC_EXTI9 FMC_CD SAI1_FS_B SPI5_MOSI TIM14_CH1
PF10	22	PF10 ADC3_IN8 DCML_D11 FMC_INTR
PF11	49	PF11 ADC1_EXTI11 ADC2_EXTI11 ADC3_EXTI11 DCML_D12 FMC_SDNRA5 SPI5_MOSI
PF12	50	PF12 FMC_A6
PF13	53	PF13 FMC_A7
PF14	54	PF14 FMC_A8
PF15	55	PF15 ADC1_EXTI15 ADC2_EXTI15 ADC3_EXTI15 FMC_A9
PE0	144	PE0 DCML_D2 FMC_NBL0 TIM4_ETR UART8_RX
PE1	142	PE1 DCML_D3 FMC_NBL1 UART8_TX
PE2	1	PE2 ETH_TXD3 FMC_A23 SAI1_MCLK_A SPI4_SCK SYS_TRACECLK
PE3	2	PE3 FMC_A19 SAI1_SD_B SYS_TRACED0
PE4	3	PE4 DCML_D4 FMC_A20 SAI1_FS_A SPI4_NSS SYS_TRACED1
PE5	4	PE5 DCML_D6 FMC_A21 SAI1_SCK_A SPI4_MISO SYS_TRACED2 TIM9_CH1
PE6	5	PE6 DCML_D7 FMC_A22 SAI1_SD_A SPI4_MOSI SYS_TRACED3 TIM9_CH2
PE7	58	PE7 FMC_D4 FMC_DA4 TIM1_ETR UART7_RX
PE8	59	PE8 FMC_D5 FMC_DA5 TIM1_CH1N UART7_TX
PE9	60	PE9 DAC_EXTI9 FMC_D6 FMC_DA6 TIM1_CH1
PE10	63	PE10 FMC_D7 FMC_DA7 TIM1_CH2N
PE11	64	PE11 ADC1_EXTI11 ADC2_EXTI11 ADC3_EXTI11 FMC_D8 FMC_DA8 SPI4_NSS TIM1_CH2
PE12	65	PE12 FMC_D9 FMC_DA9 SPI4_SCK TIM1_CH3N
PE13	66	PE13 FMC_D10 FMC_DA10 SPI4_MISO TIM1_CH3
PE14	67	PE14 FMC_D11 FMC_DA11 SPI4_MOSI TIM1_CH4
PE15	68	PE15 ADC1_EXTI15 ADC2_EXTI15 ADC3_EXTI15 FMC_D12 FMC_DA12 TIM1_BKIN



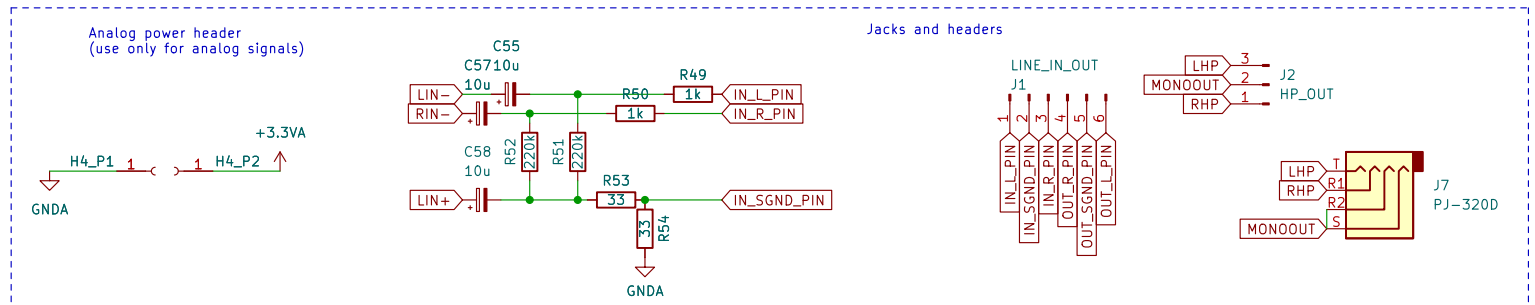
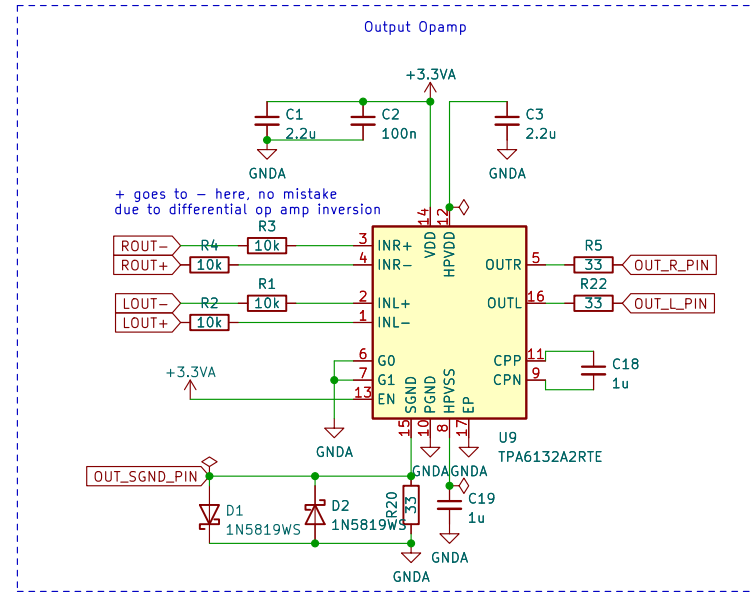
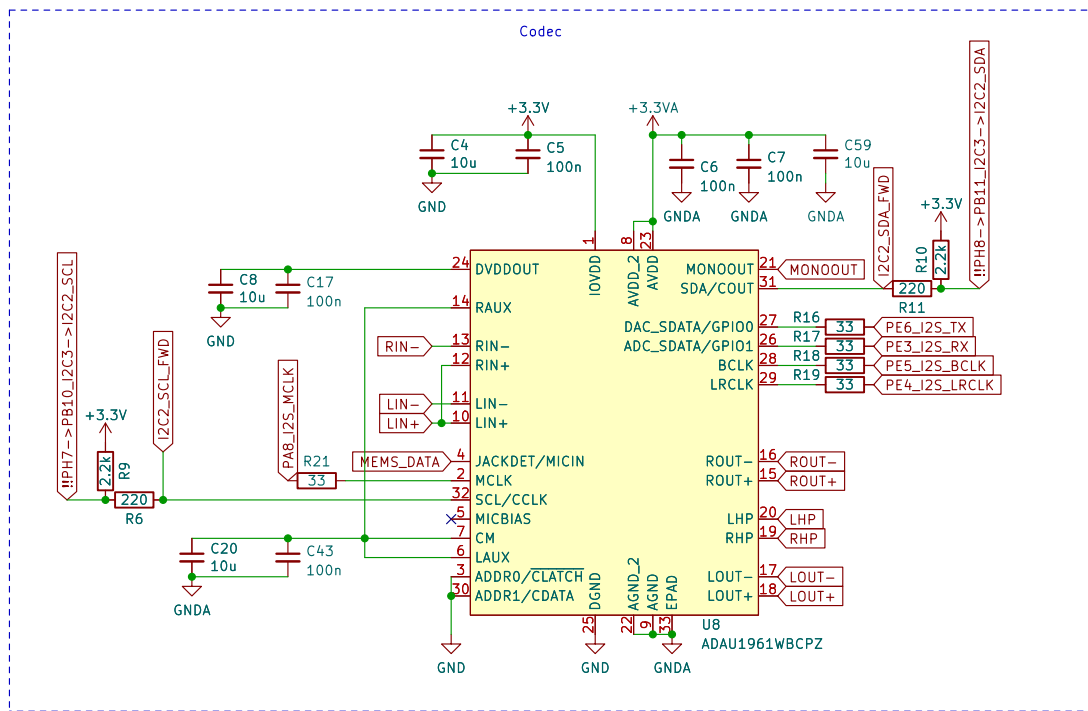
34	PA0	ADC0	pwm
35	PA1	ADC1	pwm
36	PA2	ADC2 / UART_TX	pwm
37	PA3	ADC3 / UART_RX	pwm
40	PA4	ADC4 / DAC1 / SPL_SCK	pwm
41	PA5	ADC5 / DAC2 / SPL_SCK	pwm
42	PA6	ADC6 / SPL_MISO	pwm
43	PA7	ADC7 / SPL_MOSI	pwm
100	PB8	I2S_MCLK	
101	PA9	GPIO	pwm
102	PA10	S2	
104	PA11	OTG_FS_D-	
105	PA12	OTG_FS_D+	
109	PA13	SWDIO	
110	PA14	SWDCLK	
110	PA15	GPIO	pwm
46	PB0	ADC8	pwm
47	PB1	ADC9	pwm
48			
133	PB3	GPIO	pwm
134	PB4	GPIO	pwm
135	PB5	BOOT0_S1	
136	PB6	GPIO	pwm
137	PB7	GPIO	pwm
139	PB8	GPIO	pwm
140	PB9	GPIO	pwm
69			
70	PH7	->PB10_I2C3->I2C2_SCL	
70	PH8	->PB11_I2C3->I2C2_SDA	
73	PB12	GPIO	
74	PB13	GPIO	pwm
75	PB14	OTG_HS_D-	
76	PB15	OTG_HS_D+	
26	PH5	->PC0_FMC_SDNWE	
27	PC1	ADC10	
28	PH3	->PC2_FMC_SDNEO	
29	PH2	->PC3_FMC_SDNCKE0	
44	PC4	ADC11	
45	PC5	ADC12	
96	PC6	RED_LED	pwm
97	PC7	GPIO	pwm
98	PC8	SDIO_D0	
99	PC9	SDIO_D1	
111	PC10	SDIO_D2	
112	PC11	SDIO_D3	
113	PC12	SDIO_CK	
7			
8			
9			
114	PD0	FMC_D2	
115	PD1	FMC_D3	
116	PD2	SDIO_CMD	
117	PD3	GPIO	
118	PD4	GPIO	
119	PD5	GPIO	
122	PD6	GPIO	
123			
77	PD8	FMC_D13	
78	PD9	FMC_D14	
79	PD10	FMC_D15	
80			
81	PD12	SPI_LINK_SELECT	
82	PD13	SD_DETECT	
85	PD14	FMC_D0	
86	PD15	FMC_D1	

- codec_adau1961
- File: codec_adau1961.kicad_sch
- headers
- File: headers.kicad_sch
- sdram
- File: sdram.kicad_sch
- power_midi
- File: power.kicad_sch
- usb
- File: usb.kicad_sch
- sdio
- File: sdio.kicad_sch

CHANGELOG



File: changelog.kicad_sch



Sheet: /codec_adau1961/
File: codec_adau1961.kicad_sch

Title: Ksoloti Core

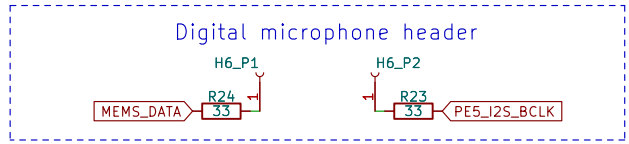
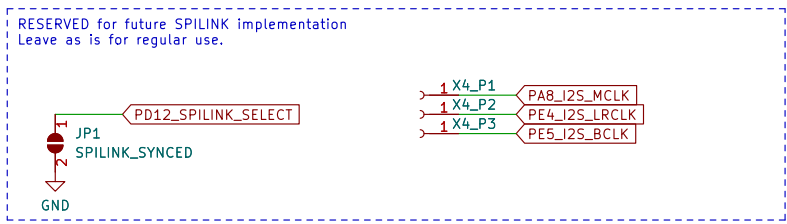
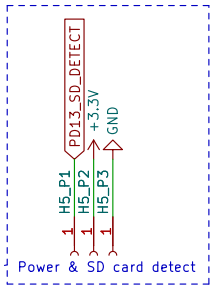
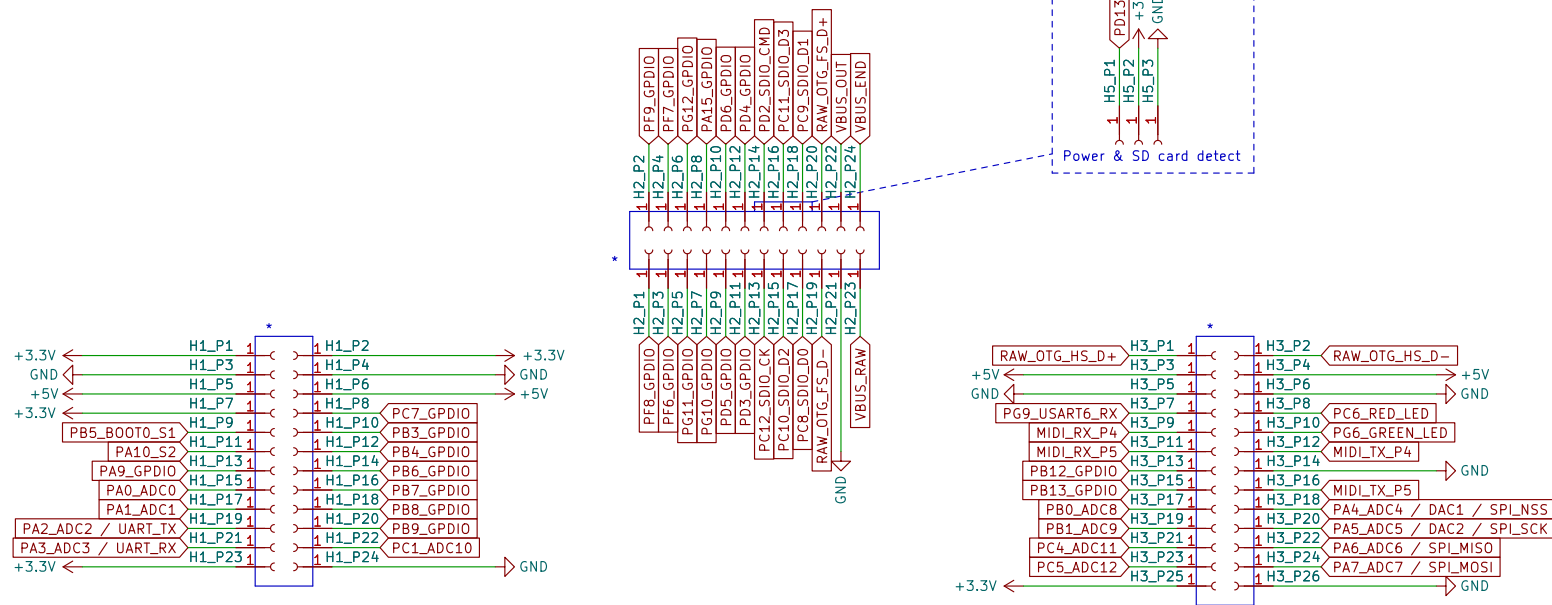
Size: A4 Date: 2023-08-21

KiCad E.D.A. kicad (6.0.11)

Rev: v0.6

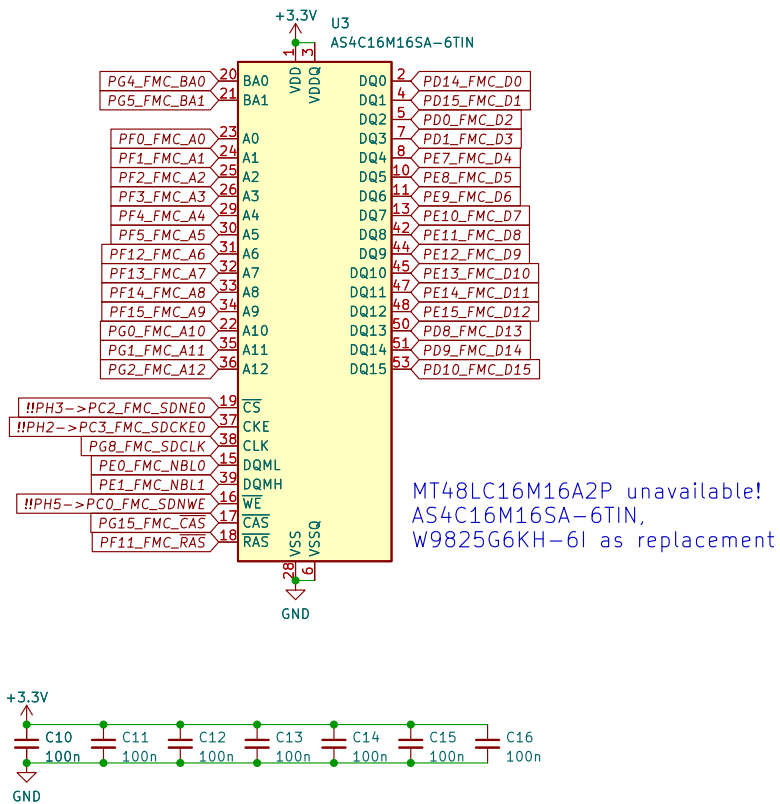
Id: 2/8

"GPIO" headers (PCB component side view)



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KiCad E.D.A. kicad (6.0.11)	Rev: v0.6
	Id: 3/8

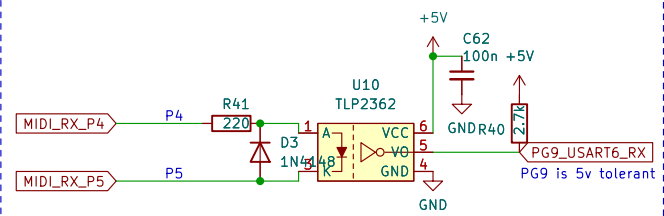
SDRAM



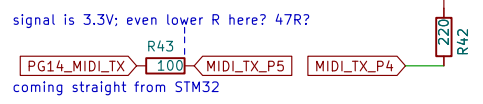
MT48LC16M16A2P unavailable!
 AS4C16M16SA-6TIN,
 W9825G6KH-6I as replacement

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Size: A4	Date: 2023-08-21
KiCad E.D.A. kicad (6.0.11)	Rev: v0.6
	Id: 4/8

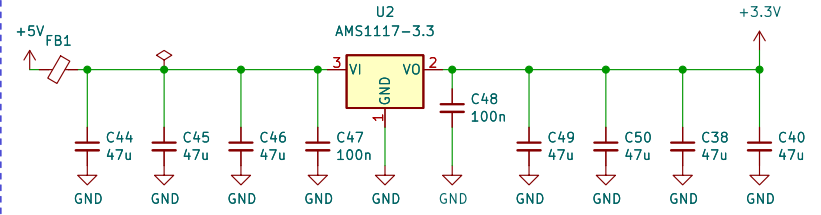
MIDI in. (OPTIONAL footprints on the bottom side of the PCB – not placed by default)



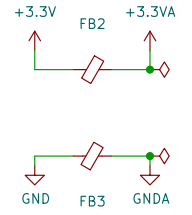
MIDI out. You can connect a MIDI jack directly to M04, GND, and M05.



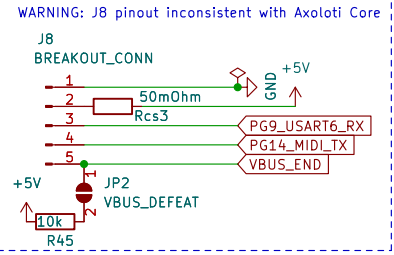
3.3V digital power supply

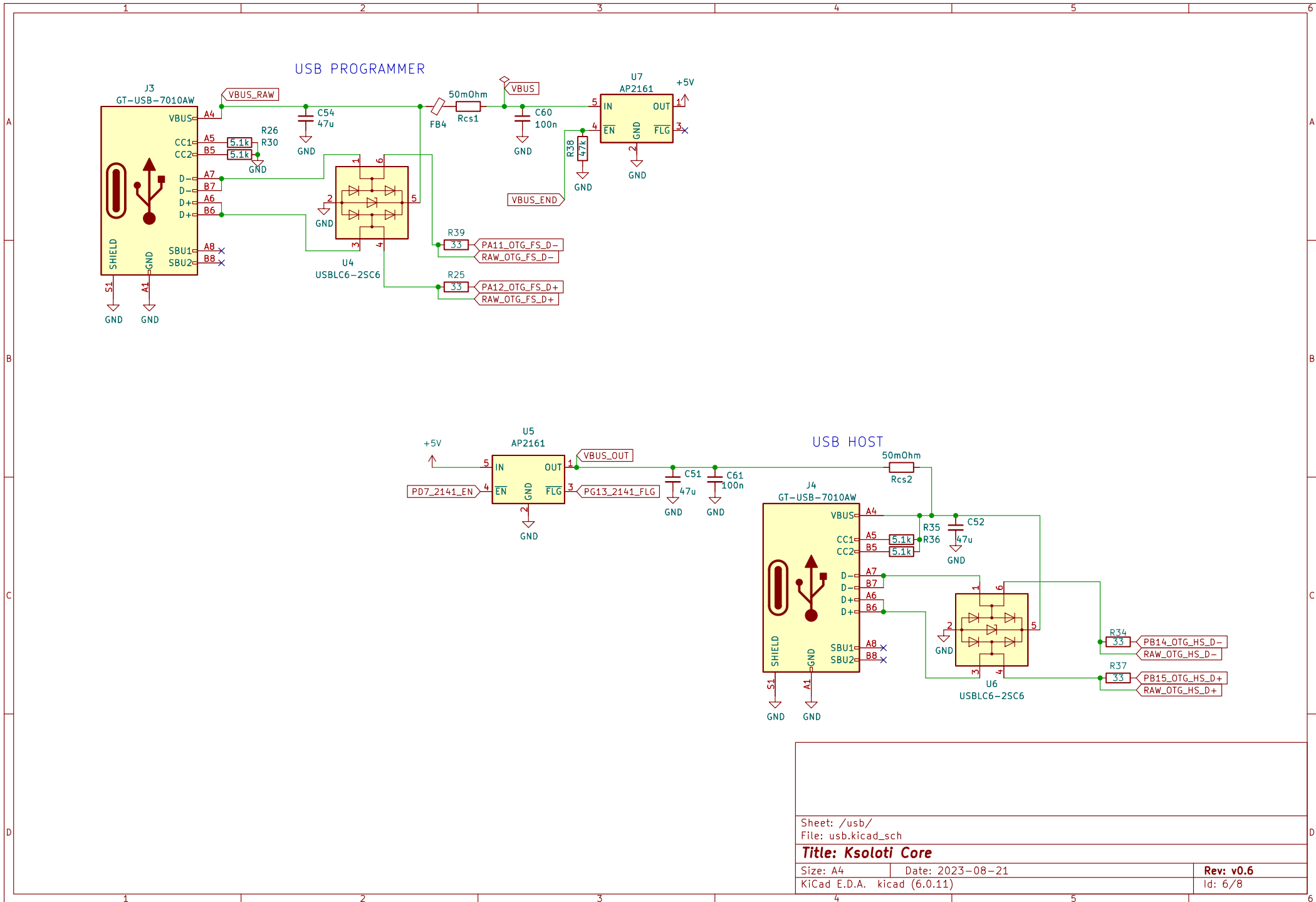


Analog power (audio path only)



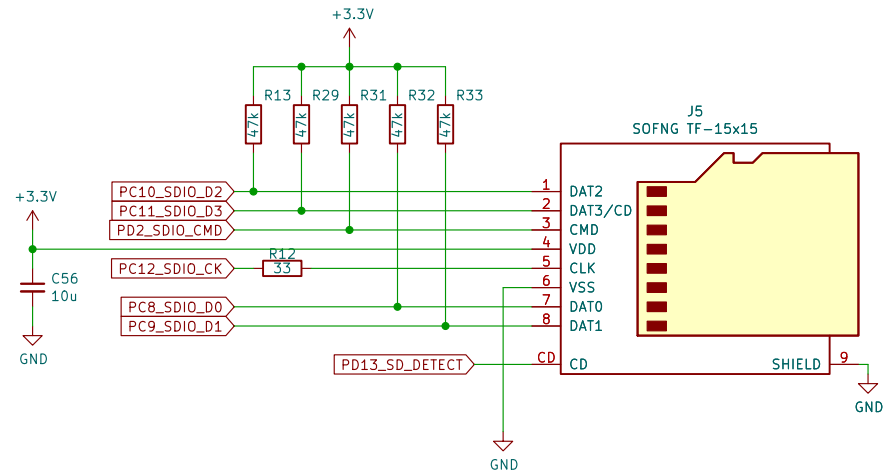
To power/MIDI board





Sheet: /usb/	
File: usb.kicad_sch	
Title: Ksoloti Core	
Size: A4	Date: 2023-08-21
KiCad E.D.A. kicad (6.0.11)	Rev: v0.6
	Id: 6/8

Micro SD card



Sheet: /sdio/	
File: sdio.kicad_sch	
Title: Ksoloti Core	
Size: A4	Date: 2023-08-21
KiCad E.D.A. kicad (6.0.11)	Rev: v0.6
	Id: 7/8

v0.1 done -- prototype ordered 2023/04/13

v0.2 done -- prototype ordered 2023/04/26

Changes in v0.2:

- (even) higher series resistors for LEDs
- break out PA15 as GPDI017, PD3 as GPDI018
- combine S1/BOOT0 pin and GPDI02 (PB5)
- untent some vias to make them usable as test points
- move SD card slot to make space for mounting hole
- add fiducials and M2.5 mounting holes
- add footprint for SMD 3.5mm headphone jack (PJ-320D) on bottom
- add digital PDM microphone connected to SPI3 (I2S3)
- pull PG3 up to VDD to have a way in firmware to check board version
- change HP output pinout so that it matches line out. One thing less that could go wrong!

v0.3 done -- prototype ordered 2023/06/21

Changes in v0.3:

- Break out PA9 as GPDI019, PC7 as GPDI020, PB12 as GPDI021, PB13 as GPDI022 (was running out of PWMable and general digital pins)
- Increase capacitors on 5V rail (3.3V regulator input) and 3.3V output to avoid MCU reset due to power drop when connecting external 5V while core is powered via USB.
- Connect both physical legs of each SMD switch to their respective nets (not just to one physical leg of each side)
- Increase mounting holes to M3, squeeze in two more mounting holes - total 4 now
- Modify footprints of electrolytic caps so that they can alternatively accommodate 1206 ceramic caps
- Remove via "untent" test points - they were creating risks when hand soldering ICs
- Reroute PDM mic to interface directly with the codec. Now the codec can be setup in your patch to take either the mono mic or the stereo line in as input.
- Add expansion header for optional second digital microphone
- Move power-midi board connector J11 north by 2.54mm (to align with new power-midi board)
- Revise ferrite beads (some unnecessary)
- Revise 3.3V versus 3.3VA (3.3VA and GND now reserved for audio and codec only, 3.3V and GND for digital and now also for STM32 ADC/DAC), add dedicated pins for 3.3VA and GND in the codec section, should they be required.
- Add H3_P25 and H3_P26 so that 3.3V is available on the right header.
- Make 5V available on the left header.
- Add current sensing resistors to 5V in, USB port in, and USB host out, to be able to measure current requirements.
- Add MIDI out circuit. MIDI output can now be used out of the box by connecting a connector to the header.
- Add optional MIDI in circuit on the back side of the PCB. Users can solder the respective parts and get MIDI input by soldering a DIN or TRS connector to the header.

v0.4 done -- prototype ordered 2023/08/11

Changes in v0.4:

- Change R43 (MIDI out) from 220R to 100R.
- Adjust 3.3V zone around U2 (3.3V regulator).
- Adjust keepout zone around Y1 (8Mhz crystal).
- Move USB sockets north by 0.5mm to let them poke through panels. Note that this will increase overall Y-dimension of the board to ca. 90mm.
- Add SPILINK master/sync jumper (JP1) and "Multiprocessor Sync" header (X4). RESERVED for future SPILINK implementation. Leave as is for regular use.
- Change header pinout so that related pins are next to each other:
 - * H3: Move SD card pins together. Move PF6..9 pins so that they are together with the other GPDI0 pins.
 - * Move MIDI-related pins together.
 - * Move SW1, SW2 position and header pins together.
 - * Align pins in order where possible (PA0..3, PA4..7 etc.)
- Add 10k pull-down resistor to Switch 2.

v0.5 done -- 2023/09/22

Changes in v0.5:

- Remove PDM mic, add optional gyroscope/accelerometer via I2C2.
- Rename MIDI pins to Mx, MOx.
- Fix swapped labeling of LED1 and LED2 to conform with Axo tradition. Rename LED pins to L1G and L2R to indicate color.
- Add 47uF caps C38, C40 to 3.3V rail for more stability when USB or external power is (accidentally) unplugged

v0.6 done -- 2024/03/06

Changes in v0.6:

- In USB host port, use AP2161 instead of AP2141 to allow for up to 1A of current.
- MT48LC16M16A2P (SDRAM) part shortage. Use AS4C16M16SA-6TIN (W9825G6KH-6I; IS42S16160J-6TLI?)
- SRV05-4 price fluctuation. Use USBLC6-2SC6.
- Add jumper to disable VBUS power (useful if synced via spilink)
- Remove gyroscope (feature creep)
- Change layer sequence - SDRAM lines now run on inner layer.
- Realign R42, R43 (MIDI out circuit)
- Improve M14, M15, optional MIDI in circuit labeling
- Adjust USB Type-C connector footprint
- Use TLP2362 as optional optocoupler (smaller footprint)

Sheet: /changelog/
File: changelog.kicad_sch

Title: Ksoloti Core

Size: A4 Date: 2023-08-21

KiCad E.D.A. kicad (6.0.11)

Rev: v0.6

Id: 8/8