clouds_v30_2

File: clouds_v30_2.kicad_sch

clouds_v30_3

File: clouds_v30_3.kicad_sch

clouds_v30_4

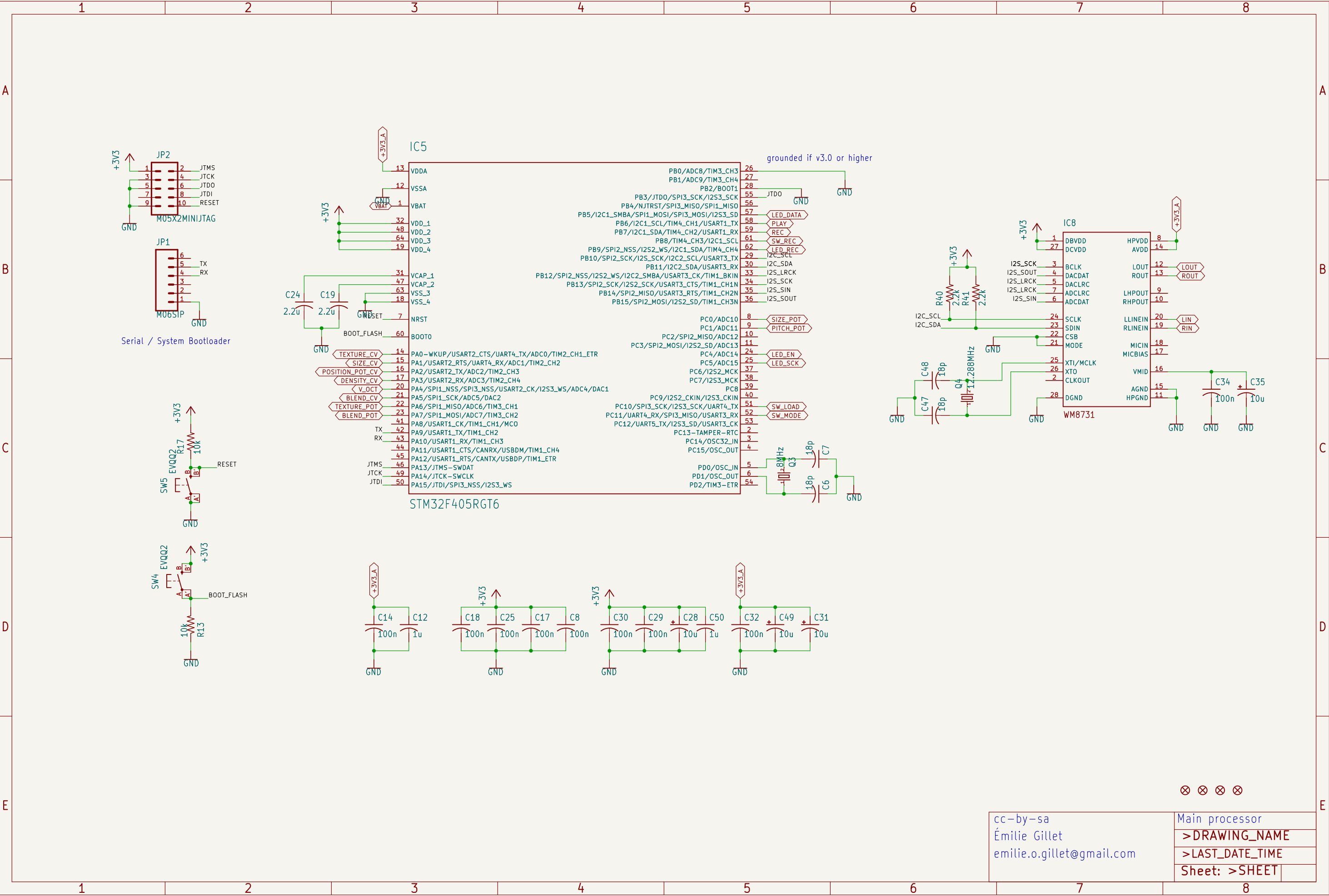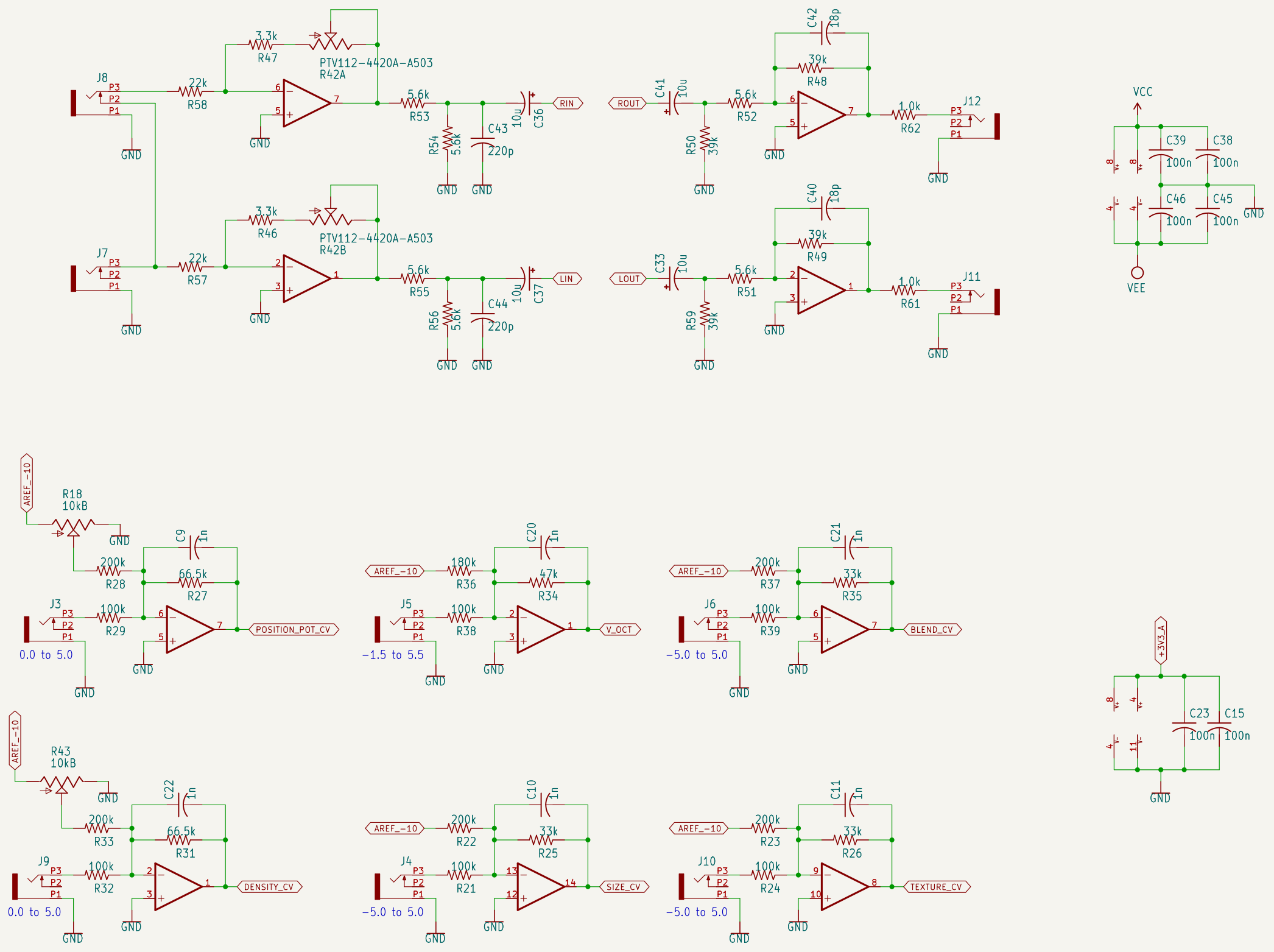File: clouds_v30_4.kicad_sch

clouds_v30_5
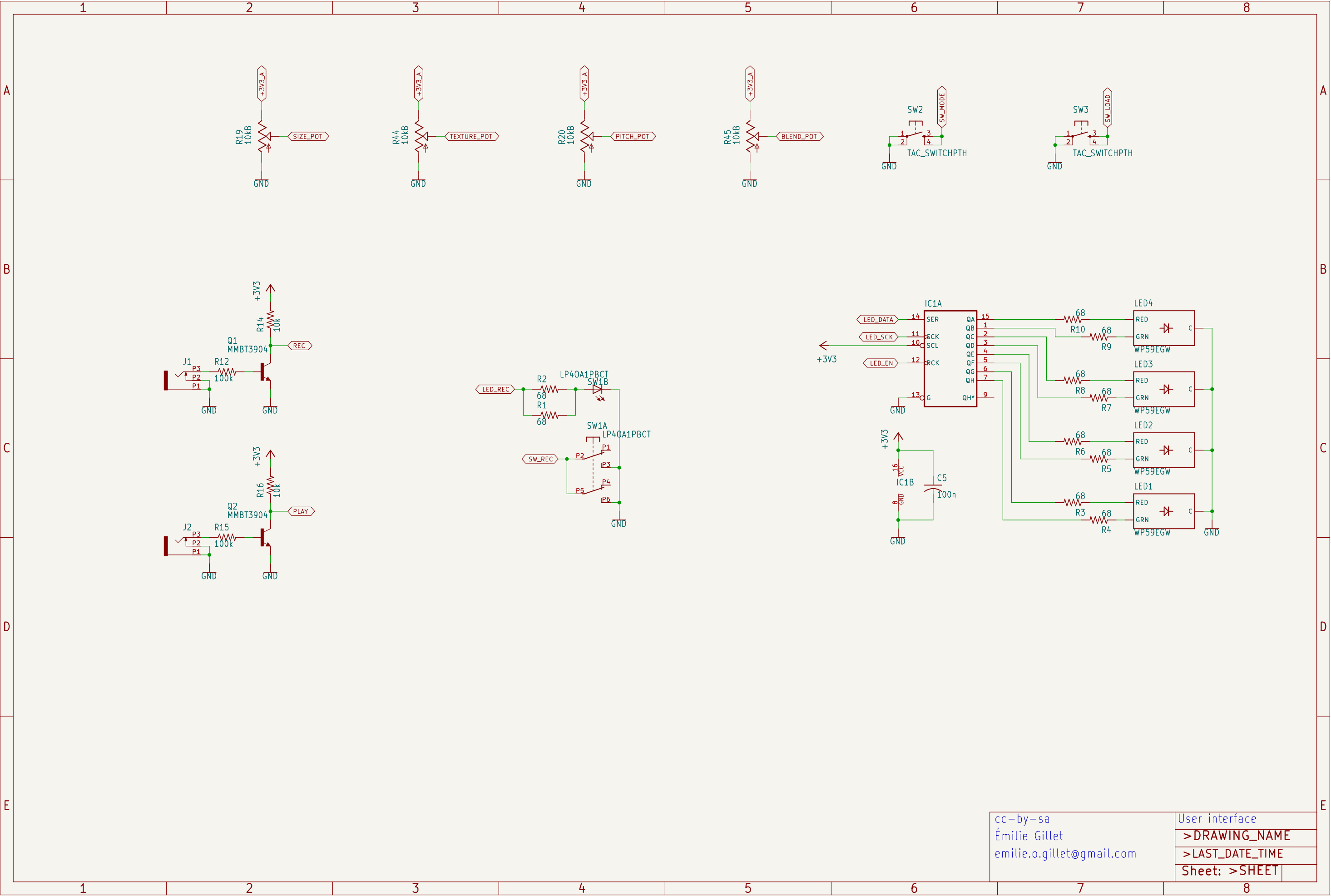
File: clouds_v30_5.kicad_sch

Main processor
>DRAWING_NAME
>LAST_DATE_TIME
Sheet: >SHEET

JP2
+3V3

1	2	JTMS
3	4	JTCK
5	6	JTDO
7	8	JTDI
9	10	RESET

M05X2MINIJTAG
GND

JP1

6	TX
5	RX
4	
3	
2	
1	

M06SIP
GND

Serial / System Bootloader

IC5
+3V3_A

13	VDDA	PB0/ADC8/TIM3_CH3	26	grounded if v3.0 or higher
12	VSSA	PB1/ADC9/TIM3_CH4	27	
14	VBAT	PB2/BOOT1	28	GND
		PB3/JTDO/SPI3_SCK/I2S3_SCK	55	JTDO
32	VDD_1	PB4/NJTRST/SPI3_MISO/SPI1_MISO	56	
48	VDD_2	PB5/I2C1_SMBA/SPI1_MOSI/SPI3_MOSI/I2S3_SD	57	LED_DATA
64	VDD_3	PB6/I2C1_SCL/TIM4_CH1/USART1_TX	58	PLAY
19	VDD_4	PB7/I2C1_SDA/TIM4_CH2/USART1_RX	59	REC
		PB8/TIM4_CH3/I2C1_SCL	61	SW_REC
31	VCAP_1	PB9/SPI2_NSS/I2S2_WS/I2C1_SDA/TIM4_CH4	62	LED_REC
47	VCAP_2	PB10/SPI2_SCK/I2S2_SCK/I2C2_SCL/USART3_TX	29	I2C_SCL
63	VSS_3	PB11/I2C2_SDA/USART3_RX	30	I2C_SDA
18	VSS_4	PB12/SPI2_NSS/I2S2_WS/I2C2_SMBA/USART3_CK/TIM1_BKIN	33	I2S_LRCK
		PB13/SPI2_SCK/I2S2_SCK/USART3_CTS/TIM1_CH1N	34	I2S_SCK
7	NRST	PB14/SPI2_MISO/USART3_RTS/TIM1_CH2N	35	I2S_SIN
		PB15/SPI2_MOSI/I2S2_SD/TIM1_CH3N	36	I2S_SOUT
60	BOOT0			
		PC0/ADC10	8	SIZE_POT
14	PA0-WKUP/USART2_CTS/UART4_TX/ADC0/TIM2_CH1_ETR	PC1/ADC11	9	PITCH_POT
15	PA1/USART2_RTS/UART4_RX/ADC1/TIM2_CH2	PC2/SPI2_MISO/ADC12	10	
16	PA2/USART2_TX/ADC2/TIM2_CH3	PC3/SPI2_MOSI/I2S2_SD/ADC13	11	
17	PA3/USART2_RX/ADC3/TIM2_CH4	PC4/ADC14	24	LED_EN
20	PA4/SPI1_NSS/SPI3_NSS/USART2_CK/I2S3_WS/ADC4/DAC1	PC5/ADC15	25	LED_SCK
21	PA5/SPI1_SCK/ADC5/DAC2	PC6/I2S2_MCK	37	
22	PA6/SPI1_MISO/ADC6/TIM3_CH1	PC7/I2S3_MCK	38	
23	PA7/SPI1_MOSI/ADC7/TIM3_CH2	PC8	39	
41	PA8/USART1_CK/TIM1_CH1/MCO	PC9/I2S2_CKIN/I2S3_CKIN	40	
42	PA9/USART1_TX/TIM1_CH2	PC10/SPI3_SCK/I2S3_SCK/USART4_TX	51	SW_LOAD
43	PA10/USART1_RX/TIM1_CH3	PC11/UART4_RX/SPI3_MISO/USART3_RX	52	SW_MODE
44	PA11/USART1_CTS/CANRX/USBDM/TIM1_CH4	PC12/UART5_TX/I2S3_SD/USART3_CK	53	
45	PA12/USART1_RTS/CANTX/USBDP/TIM1_ETR	PC13-TAMPER-RTC	2	
46	PA13/JTMS-SWDAT	PC14/OSC32_IN	3	
49	PA14/JTCK-SWCLK	PC15/OSC_OUT	4	
50	PA15/JTDI/SPI3_NSS/I2S3_WS	PD0/OSC_IN	5	
		PD1/OSC_OUT	6	
		PD2/TIM3-ETR	54	

STM32F405RGT6

+3V3
GND VBAT

C24 2.2u   C19 2.2u
GND RESET

TEXTURE_CV
SIZE_CV
POSITION_POT_CV
DENSITY_CV
V_OCT
BLEND_CV
TEXTURE_POT
BLEND_POT

TX
RX
JTMS
JTCK
JTDI

GND

BOOT_FLASH

+3V3
R17 10k
SW5 EVQQ2
RESET
GND

+3V3
SW4 EVQQ2
B
A
BOOT_FLASH
10k R13
GND

+3V3_A
C14 100n   C12 1u
GND

+3V3
C18 100n   C25 100n   C17 100n   C8 100n
GND

+3V3
C30 100n   C29 100n   C28 10u   C50 1u
GND

+3V3_A
C32 100n   C49 10u   C31 10u
GND

+3V3
R40 2.2k   R41 2.2k
I2C_SCL
I2C_SDA

IC8
+3V3_A

1	DBVDD	HPVDD	8	
27	DCVDD	AVDD	14	
3	BCLK	LOUT	12	LOUT
4	DACDAT	ROUT	13	ROUT
5	DACLRC	LHPOUT	9	
7	ADCLRC	RHPOUT	10	
6	ADCDAT	LLINEIN	20	LIN
24	SCLK	RLINEIN	19	RIN
23	SDIN	MICIN	18	
22	CSB	MICBIAS	17	
21	MODE	VMID	16	
25	XTI/MCLK	AGND	15	
26	XTO	HPGND	11	
2	CLKOUT			
28	DGND			

I2S_SCK
I2S_SOUT
I2S_LRCK
I2S_SIN

WM8731

C48 18p
C47 18p
Q4 12.288MHz
GND

C34 100n   C35 10u
GND

Q3 28.8MHz
C7 18p
C6 18p
GND

VCAP_1
VCAP_2
VSS_3
VSS_4

Audio and CV I/O

>DRAWING_NAME

>LAST_DATE_TIME

Sheet: >SHEET

J8
P3
P2
P1
GND

22k
R58

3.3k
R47

PTV112-4420A-A503
R42A

6
7
5
+
GND

5.6k
R53

R54
5.6k

C43
220p
GND GND

C36
10u

RIN

J7
P3
P2
P1
GND

22k
R57

3.3k
R46

PTV112-4420A-A503
R42B

2
1
3
+
GND

5.6k
R55

R56
5.6k

C44
220p
GND GND

C37
10u

LIN

ROUT
C41
10u

5.6k
R52

R50
39k

C42
18p

39k
R48

6
7
5
+
GND

1.0k
R62

J12
P3
P2
P1
GND

LOUT
C33
10u

5.6k
R51

R59
39k

C40
18p

39k
R49

2
1
3
+
GND

1.0k
R61

J11
P3
P2
P1
GND

VCC

C39
100n

C38
100n

C46
100n

C45
100n

VEE
GND

AREF_-10
R18
10kB
GND

200k
R28

C9
1n

66.5k
R27

J3
P3
P2
P1
0.0 to 5.0

100k
R29

6
7
5
+
GND

POSITION_POT_CV

GND

AREF_-10
180k
R36

C20
1n

47k
R34

J5
P3
P2
P1
-1.5 to 5.5

100k
R38

3
1
+
GND

V_OCT

GND

AREF_-10
200k
R37

C21
1n

33k
R35

J6
P3
P2
P1
-5.0 to 5.0

100k
R39

6
7
5
+
GND

BLEND_CV

GND

+3V3_A

C23
100n

C15
100n

GND

AREF_-10
R43
10kB
GND

200k
R33

C22
1n

66.5k
R31

J9
P3
P2
P1
0.0 to 5.0

100k
R32

2
1
3
+
GND

DENSITY_CV

GND

AREF_-10
200k
R22

C10
1n

33k
R25

J4
P3
P2
P1
-5.0 to 5.0

100k
R21

13
14
12
+
GND

SIZE_CV

GND

AREF_-10
200k
R23

C11
1n

33k
R26

J10
P3
P2
P1
-5.0 to 5.0

100k
R24

9
8
10
+
GND

TEXTURE_CV

GND

+3V3_A +3V3_A +3V3_A +3V3_A

R19 10kB SIZE_POT
R44 10kB TEXTURE_POT
R20 10kB PITCH_POT
R45 10kB BLEND_POT

GND GND GND GND

SW2 SW_MODE
TAC_SWITCHPTH
GND

SW3 SW_LOAD
TAC_SWITCHPTH
GND

+3V3
R14 10k
Q1 MMBT3904 REC
J1 P3 P2 P1 R12 100k
GND GND

+3V3
R16 10k
Q2 MMBT3904 PLAY
J2 P3 P2 P1 R15 100k
GND GND

R2 68 LP40A1PBCT SW1B
LED_REC
R1 68

SW1A
SW_REC P2 P1 LP40A1PBCT
P3
P5 P4
P6
GND

IC1A
LED_DATA 14 SER QA 15
LED_SCK 11 SCK QB 1
10 SCL QC 2
+3V3 QD 3
LED_EN 12 RCK QE 4
QF 5
QG 6
QH 7
13 G QH* 9
GND

+3V3
IC1B
VCC 16
C5 100n
GND 8
GND

R10 68 R9 68 LED4 RED GRN C
WP59EGW

R8 68 R7 68 LED3 RED GRN C
WP59EGW

R6 68 R5 68 LED2 RED GRN C
WP59EGW

R3 68 R4 68 LED1 RED GRN C
WP59EGW

GND

User interface
>DRAWING_NAME
>LAST_DATE_TIME
Sheet: >SHEET

VCC

D1   JP3
1 2
3 4
5 6
7 8
9 10
M05X2PTH

D2

VEE

VCC

C1
47u

GND

C13
47u

VEE

VEE

470
R30

1mA
AREF_-10

LM4040B10
IC6

C16
100n

GND

VCC

R11
4.7

IC2
LM1117-3I3

VIN VOUT
GND

+3V3

C2
47u

GND

GND

C4
47u

GND

C3
100n

GND

VCC

IC7
LM1117-3I3

VIN VOUT
GND

+3V3_A

C27
47u

GND

GND

C26
100n

GND

Supply
>DRAWING_NAME
>LAST_DATE_TIME
Sheet: >SHEET