HackerHotel 2024 badge

J1 SAO_connector
- GND
- +3.3V
- SCL
- SDA
- IO1
- IO2

microcontroller
- I2C SDA
- I2C SCL
- D- / D+
- BATT CHRG
- BATT ADC
- Left Multi Switch 1 — MSW1L
- Right Multi Switch 1 — MSW1R
- Button Multi Switch 1 — MSW1B
- Left Multi Switch 2 — MSW2L
- Right Multi Switch 2 — MSW2R
- Button Multi Switch 2 — MSW2B
- DISPLAY_RST
- DISPLAY BUSY
- DISPLAY DC
- DISPLAY CS
- SDCARD CS
- SPI MOSI
- SPI MISO
- SPI SCK
- CH32 Prog

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Power management
- CHRG
- SENSE

File: powermanagement.kicad_sch

E-Paper
- RESET
- BUSY
- DC
- CS
- MOSI
- SCK

File: epaper.kicad_sch

J4 USB-C
- VBUS
- CC1
- CC2
- D-
- D+
- SBU1
- SBU2
- GND
- SHIELD
- PWR_FLAG
- F1 / VUSB
- R4 5.1k
- R5 5.1k

J3 Micro_SD_Card
- 1 DAT2
- 2 DAT3/CD
- 3 CMD
- 4 VDD
- 5 CLK
- 6 VSS
- 7 DAT0
- 8 DAT1
- 9 SHIELD
- R1 10k

U5 CH32V003F4U6
- PD2 / LED A
- PD3 / LED B
- PD4 / LED C
- PD5 / LED D
- PD6 / LED E
- PD7
- PA1 / PA2
- VSS
- VDD
- PD0
- PC0 / MSW4B
- PC1 / SDA
- PC2 / SCL
- PC3 / MSW4R
- PC4 / MSW4L
- PC5 / MSW3B
- PC6 / MSW3R
- PC7 / MSW3L
- PD1
- MSW5B / MSW5R / MSW5L
- CH32 reset
- C2 100n

LED matrix (Top orange / Bottom yellow)
- R23 LED E
- R24 LED D
- R25 LED C
- R26 LED B
- R27 LED A
- D5 D6 D7 D8
- D9 D10 D11 D15
- D12 D13 D16 D17
- D14 D18 D19 D20
- D21 D22 D23 D24
- A B C D E

Multi-Directional-Switches
- SW1 — MSW1L / MSW1B / MSW1R — R28 10k, R29 10k, R30 10k
- SW2 — MSW2L / MSW2B / MSW2R — R31 10k, R32 10k, R33 10k
- SW3 — MSW3L / MSW3B / MSW3R — R34 10k, R35 10k, R36 10k
- SW4 — MSW4L / MSW4B / MSW4R — R37 10k, R38 10k, R39 10k
- SW5 — MSW5L / MSW5B / MSW5R — R40 10k, R41 10k, R42 10k

R2 4k7 R3 4k7

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ESP32-C6-WROOM-1

U1
ESP32-C6-WROOM-1

+3V3

R6
10k

3 — EN/CHIP_PU
3V3 — 2

1u
C1
GND

Left Multi Switch 1 — 8 — GPIO0/ADC1_CH0/XTAL_32K_P
Right Multi Switch 1 — 9 — GPIO1/ADC1_CH1/XTAL_32K_N
BATT ADC — 27 — GPIO2/ADC1_CH2
BATT CHRG — 26 — GPIO3/ADC1_CH3

Right Multi Switch 2 — 4 — MTMS/GPIO4/ADC1_CH4
DISPLAY DC — 5 — MTDI/GPIO5/ADC1_CH5
I2C SDA — 6 — MTCK/GPIO6/ADC1_CH6
I2C SCL — 7 — MTDO/GPIO7

Must be high at boot
Pull low for UART DL

+3V3

C4
100n
GND

U0TXD/GPIO16 — 25 — DISPLAY_RST
U0RXD/GPIO17 — 24 — CH32 Prog

+3V3

R7 — 10k
10k — R8

GPIO13/USB_D+ — 14 — R9 — 27 — D+
GPIO12/USB_D- — 13 — R10 — 27 — D-

GPIO8 — 10 — DISPLAY CS
GPIO9 — 15 — Left Multi Switch 2
GPIO10 — 11 — DISPLAY BUSY
GPIO15 — 23 — Button Multi Switch 2
GPIO18 — 16 — SDCARD CS
GPIO19 — 17 — SPI MOSI
GPIO20 — 18 — SPI MISO
GPIO21 — 19 — SPI SCK
GPIO22 — 20 — Button Mutli Switch 1
GPIO23 — 21

GND — 1 — GND

Bootstrapping pins:
- GPIO8: Has to be high at power on
- GPIO9: Connect to pull-up resistor, pull to GND to start download mode

Low power peripherals:
- UART: RX on GPIO4, TX on GPIO5
- I2C: SDA on GPIO6, SCL on GPIO7

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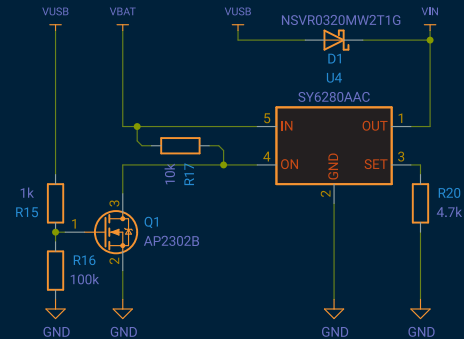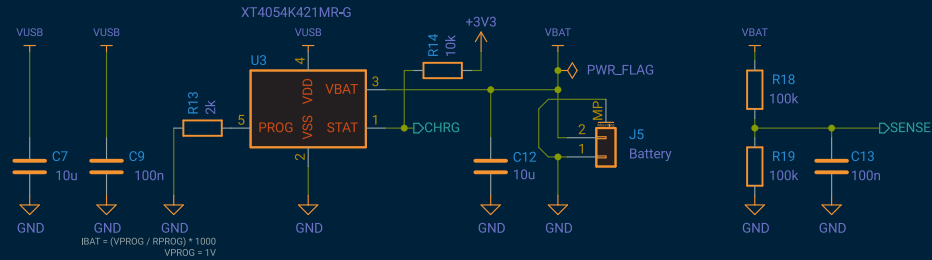KiCad E.D.A. kicad 7.99.0-3134-gf47cc39208 | Id: 2/4

3.3v voltage regulator

U2
SY8079AAC

VIN — 4 VIN SW 3 — L1 2.2u — +3V3   +3V3   +3V3
1 EN FB 5 — 45.3k R12
GND 2 — R11 10k   22p C8   C5 100n   C6 22u   C10 22u   C11 22u

GND
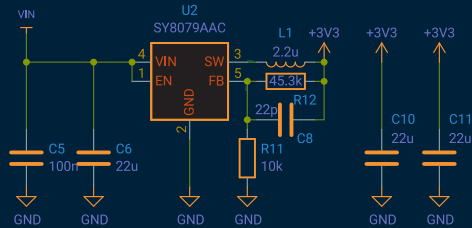
Power switch

Iset = 1.44A = 6800 / 4700

VUSB   VBAT   VUSB   NSVR0320MW2T1G   VIN
D1
U4
SY6280AAC

5 IN OUT 1
10k R17
4 ON GND SET 3

1k R15
Q1 AP2302B
R16 100k
R20 4.7k

GND

Battery & battery charger

CHARGING is an open-drain output that gets pulled low when the charger is active (charging the battery)

XT4054K421MR-G

VUSB   VUSB   VUSB   U3   R14 10k   +3V3   VBAT   VBAT
4 VDD VBAT 3 — PWR_FLAG
R13 2k   5 PROG STAT 1 — CHRG
VSS
2
C7 10u   C9 100n   C12 10u   J5 Battery
R18 100k
SENSE
R19 100k   C13 100n

GND

IBAT = (VPROG / RPROG) * 1000
VPROG = 1V

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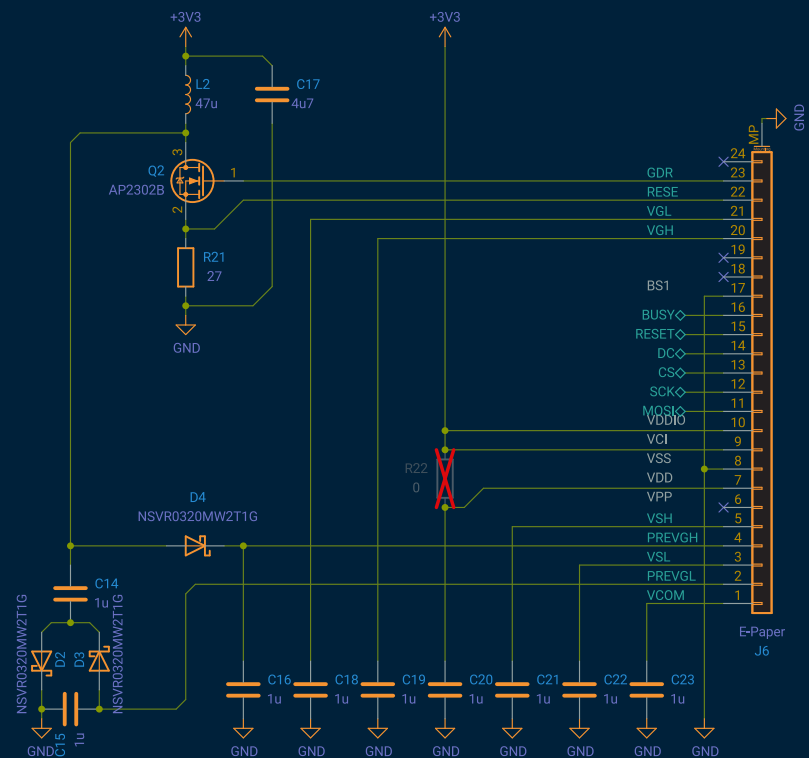KiCad E.D.A. kicad 7.99.0-3134-gf47cc39208   Id: 3/4

+3V3

L2
47u

C17
4u7

Q2
AP2302B

R21
27

GND

D4
NSVR0320MW2T1G

NSVR0320MW2T1G

C14
1u

D2
D3

NSVR0320MW2T1G

GND
C15
1u

GND

+3V3

R22
0

C16
1u
GND

C18
1u
GND

C19
1u
GND

C20
1u
GND

C21
1u
GND

C22
1u
GND

C23
1u
GND

GND

MP
GND

24 GDR
23 RESE
22
21 VGL
20 VGH
19
18
17 BS1
16 BUSY
15 RESET
14 DC
13 CS
12 SCK
11 MOSI
10 VDDIO
9   VCI
8   VSS
7   VDD
6   VPP
5   VSH
4   PREVGH
3   VSL
2   PREVGL
1   VCOM

E-Paper
J6

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