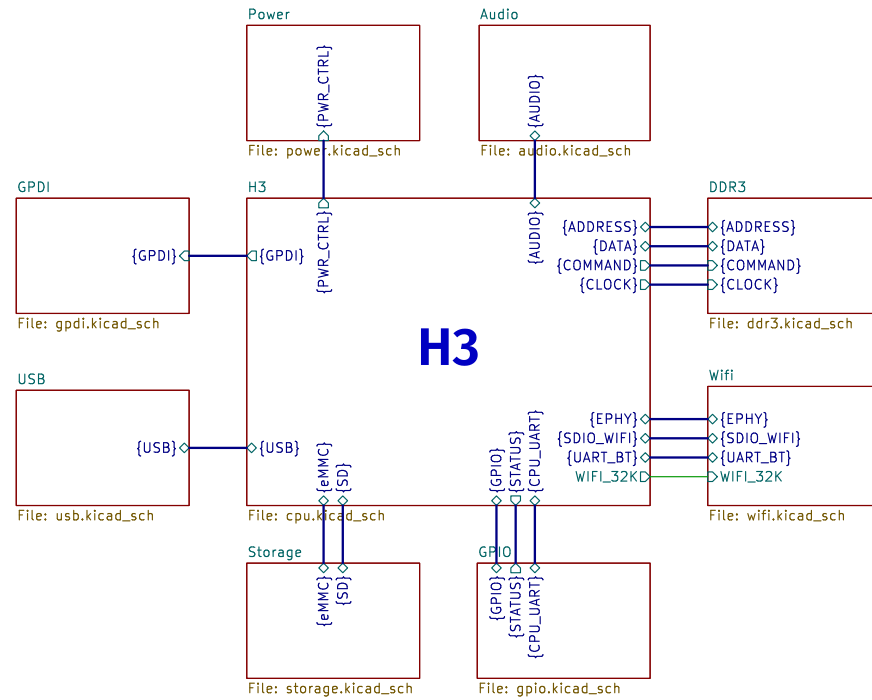


Icepi SBC



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Sheet: /
File: cm0.kicad_sch

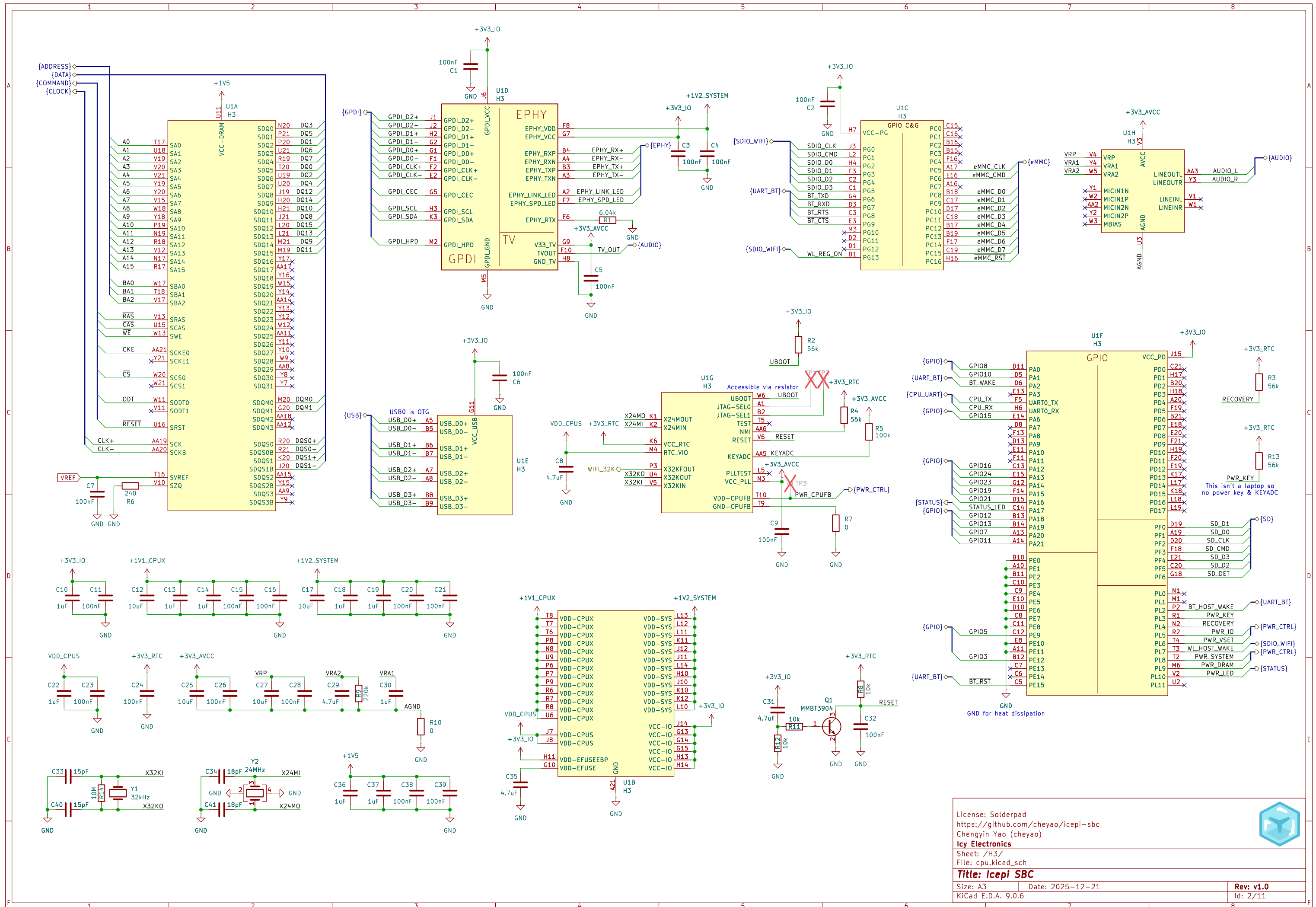
Title: Icepi SBC

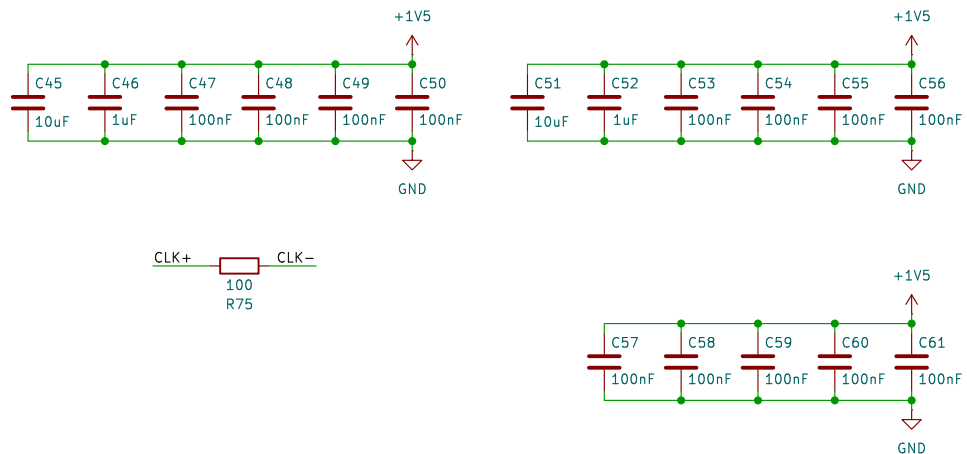
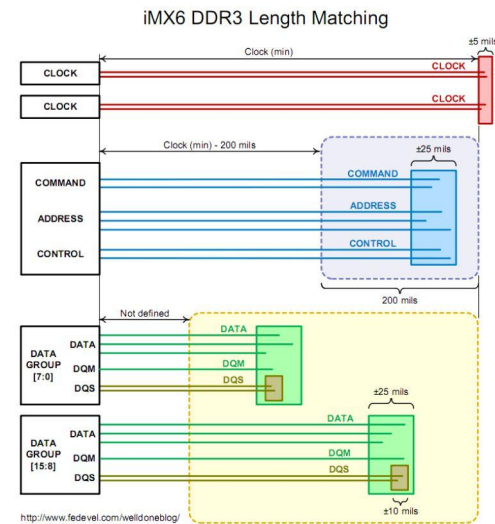
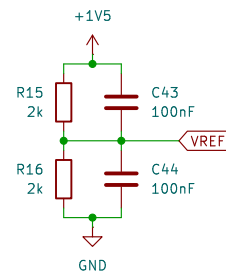
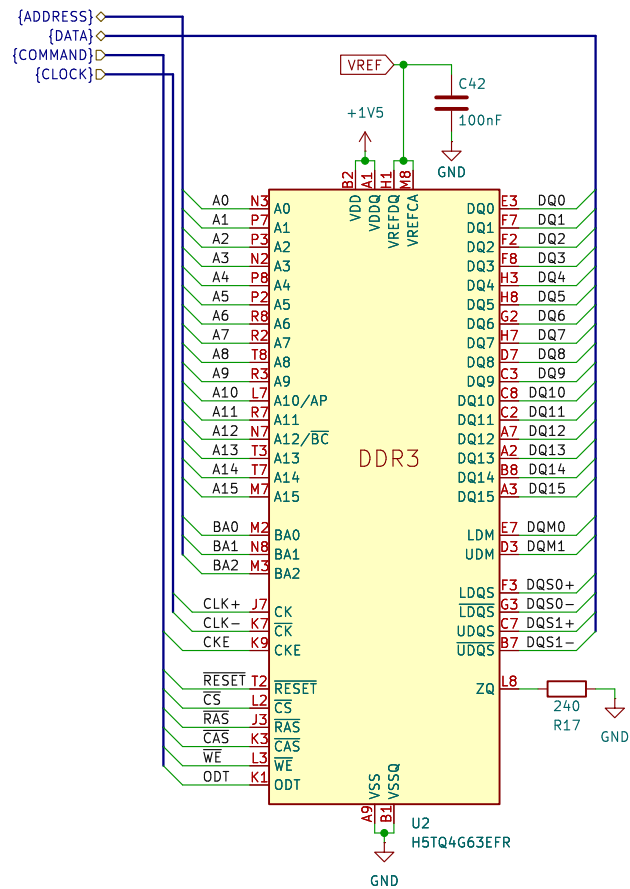
Size: A4 Date: 2025-12-21

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Id: 1/11







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 Sheet: /DDR3/
 File: ddr3.kicad_sch
Title: Icepi SBC
 Size: A4 Date: 2025-12-21
 KiCad E.D.A. 9.0.6 Rev: v1.0
 Id: 3/11



SY8088AAC (C79313) can be replaced with SY8088A (C41348272), but has worse quiescent current :c

SY8089AAC (C78988) can also be replaced with SY8089A1AAC (C479074) or SY8089A (C41348273) for worse specs

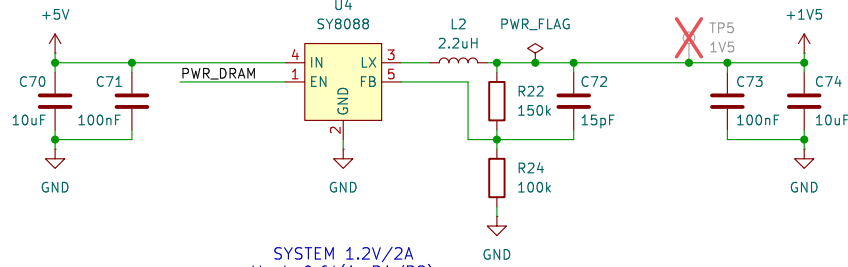
SY8113 has I (C479075) and B (C78989) variants, we are choosing I for lower quiescent and higher thermals

Inductors:
Less than 100mΩ resistance
 $L = (V_{out} * (1 - V_{out}/V_{in})) / (F_{sw} * I_{out} * 0.4)$

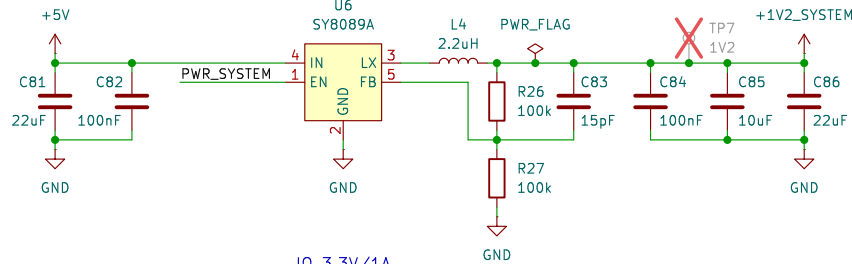
Power Tree

File: power_tree.kicad_sch

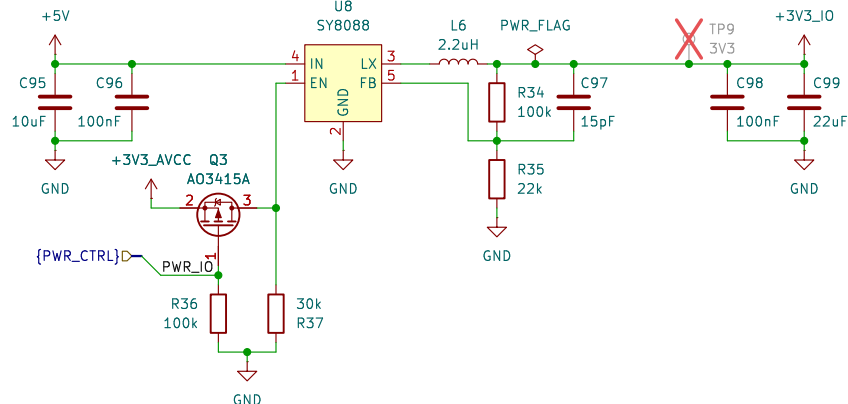
DRAM 1.5V/1A
 $V_{out} = 0.6 * (1 + R1/R2)$
 $V_{out} = 0.6 * (1 + 15/10) = 1.5V$



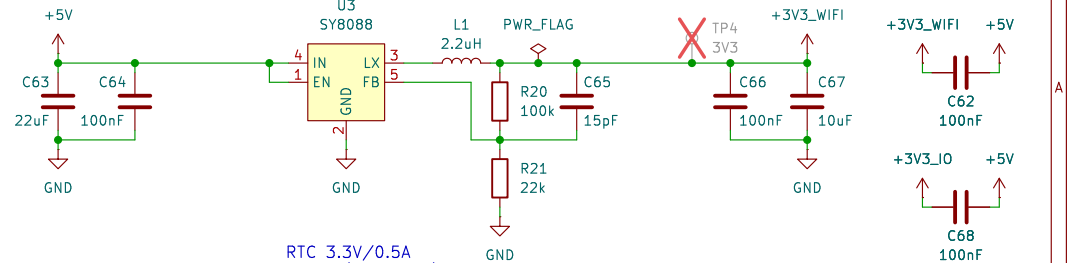
SYSTEM 1.2V/2A
 $V_{out} = 0.6 * (1 + R1/R2)$
 $V_{out} = 0.6 * (1 + 100/100) = 1.2V$



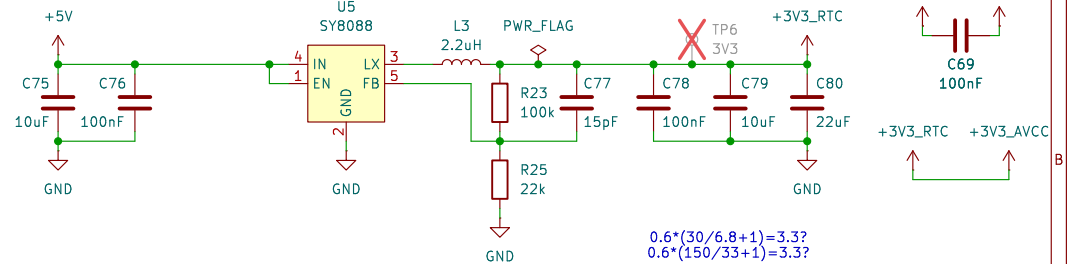
IO 3.3V/1A
 $V_{out} = 0.6 * (1 + R1/R2)$
 $V_{out} = 0.6 * (1 + 10/2.21) = 3.3V$



WIFI 3.3V/1A
 $V_{out} = 0.6 * (1 + R1/R2)$
 $V_{out} = 0.6 * (1 + 10/2.21) = 3.3V$

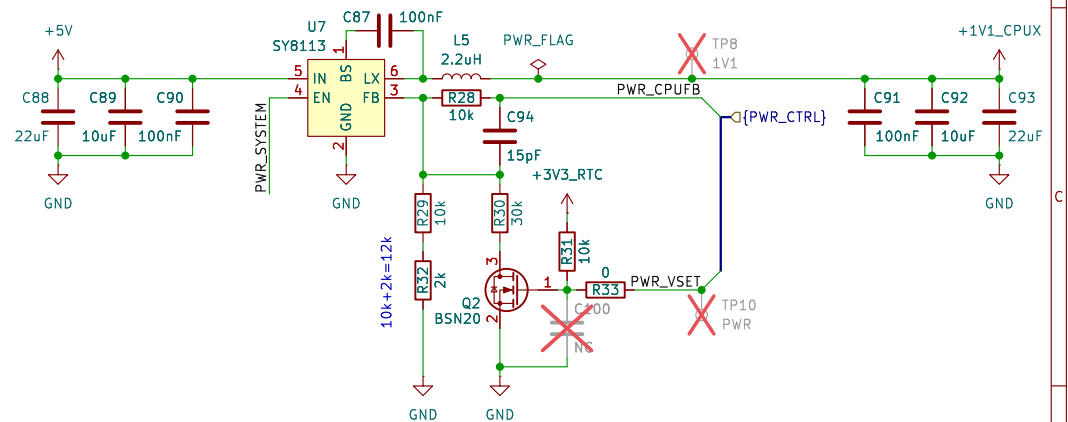


RTC 3.3V/0.5A
 $V_{out} = 0.6 * (1 + R1/R2)$
 $V_{out} = 0.6 * (1 + 10/2.21) = 3.3V$



$0.6 * (30/6.8 + 1) = 3.3?$
 $0.6 * (150/33 + 1) = 3.3?$

CPU 1.1V/3A
 $V_{out} = 0.6 * (1 + 10/11.8) = 1.1V$
 $V_{out} = 0.6 * (1 + 10 / ((11.8 * 30.1) / (11.8 + 30.1))) = 1.3V$



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Sheet: /Power/
File: power.kicad_sch

Title: Icepi SBC

Size: A4 Date: 2025-12-21

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Id: 4/11



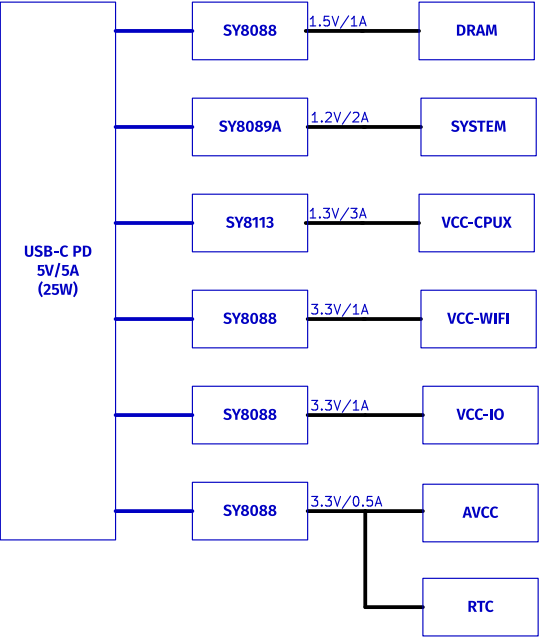
VCC-I0	3.3v
AVCC	3.3v
VCC-RTC	3.3v
VCC3V-PLL	3.3v
VCC3V-TV	3.3v
VCC-DRAM	1.5v
VDD-CPUX	1.3v
VDD1V1-EPHY	1.2v
VDD1V2-SYS	1.2v

SY8088	1A	1.5MHz
SY8089A	2A	1MHz
SY8113B	3A	0.5MHz

H3 Debugging Guide

Power Tree

Choose based on current to optimize inductor values



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Sheet: /Power/Power Tree/
File: power_tree.kicad_sch

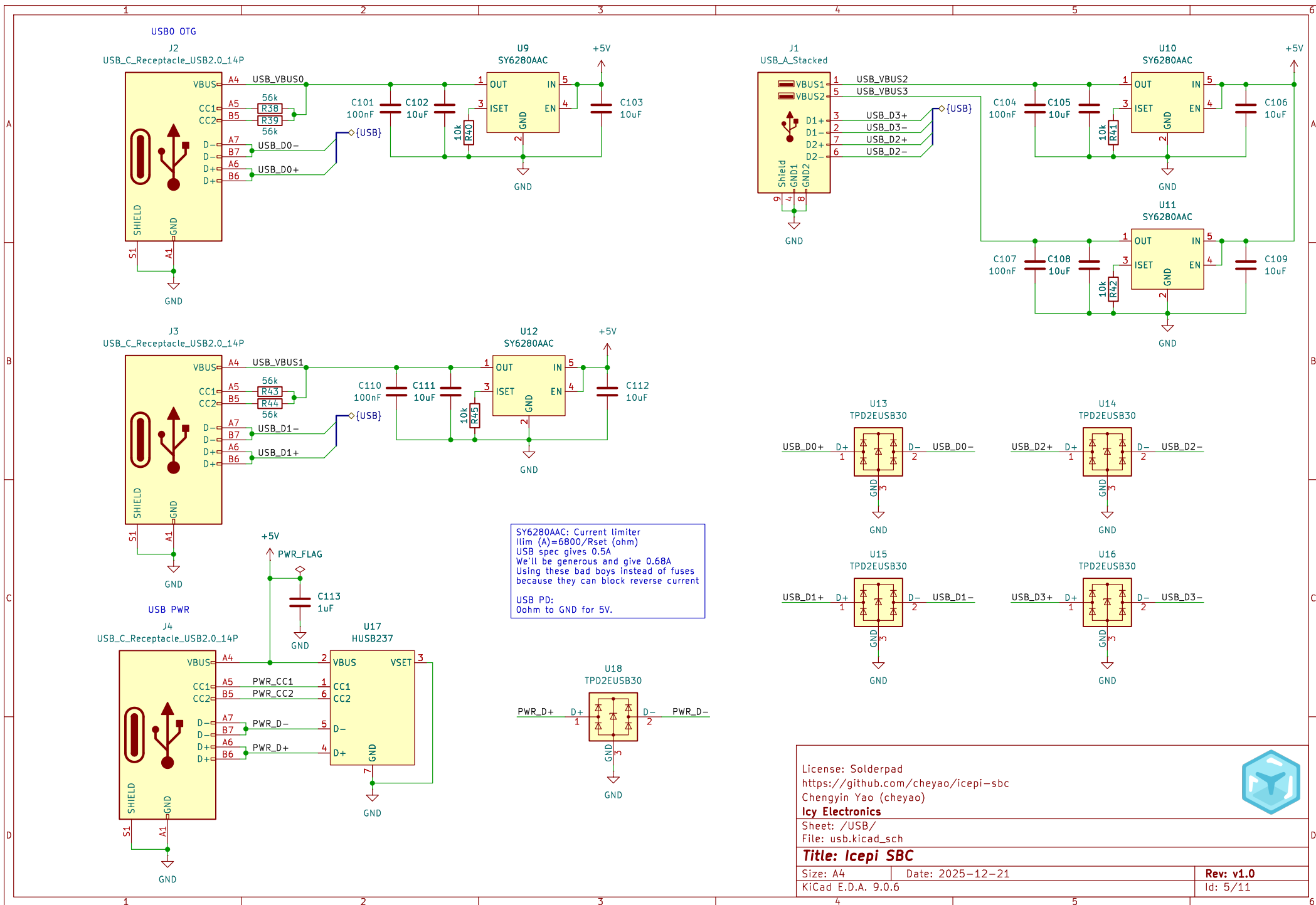
Title: Icepi SBC

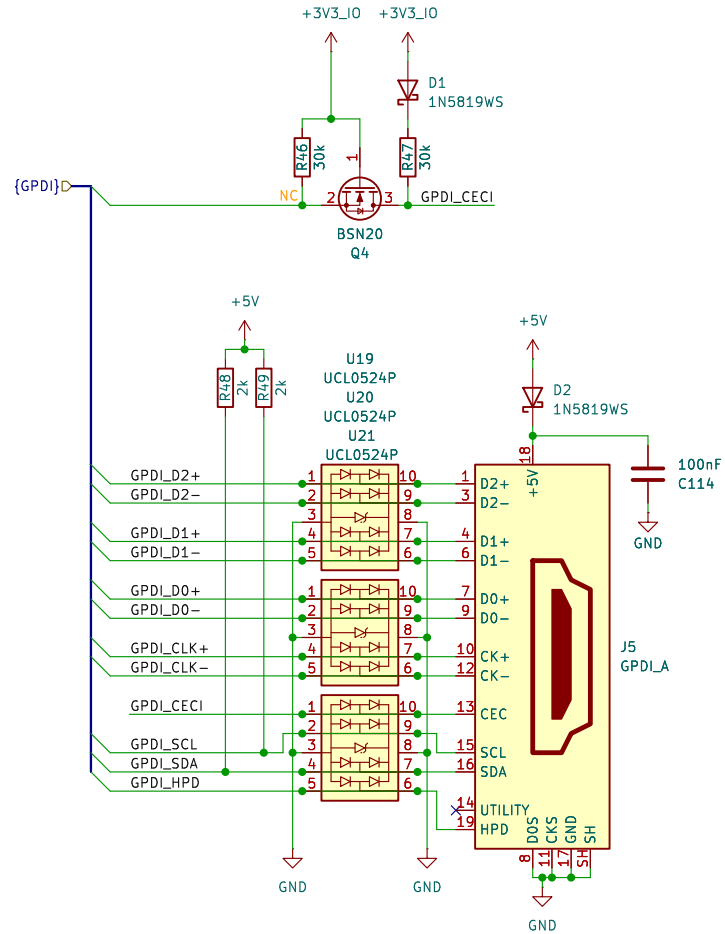
Size: A4 Date: 2025-12-21

Rev: v1.0

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Sheet: /GPDI/
 File: gpd_i.kicad_sch

Title: Icepi SBC

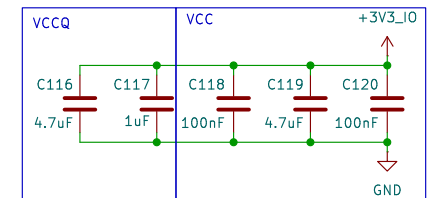
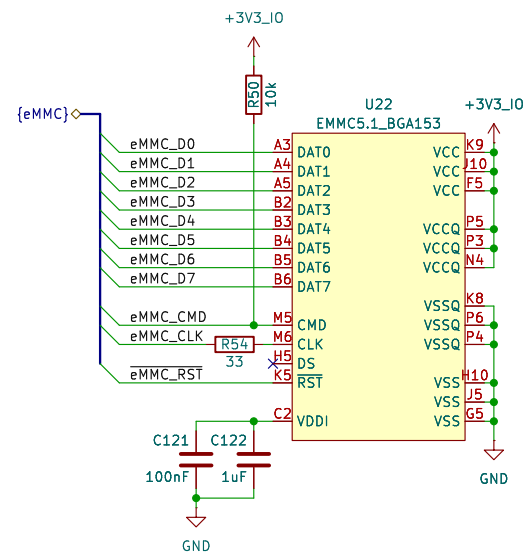
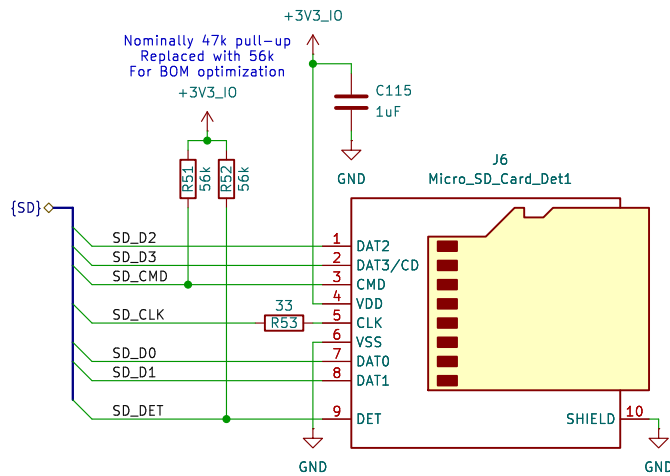
Size: A4 Date: 2025-12-21

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Rev: v1.0

Id: 6/11





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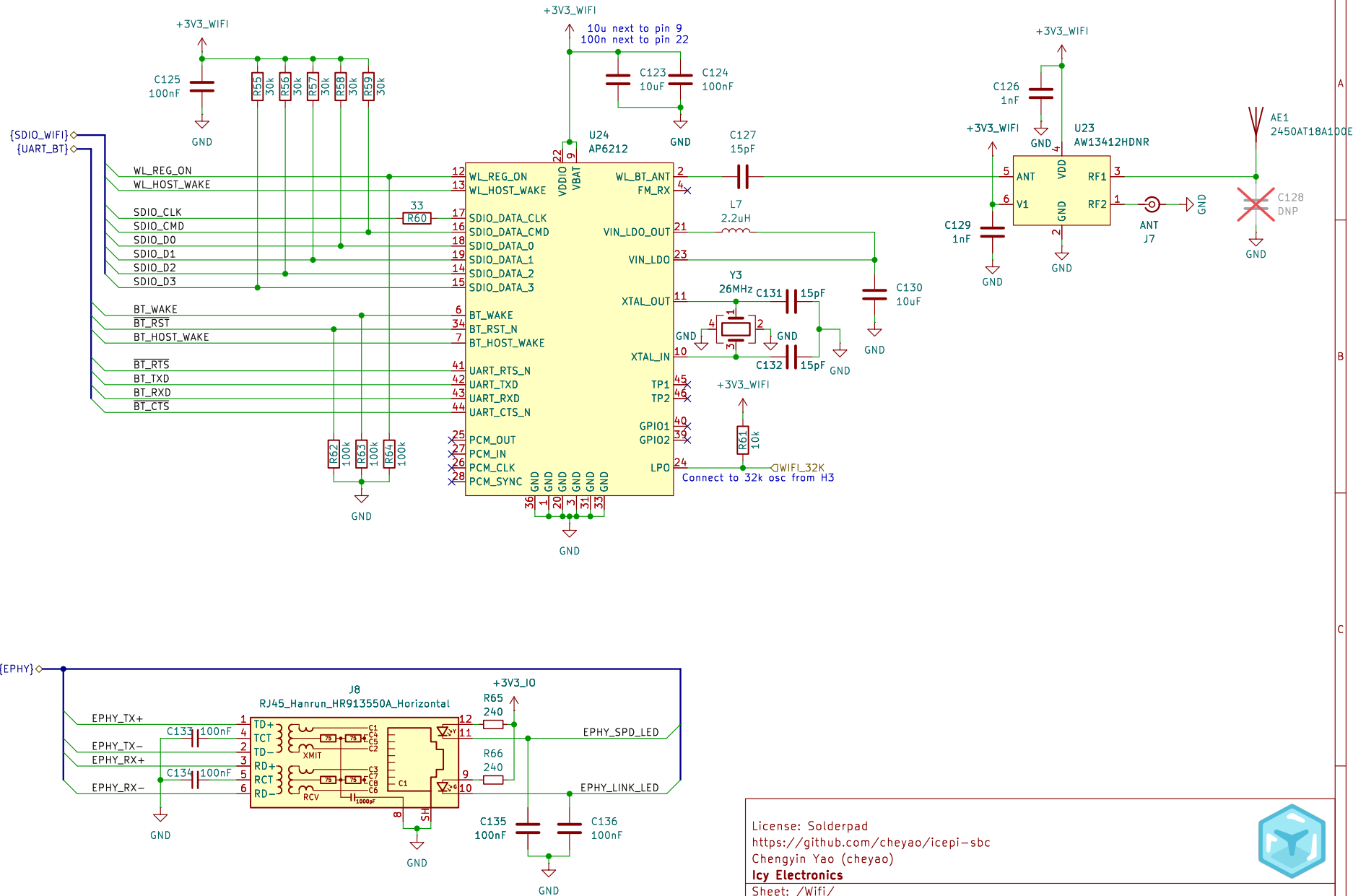
Sheet: /Storage/
 File: storage.kicad_sch

Title: Icepi SBC

Size: A4 Date: 2025-12-21
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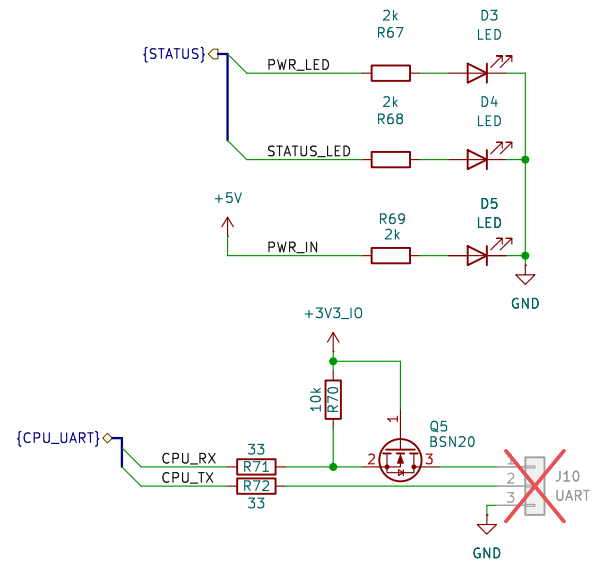
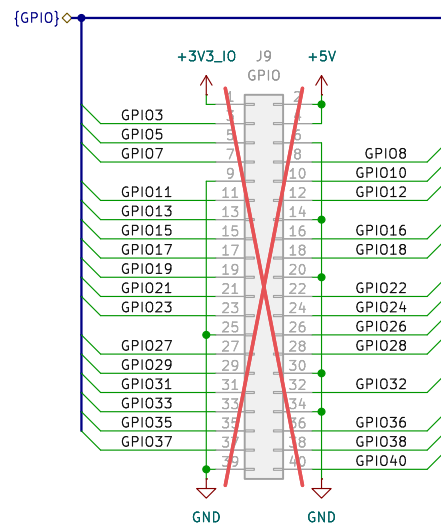
Icy Electronics
 Sheet: /Wifi/
 File: wifi.kicad_sch

Title: Icepi SBC

Size: A4 Date: 2025-12-21
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 Id: 8/11





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Sheet: /GPIO/
 File: gpio.kicad_sch

Title: Icepi SBC

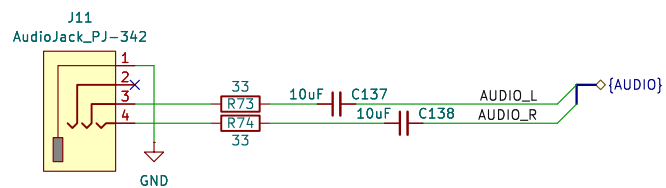
Size: A4 Date: 2025-12-21

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Rev: v1.0

Id: 9/11





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Sheet: /Audio/
File: audio.kicad_sch

Title: Icepi SBC

Size: A4 Date: 2025-12-21

KiCad E.D.A. 9.0.6

Rev: v1.0

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