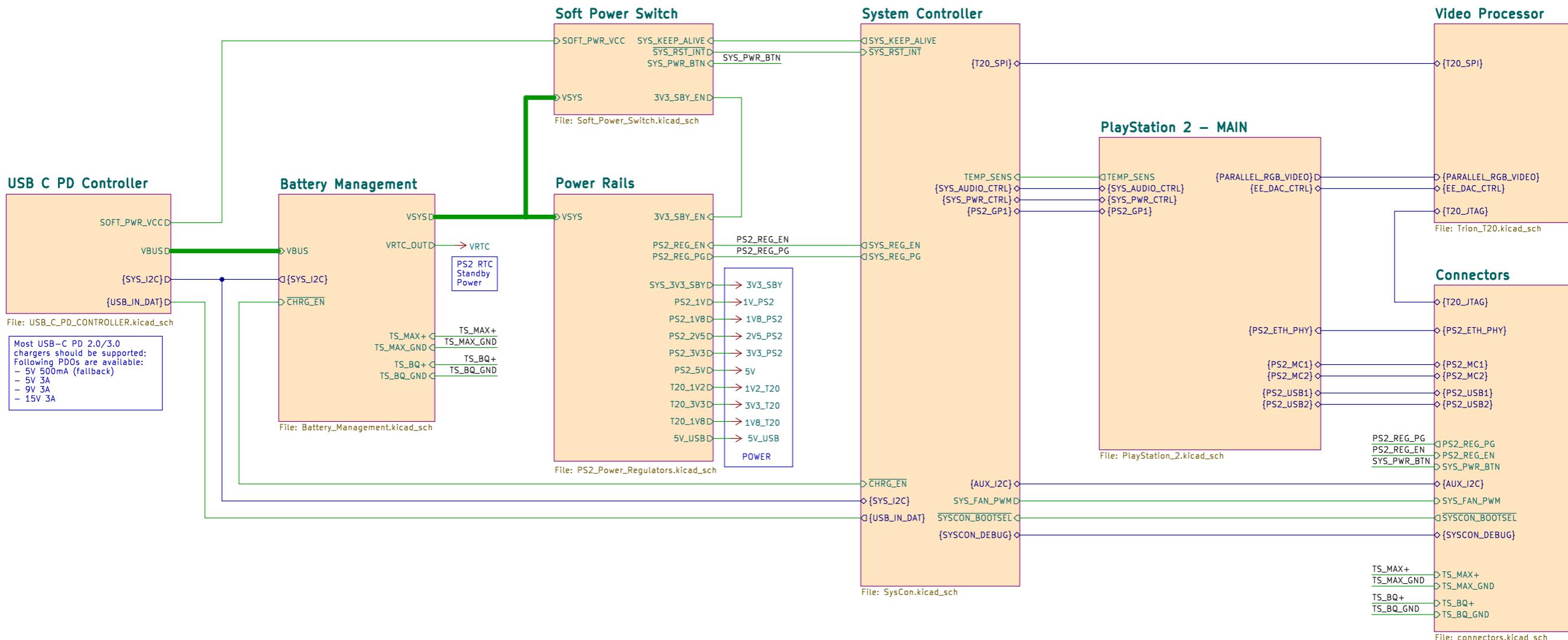


Custom PS2 Mainboard Top Level Schematics



Design Notes

Following components must be salvaged from a SCPH-7900x or SCPH-9000x mainboard:

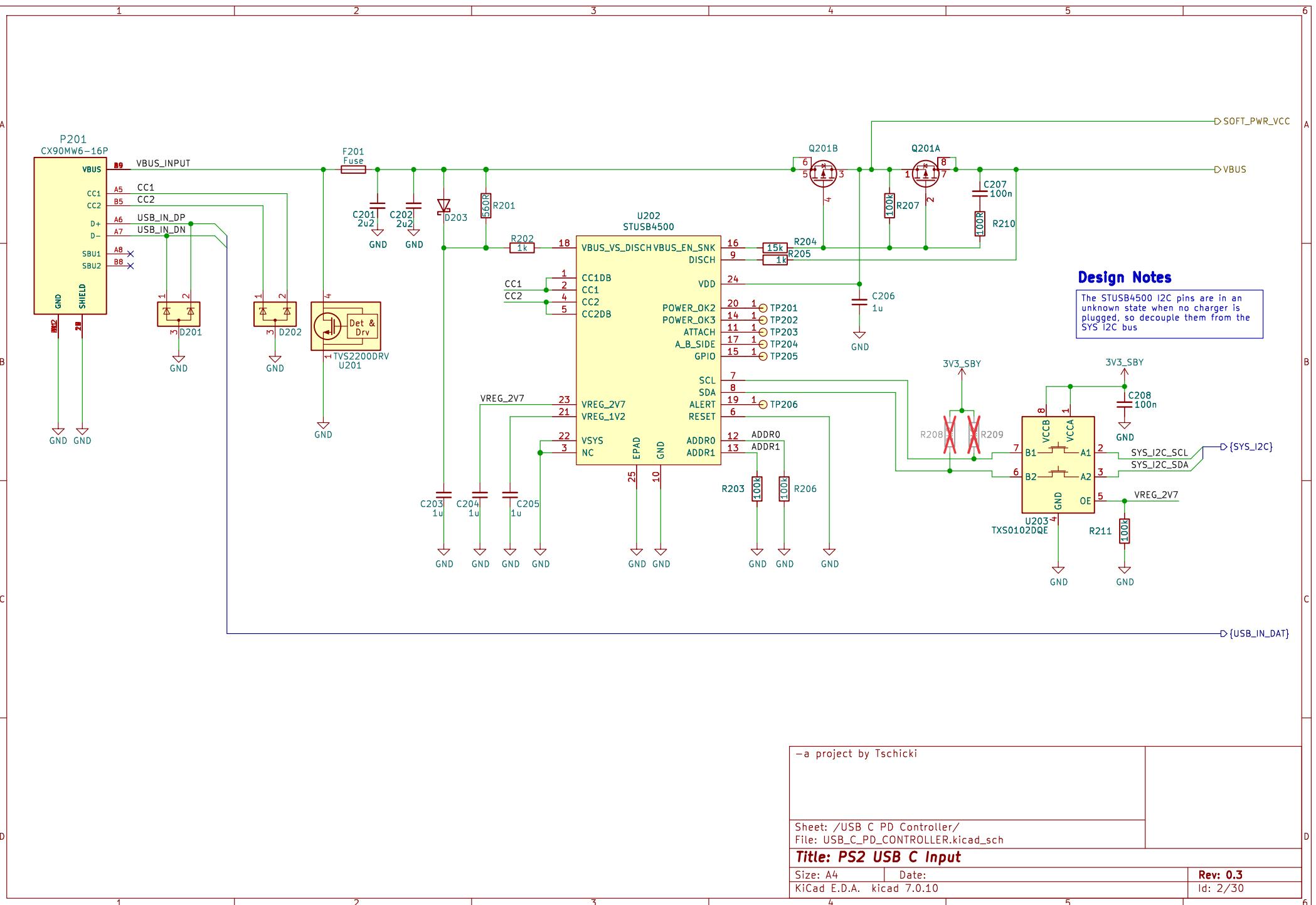
- CXD2976GB (Emotion Engine)
- CXD2980 (Graphics Synthesizer)
- CXR726080 (MechaCon)
- CXD3098AQ (DSP)
- BCM5241 (Ethernet PHY)
- 627G04LF (Main Clock PLL)

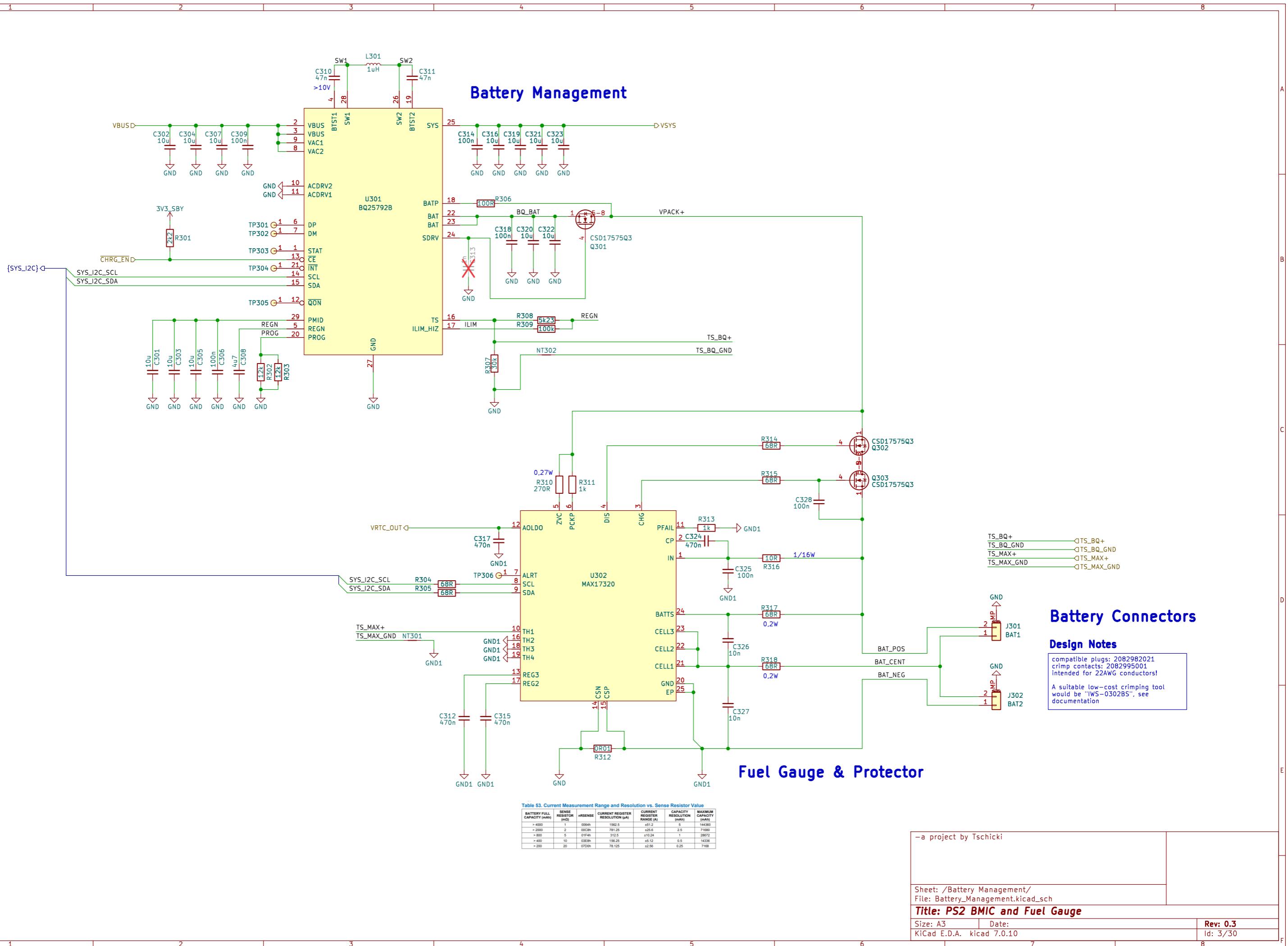
Following components must be salvaged from a SCPH-7900x or earlier PS2 Slim revisions:

- USB A socket (DO NOT USE ONE FROM SCPH-9000x!!)

All remaining components can be purchased as specified in the BOM

Rev.	Change History	Originator	Eff. Date	Notes	
0.1	Initial Draft – PS2 circuits only	P. Haid	25. Jan. 2023	- a project by Tschicki	
0.2	Add SysCon, Power/Battery Management and Video Processor	P. Haid	02. Oct. 2024	This project would not exist without the bitbuilt.net community! Special thanks to Mister M and Gman for their PS2 scans and to Epaminondas for his work on the custom PS2 BIOS!	
0.3	Fix soft power switch; optimize BOM & component placement; Redo power routing;	P. Haid	03. Aug. 2025	Sheet: / File: PS2_79004_Rev_0_4.kicad_sch	
0.4	Enlarge pads of gamepad connectors for easier soldering; add R616	P. Haid	19. Oct. 2025	Title: PS2 AIO Mainboard	
				Size: A3 Date: KiCad E.D.A. kicad 7.0.10	
				Rev: 0.3 Id: 1/30	





A

A

B

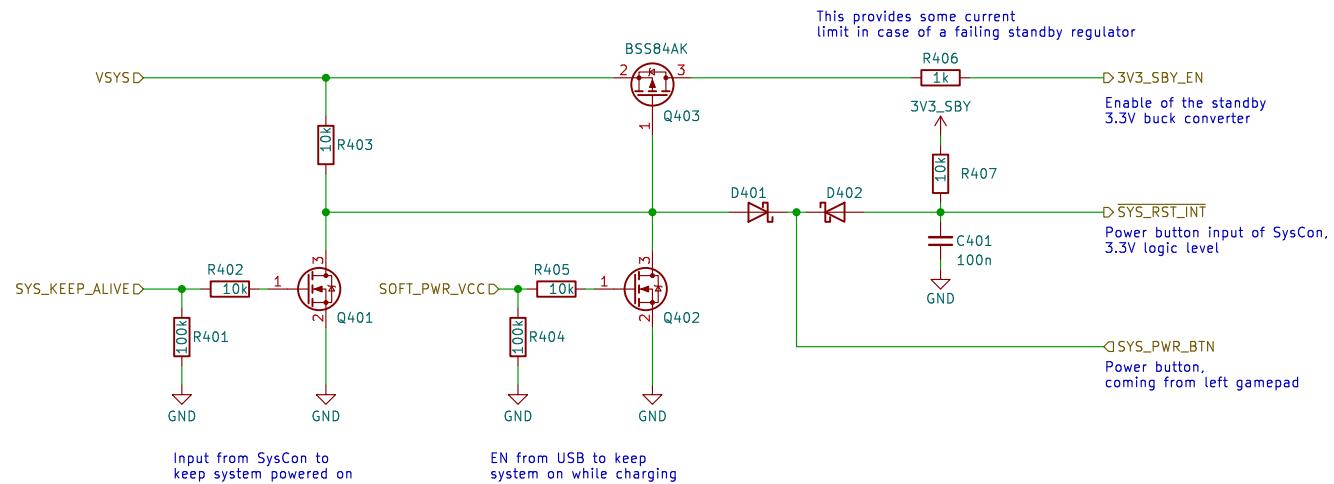
B

C

C

D

D



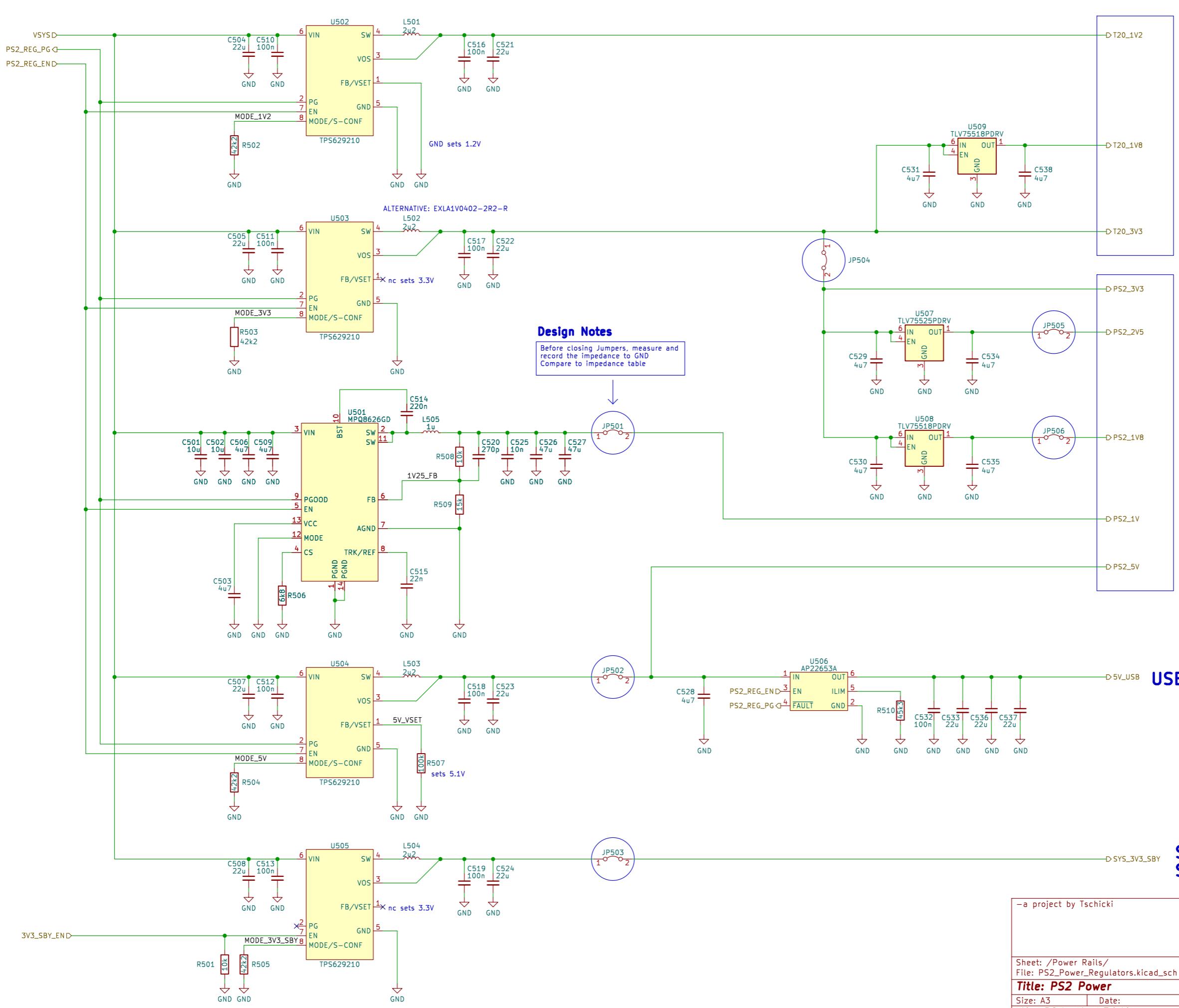
-a project by Tschicki

Sheet: /Soft Power Switch/
File: Soft_Power_Switch.kicad_sch

Title: PS2 Soft Power Switch

Size: A4 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 4/30



-a project by Tschicki

Sheet: /Power Rails/
File: PS2_Power_Regulators.kicad_sch

Title: PS2 Power

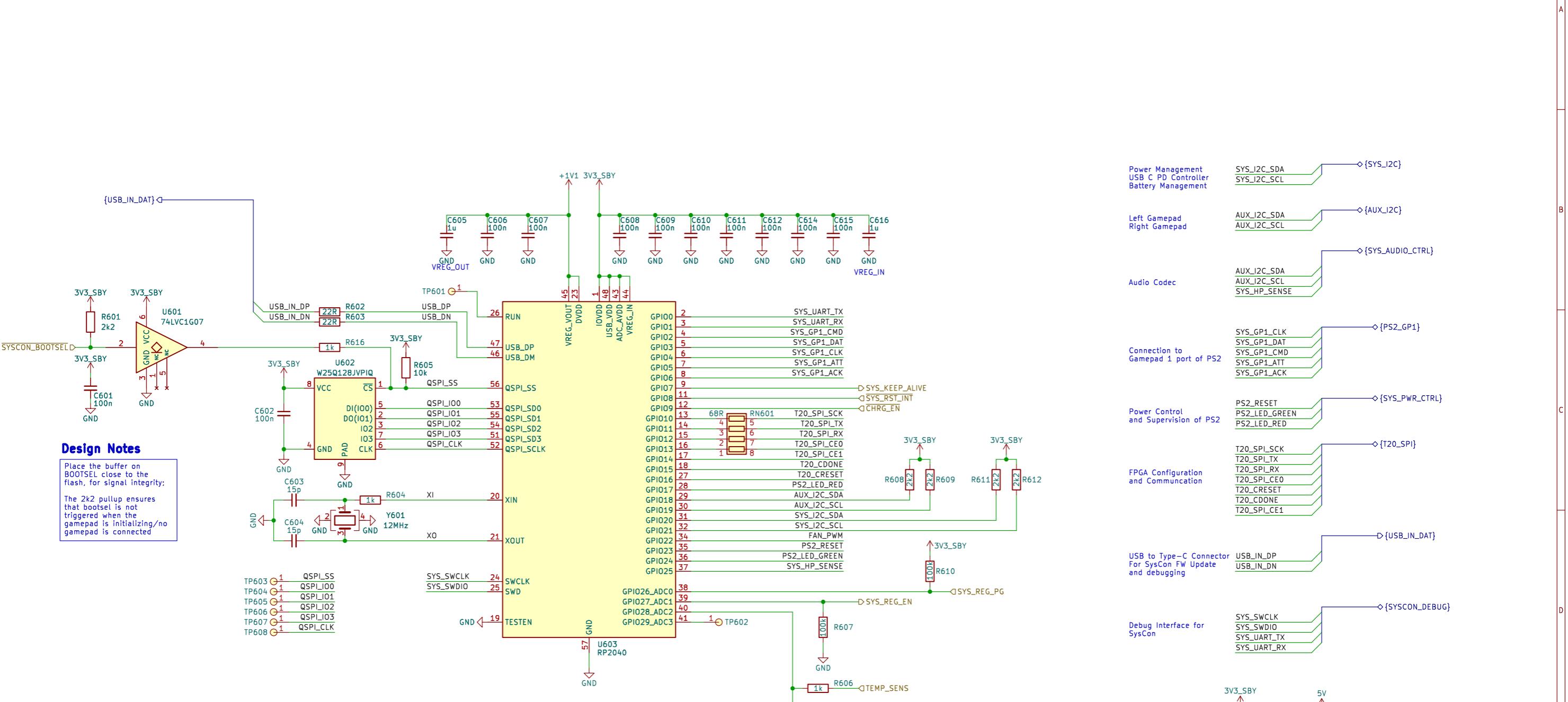
Size: A3

Date:

KiCad E.D.A. kicad 7.0.10

Rev: 0.3

Id: 5/30



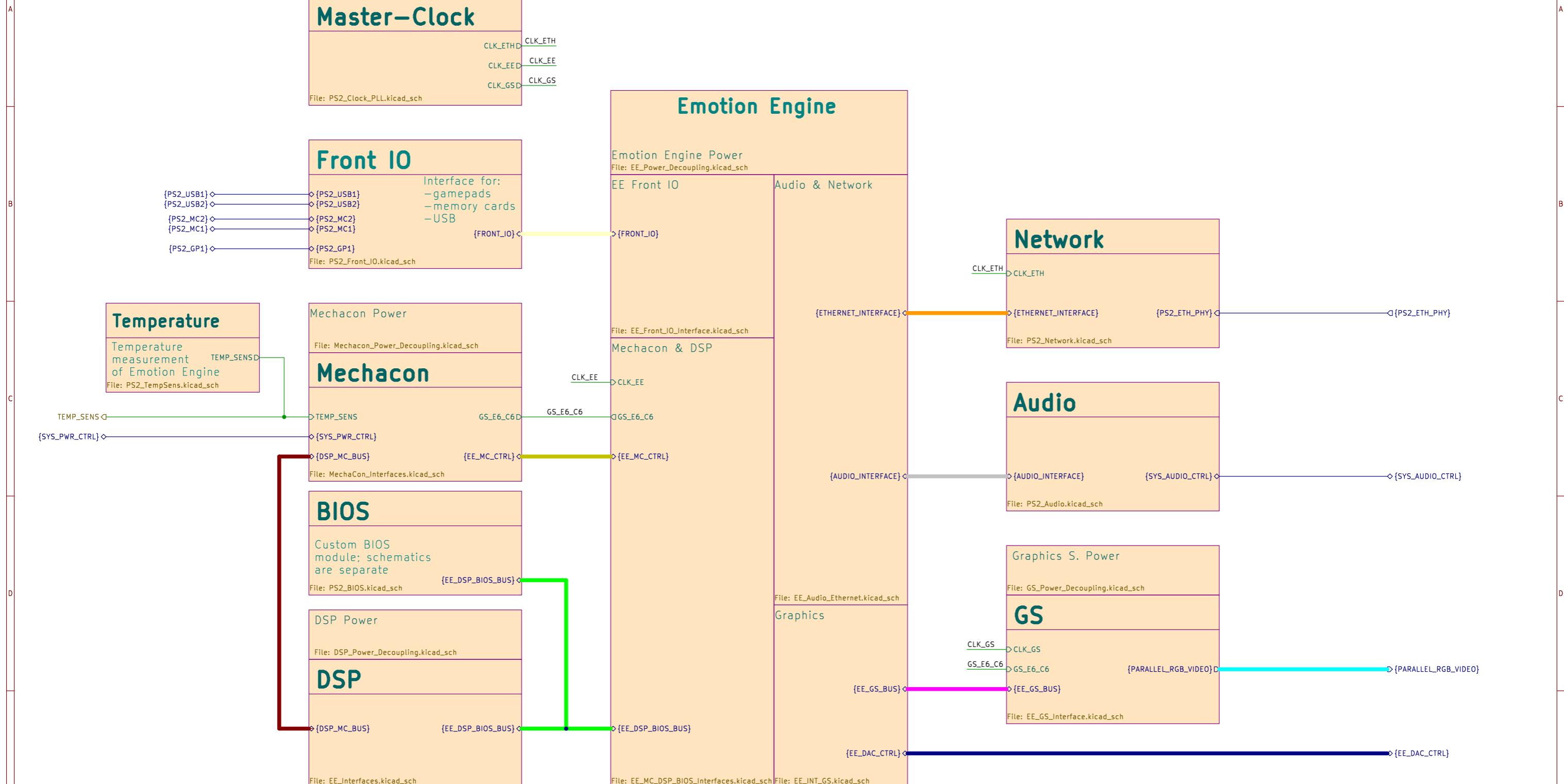
-a project by Tschicki

Sheet: /System Controller/
File: SysCon.kicad_sch

Title: PS2 SysCon

Size: A3 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 6/30



PS2 7900x – 9000x

–a project by Tschicki

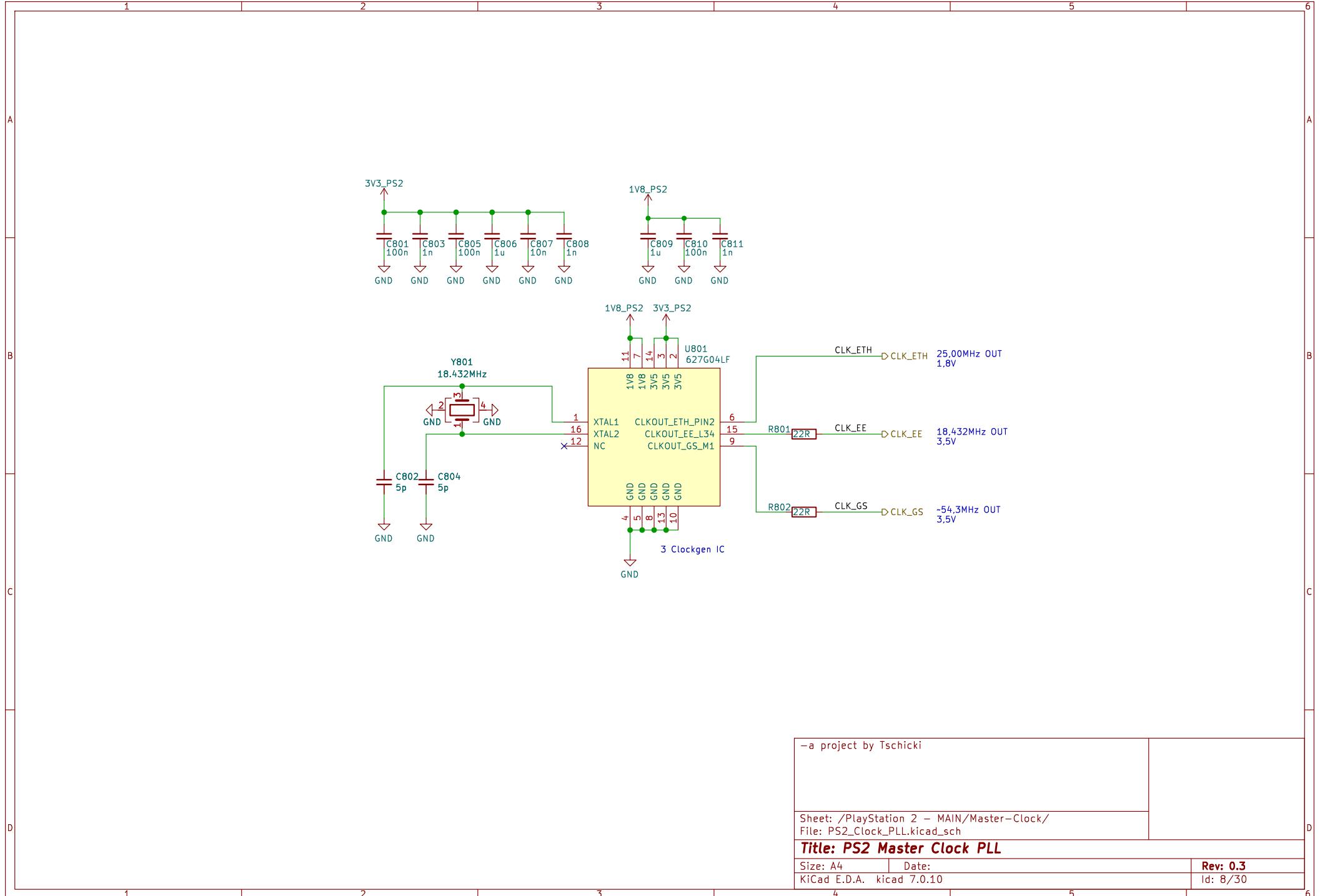
Sheet: /PlayStation 2 – MAIN/
File: PlayStation_2.kicad_sch

Title: PS2 Top Level

Size: A3 | Date:
KiCad E.D.A. kicad 7.0.10

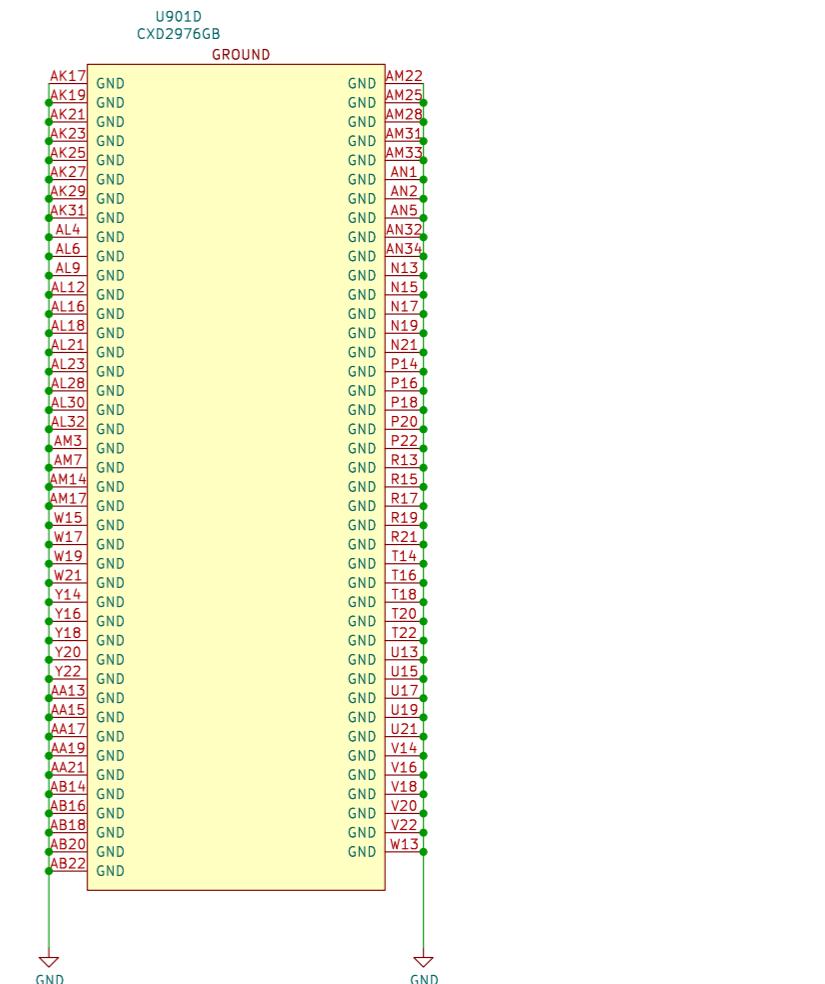
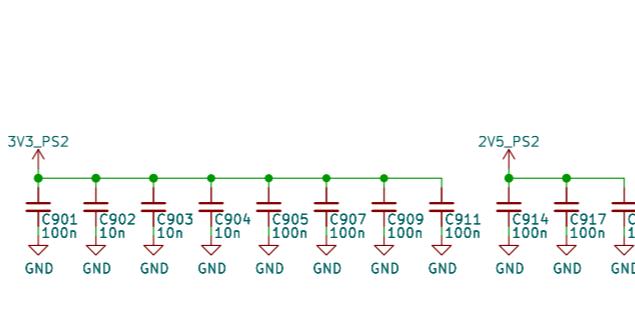
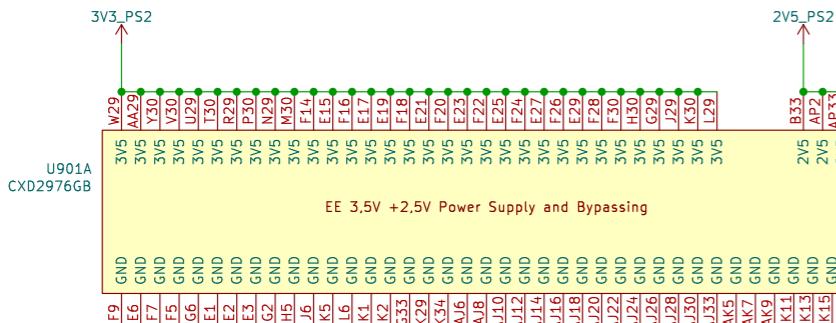
Rev: 0.3
Id: 7/30

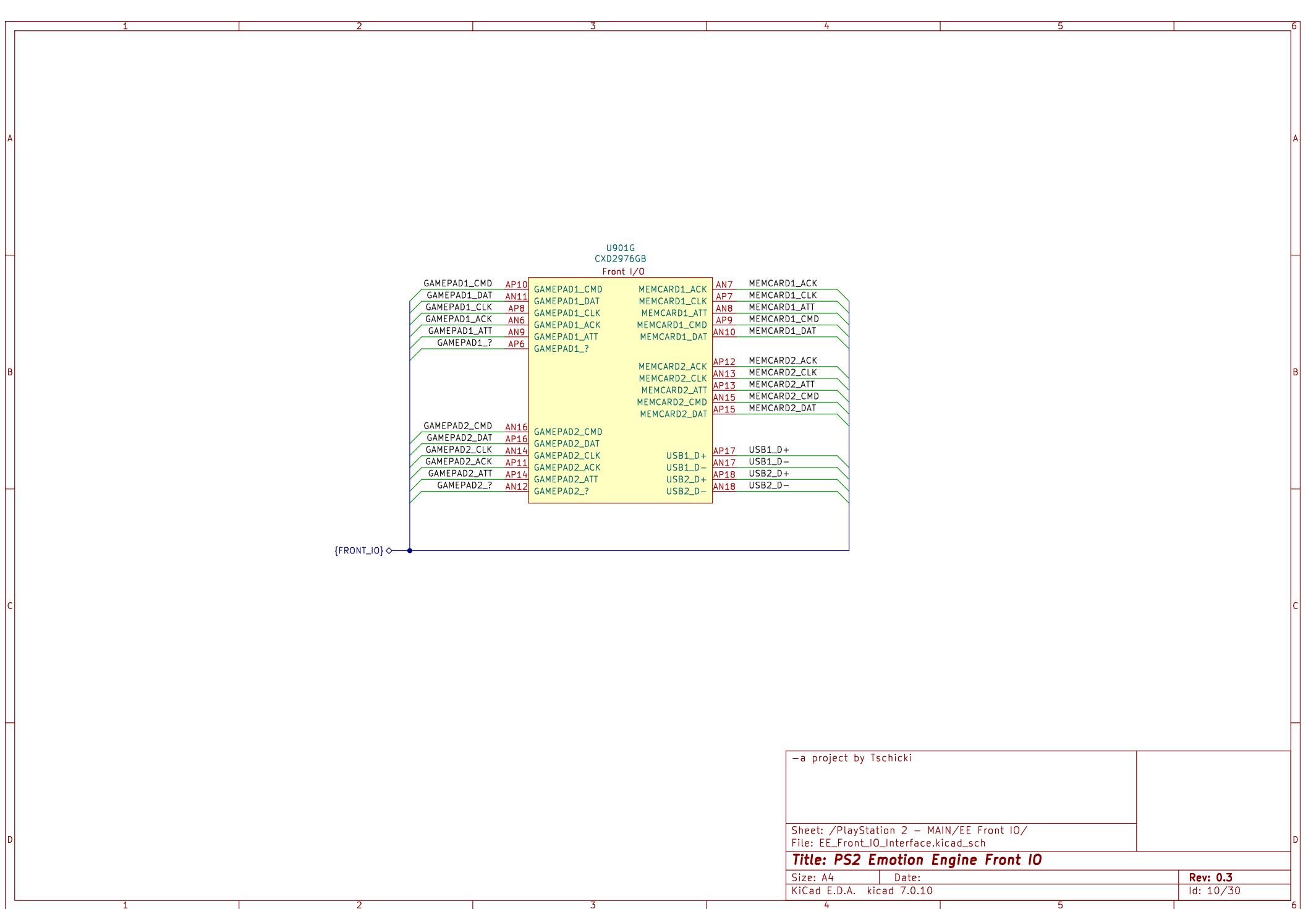
1 2 3 4 5 6

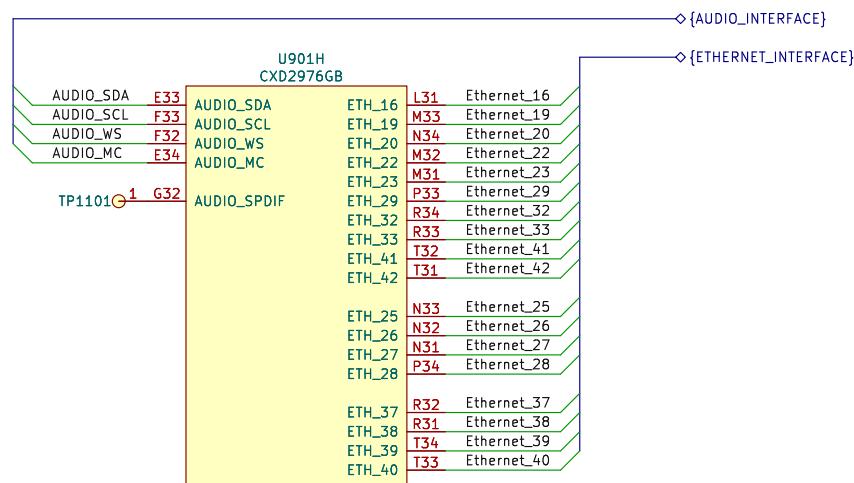


1 2 3 4 5 6

A







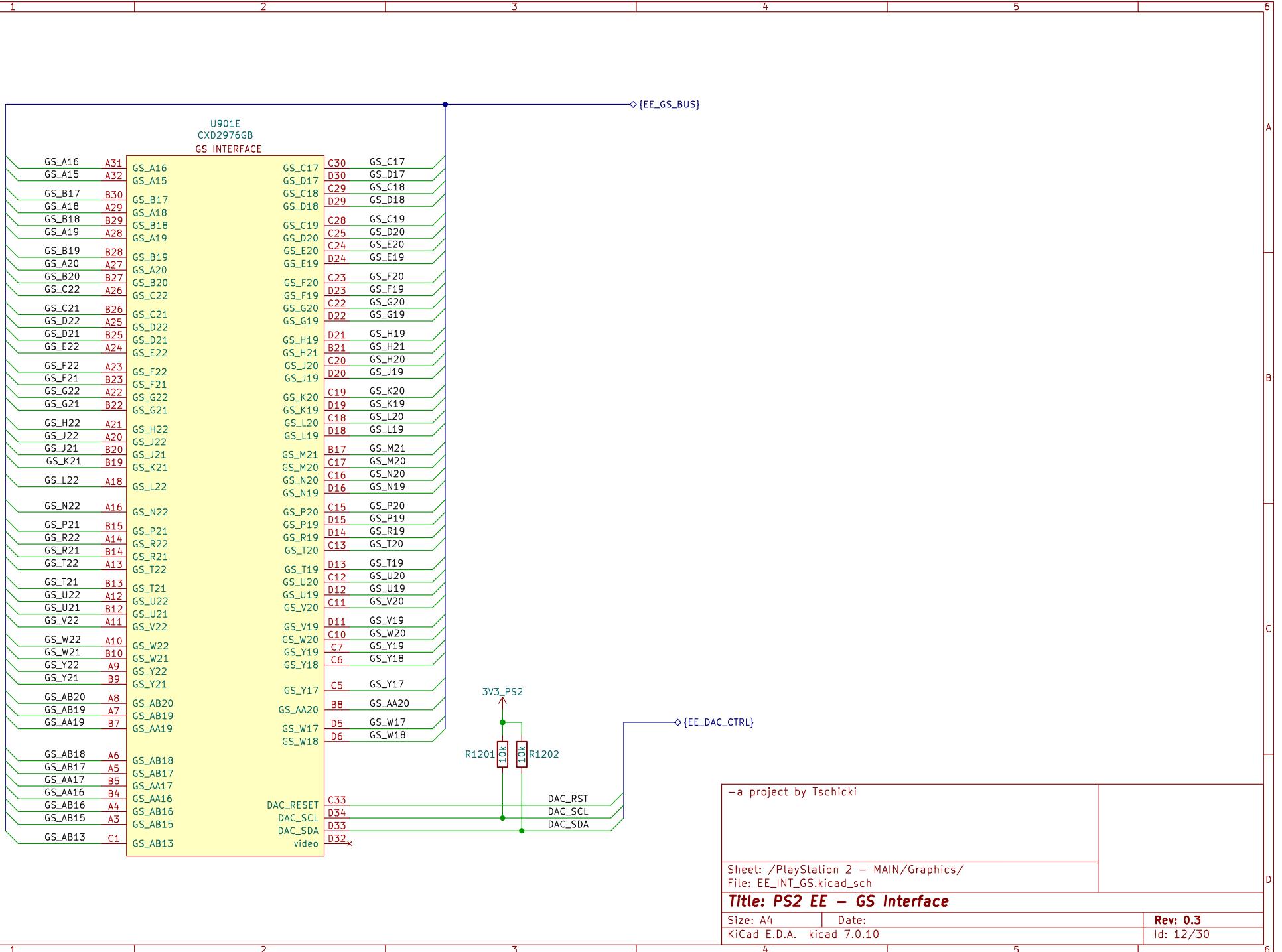
-a project by Tschicki

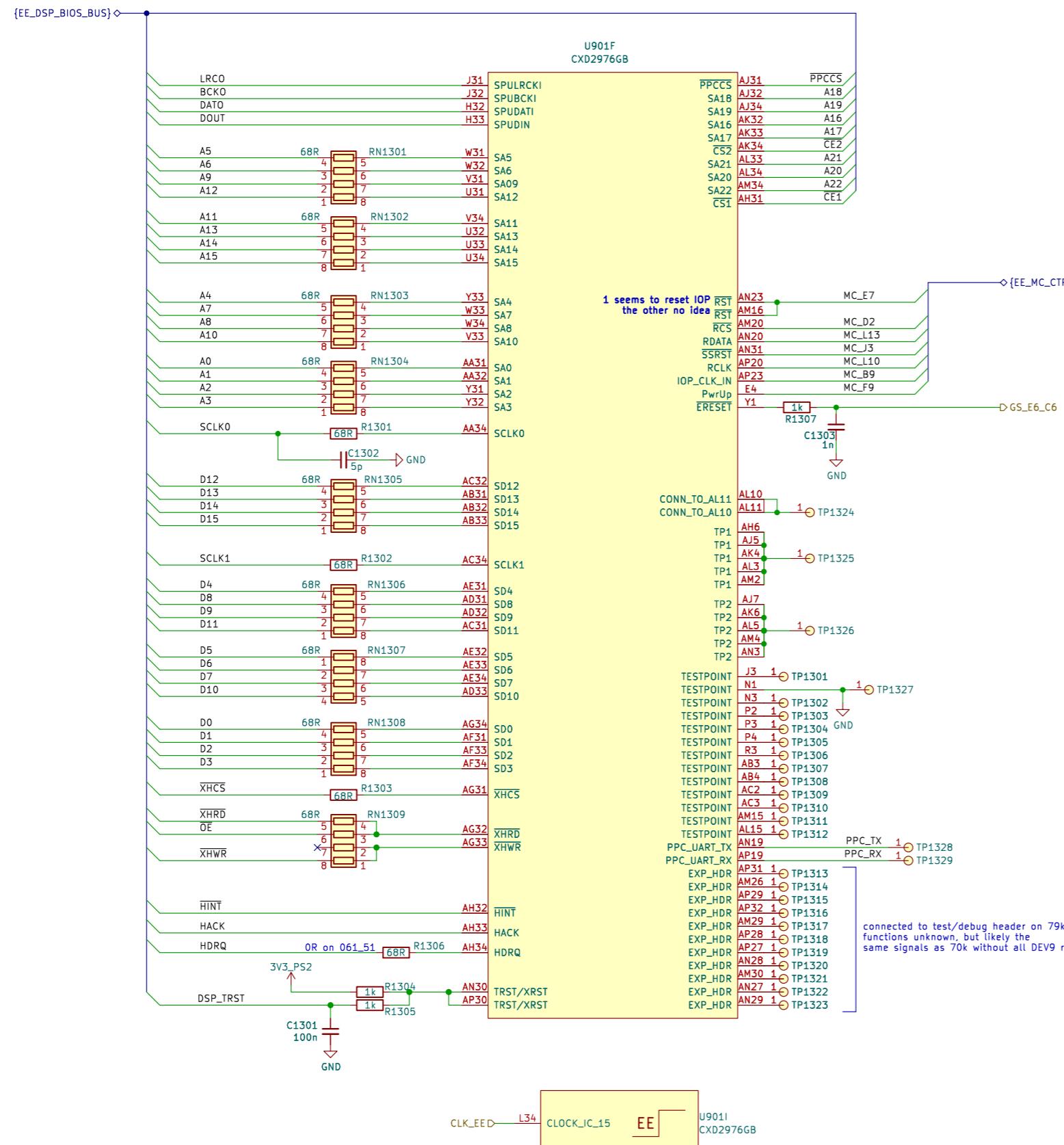
Sheet: /PlayStation 2 – MAIN/Audio & Network/
File: EE_Audio_Ethernet.kicad_sch

Title: PS2 Emotion Engine Audio & Network

Size: A4 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 11/30





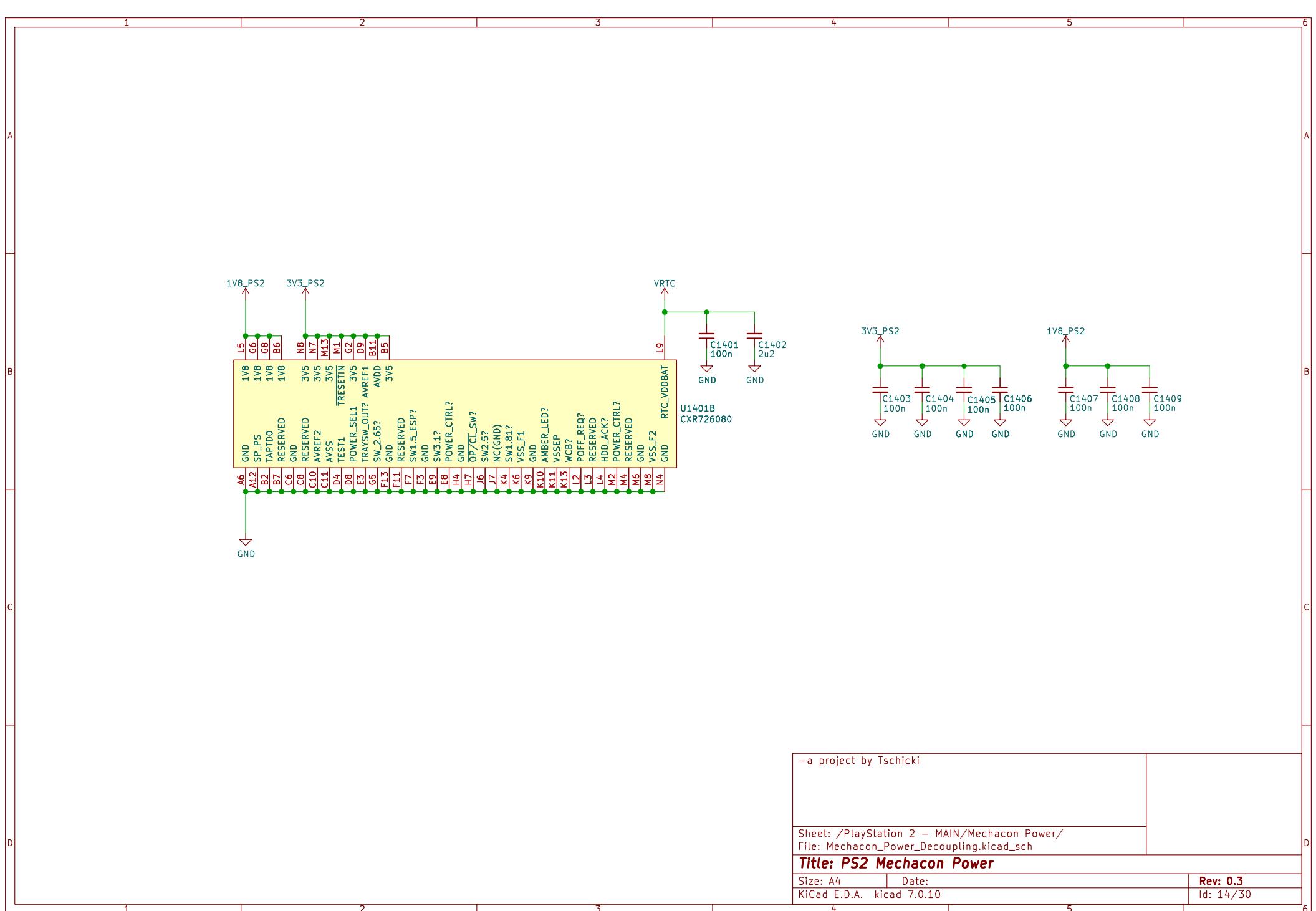
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/Mechacon & DSP/
File: EE_DSP_BIOS_Interfaces.kicad_sch

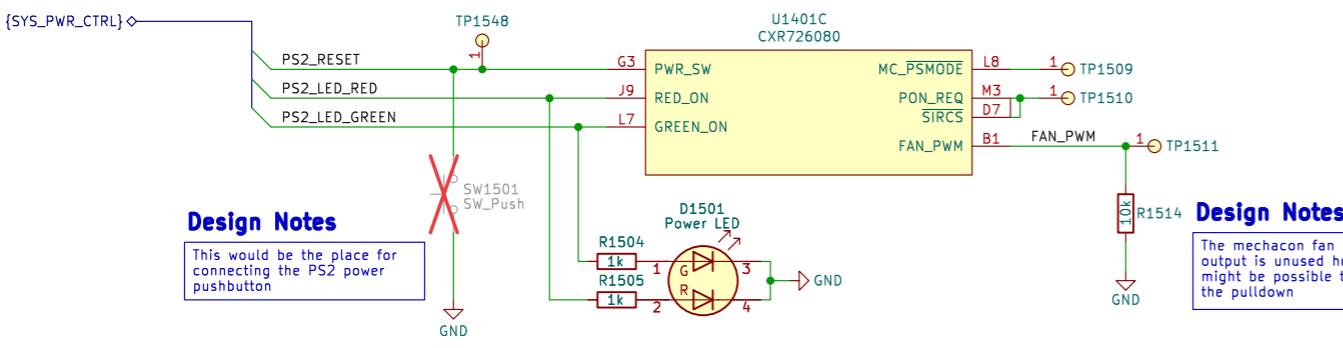
Title: PS2 EE - Mechacon - DSP Interface

Size: A3 Date:
KiCad E.D.A. kicad 7.0.10

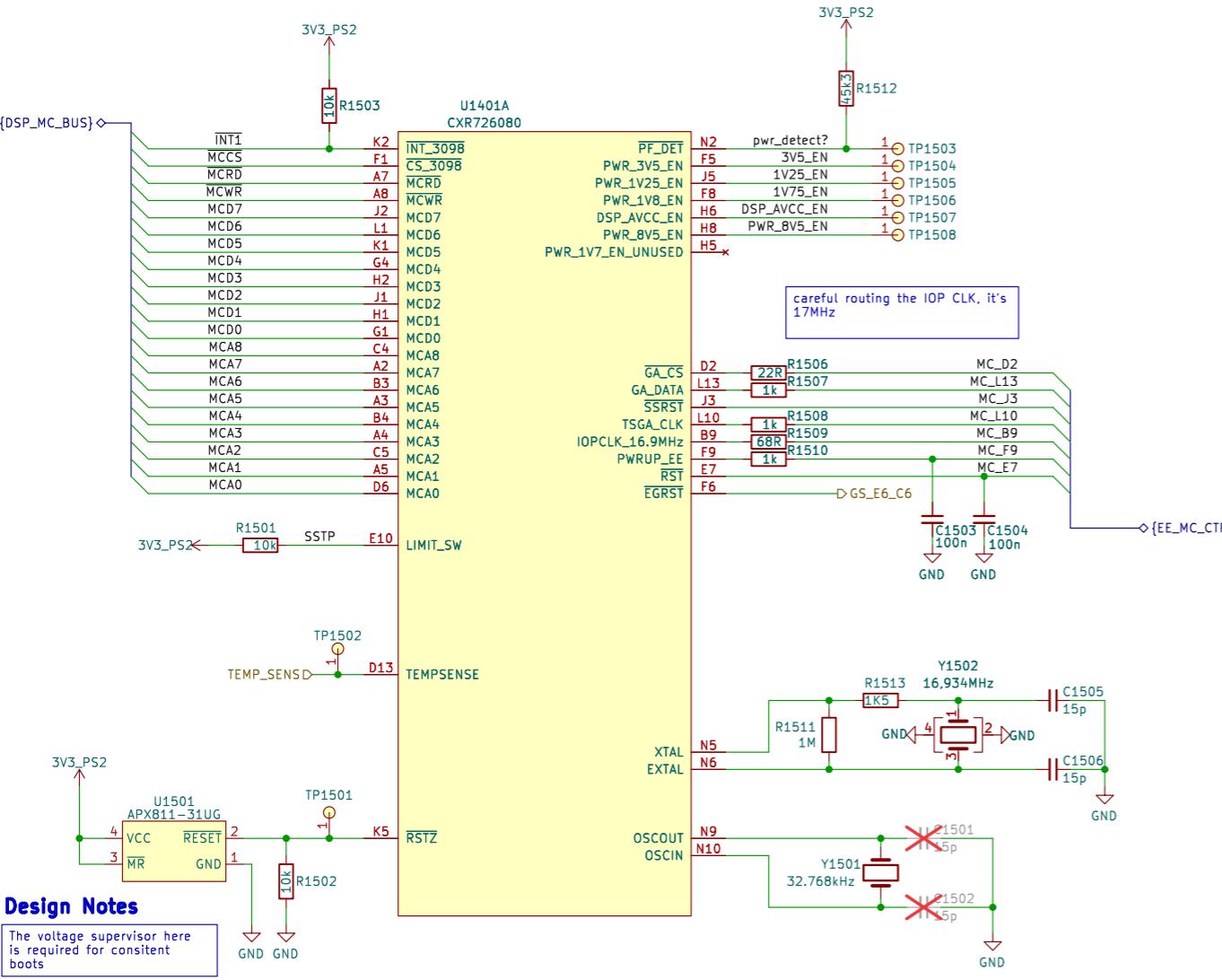
Rev: 0.3
Id: 13/30



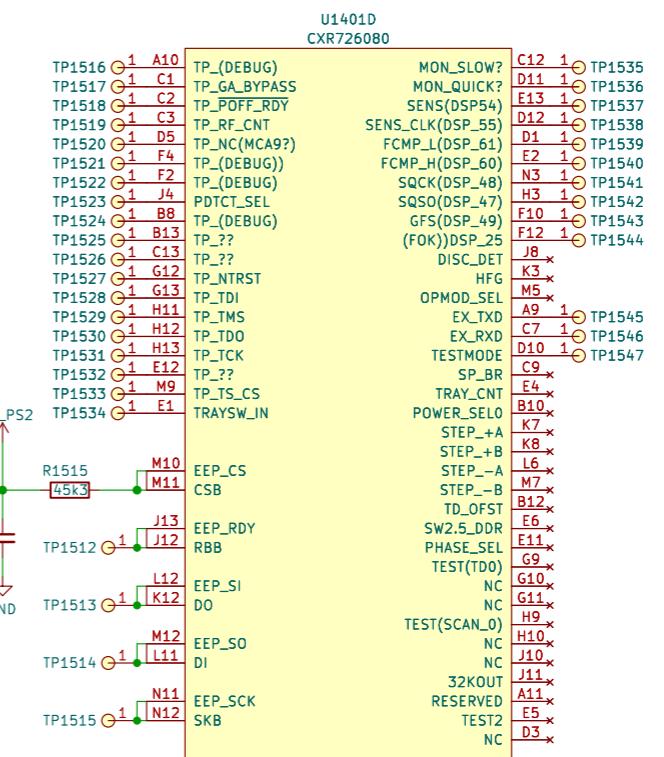
Power Control



Power EN, Clock, Control, DSP Bus



Misc



-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/MechaCon/
File: MechaCon_Interfaces.kicad_sch

Title: PS2 Mechanics Controller

Size: A3 | Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 15/30

A

A

B

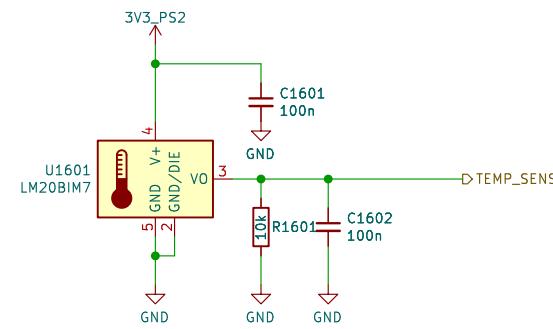
B

C

C

D

D



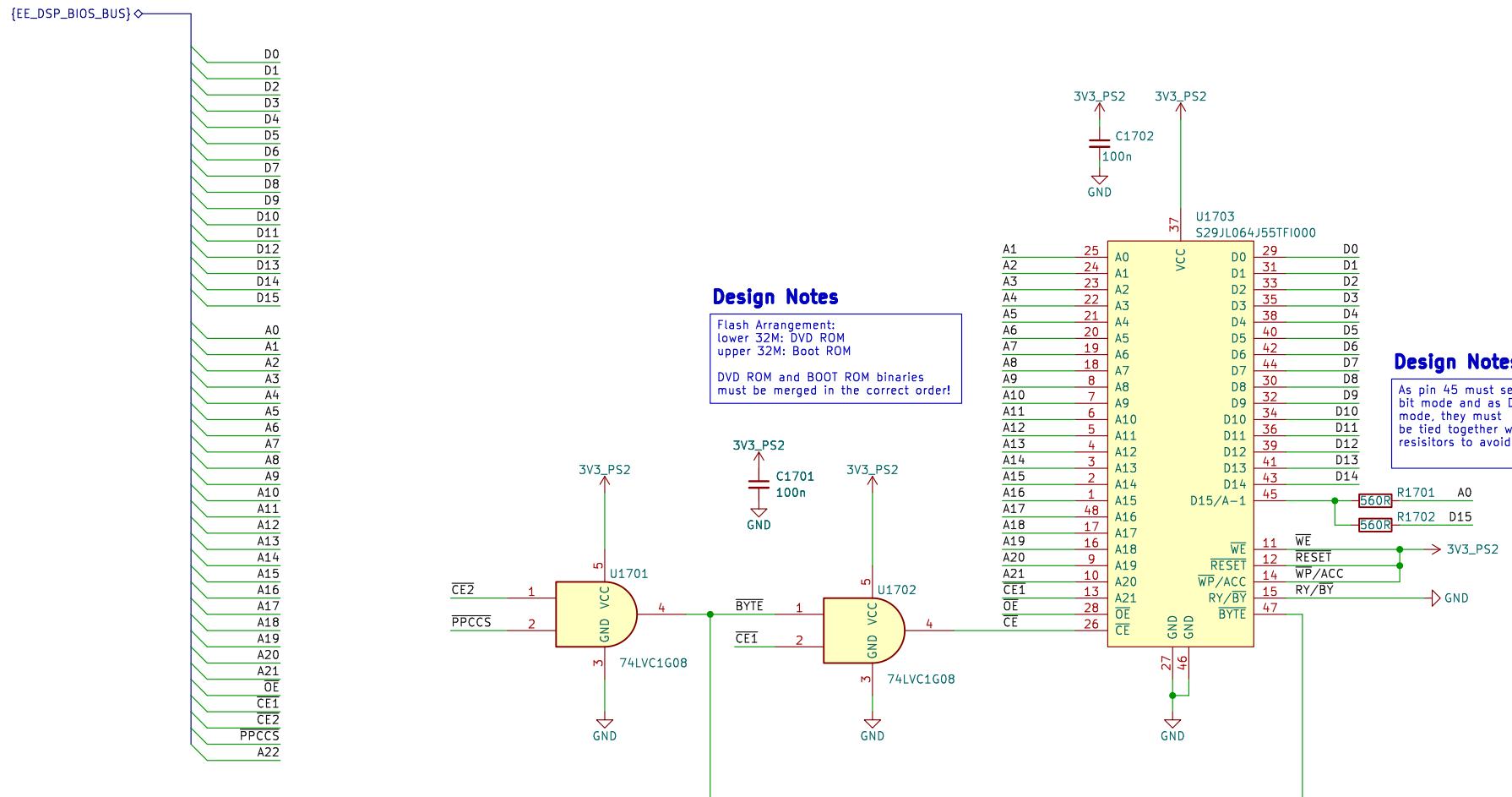
-a project by Tschicki

Sheet: /PlayStation 2 – MAIN/Temperature/
File: PS2_TempSens.kicad_sch

Title: PS2 EE Analog Temperature Sensor

Size: A4 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 16/30



A22 1 TP1701 A22 is likely, but not confirmed!
 CE1 1 TP1702
 PPCCS 1 TP1703
 CE2 1 TP1704

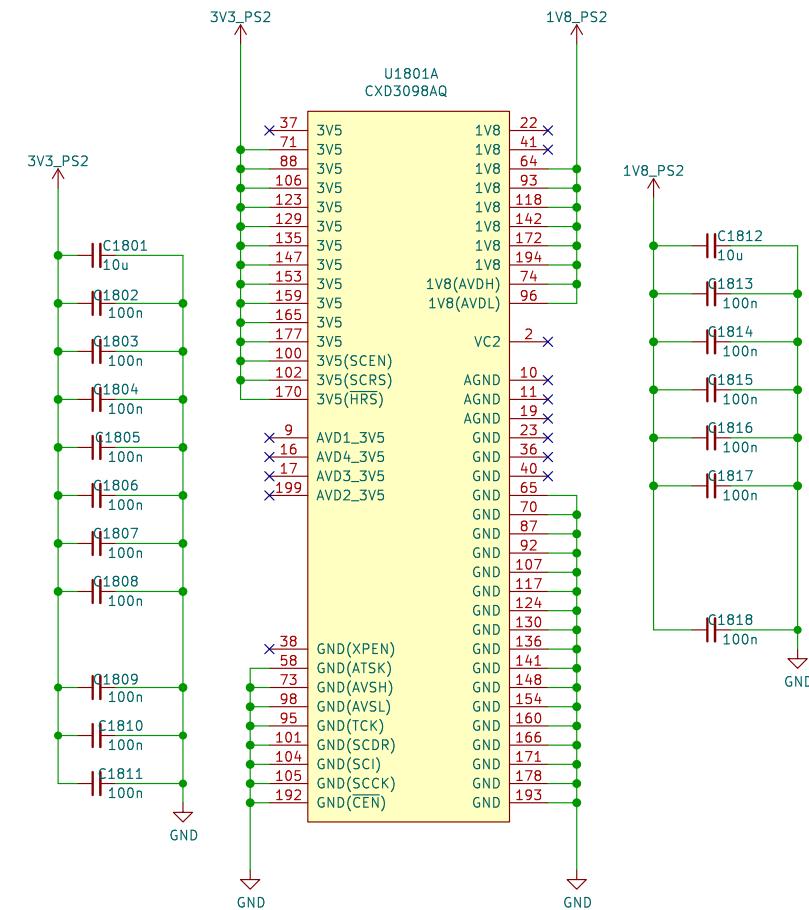
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/BIOS/
 File: PS2_BIOS.kicad_sch

Title: PS2 Boot ROM Flash

Size: A4 Date:
 KiCad E.D.A. kicad 7.0.10

Rev: 0.3
 Id: 17/30



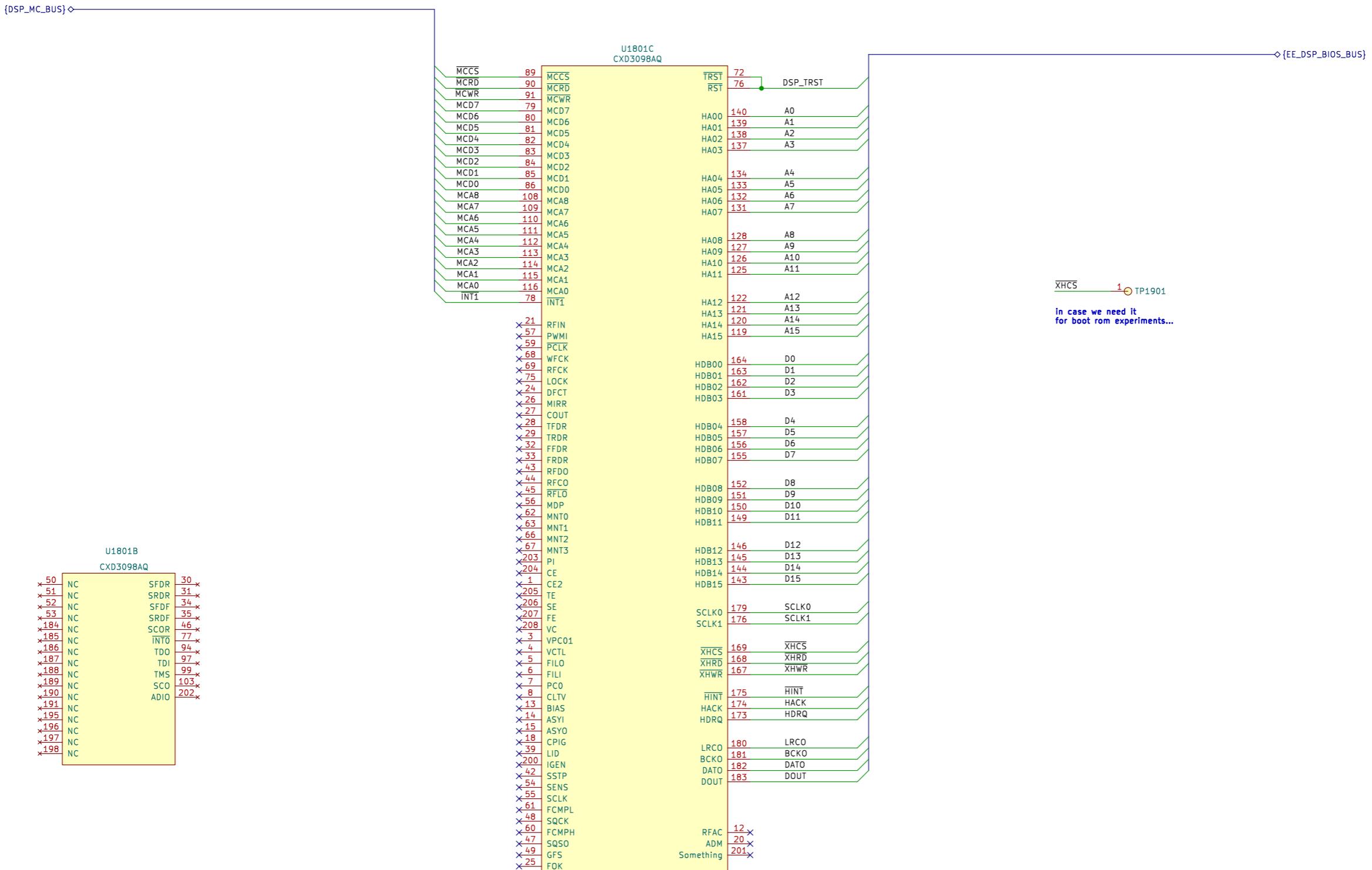
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/DSP Power/
File: DSP_Power_Decoupling.kicad_sch

Title: PS2 DSP Power

Size: A4 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 18/30



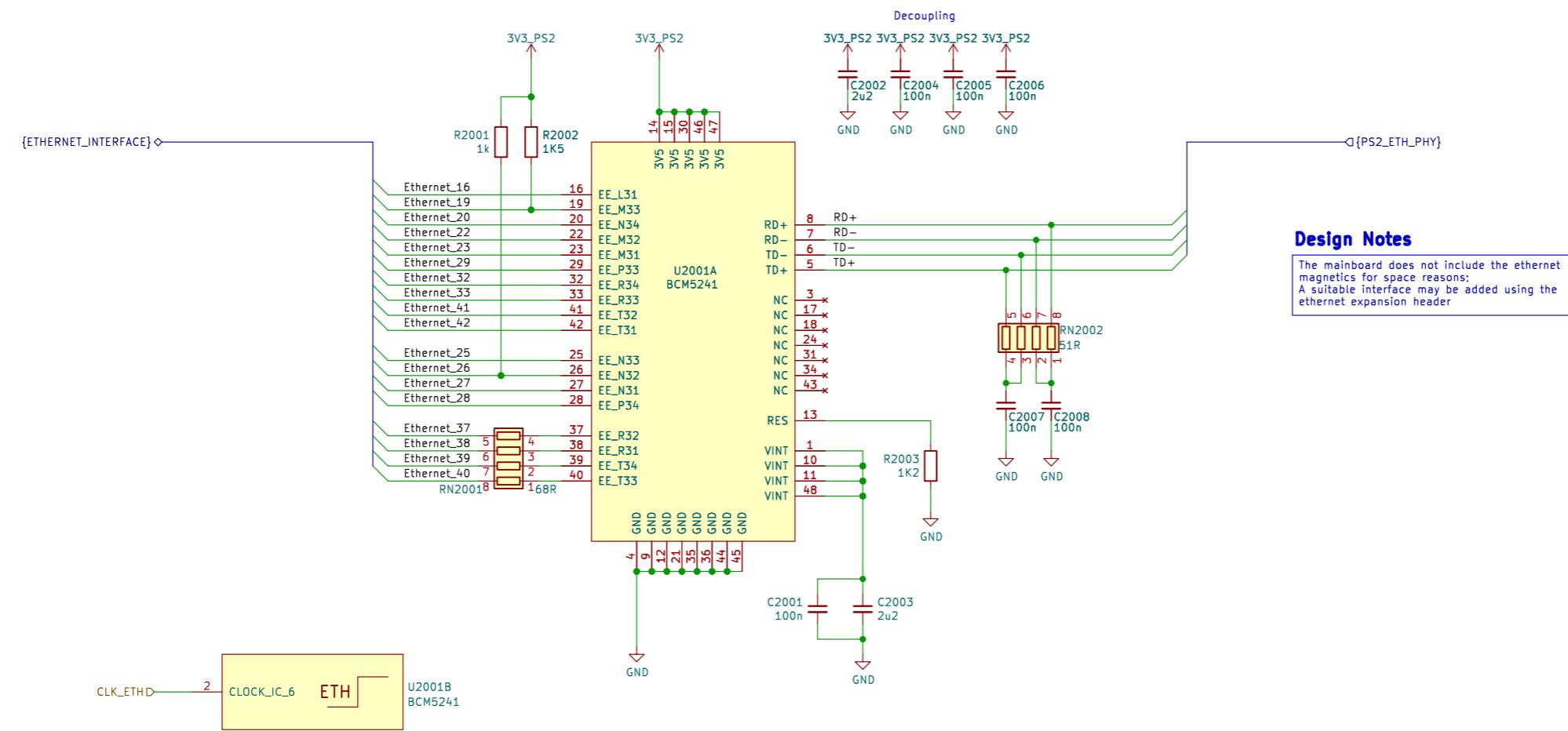
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/DSP/
File: EE_Interfaces.kicad_sch

Title: PS2 DSP

Size: A3 | Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 19/30

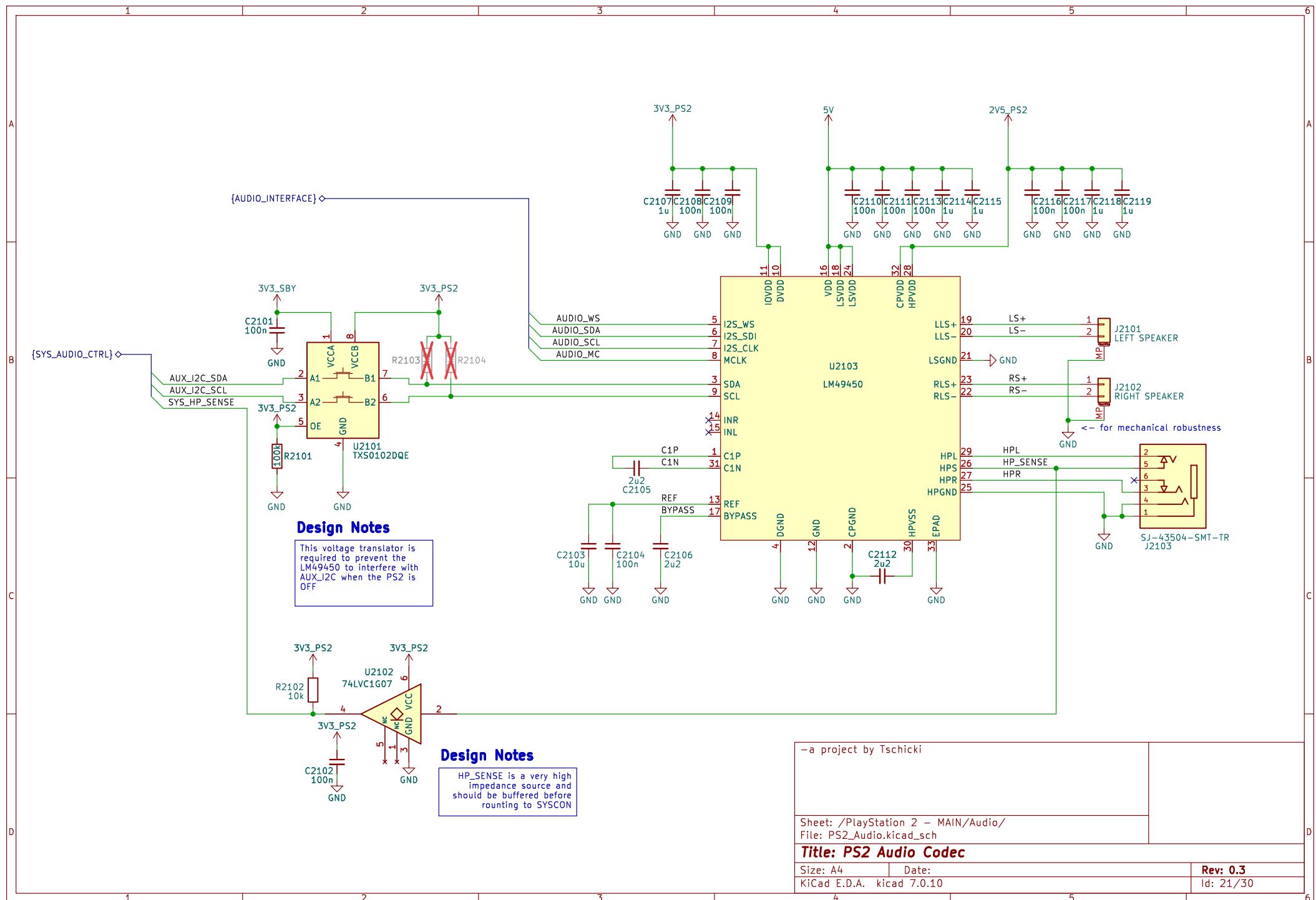


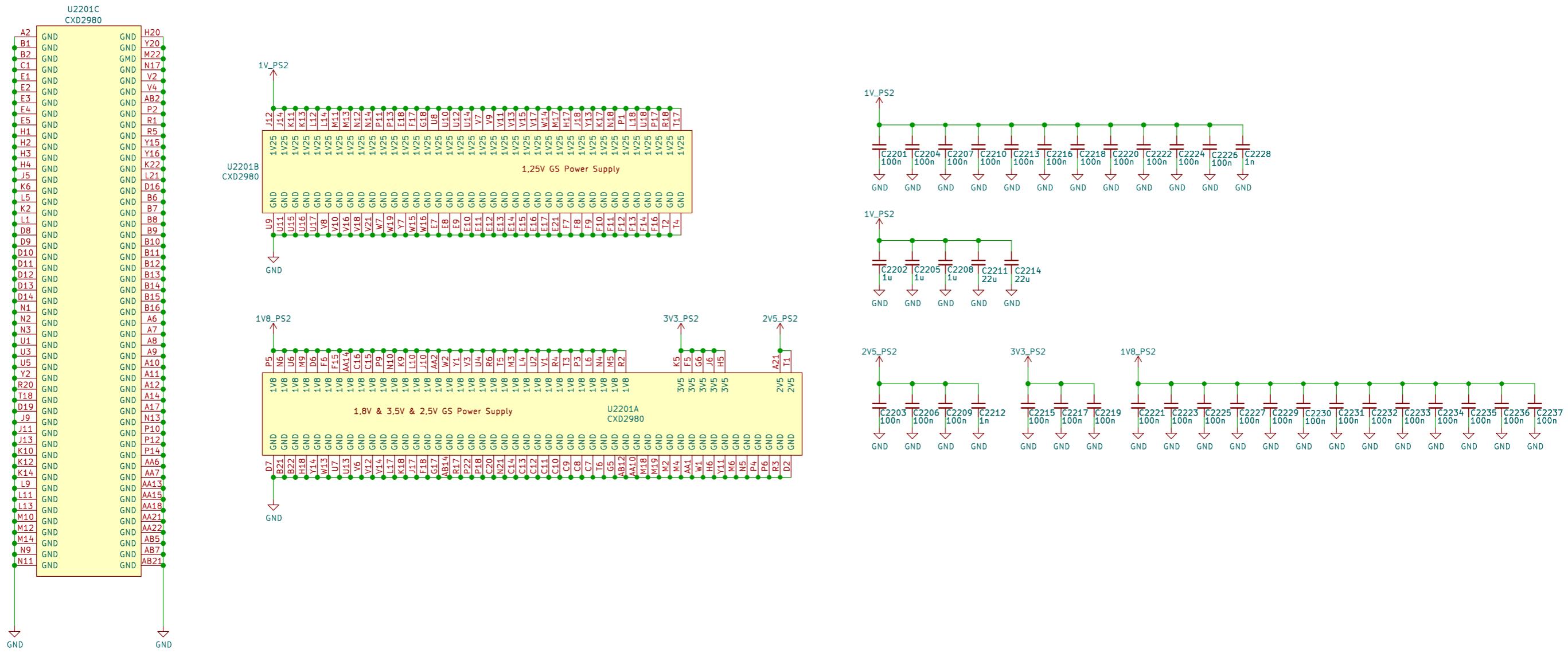
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/Network/
File: PS2_Network.kicad_sch

Title: PS2 Ethernet PHY

Rev: 0.3
Id: 20/30





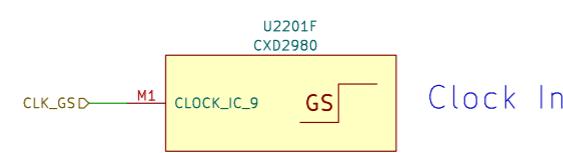
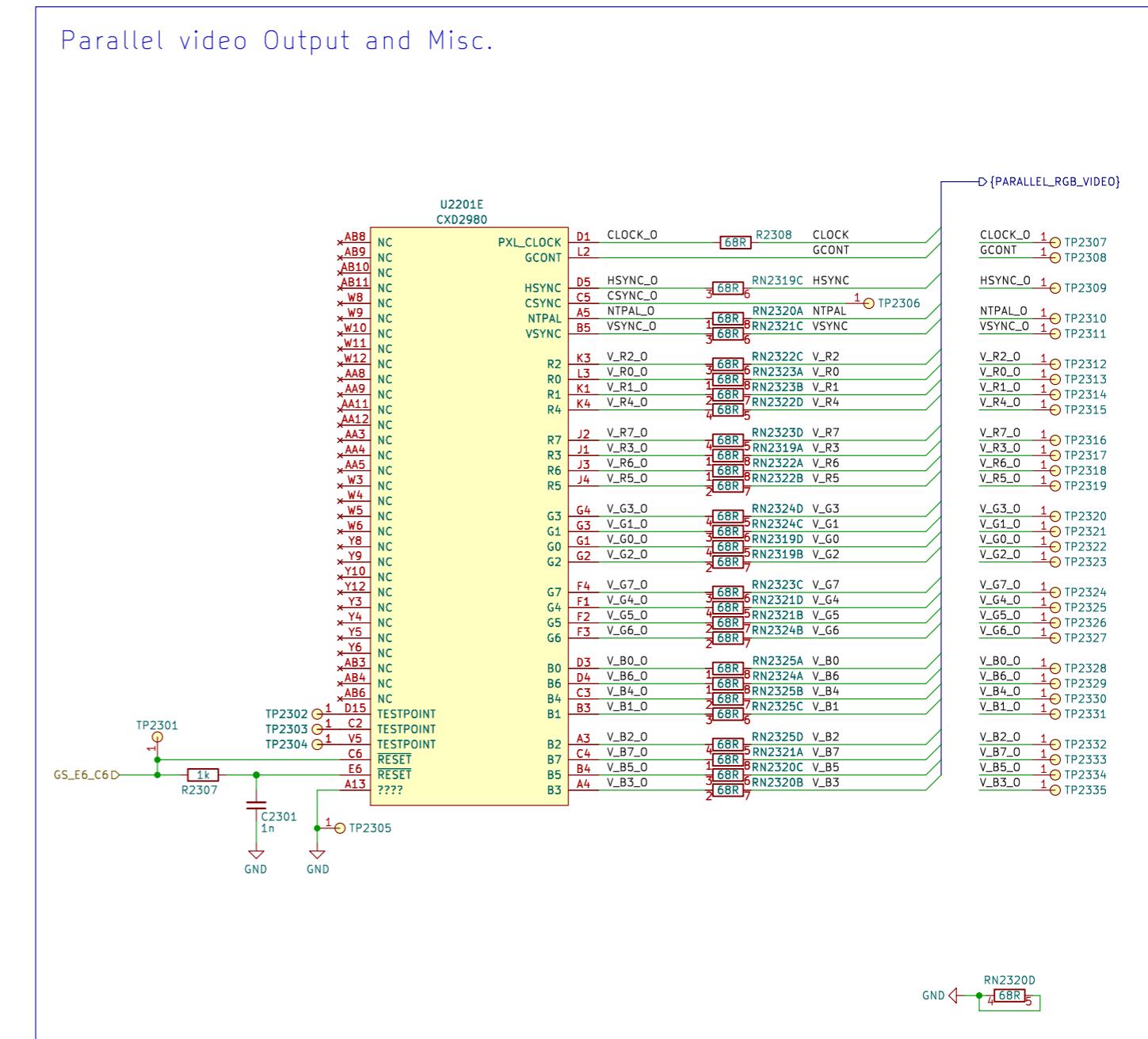
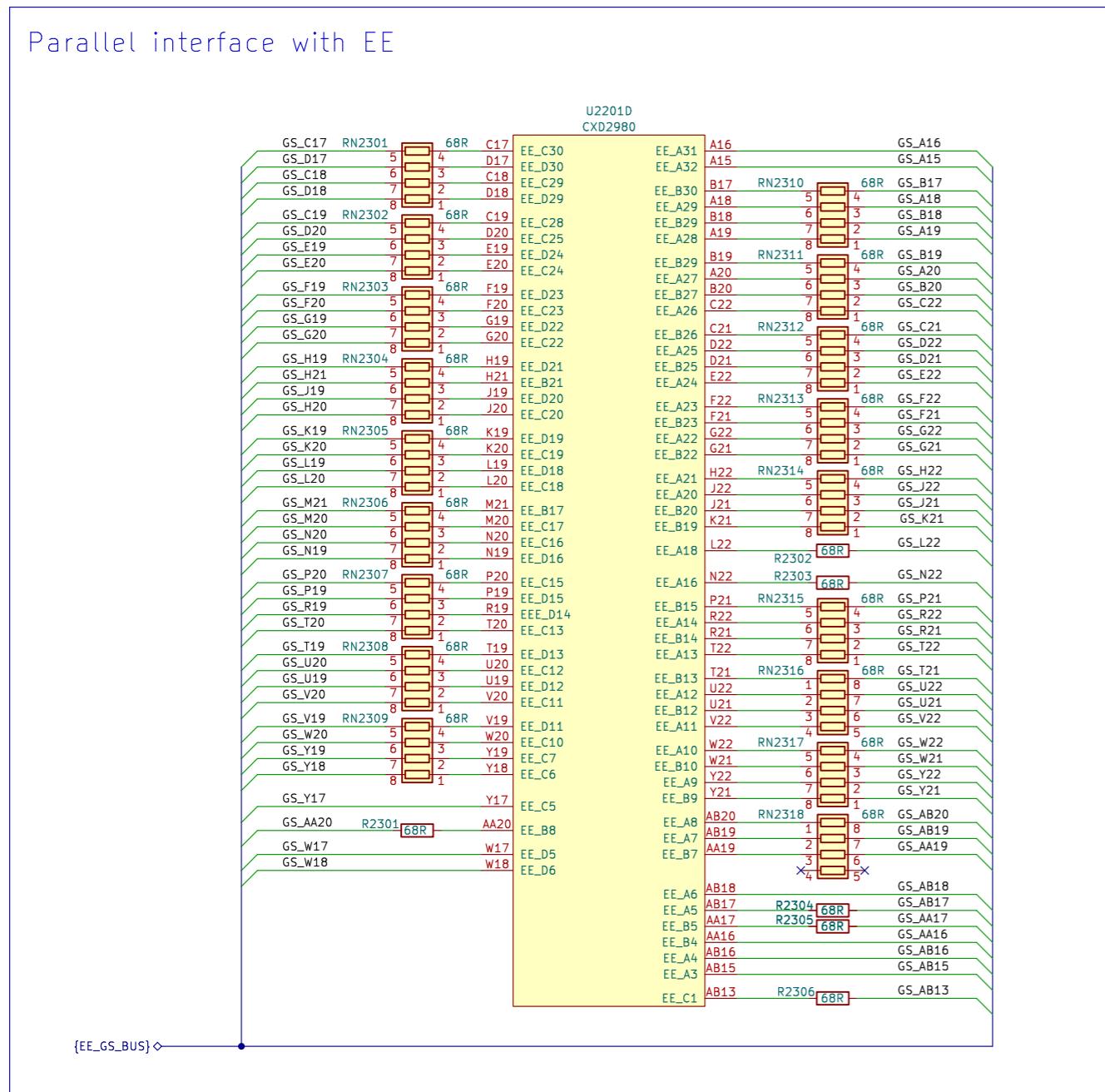
-a project by Tschicki

Sheet: /PlayStation 2 - MAIN/Graphics S. Power/
File: GS_Power_Decoupling.kicad_sch

Title: PS2 Graphics Synthesizer Power

Size: A3 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 22/30



-a project by Tschicki

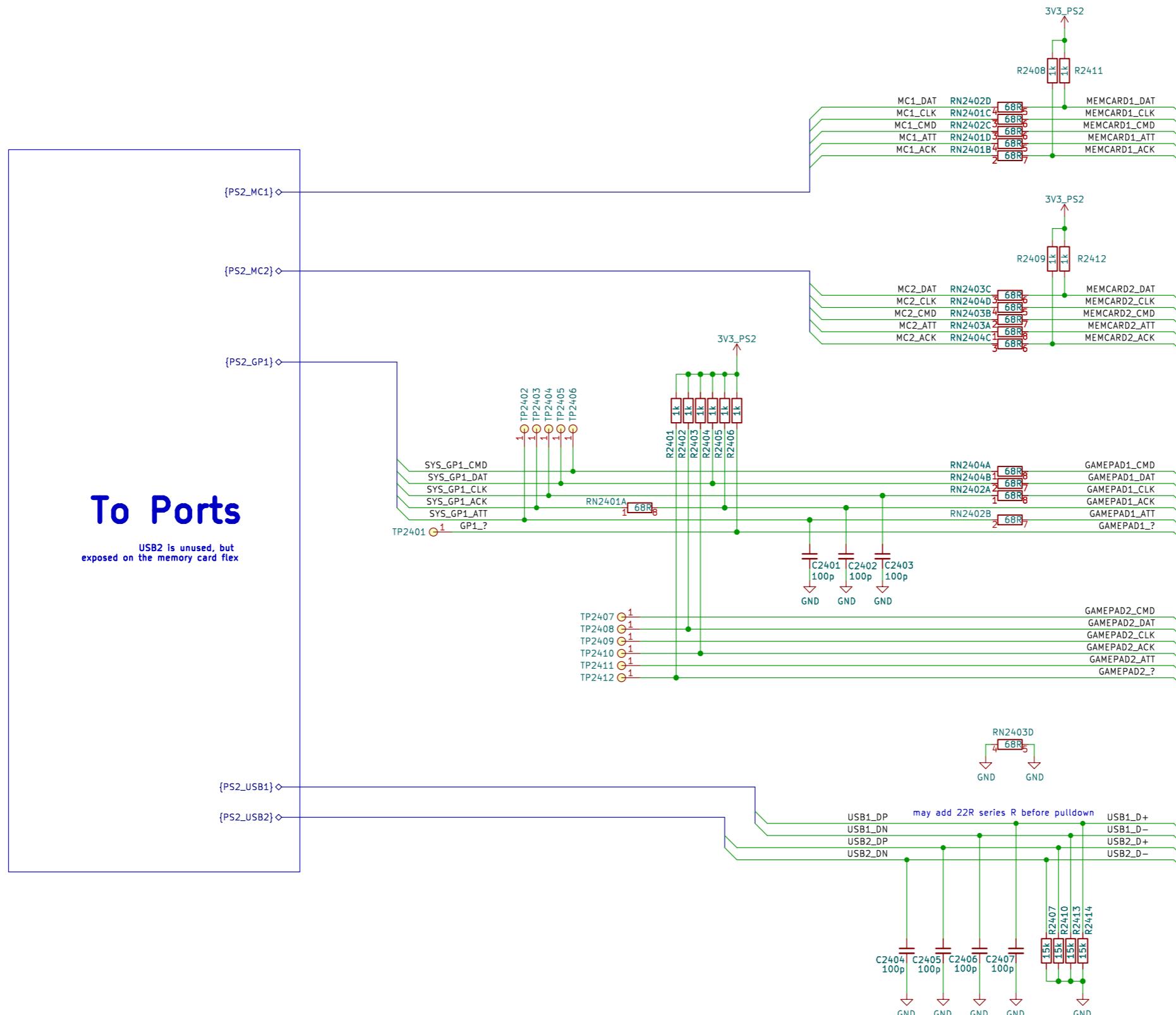
Sheet: /PlayStation 2 – MAIN/GS/
File: EE_GS_Interface.kicad_sch

Title: PS2 Graphics Synthesizer Main

Size: A3 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 23/30

To EE



-a project by Tschicki

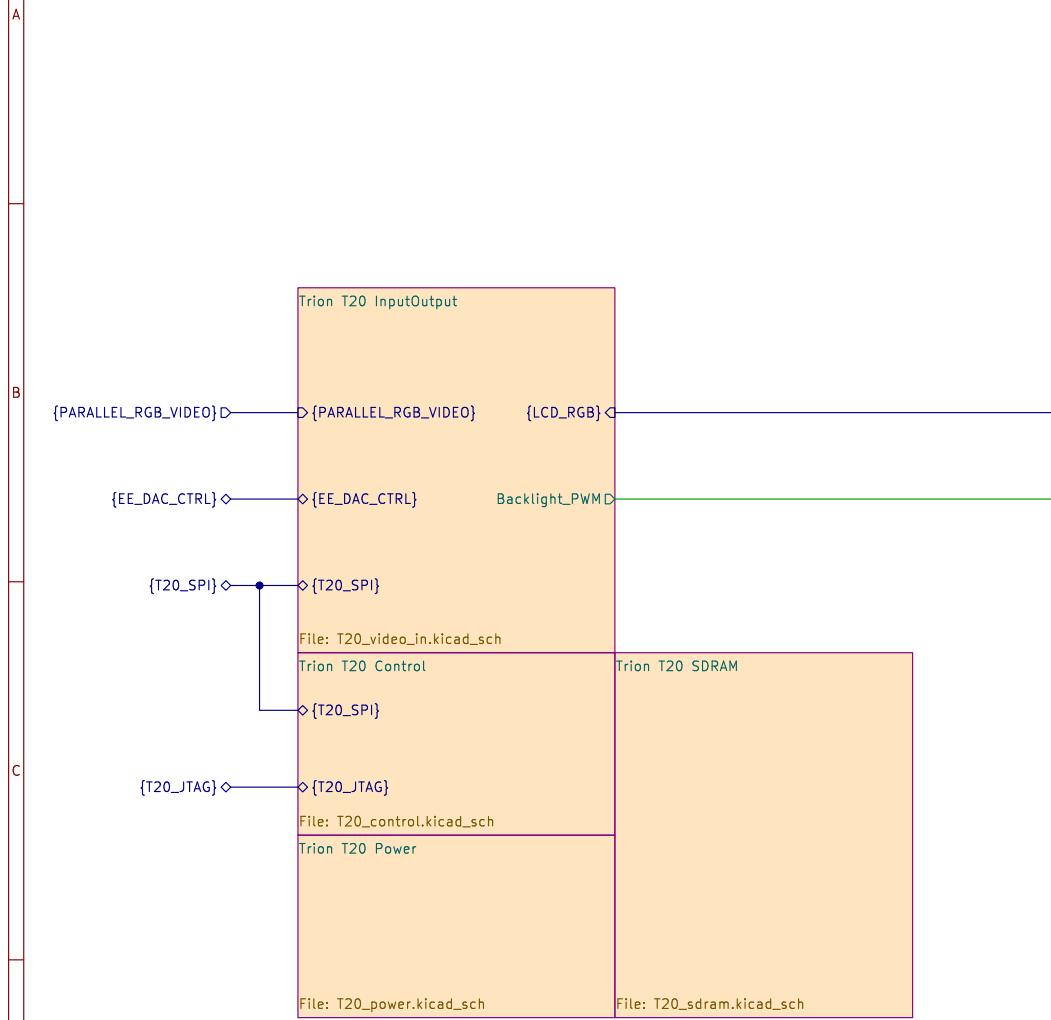
Sheet: /PlayStation 2 - MAIN/Front IO/
File: PS2_Front_IO.kicad_sch

Title: PS2 Front IO Filters

Size: A3 | Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 24/30

Trion T20 Video Processor Top Level

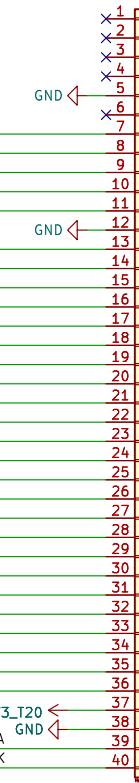


Design Notes

Only compatible with 40 pin panels using the following pinout.
Preferred & tested panel is the 480x800 5" IPS display from the part list

4. Interface

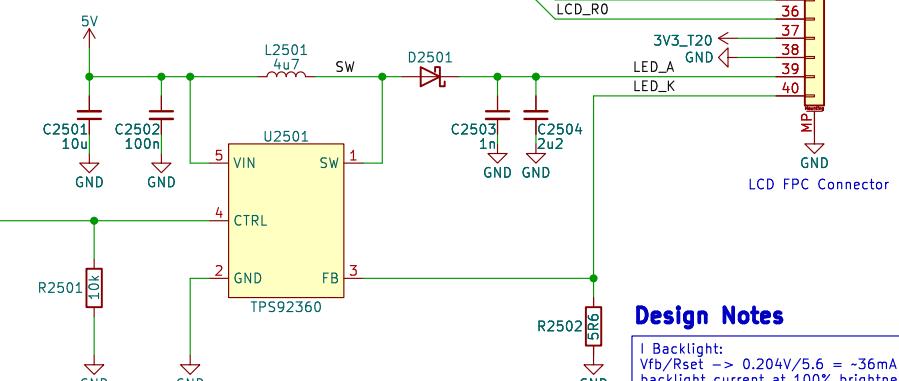
Pin	Symbol	Description.
1	LED-K	LED backlight (Cathode).
2	LED-A	LED backlight (Anode).
3	GND	Ground.
4	VDD	Power supply.
5-12	R0-R7	Red Data.
13-20	G0-G7	Green Data.
21-28	B0-B7	Blue Data.
29	GND	Ground.
30	DCLK	Dot clock signal input. Latching input data at its rising edge.
31	DISP	Display on/off.
32	HSYNC	Horizontal sync input. Negative polarity.
33	VSYNC	Vertical sync input. Negative polarity.
34	DEN	Data enable input. Active high to enable the input data bus.
35	NC	NC.
36	GND	Ground.
37	XR	
38	YD	NC
39	XL	
40	YU	



J2501

Design Notes

I Backlight:
 $V_{fb}/R_{set} \rightarrow 0.204V/5.6 = -36mA$
backlight current at 100% brightness



-a project by Tschick!

Sheet: /Video Processor/
File: Trion_T20.kicad_sch

Title: PS2 Video Processor Top Level

Size: A4 Date:
KiCad E.D.A. kicad 7.0.10

Rev: 0.3
Id: 25/30

