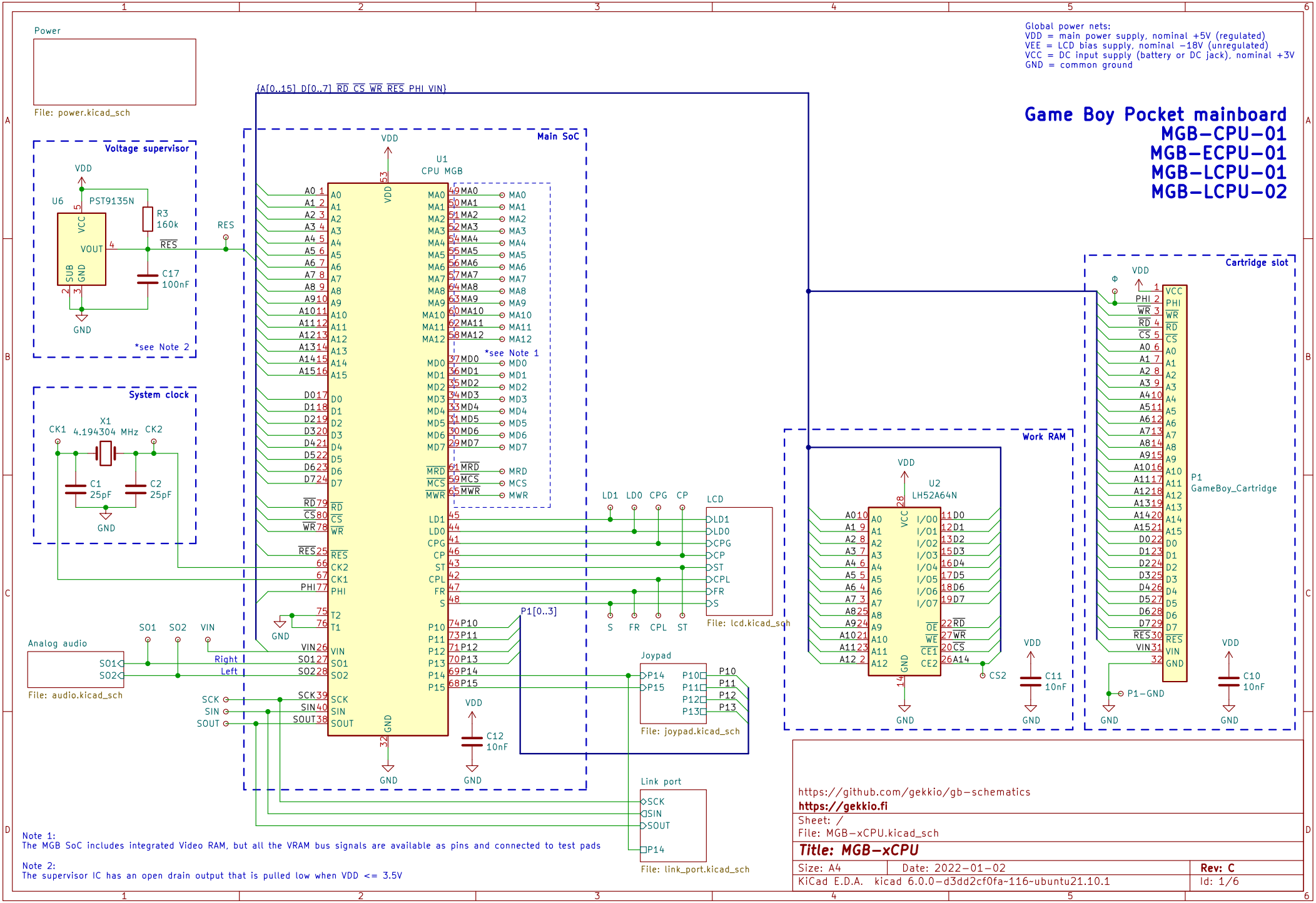
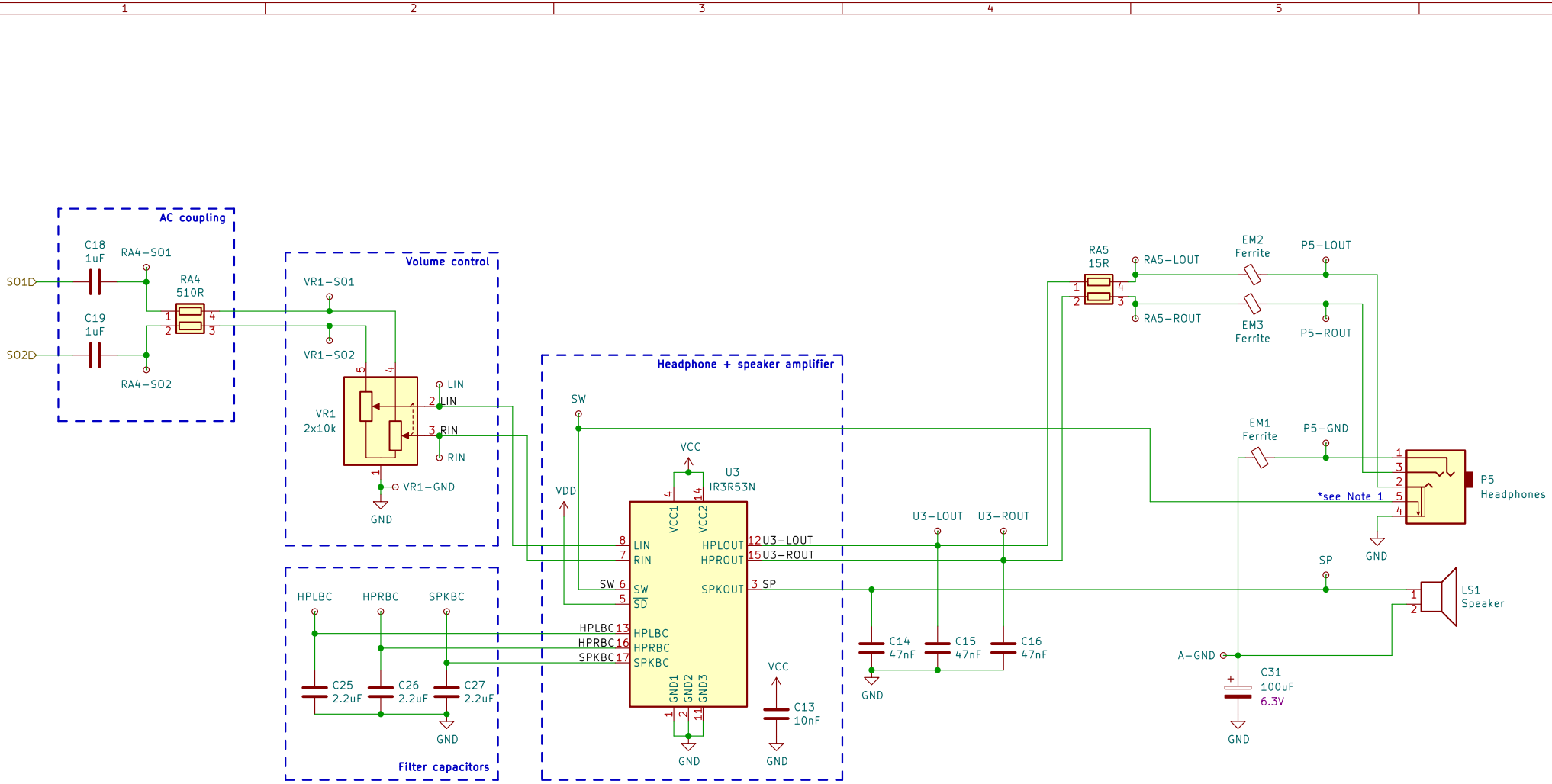

Power
File: power.kicad_sch
Global power nets:
VDD = main power supply, nominal +5V (regulated)
VEE = LCD bias supply, nominal −18V (unregulated)
VCC = DC input supply (battery or DC jack), nominal +3V
GND = common ground
Game Boy Pocket mainboard
MGB−CPU−01
MGB−ECPU−01
MGB−LCPU−01
MGB−LCPU−02
{A[0..15] D[0..7] RD CS WR RES PHI VIN}
Voltage supervisor
U6
PST9135N
R3
160k
C17
100nF
*see Note 2
System clock
X1
4.194304 MHz
C1
25pF
C2
25pF
Main SoC
U1
CPU MGB
*see Note 1
Work RAM
U2
LH52A64N
C11
10nF
Cartridge slot
P1
GameBoy_Cartridge
C10
10nF
C12
10nF
LCD
File: lcd.kicad_sch
Joypad
File: joypad.kicad_sch
Analog audio
File: audio.kicad_sch
Link port
File: link_port.kicad_sch
Note 1:
The MGB SoC includes integrated Video RAM, but all the VRAM bus signals are available as pins and connected to test pads
Note 2:
The supervisor IC has an open drain output that is pulled low when VDD <= 3.5V
https://github.com/gekkio/gb−schematics
https://gekkio.fi
Sheet: /
File: MGB−xCPU.kicad_sch
Title: MGB−xCPU
Size: A4
Date: 2022−01−02
Rev: C
KiCad E.D.A. kicad 6.0.0−d3dd2cf0fa−116~ubuntu21.10.1
Id: 1/6



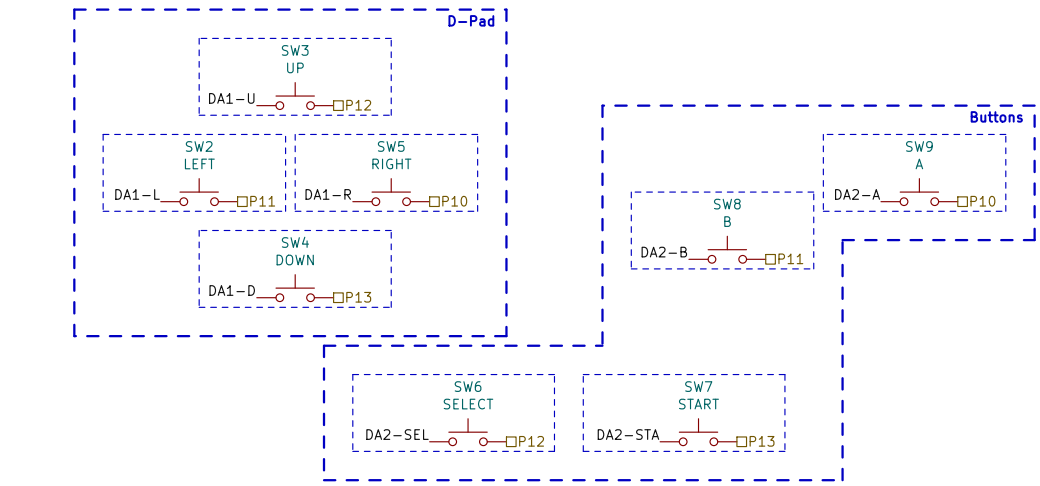
Note 1:
Pins 4 (GND) and 5 (SW) are normally connected, and inserting a plug disconnects SW from GND.

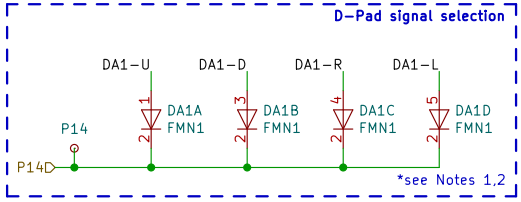
https://github.com/gekkio/gb-schematics
https://gekkio.fi

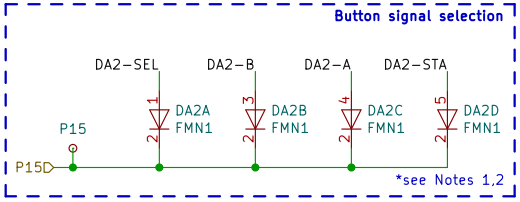
Sheet: /Analog audio/
File: audio.kicad_sch

Title: MGB-xCPU

Size: A4	Date: 2022-01-02	**Rev: C**
KiCad E.D.A. kicad 6.0.0-d3dd2cf0fa-116~ubuntu21.10.1		Id: 2/6







Note 1:
Earlier boards use Panasonic MA6X124 (SOT-23-6 footprint) instead of Rohm FMN1 (SOT-23-5 footprint)
The SOT-23-6 footprint on the board is compatible with both

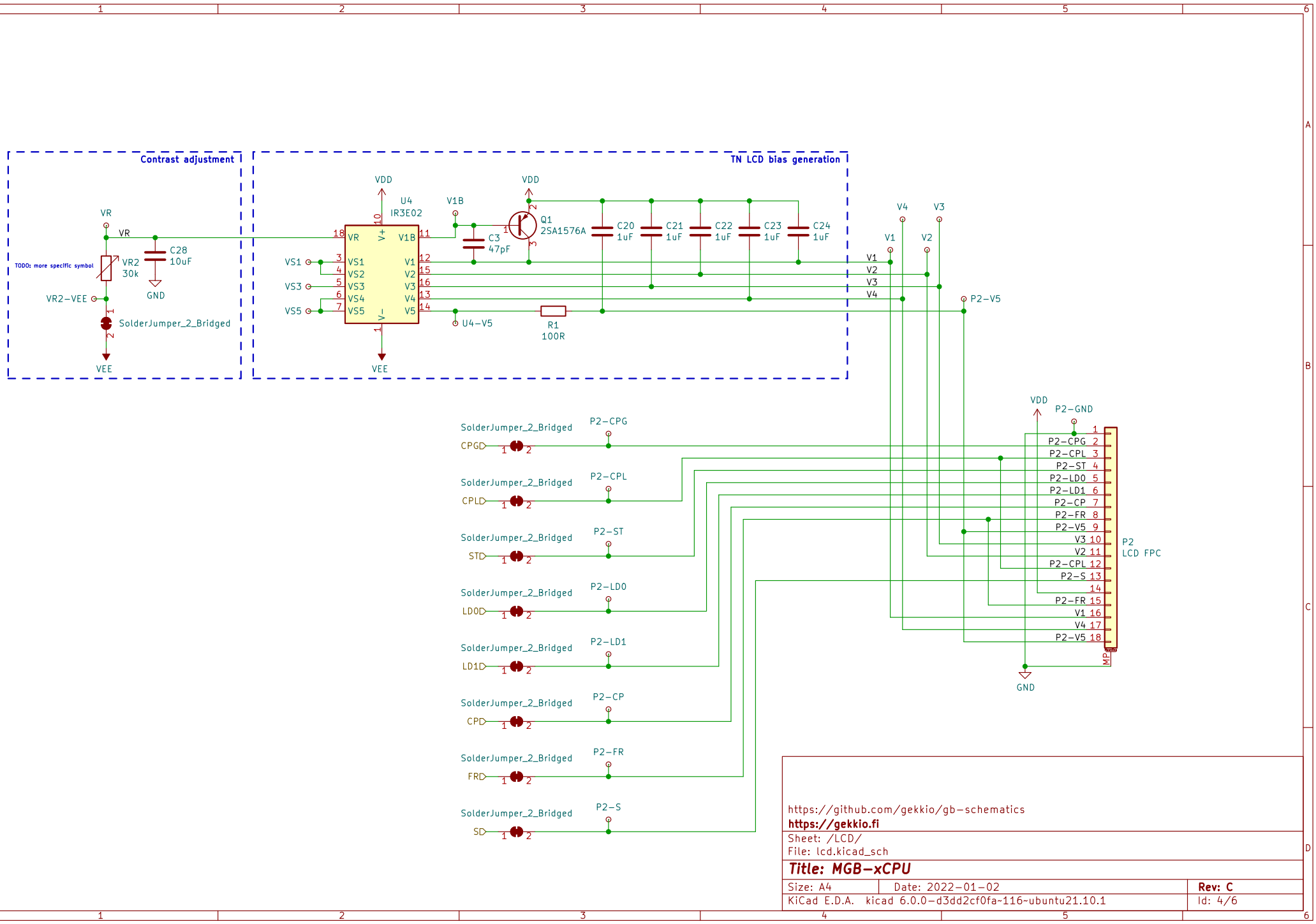
Note 2:
Warning: MA6X124 and FMN1 datasheets use non-standard pin numbering!
This schematic uses standard SOT-23-5/SOT-23-6 numbering

https://github.com/gekkio/gb-schematics
https://gekkio.fi

Sheet: /Joypad/
File: joypad.kicad_sch

Title: MGB-xCPU

Size: A4	Date: 2022-01-02	**Rev: C**
KiCad E.D.A.	kicad 6.0.0-d3dd2cf0fa-116~ubuntu21.10.1	Id: 3/6

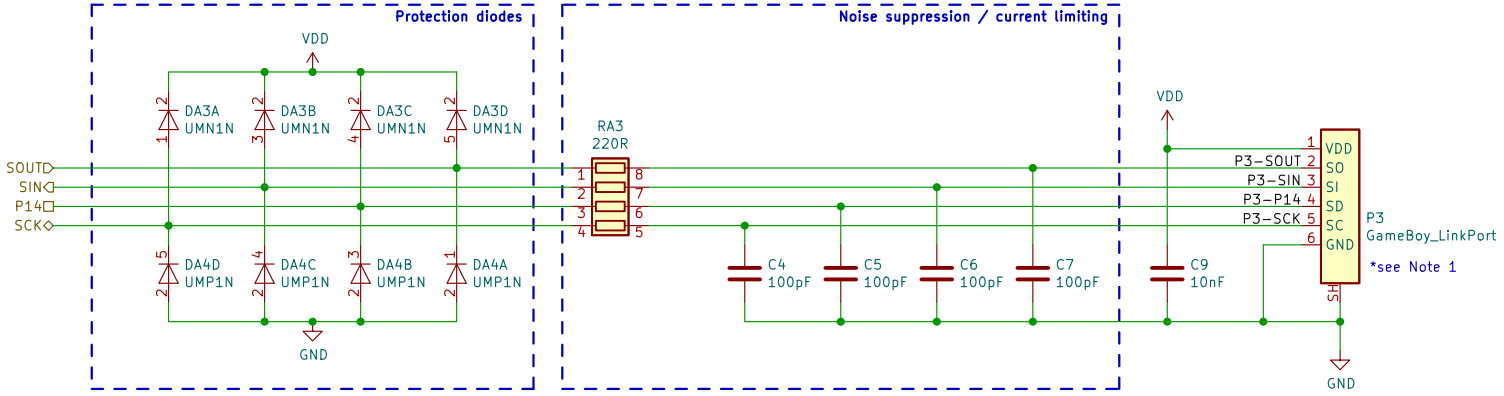


https://github.com/gekkio/gb-schematics
https://gekkio.fi

Sheet: /LCD/
File: lcd.kicad_sch

Title: MGB-xCPU

Size: A4	Date: 2022-01-02	**Rev: C**
KiCad E.D.A. kicad 6.0.0-d3dd2cf0fa-116~ubuntu21.10.1		Id: 4/6



Note 1:
Official link cables omit pin 1 (VDD) and pin 4 (P14/SD), but unofficial cables usually have all 6 signals with VDD/SD crossed

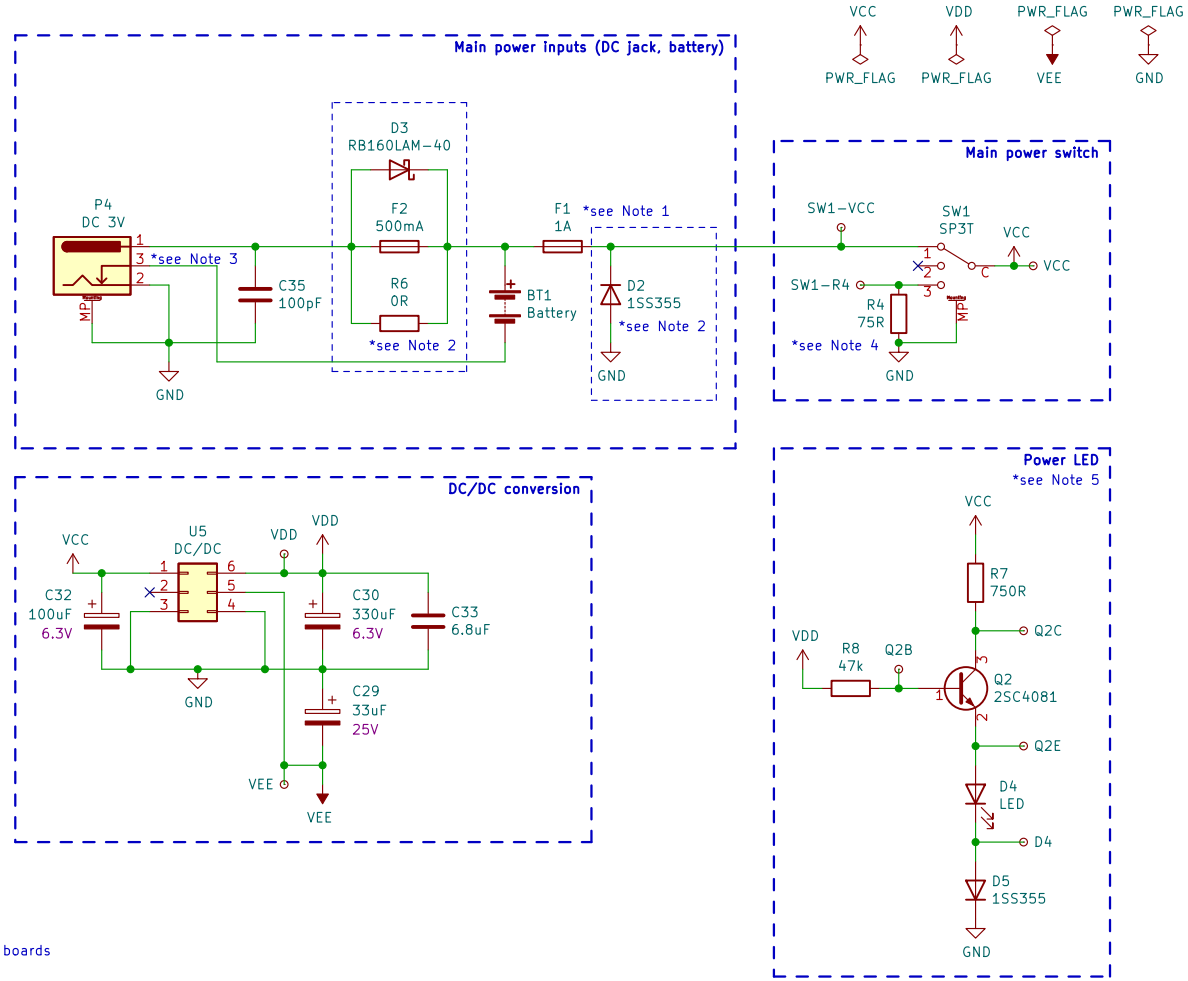
https://github.com/gekkio/gb-schematics
https://gekkio.fi

Sheet: /Link port/
File: link_port.kicad_sch

Title: MGB-xCPU

Size: A4	Date: 2022-01-02	**Rev: C**
KiCad E.D.A.	kicad 6.0.0-d3dd2cf0fa-116~ubuntu21.10.1	Id: 5/6

Global power nets:
VDD = main power supply, nominal +5V (regulated)
VEE = LCD bias supply, nominal −18V (unregulated)
VCC = DC input supply (battery or DC jack), nominal +3V
GND = common ground



Note 1:
F1 is 600mA on earlier boards

Note 2:
D3/F2/R6 share the same footprint, and the actual device can be only one of them
D2 is also optional and not used in all cases.
Known combinations:
1) only D2 populated, no D3/F2/R6
2) D2 + R6 populated
3) D2 + F2 populated
4) only D3 populated, no D2

Note 3:
Pins 2 (GND) and 3 (BT−) are normally connected, and inserting a DC plug disconnects GND from BT−

Note 4:
R4 provides a discharge path from VCC to GND when the power switch is in the off position

Note 5:
Power LED circuit is not present on early MGB−CPU−01 boards

https://github.com/gekkio/gb-schematics
https://gekkio.fi

Sheet: /Power/
File: power.kicad_sch

Title: MGB−xCPU

Size: A4	Date: 2022−01−02	**Rev: C**
KiCad E.D.A. kicad 6.0.0−d3dd2cf0fa−116~ubuntu21.10.1		Id: 6/6