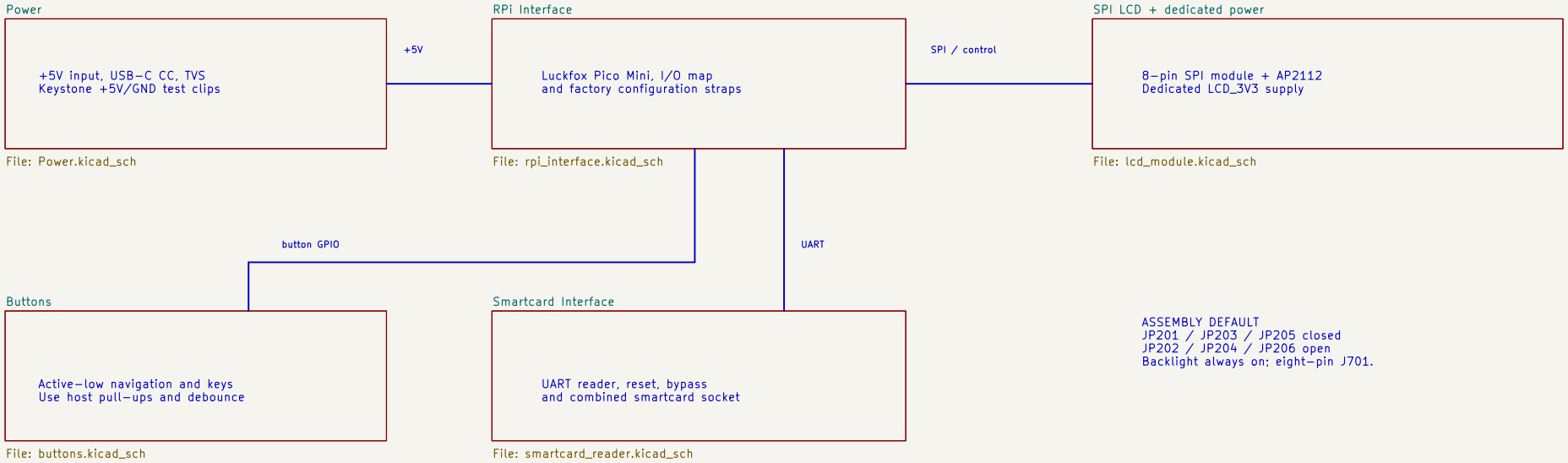
# ShieldSigner | eight-pin pill carrier

Native KiCad reference | 160 x 70 mm | four copper layers | 1.6 mm nominal thickness

READING MAP  (lines below describe system flow; connections use named nets on the circuit sheets)




ASSEMBLY DEFAULT
JP201 / JP203 / JP205 closed
JP202 / JP204 / JP206 open
Backlight always on; eight-pin J701.

STACKUP / REVIEW
F.Cu signals / In1.Cu GND / In2.Cu GND / B.Cu signals. Confirm the nominal stackup with the fabricator.
0.0.11-dev adds eight factory service points and four independent M2.5 bracket anchors.
ERC / DRC are software checks. Module fit, powered operation and supplier assembly remain unqualified.

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

Sheet: /
File: SeedSigner-Plus-smartcard-pico.kicad_sch

***Title: System overview and reading map***

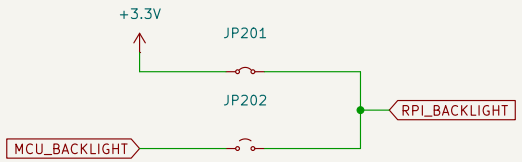
| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 1/6 |

# Host module, signal mapping and assembly straps

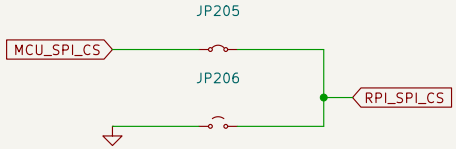
U202 is fitted. U201 is a schematic-only legacy interface reference; it is not a second module or an assembly part.

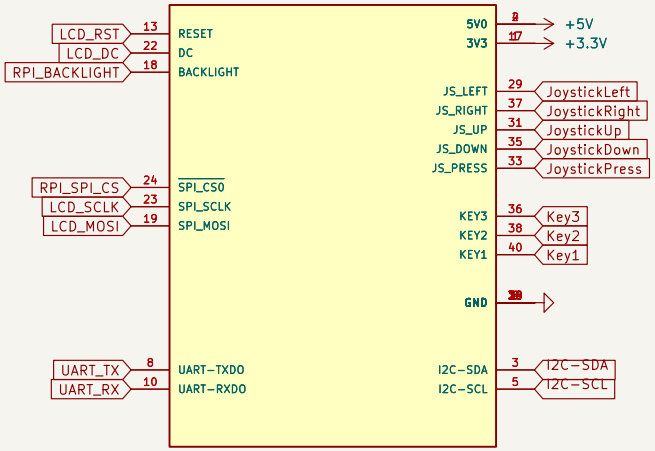
**LEGACY INTERFACE REFERENCE ONLY**
**U201 and TP201 have no PCB footprint.**

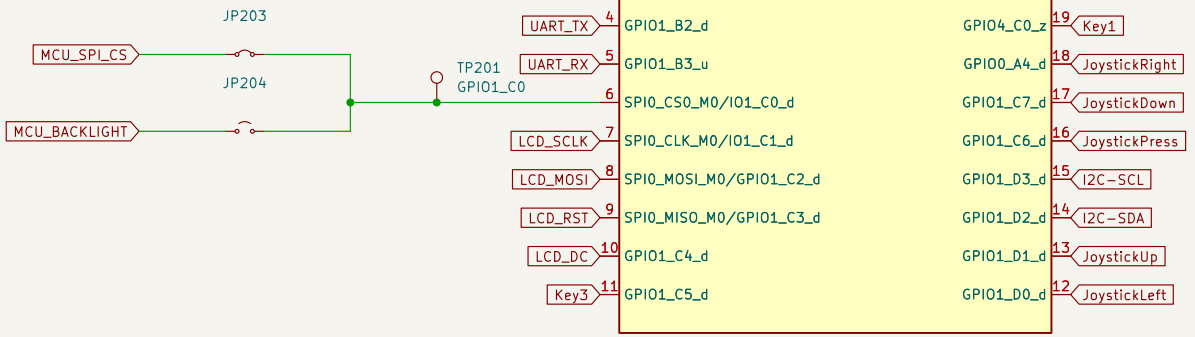
**BACKLIGHT: default high**




**CHIP SELECT: default GPIO**




**GPIO1_C0 FUNCTION**




FACTORY STRAP TABLE
JP201 closed / JP202 open: backlight held high
JP203 closed / JP204 open: GPIO1_C0 drives CS
JP205 closed / JP206 open: GPIO-controlled CS
Never close both alternatives in a strap pair.

BACKLIGHT SOURCE
JP202 selects MCU_BACKLIGHT only in an alternate configuration.
This PCB has no dedicated host PWM path; use the separate PWM candidate.

HOST FIRMWARE
Use the carrier GPIO map and 320 x 240 display profile.
The 240 x 240 bench image conflicts with two button nets.

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

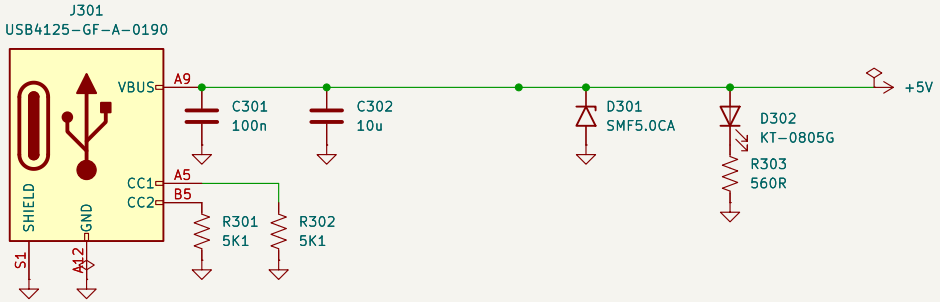
Sheet: /RPi Interface/
File: rpi_interface.kicad_sch

***Title: Host module and configuration***

| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 2/6 |

## USB-C 5 V input, bypass and protection

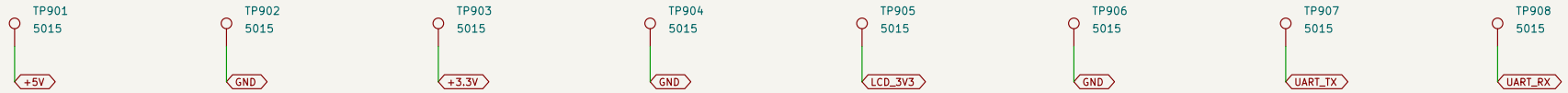
Power only: USB data is not connected. Follow +5V to the host, reader and display regulator.




USB-C sink identification
R301 / R302: 5.1 kOhm to GND
Each CC pin has its own pull-down.

Input bypass and transient protection
C301: 100 nF; C302: 10 uF
D301: SMF5.0CA TVS across the 5 V rail.

### FACTORY-ASSEMBLED SERVICE POINTS: Keystone 5015 / C2906768




TP901 / TP902 replace the optional J302 header: regulated 5 V bench input only. Disconnect all USB power before injection.
No source selection or reverse-polarity protection. Use current limiting; probe loops are not a strain-relieved power connector.
TP903-TP908 are in the rear service areas: 3.3 V rails, host UART and local grounds. All eight loops are factory SMT placements.

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

Sheet: /Power/
File: Power.kicad_sch

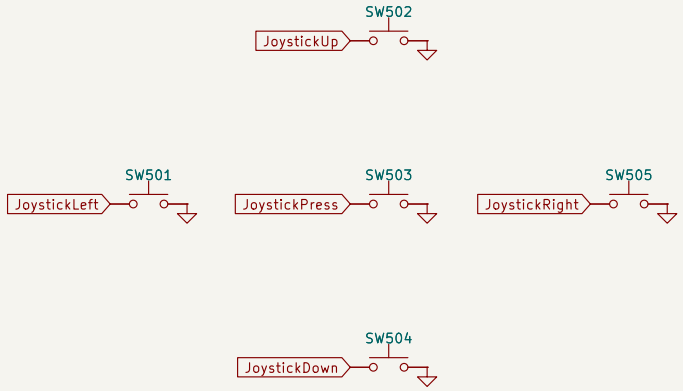
***Title: USB-C power input and protection***

| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 3/6 |

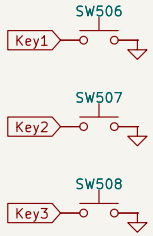
## User controls: five navigation contacts + three keys

Every switch pulls its named host signal to GND when pressed. Configure host pull-ups and software debounce.

### NAVIGATION




### ACTION KEYS




SW501–SW508: C&K PTS636SK25SMTRLFS momentary switches.
The placement below follows the physical control arrangement. Net names match the host sheet.

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

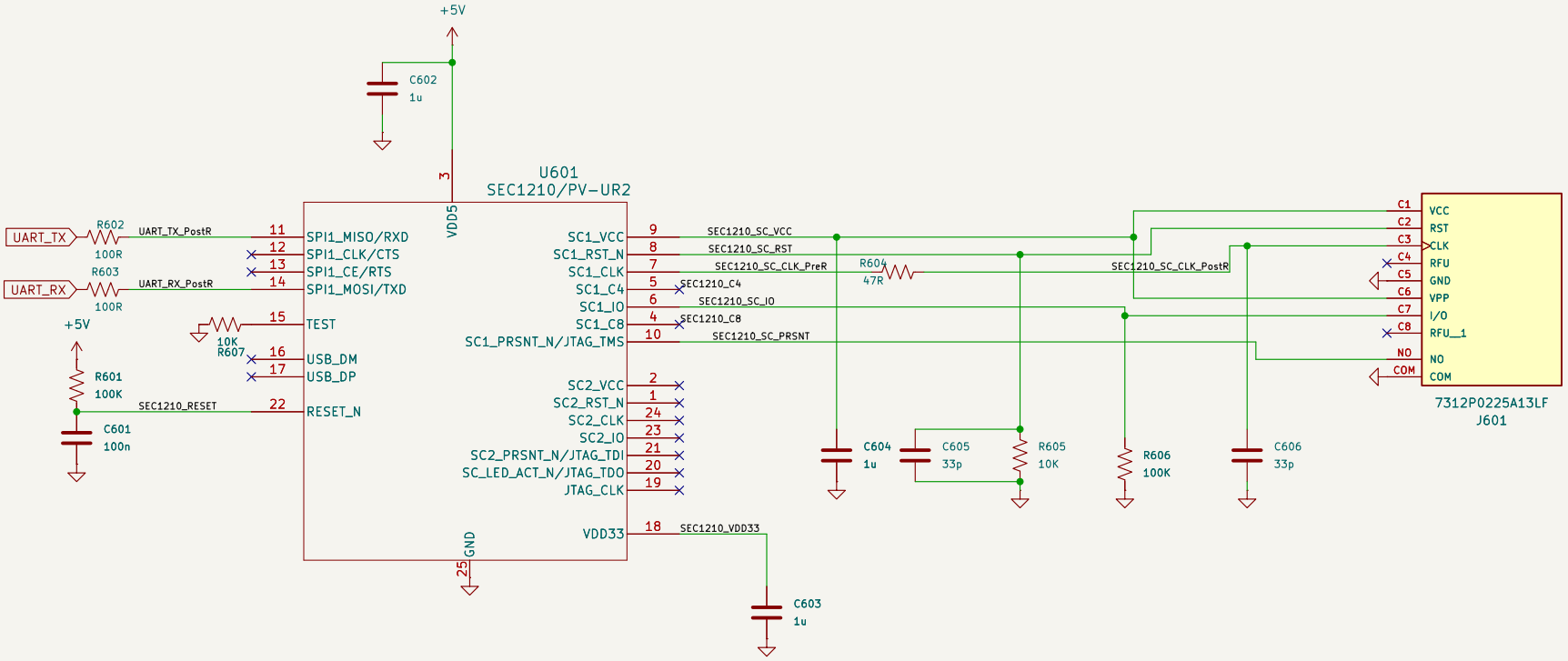
Sheet: /Buttons/
File: buttons.kicad_sch

***Title: Navigation and action keys***

| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 4/6 |

# SEC1210 UART reader and smartcard contacts

Host UART at left; card channel 1 at right. Channel 2, USB and JTAG pins are intentionally unused.




RESET AND TEST
R601 / C601: reset pull-up and delay
R607: TEST pull-down

LOCAL BYPASS
C602: 5 V input, 1 uF
C603: VDD33 output, 1 uF
C604: card supply, 1 uF

CARD INTERFACE
R604: 47 Ohm clock series damping
C605 / C606: 33 pF; R605 / R606: bias
J601: combined SIM / full-size card socket

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

Sheet: /Smartcard Interface/
File: smartcard_reader.kicad_sch

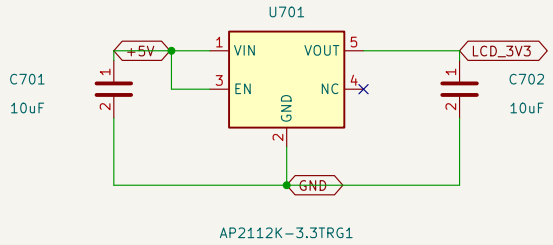
***Title: SEC1210 UART smartcard reader***

| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 5/6 |

# Eight-pin SPI display and dedicated 3.3 V supply

J701 is the module header, not a 40-pin bare-panel FPC. Display power is independent of the Luckfox 3.3 V output.

## DISPLAY SUPPLY

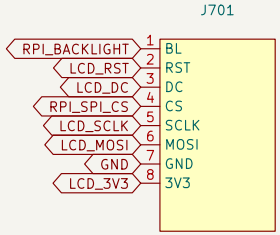



AP2112K-3.3TRG1

C701 / C702: 10 uF, 25 V X5R
Maintain at least 1 uF effective capacitance.
Measure regulator dissipation during bring-up.

Factory straps: JP201 / JP203 / JP205 closed; JP202 / JP204 / JP206 open.
Backlight is always on. The separate PWM candidate has different hardware; see its own schematic.

## J701: CARRIER PIN NUMBERS




LCD SPI 8-pin

MODULE MATING / NUMBERING
Carrier pin 1 (BL) mates to module J1 pin 8 (BL_E).
Carrier pin 8 (3V3) mates to module J1 pin 1 (VCC).
Use the 2.54 mm J1 row, not the 2 mm J2 connector.

Prototype: physical fit, powered operation and assembly not qualified
Derived from 3rdIteration/SeedSigner; original design: Stephen Rothy
**ShieldSigner / LightningSpore**

Sheet: /SPI LCD + dedicated power/
File: lcd_module.kicad_sch

***Title: Eight-pin SPI display and regulator***

| Size: A4 | Date: 2026-11-08 | **Rev: 0.0.11-dev** |
|---|---|---|
| KiCad E.D.A. 10.0.7 | | Id: 6/6 |