



UI_BUTTON

OUT_12

OUT_13

OUT_14

OUT_15

ANA_12

ANA_13

ANA_14

ANA_15

File: UI_BUTTON.kicad_sch

UI_LED

LED_DATA_IN

LED_DATA_OUT

File: UI_LED.kicad_sch

MCU

LED_DATA_OUT

HWCFG_SHIFT

HWCFG_CLOCK

HWCFG_DATA

File: MCU.kicad_sch

Sheet5D7C8BFD

ANA_0

ANA_1

ANA_4

ANA_5

ANA_8

ANA_9

ANA_12

ANA_13

IN_0

IN_1

IN_2

IN_3

IN_4

IN_5

IN_6

IN_7

OUTD

ADDRESS_A

ADDRESS_B

ADDRESS_C

ESP_GPIO_1

ESP_GPIO_18

ESP_GPIO_37

ESP_GPIO_36

ESP_GPIO_35

File: UI_MUX.kicad_sch

sheet5D8763D6

ANA_2

ANA_3

ANA_6

ANA_7

ANA_10

ANA_11

ANA_14

ANA_15

IN_0

IN_1

IN_2

IN_3

IN_4

IN_5

IN_6

IN_7

OUTD

ADDRESS_A

ADDRESS_B

ADDRESS_C

ESP_GPIO_2

ESP_GPIO_5

ESP_GPIO_4

ESP_GPIO_3

File: UI_MUX.kicad_sch

HWCFG

HWCFG_SHIFT

HWCFG_CLOCK

HWCFG_DATA

File: HWCFG.kicad_sch

Common Sheets:

500 GRID

600 USB_POWER

700 MCU

Module Specific:

800 HWCFG

900 LED

1000 UI

Sheet: /

File: PCBA-PBF4.kicad_sch

Title:

Size: A3

Date:

Rev:

KiCad E.D.A. kicad-cli 7.0.11+1

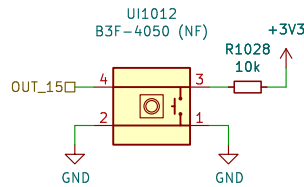
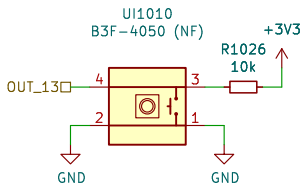
Id: 1/10

1000



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Simulation:
<http://tinyurl.com/y229mt4>



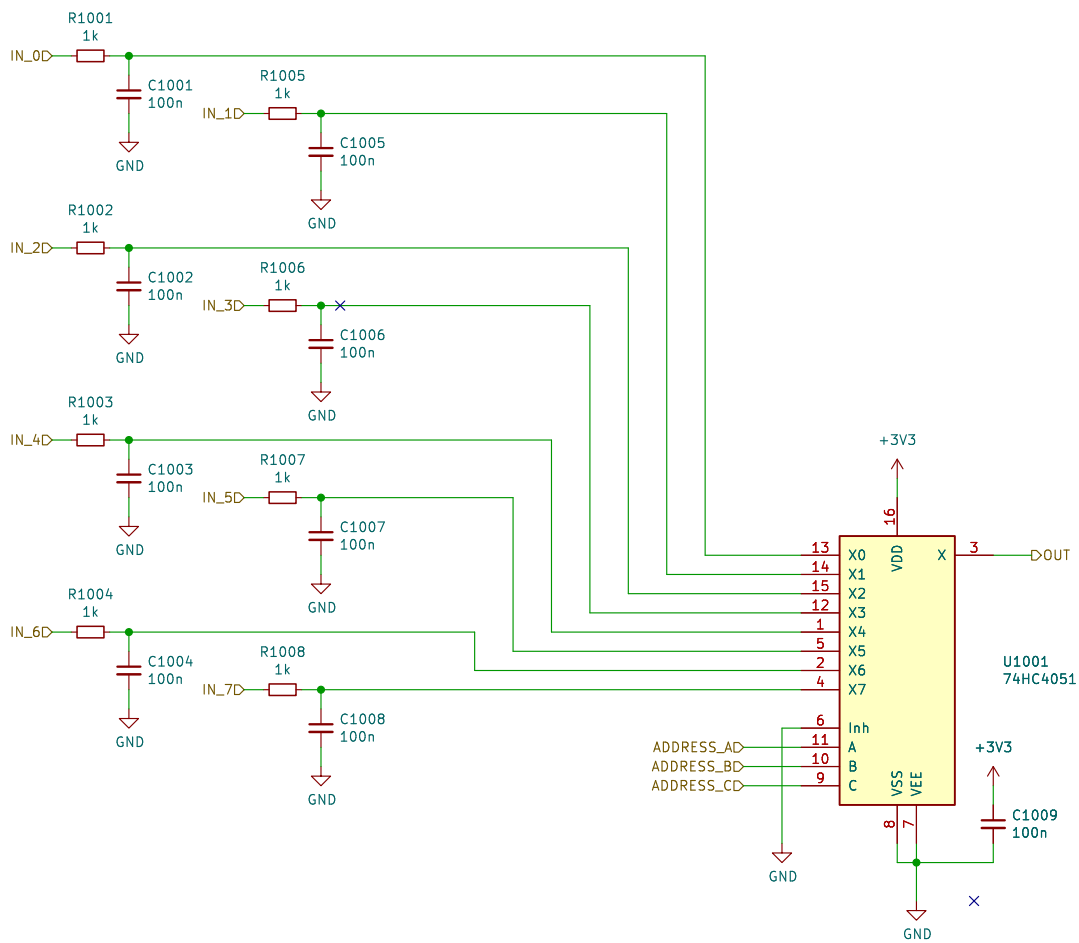
Sheet: /UI_BUTTON/ File: UI_BUTTON.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad-cli 7.0.11+1		Id: 3/10

900

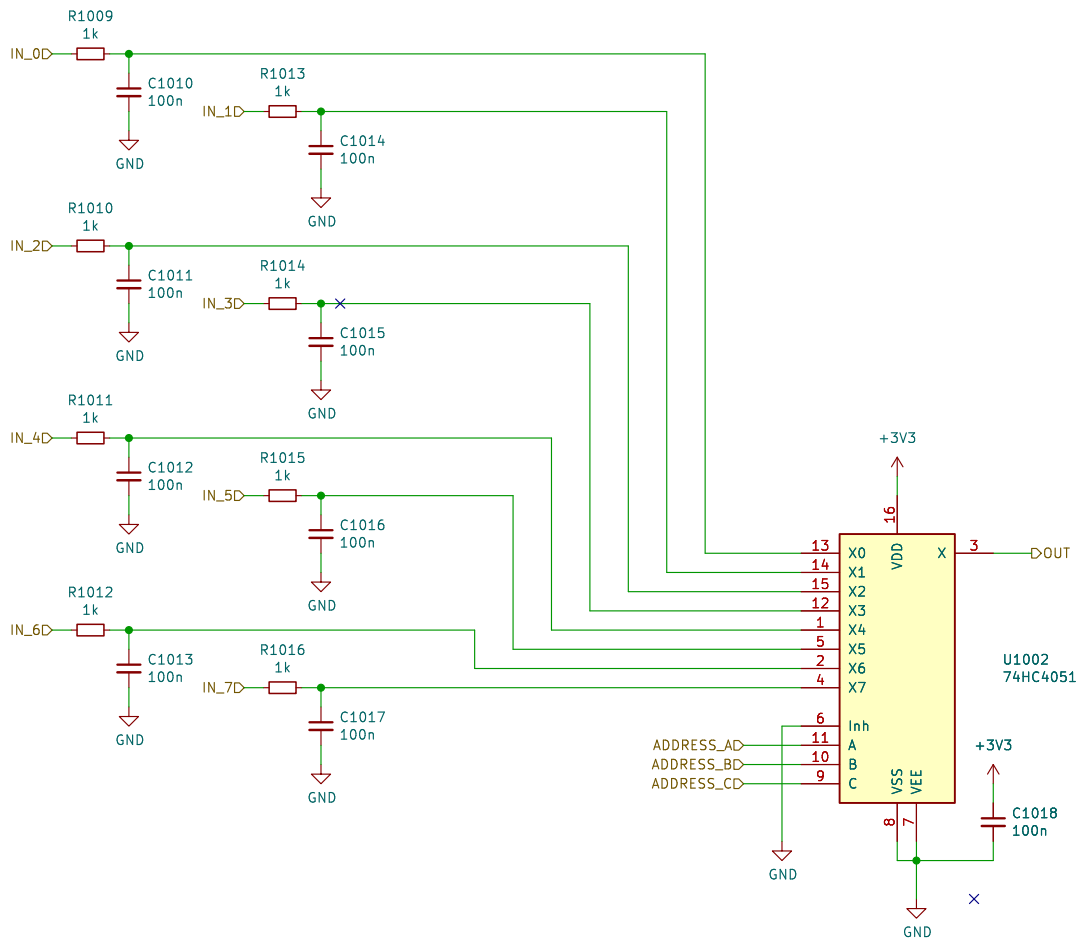


Sheet: /UI_LED/ File: UI_LED.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad-cli 7.0.11+1		Id: 4/10

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500

GRID Connector
Bi-Directional Data
2x SYNC

Board Mounting Pattern



Sheet: /MCU/sheet5D85C9EA/ File: GRID.kicad_sch		
Title:		
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600

ESD Diodes
ESD protection for all of the externally accessible nets.

+3V3 LDO Regulators
Regulators for generating independent power rails for the microcontroller and the user interface.

Components and Connections:

- U601:** USB connector (C5451661) with pins 1-6 connected to USB_DATA_P, USB_DATA_N, and GND.
- U602:** LDO regulator (LN1134A332MR-G) with IN connected to VBUS, EN connected to GND, and OUT connected to +3V3.
- J601:** USB Type-C connector (TYPE-C-32-M-12) with pins A9B4, A4B9, A5, B5, A7, B7, A6, B6, A8, B8, A1B12, and A12B1 connected to VBUS, USB_DATA_P, USB_DATA_N, PWR_FLAG, and GND.
- Passive Components:**
 - R601, R602:** 5k1 resistors connected to GND.
 - R603:** 1M resistor connected to GND.
 - C601:** 1uF capacitor connected to GND.
 - C602:** 1uF capacitor connected to GND.
 - C603:** 4n7 capacitor connected to GND.

Net Labels: VBUS, USB_DATA_P, USB_DATA_N, GND, PWR_FLAG, +3V3, UI.

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4	5	6

800



Board Identification

Grid firmware can identify the hardware and the board revision through a 3 wire serial interface using one or more shift register as read only memory. The content of the memory is defined by pulling the inputs high or low through pcb traces or solderable configuration jumpers.

4b'Model + 4b'Revision + nb'Reserved (Multiple shift registers)

- D0: MODEL (LSB)
- D1: MODEL
- D2: MODEL
- D3: MODEL (MSB)
- D4: REVISION (LSB)
- D5: REVISION
- D6: REVISION
- D7: REVISION (MSB)

Model Codes (D3–D0):

- Po16 0000
- Bo16 0001
- PBF4 0010
- EN16 0011
- ...

Revision Codes (D7–D4):

- RevA 0000
- RevB 0001
- RevC 0010
- RevD 0011
- ...

Sheet: /HWCFG/ File: HWCFG.kicad_sch		
Title:		
Size: A4	Date:	Rev:
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