



UI_POT

OUT_0

OUT_1

OUT_2

OUT_3

OUT_4

OUT_5

OUT_6

OUT_7

OUT_8

OUT_9

OUT_10

OUT_11

OUT_12

OUT_13

OUT_14

OUT_15

ANA_0

ANA_1

ANA_2

ANA_3

ANA_4

ANA_5

ANA_6

ANA_7

ANA_8

ANA_9

ANA_10

ANA_11

ANA_12

ANA_13

ANA_14

ANA_15

File: UI_POT.kicad_sch

UI_BUTTON

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

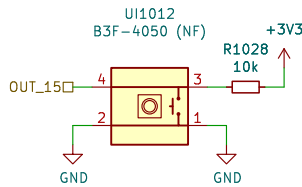
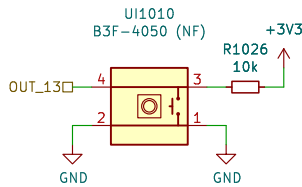
Id: 1/10

1000



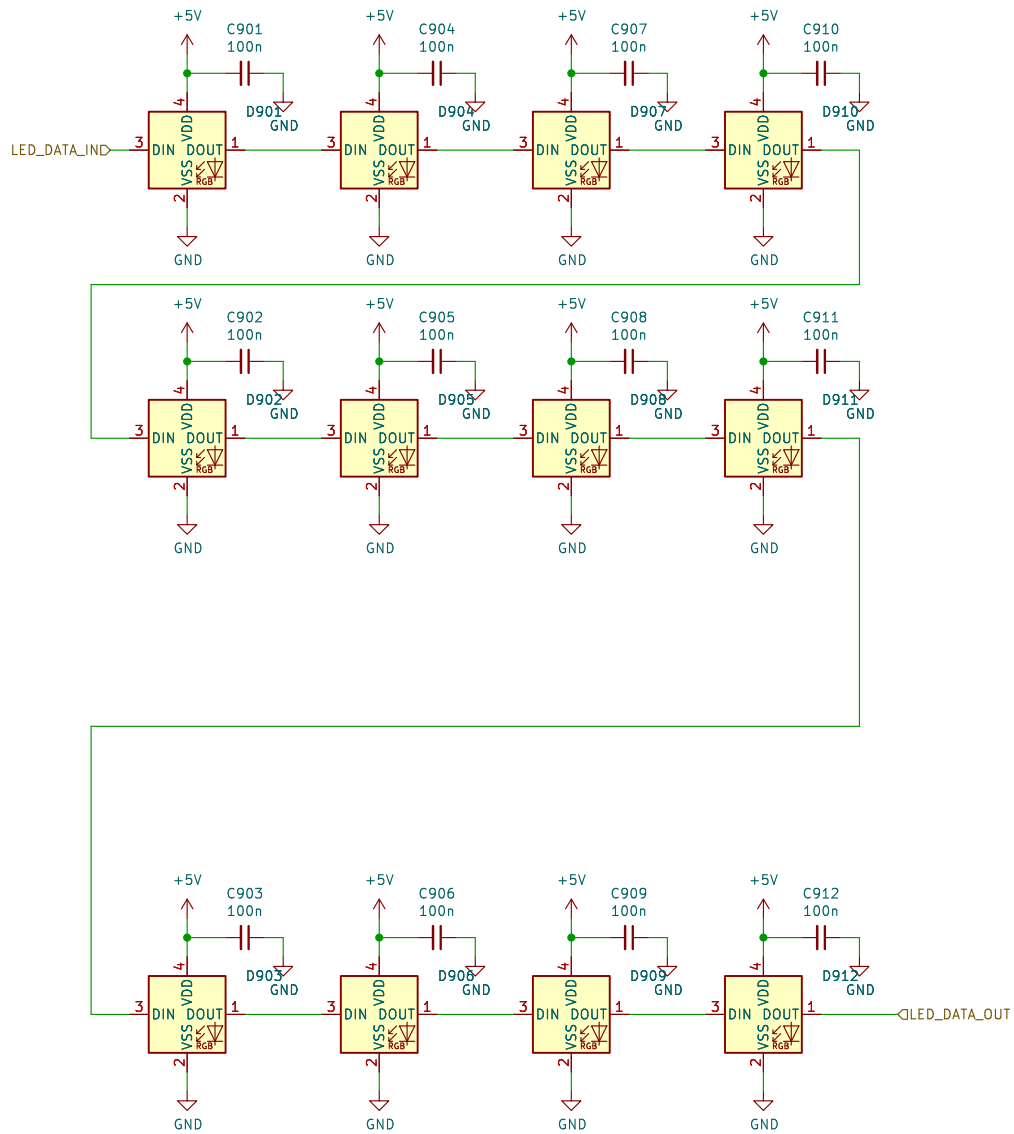
1000

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



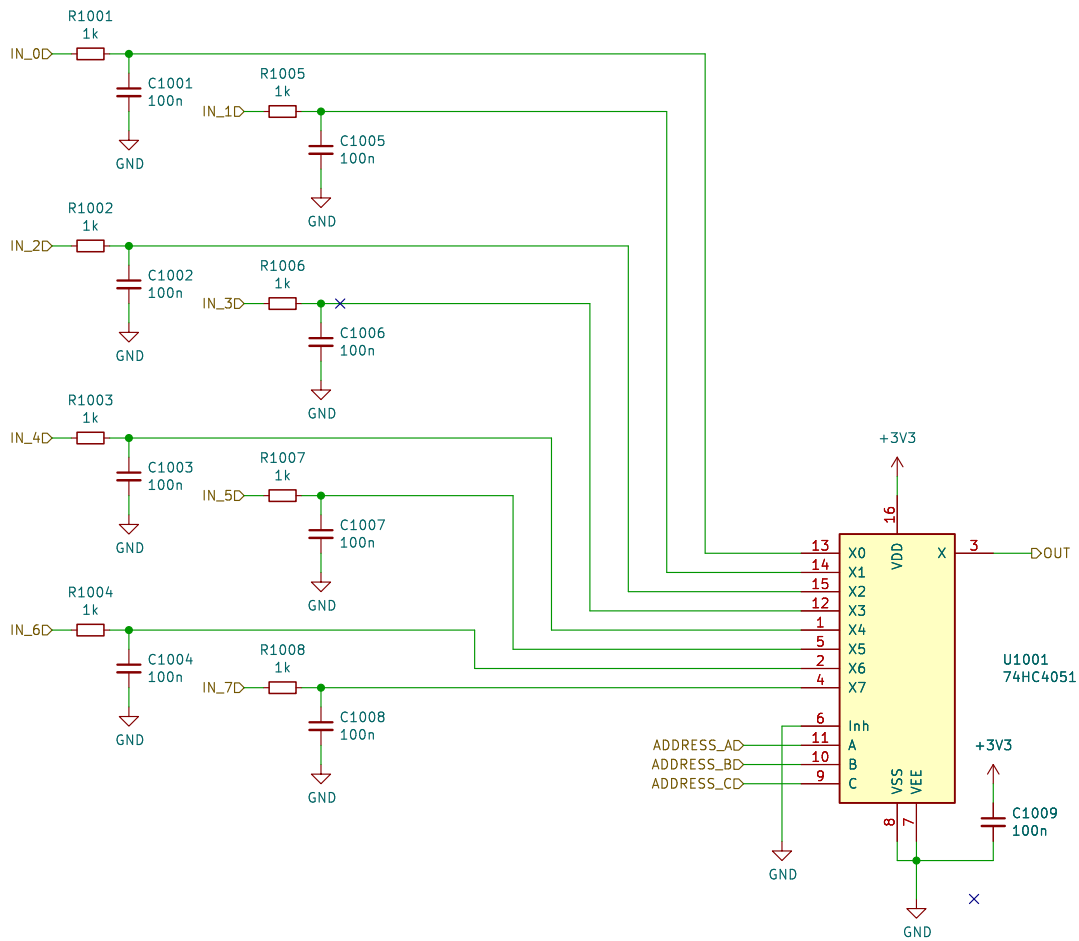
Sheet: /UI_LED/
File: UI_LED.kicad_sch

Title:

Size: A4	Date:
KiCad E.D.A. kicad-cli 7.0.11+1	

Rev:
Id: 4/10

1000



1000





500

GRID Connector
Bi-Directional Data
2x SYNC

Board Mounting Pattern



Sheet: /MCU/sheet5D85C9EA/ File: GRID.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad-cli 7.0.11+1		Id: 8/10

600

ESD Diodes

ESD protection for all of the externally accessible nets.

VBUS

USB_DATA_N

USB_DATA_P

GND

TP601 GND

TP602 VB

TP603 D-

TP604 D+

VBUS

USB_DATA_P

USB_DATA_N

+3V3 LDO Regulators

Regulators for generating independent power rails for the microcontroller and the user interface.

VBUS +5V

GZ2012D601TF L601

PWR_FLAG

U602 LN1134A332MR-G

IN EN

OUT NC

GND

1u

TP605

+3V3

UI

J601 TYPE-C-32-M-12

VBUS

VBUS

CC1

CC2

D-

D-

D+

D+

SBU1

SBU2

SHIELD

SHIELD

SHIELD

GND

GND

A9B4

A4B9

A5

B5

A7

B7

A6

B6

A8

BB

A1B12

A12B1

PWR_FLAG

GND

GND

R601 5k1

R602 5k1

C603 4n7

R603 1M

GND

GND

Sheet: /MCU/Sheet60F06FE1/
File: USB_POWER.kicad_sch

Title:

Size: A4 Date: Rev:

KiCad E.D.A. kicad-cli 7.0.11+1 Id: 9/10

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Size: A4	Date:	Rev:
KiCad E.D.A. kicad-cli 7.0.11+1		Id: 9/10
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:
KiCad E.D.A. kicad-cli 7.0.11+1		Id: 10/10