



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

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. 8.0.6

Id: 1/10

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Sheet: /UI\_POT/  
File: UI\_POT.kicad\_sch

**Title:**

Size: A4

Date:

**Rev:**

KiCad E.D.A. 8.0.6

Id: 2/10

1000

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



Sheet: /UI_BUTTON/ File: UI_BUTTON.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. 8.0.6	Id: 3/10	

# 900



Sheet: /UI\_LED/  
File: UI\_LED.kicad\_sch

**Title:**

Size: A4

Date:

KiCad E.D.A. 8.0.6

**Rev:**

Id: 4/10

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500

GRID Connector  
Bi-Directional Data  
2x SYNC

Board Mounting Pattern

M501 Conn\_01x08

J501 Conn\_01x04

J502 Conn\_01x04

J503 Conn\_01x04

J504 Conn\_01x04

J505 Conn\_01x04

J506 Conn\_01x04

J507 Conn\_01x04

J508 Conn\_01x04

GRID\_NORTH\_SYNC\_2

GRID\_NORTH\_RX

GRID\_NORTH\_TX

GRID\_NORTH\_SYNC\_1

GRID\_WEST\_SYNC\_1

GRID\_WEST\_TX

GRID\_WEST\_RX

GRID\_WEST\_SYNC\_2

GRID\_EAST\_SYNC\_2

GRID\_EAST\_RX

GRID\_EAST\_TX

GRID\_EAST\_SYNC\_1

GRID\_SOUTH\_SYNC\_1

GRID\_SOUTH\_TX

GRID\_SOUTH\_RX

GRID\_SOUTH\_SYNC\_2

+5V

GND

Sheet: /MCU/sheet5D85C9EA/  
File: GRID.kicad\_sch

Title:

Size: A4 Date: Rev:

KiCad E.D.A. 8.0.6 Id: 8/10

<b>Title:</b>		
Size: A4	Date:	<b>Rev:</b>
KiCad E.D.A. 8.0.6		Id: 8/10
4	5	6

Size: A4	Date:	Rev:
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KiCad E.D.A. 8.0.6	Id: 8/10
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Id: 8/10

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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.



Sheet: /MCU/Sheet60F06FE1/  
File: USB\_POWER.kicad\_sch

### Title:

Size: A4

Date:

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Rev:

Id: 9/10

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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. 8.0.6	Id: 10/10	