

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

MCU

HWCFG_SHIFT

HWCFG_CLOCK

HWCFG_DATA

File: MCU.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. 8.0.4

Id: 1/10

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Sheet: /UI_POT/
File: UI_POT.kicad_sch

Title:

Size: A4

Date:

KiCad E.D.A. 8.0.4

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



Sheet: /UI_BUTTON/ File: UI_BUTTON.kicad_sch		
Title:		
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KiCad E.D.A. 8.0.4	Id: 3/10	

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Sheet: /UI_LED/
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KiCad E.D.A. 8.0.4

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GRID Connector
Bi-Directional Data
2x SYNC

Board Mounting Pattern



Sheet: /MCU/sheet5D85C9EA/ File: GRID.kicad_sch		
Title:		
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The schematic diagram illustrates the power and data connections for a USB Type-C port. It includes a USB Type-C connector (J601) with pins for VBUS, CC1, CC2, D-, D+, SBU1, SBU2, and SHIELD. The VBUS line is connected to a 5V source and a 3V3 LDO regulator (U602). The LDO regulator is powered by a 5V source (GZ2012D601TF) and has a feedback pin connected to a 1uF capacitor (C601). The output of the LDO is connected to the VBUS line and a 3V3 output (UI). The CC1 and CC2 pins are connected to a 5k1 resistor (R601) and a 5k1 resistor (R602) respectively. The D- and D+ pins are connected to USB_DATA_N and USB_DATA_P lines. The SBU1 and SBU2 pins are connected to a 4n7 capacitor (C603) and a 1M resistor (R603) respectively. The SHIELD pins are connected to ground. The ESD protection diodes (U601) are connected to the VBUS, USB_DATA_N, and USB_DATA_P lines. The 3V3 LDO regulator (U602) is connected to the VBUS, GND, and 3V3 output. The schematic also shows a PWR_FLAG signal and a VBUS signal.

600

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

TP601 GND
TP602 VB
TP603 D-
TP604 D+
USB_DATA_P
USB_DATA_N
VBUS
GND

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

VBUS +5V
GZ2012D601TF L601
PWR_FLAG
C601 1u
U602 LN1134A332MR-G
IN EN NC OUT
GND
C602 1u
TP605 UI
+3V3
GND

J601 TYPE-C-32-M-12
VBUS
A9B4
A4B9
CC1 A5
CC2 B5
D- A7
D- B7
D+ A6
D+ B6
SBU1 A8
SBU2 BB
SHIELD A1B12
SHIELD A12B1
GND
PWR_FLAG
GND
GND
R601 5k1
R602 5k1
C603 4n7
R603 1M
GND
GND

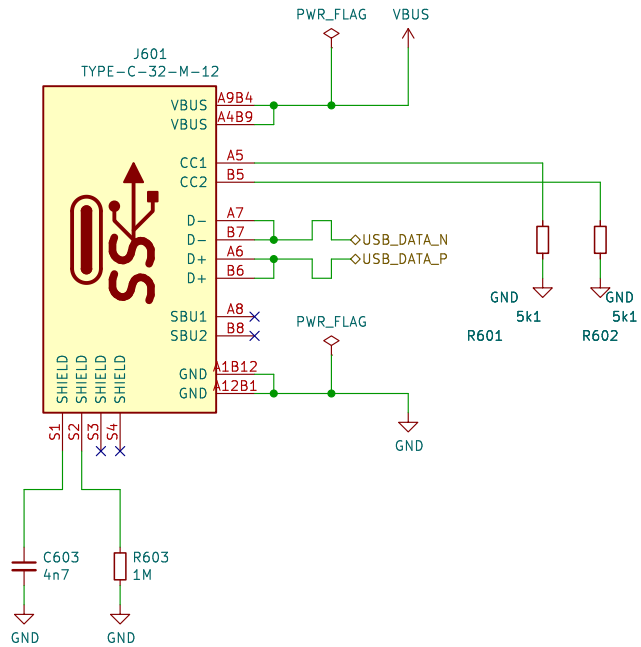
Sheet: /MCU/Sheet60F06FE1/
File: USB_POWER.kicad_sch

Title:

Size: A4 Date: Rev:

KiCad E.D.A. 8.0.4 Id: 9/10

ESD protection for all of the externally accessible nets.



Rev:
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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
- ...

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