

The diagram shows three parallel branches connected to a 5V supply. Each branch contains an LED and a current-limiting resistor. The components are labeled as follows:

- LED1** (Blue) in series with resistor **R1** ( $82\Omega$ ,  $1/8W$ ). The LED is labeled **LED\_Blue** and **D1**.
- LED2** (Yellow) in series with resistor **R2** ( $330\Omega$ ,  $1/8W$ ). The LED is labeled **LED\_Yellow** and **D2**.
- LED3** (Red) in series with resistor **R3** ( $220\Omega$ ,  $1/8W$ ). The LED is labeled **LED\_Red** and **D3**.

All three branches are connected to a common ground line labeled **GND**.

The Sensirion SHTC3 sensor measures both temperature and humidity.

Accuracy SHTC3:  
 $\pm 0.2^{\circ}\text{C}$  /  $\pm 2\%\text{RH}$

## Power

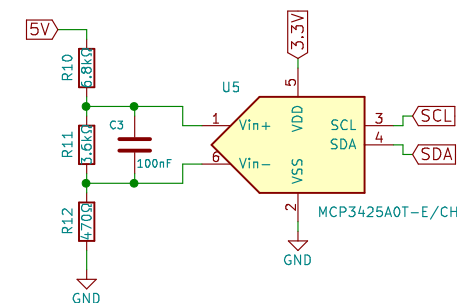
The board includes a 5V power input/output connector as well as a MP1584 or LM2596 step-down voltage regulator for 6.7–28V input.

Additionally, the parts are protected against voltage spikes by a resettable fuse and a TVS diode, and against reverse polarity by a MOSFET.

The diagram illustrates the power regulation circuit. It features two input connectors, J5 and J4, both providing VCC and GND. The GND lines are connected to a common ground. The VCC lines from J5 and J4 are connected to the IN+ pins of the MP1584\_MODULE (U4) and LM2596\_MODULE (U7) respectively. The EN pin of U4 is connected to the VCC line from J5. The OUT+ pins of both U4 and U7 are connected to the output of the power section, which is labeled '5V'. The OUT- pins of both U4 and U7 are connected to the common ground. A MOSFET D6 (SS14) is connected to the output of U4. A resettable fuse F1 (PolySwitch PTC) is connected to the output of U7. A TVS diode D5 (TVSD SMBJ5.0A) is connected to the output of U7. A MOSFET Q5 (Q\_PMOS\_GSD) is connected to the output of U7. A 10k resistor R13 is connected to the gate of Q5. The output of the power section is labeled '5V'.

The diagrams show the wiring for two I2C modules, J1 and J2. For J1, SDA (pin 1) is connected to 5V, SCL (pin 2) is connected to GND, and GND (pin 4) is connected to 3.3V. For J2, SDA (pin 1) is connected to 5V, SCL (pin 2) is connected to 3.3V, and GND (pin 4) is connected to GND.

This is a 16-Bit Analog-to-Digital Converter that is wired up to measure the Raspberry Pi supply voltage.



The schematic diagram illustrates the IC880A-SPI module, showing three components: U2B, U2C, and U2A.

**U2B (IC880A-SPI):** Pins 21 (VDD), 22 (GND), and 23 (VDDb) are shown. Pin 23 is connected to GND. A PWR\_FLAG signal is connected to pin 21.

**U2C (IC880A-SPI):** Pins 26 (GPS\_RX), 25 (GPS\_TX), and 24 (GND) are shown. Pin 24 is connected to GND.

**U2A (IC880A-SPI):** Pins 1-10 and 20-11 are shown. The connections are as follows:

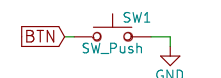
- Pin 1: GND
- Pin 2: NC
- Pin 3: nGPS\_Reset
- Pin 4: SPValid
- Pin 5: EN\_GPS\_Supply
- Pin 6: NC
- Pin 7: GPIO0
- Pin 8: GPIO3
- Pin 9: GPIO1
- Pin 10: GPIO2
- Pin 20: GND
- Pin 19: PPS
- Pin 18: ScanMode
- Pin 16: MOSI
- Pin 17: NSS
- Pin 15: MISO
- Pin 14: CLK
- Pin 13: Reset
- Pin 12: GND
- Pin 11: GPIO4

The diagram also shows the following connections:

- GPS\_RST (Pin 3) connected to GND.
- GPS\_SUP (Pin 5) connected to GND.
- PPS (Pin 19) connected to GND.
- MOSI (Pin 16) connected to MOSI.
- MISO (Pin 15) connected to MISO.
- CLK (Pin 14) connected to CLK.
- IC880A\_RST (Pin 13) connected to GND.

A simple button connected to GPIO12. It could be programmed to shut down the Rpi on button press.

Note that you need to enable the internal pull-up for the button to work.



Connector for a 5V DC fan with a flyback diode.

The diagram shows a 5V supply connected to pin 2 of connector J6. Pin 1 of J6 is connected to the anode of a 1N4148 diode (D4). The cathode of D4 is connected to pin 3 of connector J6. Pin 3 of J6 is also connected to the gate of an N-MOSFET (Q4, Q\_NM05\_GSD). The drain of Q4 is connected to pin 4 of connector J6. The source of Q4 is connected to ground. A 10k resistor (R9) is connected between the gate and the drain of Q4. The fan is connected between pin 4 of J6 and ground.

https://lora.vsb.cz  
Modified by Jiri Slezka / CIT SU  
**Coredump Rapperswil, https://coredump.ch/**

Sheet: /  
File: backplane.sch  
**Title: IC880A Raspberry Pi Backplane**

Size: A4	Date: 2019-10-14
KiCad E.D.A. kicad 5.1.4-3.fc30	

Rev: v2.1-2  
Id: 1/1