

The schematic diagram illustrates the power management section of the PCB. It features an input voltage divider (R1, R2) connected to a 1.5V source, which feeds into a DC-DC converter (U1, ACS712). The converter's output is filtered by a low-pass filter (U3, LM1117-3.3) and a high-pass filter (U4, AZ1117-5.0). The output of the high-pass filter is connected to a series of capacitors (C11-C36) and a diode (D1). The input voltage divider is also connected to a 1.5V source. The output of the DC-DC converter is connected to a 3.3V source. The output of the high-pass filter is connected to a 5V source. The output of the series of capacitors and diode is connected to a 1.5V source. The input voltage divider is also connected to a 1.5V source. The output of the DC-DC converter is connected to a 3.3V source. The output of the high-pass filter is connected to a 5V source. The output of the series of capacitors and diode is connected to a 1.5V source.

The diagram illustrates the internal components and connections of the LattePanda Alpha board. The central component is the **U4: lattepanda_alpha** module, which interfaces with various external devices and power sources.

Power and Ground Connections:

- Top Left:** A 5V regulator (IO4) provides power to the **DI** pin (pin 4) and the **VS VC** pin (pin 1). The **DO** pin (pin 2) is connected to an **LED1 ws2812b**. Ground connections are shown for pins 3, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75, 95, 96, 97, 98, 99, 100.
- Bottom Left:** A 5V regulator (IO5) provides power to the **D+** pin (pin 73) and the **VS VC** pin (pin 1). The **DO** pin (pin 2) is connected to an **LED1 ws2812b**. Ground connections are shown for pins 3, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75, 95, 96, 97, 98, 99, 100.

Peripheral Connections:

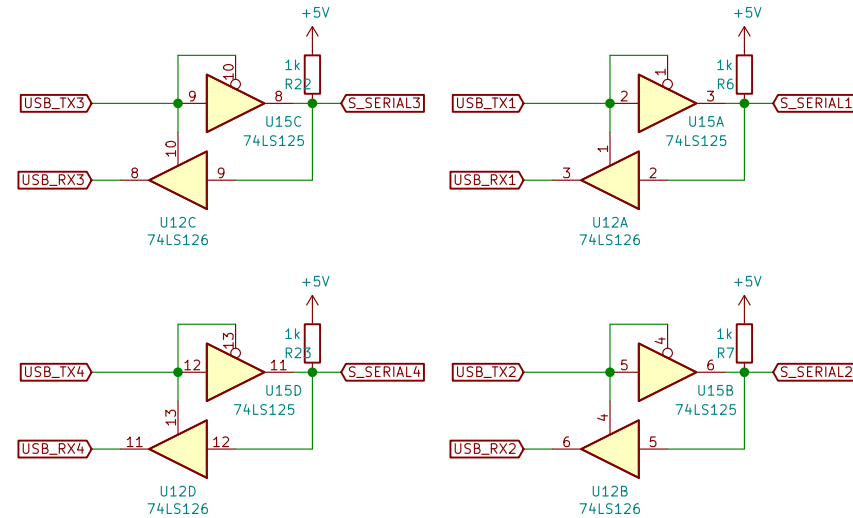
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- UARTs:** Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.

Internal Connections:

- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.
- GPIOs:** Pins 11-13 are connected to **S_MOSI**, **S_MISO**, and **S_SCK** respectively. Pins 14-15 are connected to **H_TX** and **H_RX**. Pins 16-17 are connected to **INT** and **S_CS**. Pins 18-19 are connected to **IO11** and **IO10**. Pins 20-21 are connected to **CUR_M** and **BAT_M**. Pins 22-23 are connected to **SW** and **SW**. Pins 24-25 are connected to **SW** and **SW**.

The schematic diagram illustrates the internal components and pin connections of the FT4232H module. The central component is the FT4232H IC, which is a USB-to-UART bridge. The diagram shows the following connections:

- Power Supply:** A +3V3 supply is connected to the FB1 and FB2 pins. The FB1 pin is connected to the VREGIN pin of the IC. The FB2 pin is connected to the VREGOUT pin of the IC. The VREGIN pin is also connected to a +3V3 supply. The VREGOUT pin is connected to a 50k resistor (C20) and then to the AGND pin.
- Resistors:** A 1k resistor (R2) is connected between the +3V3 supply and the DM pin (pin 7). A 100k resistor (R3) is connected between the DM pin and the AGND pin. A 12k resistor (R10) is connected between the DP pin (pin 8) and the AGND pin.
- Capacitors:** Four capacitors are connected to the AGND pin: C2 (10uF), C3 (10uF), C8 (100nF), and C9 (100nF).
- IC Pins:** The IC has 51 pins in total. The pins are labeled as follows:
 - Pin 1: GND
 - Pin 2: OSCI
 - Pin 3: OSCO
 - Pin 4: VPHY
 - Pin 5: GND
 - Pin 6: REF
 - Pin 7: DM
 - Pin 8: DP
 - Pin 9: VPLL
 - Pin 10: AGND
 - Pin 11: GND
 - Pin 12: VCORE
 - Pin 13: GND
 - Pin 14: RESET
 - Pin 15: GND
 - Pin 16: GND
 - Pin 17: VCORE
 - Pin 18: GND
 - Pin 19: GND
 - Pin 20: VCCIO
 - Pin 21: GND
 - Pin 22: VCCIO
 - Pin 23: GND
 - Pin 24: VCCIO
 - Pin 25: GND
 - Pin 26: VCCIO
 - Pin 27: GND
 - Pin 28: VCCIO
 - Pin 29: GND
 - Pin 30: VCCIO
 - Pin 31: GND
 - Pin 32: VCCIO
 - Pin 33: GND
 - Pin 34: VCCIO
 - Pin 35: GND
 - Pin 36: VCCIO
 - Pin 37: GND
 - Pin 38: VCCIO
 - Pin 39: GND
 - Pin 40: VCCIO
 - Pin 41: GND
 - Pin 42: VCCIO
 - Pin 43: GND
 - Pin 44: VCCIO
 - Pin 45: GND
 - Pin 46: VCCIO
 - Pin 47: GND
 - Pin 48: VCCIO
 - Pin 49: VREGOUT
 - Pin 50: VREGIN
 - Pin 51: GND
- External Connections:** The IC has several external connections:
 - Pin 1: GND
 - Pin 2: OSCI
 - Pin 3: OSCO
 - Pin 4: VPHY
 - Pin 5: GND
 - Pin 6: REF
 - Pin 7: DM
 - Pin 8: DP
 - Pin 9: VPLL
 - Pin 10: AGND
 - Pin 11: GND
 - Pin 12: VCORE
 - Pin 13: GND
 - Pin 14: RESET
 - Pin 15: GND
 - Pin 16: GND
 - Pin 17: VCORE
 - Pin 18: GND
 - Pin 19: GND
 - Pin 20: VCCIO
 - Pin 21: GND
 - Pin 22: VCCIO
 - Pin 23: GND
 - Pin 24: VCCIO
 - Pin 25: GND
 - Pin 26: VCCIO
 - Pin 27: GND
 - Pin 28: VCCIO
 - Pin 29: GND
 - Pin 30: VCCIO
 - Pin 31: GND
 - Pin 32: VCCIO
 - Pin 33: GND
 - Pin 34: VCCIO
 - Pin 35: GND
 - Pin 36: VCCIO
 - Pin 37: GND
 - Pin 38: VCCIO
 - Pin 39: GND
 - Pin 40: VCCIO
 - Pin 41: GND
 - Pin 42: VCCIO
 - Pin 43: GND
 - Pin 44: VCCIO
 - Pin 45: GND
 - Pin 46: VCCIO
 - Pin 47: GND
 - Pin 48: VCCIO
 - Pin 49: VREGOUT
 - Pin 50: VREGIN
 - Pin 51: GND



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