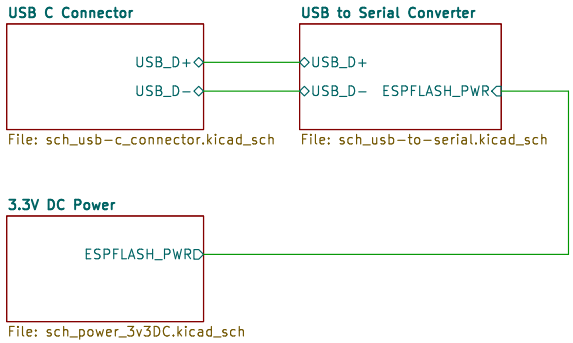
YAOEF (Yet Another Open ESP Flasher)

Issued 2025-03-20

Status: PROTOTYPE

Rev 1.1

PROJECT ARCHITECTURE



PROJECT DESCRIPTION

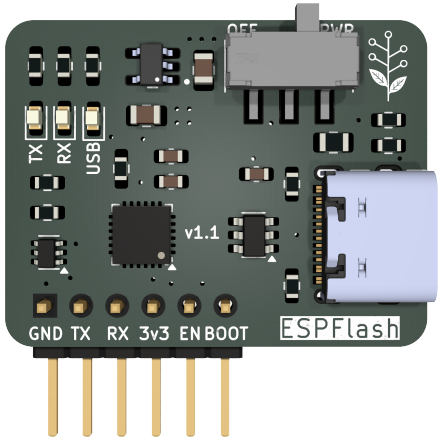
A design for a simple "dongle" for flashing ESP32 based devices that have the ESPFlash header implemented (per Jon Oxer, SuperHouse. Ref http://superhouse.tv/espflash).

Why build USB capabilities into every ESP32 design when a simple header will suffice? Saves on parts count, additional footprint, etc. The dongle supports auto-programming logic. A power switch allows the dongle to be used for serial debugging when under circuit power (I.e., turn the switch off to disable USB power to ESPFlash header).

PROJECT NOTES

N/a

TOP VIEW



DESIGN NOTES KEY

DESIGN NOTE:

Example text for informational design notes.

DESIGN NOTE:

Example text for cautionary design notes.

DESIGN NOTE:

Example text for critical design notes.

LAYOUT NOTE:

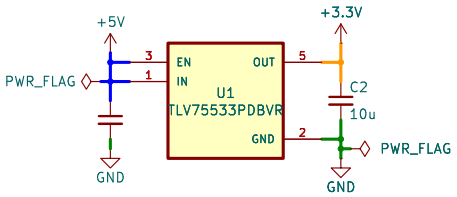
Example text for critical layout guidelines.

DRAFT – Very early stage of schematic, ignore details.
PRELIM – Close to final schematic.
PROTOTYPE – Untested in its built form.
TESTED – A board with this schematic has been built and tested.

Title: YAOEF (Yet Another Open ESP Flasher)			Wattle Labs
Sheet: / File: ESPFlash.kicad_sch			
Rev: 1.1	Date: 2025-03-20	Id: 1/5	KiCad E.D.A. 9.0.1

[2] 3.3v DC Power Supply

LDO Linear Regulator



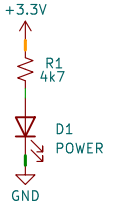
DESIGN NOTE:

VIN: 1.45 to 5.5V

VOUT: fixed 3.3V, max 500mA

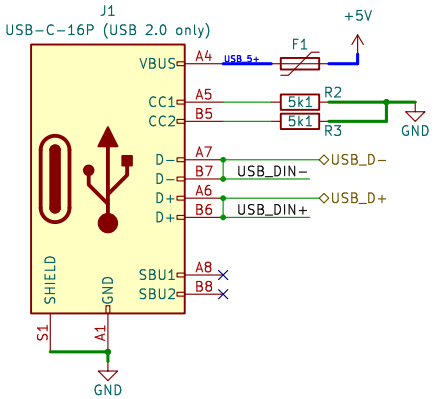
Power Switch to ESPFlash Header

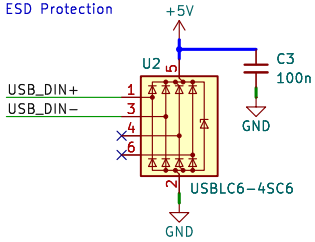
USB Power LED



Title: 3.3v DC Power Supply			Wattle Labs
Sheet: /3.3V DC Power/ File: sch_power_3v3DC.kicad_sch			
Rev: 1.1	Date: 2025-03-20	Id: 2/5	KiCad E.D.A. 9.0.1

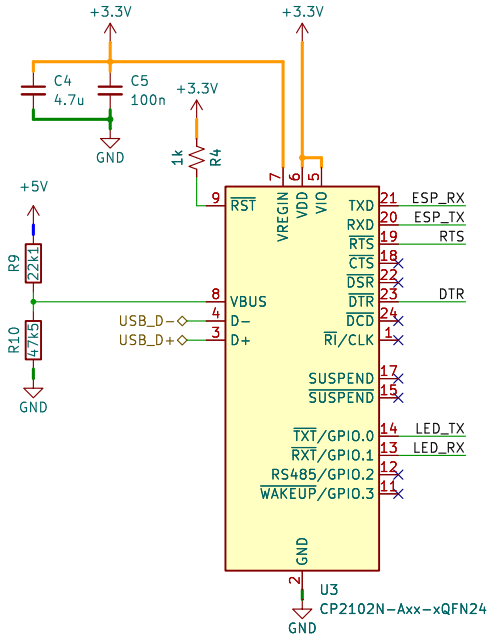
[3] USB C Connector & ESD Protection



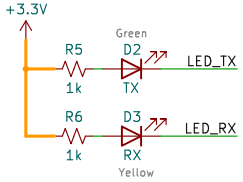


Title: USB C Connector & ESD Protection			Wattle Labs
Sheet: /USB C Connector/ File: sch_usb-c_connector.kicad_sch			
Rev: 1.1	Date: 2025-03-20	Id: 3/5	KiCad E.D.A. 9.0.1

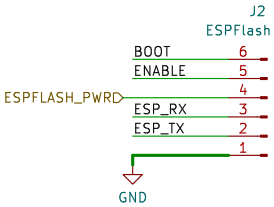
[4] USB to Serial Converter



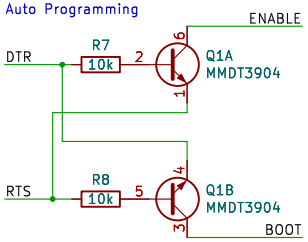
TX/RX LEDs



ESPFlash Header



Auto Programming



Title: USB to Serial Converter			Wattle Labs
Sheet: /USB to Serial Converter/ File: sch_usb-to-serial.kicad_sch			
Rev: 1.1	Date: 2025-03-20	Id: 4/5	KiCad E.D.A. 9.0.1

[5] Revision History

14-Mar-2025 - Rev 1.0
Status: Prototype

Initial version.

20-Mar-2025 - Rev 1.1
Status: Prototype

* Swapped LDO regulator for a SOT-23 device (previous was large SOT223). This opens up room on the board for a power switch.

* Added surface mount power switch to allow 3.3V to be disabled on ESPFlash header. Allows in circuit serial monitoring/flashing when circuit is under normal power.

* Added tear drops to vias and critical through-holes.

* Updated BOM entries to include DigiKey cut-tape options (and noted own stocked items).

xx-xxx-20xx - Rev 0.0
Status: ???

Title: Revision History			Wattle Labs
Sheet: /Revision History/ File: project history.kicad_sch			
Rev: 1.1	Date: 2025-03-20	Id: 5/5	KiCad E.D.A. 9.0.1