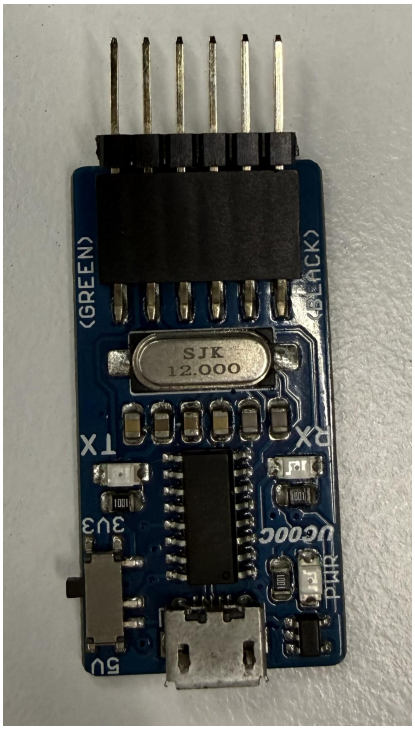
Procedure to Flash Alpha device

Prerequisites

Before starting, ensure you have the following:

- Download Flashing tool and latest firmware here -> Flashing Tool.zip
- Windows laptop/pc (recommended)
- microUSB cable
- Cytron USB-UART Converter UC00C (shown below)



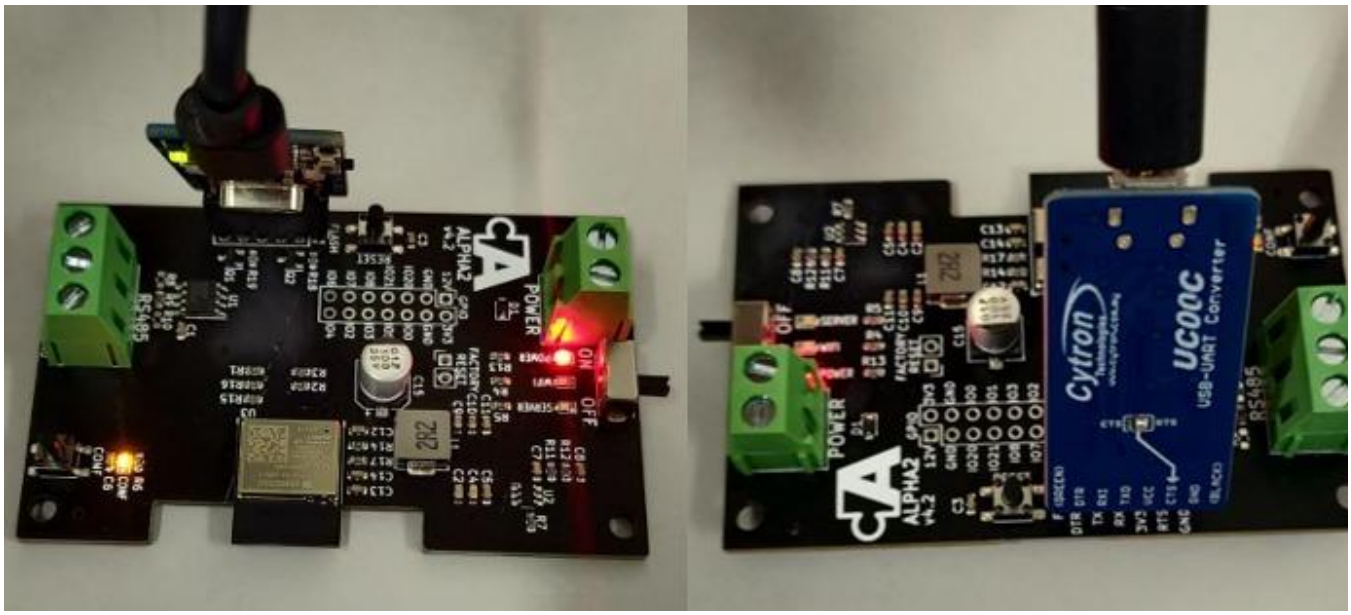
Flashing Procedure

1. The programmer pins must be exposed via male headers at a 2.54mm pitch

2. **Pin Order:** Ensure the pins are arranged in this specific sequence:
   1. DTR
   2. RX
   3. TX
   4. 3.3V
   5. RTS
   6. GND

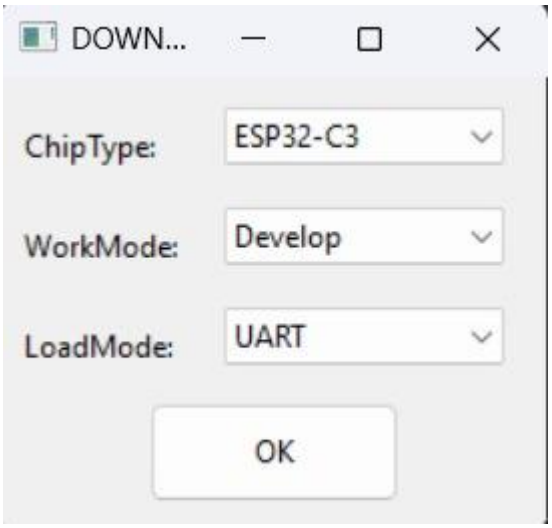
3. Insert the programmer into the flashing female port of the board, matching the pin names **except for TX and RX**, which are typically swapped.

4. Tilt the programmer at an angle to ensure a solid electrical connection with the port.



5. Open the downloaded **Espressif Flash Download Tool** (Flashing Tool -> flash_download_tool_3.9.4).

6. Upon opening the software, select the following settings:
   - **Chip Type:** ESP32-C3
   - **WorkMode:** Develop (for single board) or Factory (for multiple boards)
   - **LoadMode:** UART



7. Set the file paths at the following addresses:

File Name	Memory Address (Offset)
`bootloader_v2.bin`	0x0000

File Name	Memory Address (Offset)
`partitions_v2.bin`	0x8000
`boot_app0_v2.bin`	0xe000
`AlphaX_BASE_x.x.x.bin`	0x10000

> The files can be located at: Flashing Tool -> Firmware -> (select device model eg: Alpha1)

> PLEASE USE THE LATEST FILES PROVIDED IN THE ATTACHED FILE ABOVE

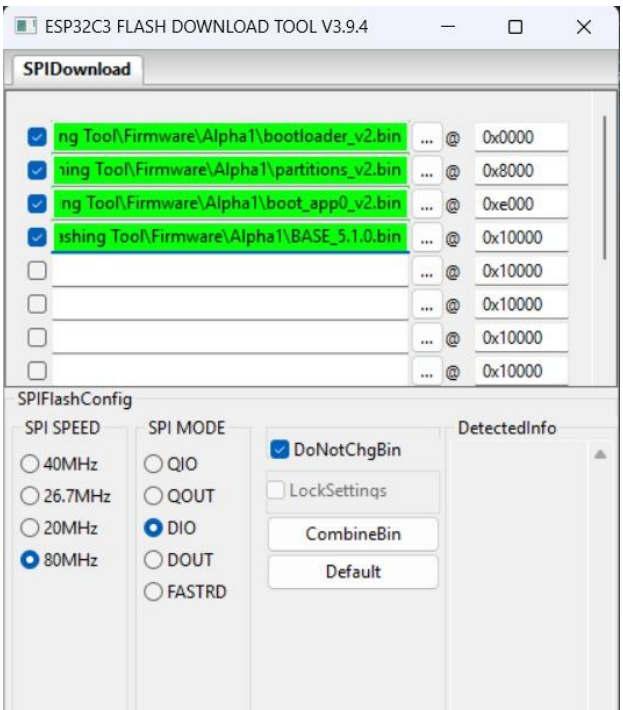
8. Configure the **SPI Flash Config** section as follows:
   - **SPI SPEED:** 80MHz
   - **SPI MODE:** DIO
   - **Baud Rate:** 921600

9. The flashing process:

   - For Single Boards:
     - Select the appropriate **COM port**
     - Click **"START"** to begin.
     - Monitor the progress bar as the upload proceeds.

   - For Multiple Boards (Factory Mode)
     - Uncheck **"LockSettings"** to modify configurations.
     - Assign the correct **COM port** for each attached programmer.
     - Re-check **"LockSettings"** to secure the configuration.
     - Click **"START ALL"** to flash all boards simultaneously.

> NOTE: It is recommended to ERASE the board first before re-flashing it. This can be done by pressing ERASE in the flashing tool before flashing.



Verification

Once the upload is complete, look for the following indicator on the board:

- The **blue, green, and yellow LEDs** will flash **twice** to signify a successful firmware upload
- The **blue** led will start blinking continuously indicating that device is ready to be setup and configured

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Revision #6
Created 14 January 2026 03:43:56 by Rahul
Updated 14 January 2026 05:17:44 by Rahul