

Icepi Zero Testing Guide

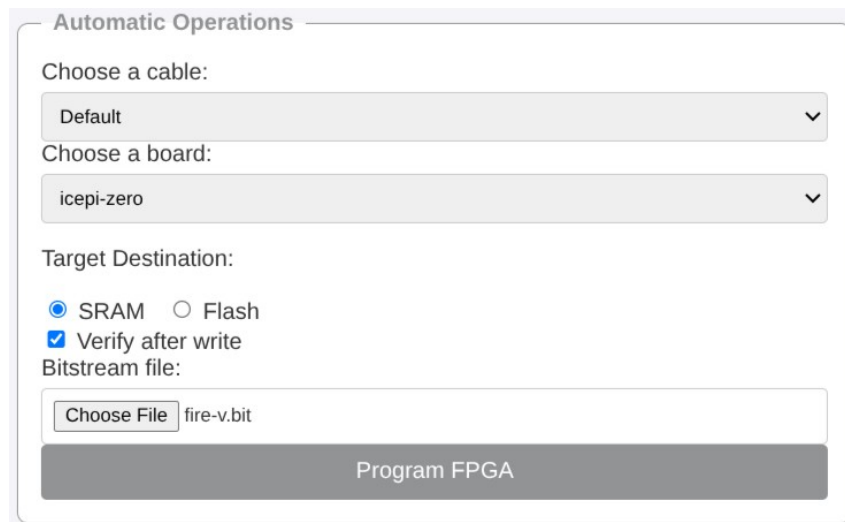
Setup

Download the following bitstream file:

<https://github.com/cheyao/icepi-zero/raw/refs/heads/main/documentation/fire-v.bit>

Testing

1. Plug in a USB-C data cable to the left-most USB port on the PCB. (One next to the HDMI port, labeled Flash). Connect the other end to a PC/laptop. Also use a micro-HDMI to HDMI cable to connect the HDMI port to a monitor.
2. Open <https://ofl.trabucayre.com/> in Google Chrome (Firefox does **NOT** work)
3. On the bottom left, in the “Automatic Operations” section, select the following options:

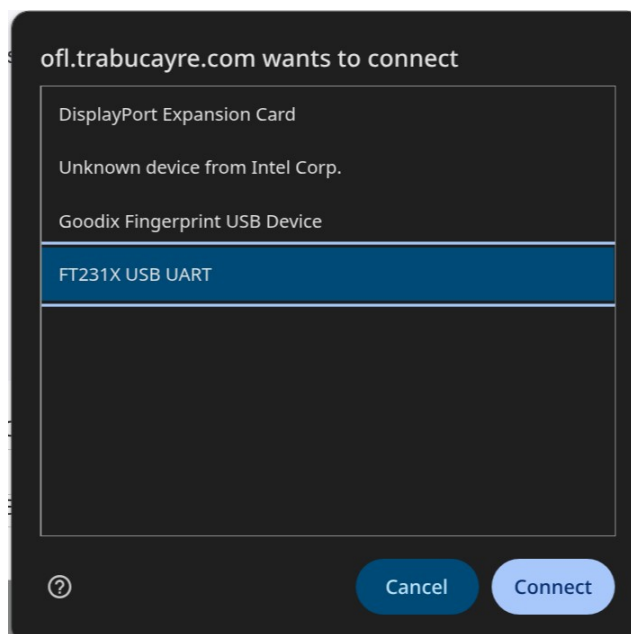


The screenshot shows the 'Automatic Operations' section of the web interface. It contains the following elements:

- Choose a cable:** A dropdown menu with 'Default' selected.
- Choose a board:** A dropdown menu with 'icepi-zero' selected.
- Target Destination:** Two radio buttons: 'SRAM' (selected) and 'Flash'.
- Verify after write:** A checked checkbox.
- Bitstream file:** A text input field containing 'fire-v.bit' and a 'Choose File' button to its left.
- Program FPGA:** A large grey button at the bottom.

(Click “Choose File” and select the fire-v.bit file downloaded during setup)

4. Click on “Program FPGA” and select “FT231X USB UART” in the popup menu and click connect:



6. Wait for a few seconds, “Done” should be written in “openFPGALoader Logs”:

openFPGALoader WEB interface

Important Notes:

- For Linux users, the 'ftdi_sio' driver must be unloaded: 'sudo modprobe -r ftdi_sio'
- Google Chrome must be used, as USB access is not supported by Firefox.

This page offers two ways to program an FPGA directly from a web browser:

- Manual Mode**: Requires openFPGALoader's arguments entered exactly as you would on a terminal.
- Automatic Mode**: A guided process where you can select:
 - The target board and/or cable from a list.
 - The bitstream destination (SRAM or Flash). A verification step can be optionally performed after writing to Flash.
 - The bitstream file to be programmed.

[openFPGALoader repository](#)
[openFPGALoader documentation](#)
[openFPGALoader_webUSB Repository sources](#)

Manual Operations

Command line args:
e.g., -c ft232rl -b ulx3s

Bitstream file:
 No file chosen

Automatic Operations

Choose a cable:
Default

Choose a board:
icepi-zero

Target Destination:
☒ SRAM ☐ Flash
☒ Verify after write

Bitstream file:
 fire-v.bit

openFPGALoader Command Line: openFPGALoader -b icepi-zero fire-v.bit

Operation Status

```
SpiOverJtag Bridge: Not required.  
Fetch SpiOverJtag Bridge: Not required  
Fetch fire-v.bit Bitstream: Done  
Execute openFPGALoader: Done
```

openFPGALoader Logs

```
Jtag frequency : requested 60000000Hz -> real 30000000Hz  
ret 0  
Open file: DONE  
b3bdffff  
Parse file: DONE  
Enable configuration: DONE  
SRAM erase: DONE  
Loading: [=====] 22.64%  
Loading: [=====] 44.51%  
Loading: [=====] 65.23%  
Loading: [=====] 86.34%  
Loading: [=====] 100.00%  
  
Done  
Disable configuration: DONE  
Execution completed in 4925ms
```

USB Status: **Connected**

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7. If the PCB works, you should see LEDs blinking and the following HDMI output on the monitor:

