User Manual
Web FPGA
By ALGOSUP Team 3

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Summary

INTRODUCTION

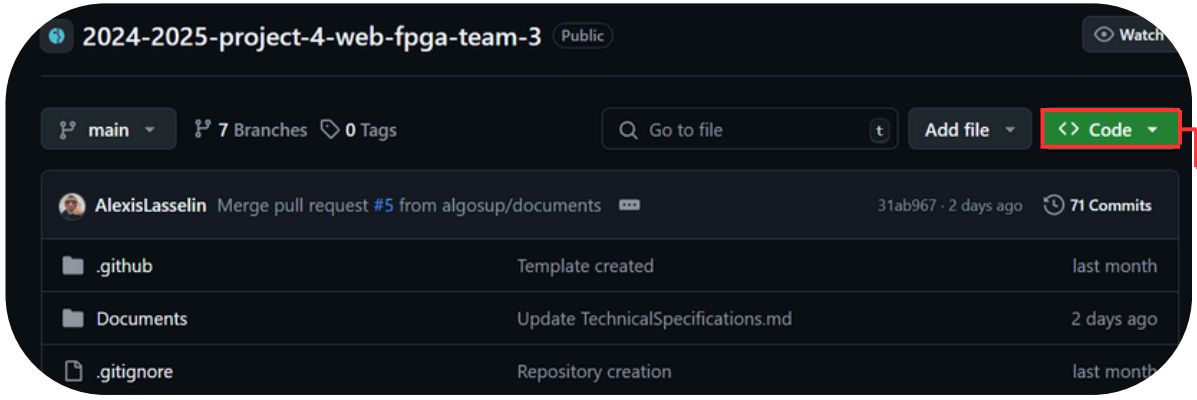
Welcome to Web FPGA!
In this project, you have access to a web interface that allows you to simulate various FPGA apps. It's simple, efficient, and especially designed to be informative. Whether you are an IT student or a teacher, this website makes FPGA learning more accessible than ever before.

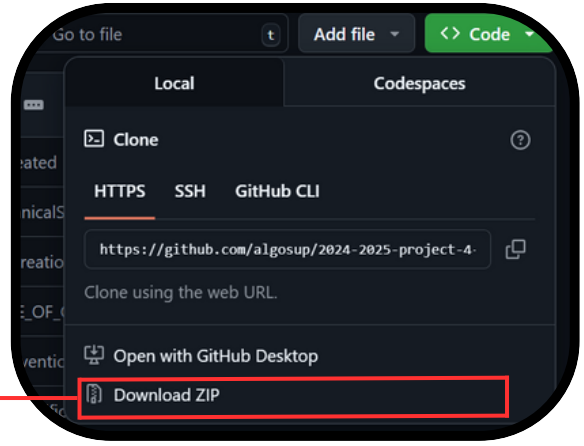
Let’s get started !

GitHub visit

First, you need to go to our Github page:

Setup

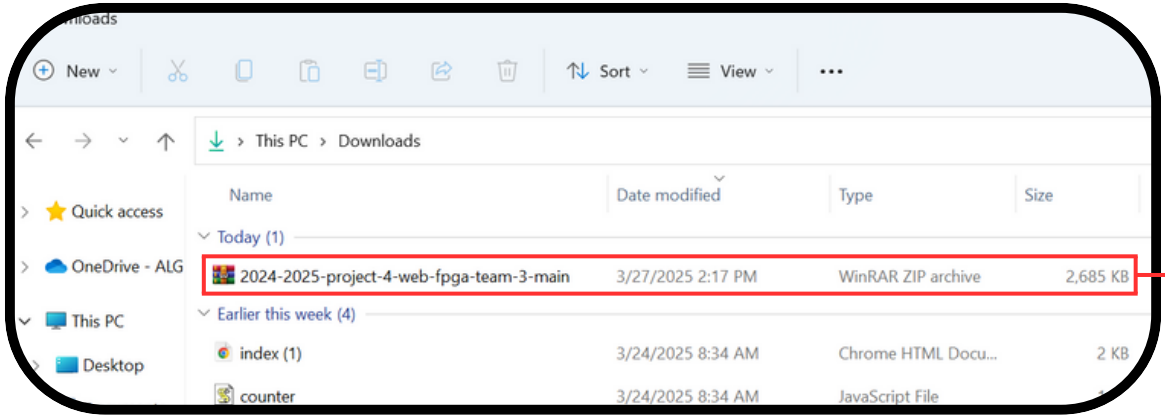




Download
Press the **Code** button and select **Download Zip** to obtain the repository.

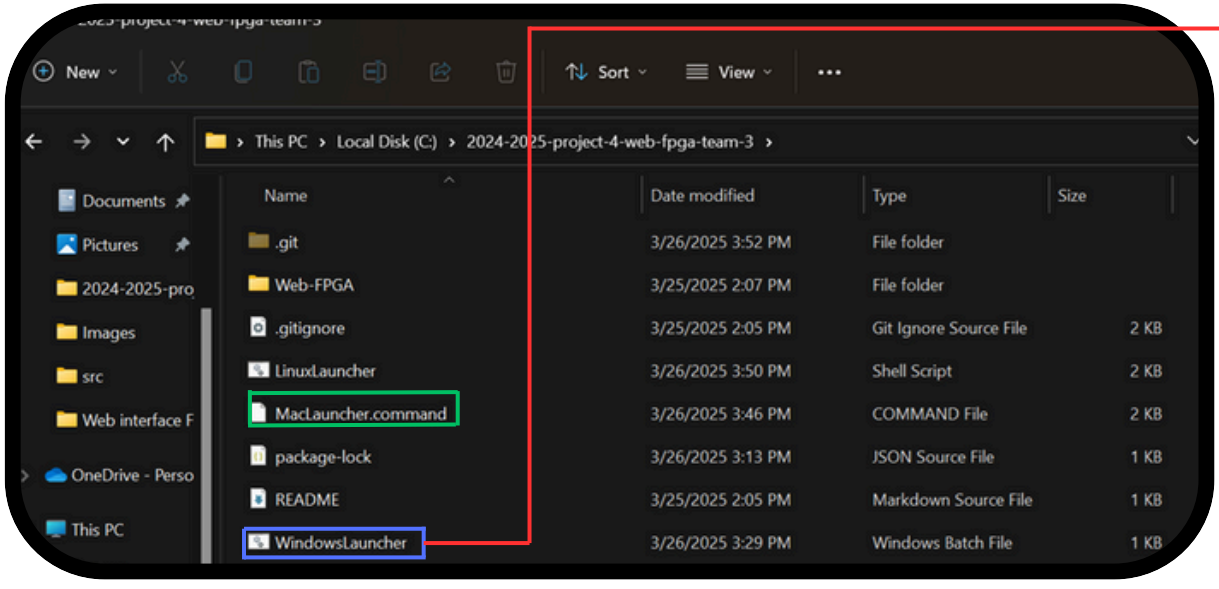
Let’s get started !

Extract files



Decompress
Once you have your .ZIP file, double-click here to extract its contents to access the necessary file.

Launch (Windows / macOS version)



Start
Open the launcher depending on your operating system, either **Windows** or **macOS**.

Address
You can access the website on your browser by entering the following address: **http://localhost:5173**

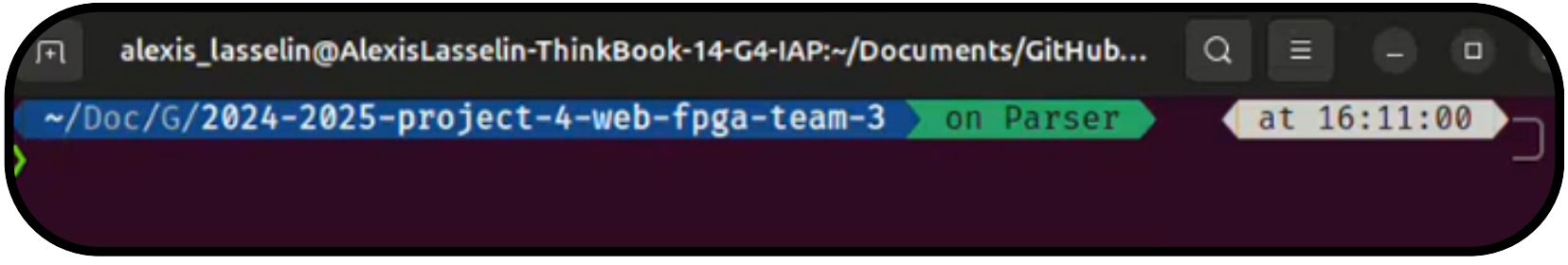
Warning
Do not modify or relocate any files within the folders. This could result in potential malfunctions.

Let’s get started !

Launch (LINUX version)

1. Launch your **Command prompt.**

2. Browse for the **repository path** (.../2024-2025-project-4-web-fpga-team-3).



3. Enter the following command:
chomd -x ./LinuxLauncher.sh

4. Enter the command **./LinuxLauncher.sh** to execute the Launcher.

5. Enter the following address in your browser:
http://localhost:XXXX

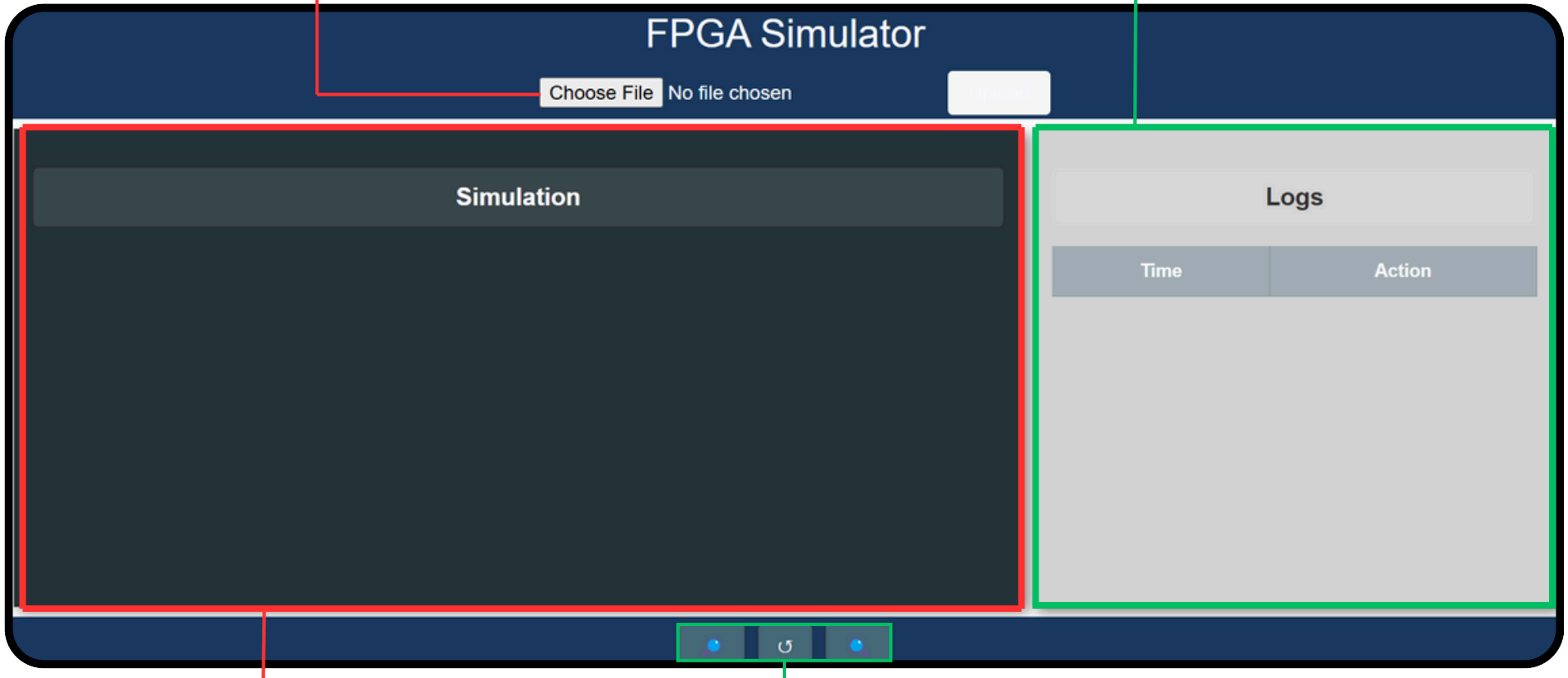
Note
*If you’re experiencing any issues or the launcher fails to execute, check our **Troubleshooting** section.*

Create a new simulation

Opening simulator

Choose file
To upload the file necessary for the simulation.

Logs
To display information about the simulation based on the time and step.



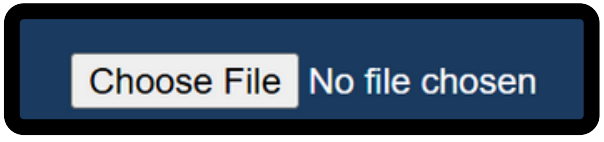
Main area
FPGA structure visualisation where the user can interact with the simulation.

Zoom view
To control the Zoom level of the FPGA simulation.

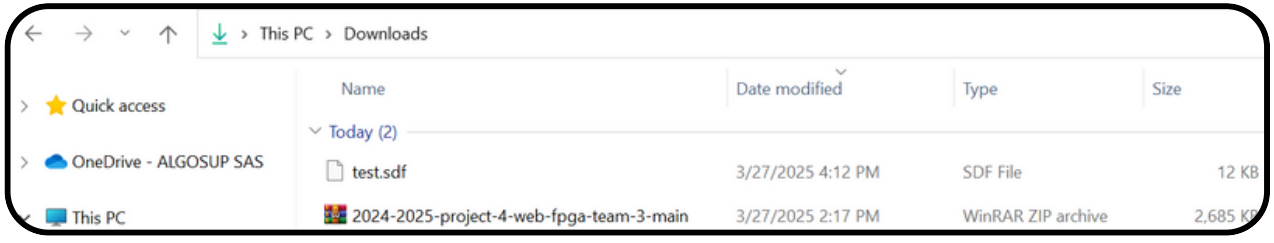
Create a new simulation

Uploading file

1. Click on **Choose File:**



2. Choose .sdf file on your file explorer:



3. Click on **Upload** to confirm:

The uploaded file will be converted into a JSON file for the machine to use and saved in its local cache.

Then, a newly rendered visualization of the original file will appear.

Important

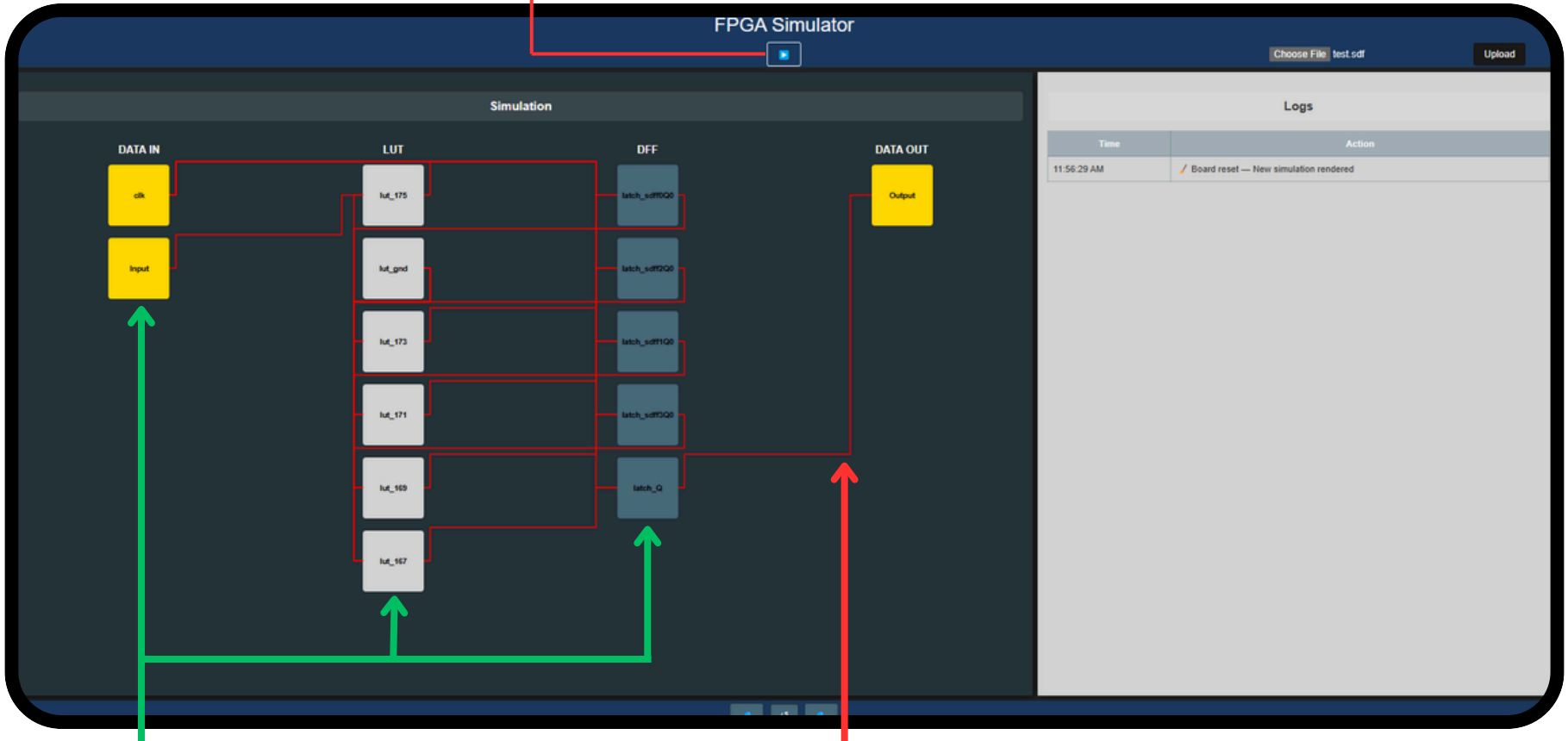
Make sure the file uses the .sdf extension.

Testing the simulation

Interface presentation

Button Panels*
Used to interact with the simulation.

Note *
Only the **Play button** is available in the actual version of this project.



Basic elements
The primary components of the circuit, including **LUTs** and **Flip-Flops**.

Signals routes
Routes that connect the basic elements of the circuit.

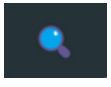
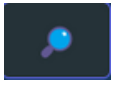
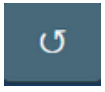
Testing the simulation

Play simulation

To use the simulation, click the **Play/Pause**  **button** to start or pause its execution.

Controlling zoom level

The zoom level of the simulation can be controlled with the following buttons:

	**Zoom In**	Increase the zoom level of the visualization.
	**Zoom Out**	Decrease the zoom level of the visualization.
	**View Reset**	Return to the original zoom level.

Panning

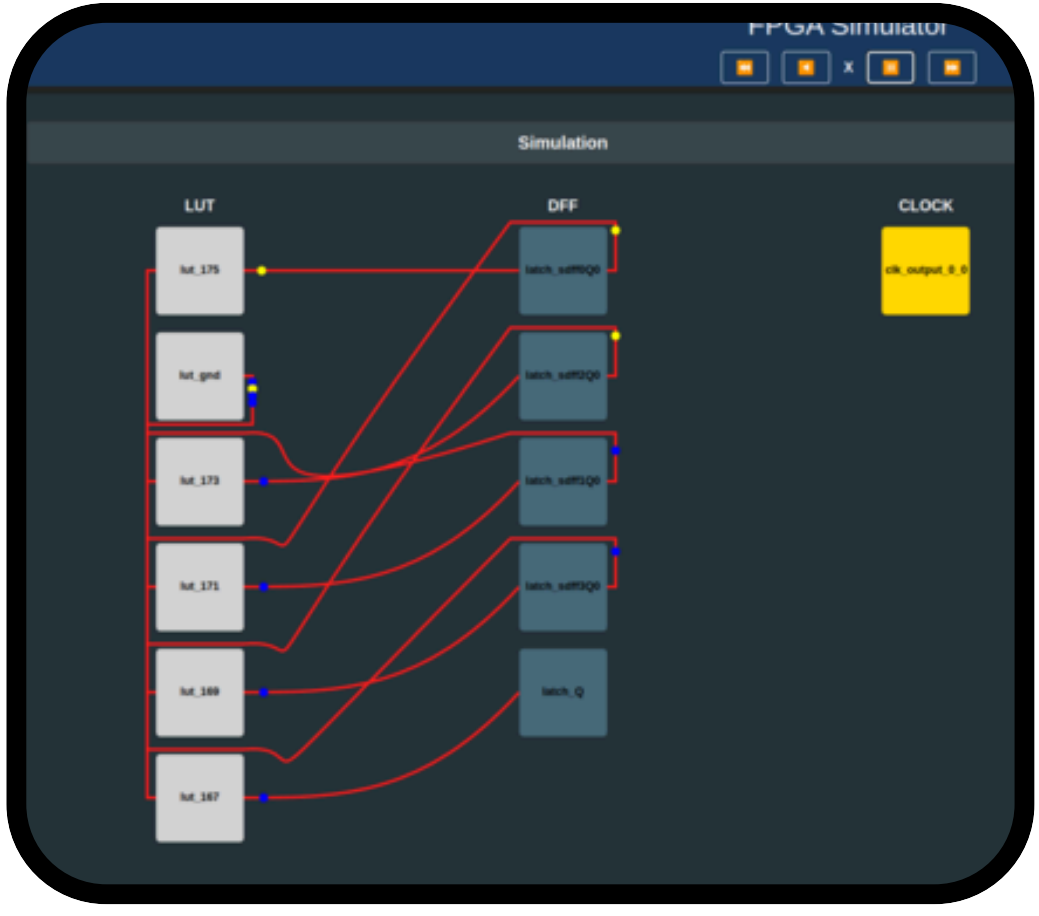
Perform a **left click and drag the mouse** to move through the visualization's **main area.**

The panning stops when **the mouse is released.**

Testing the simulation

Signals

When you start playing the simulation, **activated signals will be animated**. Indeed, they become thicker and have **dots** circulating through the routes connecting the different components of the FPGA circuit.



Testing the simulation

Simulation logs *

Logs on the sidebar are useful for displaying simulation information based on time and steps.

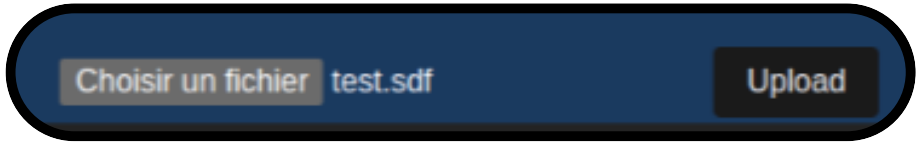
Displayed in chronological order like in the following image**, logs are shown in the current simulation time and are updated based on the current step.

Previous log
Click the **Prev Button** to show the simulation and its logs from the previous step.

Next log
Click the **Next Button** to update the simulation from the next step.

Switch animation

If you want to do another animation, click on **Choose File** to select another file.

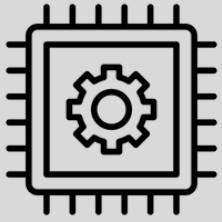


Once you click **Upload**, the current simulation will be erased and replaced with a new one.

Note *
This feature will only be available in the version 2 of our project.

Note **
This image isn't part of our project and only represents the concept art of an upcoming feature.

Safety measures

	**Hardware compatibility**	Make sure you are using a computer that meets the minimum hardware requirements. **Web Browsers:** Chrome (134.0.6998.178), Firefox (136.0.4), Microsoft Edge (134.0.3124.85) **Operating System:** Windows (11 Pro), macOS (), LINUX ()
	**Data file handling**	Avoid renaming or modifying any files used by the application unless you are certain of your actions, as this could affect its functionality.
	**Error handling**	If an error occurs, please consult the troubleshooting section.
	**Performance optimization**	Avoid running other resource-intensive applications simultaneously to maintain optimal performance. If the page becomes unresponsive or slows down, try reloading it or rebooting your computer.

Troubleshooting

Problem	Possible symptoms	Solution
The software takes too much time to execute.	• **It takes significantly longer than expected to load or complete tasks.**	• Close other apps or programs running in the background.
The software does not generate the simulation correctly.	• **Error message: “Invalid format”** • **The .sdf file contains syntax errors or is empty.**	• Ensure the file has the required format **.sdf** and check its correctness.
The software encounters an unpredictable behavior.	• **Possible new update released by the moderators** • **Features that previously worked now cause crashes or errors.** • **Unexpected UI glitches or missing options.**	• Adjust the window size of your page. If the issue persists, either reload the page or restart your computer.
Error when launching the launchers (especially windows)	• **“Vite” Is not recognized as a program and needs update**	• Run ***npm audit fix*** in the command prompt

Credits

This software and its related documentation are protected by copyright laws and international treaties. Any unauthorized reproduction, modification, or distribution of the software, partially or entirely, is strictly forbidden without prior written consent from the copyright holder.

If you’re still experiencing any issues, don’t hesitate to contact **Support**.
Mail: contact@algosup.com