

# Real FPGA's for education, on the Internet

Your students can access real FPGA devices online with advanced peripherals, 24/7, and conveniently, without setup.

## LabsLand FPGA remote laboratories

LabsLand gives your students access to a network of **educational FPGA devices** distributed around the world, **through the Internet**, simply using a web browser. The boards have multiple peripherals available and students can **control them** through a live **web camera** and a web-based interface supporting the **Verilog**, **VHDL**, and **SystemVerilog** languages.

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## How is this better than simulations?

Using simulations is great! However, often they are **not enough** on their own. Practice with **real equipment** is important for students to truly understand how to design with FPGA's and how simulations differ from reality. Interaction with **peripherals**, such as audio, VGA screens, or PS/2 keyboards, is also something that can be done with real equipment but not so well with simulations. In LabsLand, students clearly see that they are using a real device, not a simulation.

## My students already have FPGA boards!

Having access to physical boards is great. However, **even if the cost is not a problem**, and every student can have and take home their own FPGA, having an **instant and convenient** access to a **well-maintained** remote setup specifically designed for learning is a **great advantage**. Students can focus on learning instead of connecting the FPGA and peripherals that they might not even have and setting up software on their computers (often incompatible with Mac OS X).

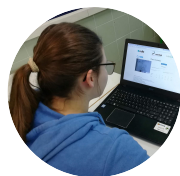
Furthermore, recent studies have shown that results with remote labs have been even better than in class! <https://labsland.com/s/asee-2021-article>

## Extremely easy to use and focused on efficiency

Integrate the remote laboratory into your **Learning Management System** for a seamless use by your students. Keep control of what students did. Save time. Get a very engaging experience for students who can efficiently focus on learning outcomes. Get access to new upcoming features, automatic evaluations, new peripherals.

### Convenient

Students get **24/7** access through a **web platform**. Setup is **always ready**, peripherals included. VHDL and Verilog are supported. No local Quartus or Vivado installs required.



### Cost-effective

Students access the FPGA laboratories as **many times as they want**, anytime. Also **peripherals** such as VGA screens and advanced FPGA's.



### Engaging

Engage your students by letting them access **real advanced FPGA devices** distributed around the world, interacting with them through **web cameras** and a **real-time interface**.

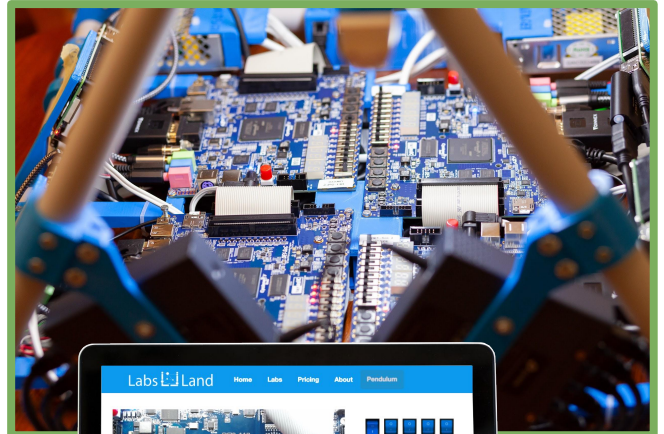


Photo by Ryan Hoover, UW, ECE.

Example of an Intel FPGA remote laboratory replica, physically located at the **University of Washington**. Viewed through a **web camera** and through an interactive web interface.



Matt Smith  
University of Michigan

“We use Labsland in conjunction with our in-person labs. LabsLand has allowed us to expand our support model with remote support and 24/7 access to the lab.”

## Global network of partners



## Awards and support



LabsLand

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