Digital systems with Moku:Go

The engineering lab solution you can take anywhere

The successful integration of digital and analog domains is the crux of many modern design challenges. Moku:Go is a comprehensive, mixed-signal device that offers a reconfigurable suite of FPGA-based instruments, optimal for engineering education. The core of the digital experience on Moku:Go is the unified Logic Analyzer / Pattern Generator, which includes a built-in Protocol Analyzer, for applications such as introductory digital logic, integrated circuit test and validation, and embedded systems. These features complement the Oscilloscope, where students can investigate signal integrity issues like bus impedance and noise considerations.

Moku Coud Compile (MCC), an FPGA programming tool included in the reconfigurable suite of instruments, ensures that FPGA programming and advanced digital logic can be taught with the same equipment as the introductory courses. MCC integrates with schematic-to-HDL conversion tools like Deeds, Simulink®, and HDL Coder™ to provide immediate implementation of digital logic and DSP in the real world with no HDL knowledge, no extra hardware, and no massive software installations required.

Specs and features

Key specs

- 2 analog inputs at 30 MHz
- 2 analog outputs at 20 MHz
- 125 MSa/s sampling rate
- 16-channel digital I/O
- Optional 4-channel programmable power supply

Features

- 14 integrated lab instruments
- API integration for Python, MATLAB, and LabVIEW
- Intuitive software for Windows, macOS, iPadOS, and visionOS

For full specifications and education pricing, contact edu@liquidinstruments.com.

Using Moku:Go in the lab

Introduction to digital logic

Digital logic circuits can be designed and simulated using tools like Deeds. With a few clicks and no specialist software or knowledge, the digital circuit is converted to HDL, synthesized, and sent to Moku:Go. With the logic now implemented in hardware, students can connect it to simple peripherals like switches and LEDs, or complex ones like LCDs and audio synthesizers.
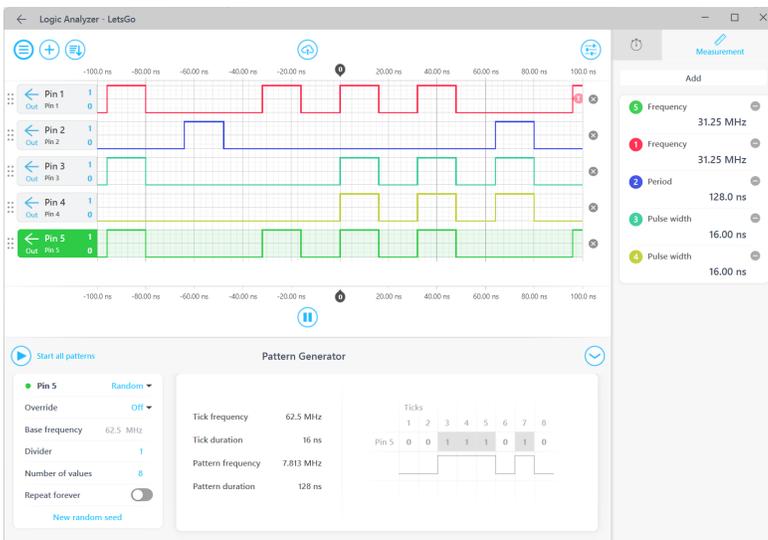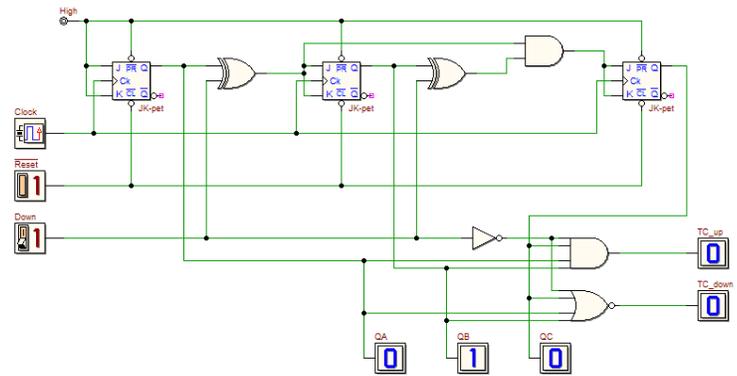
IC test and validation

A fully integrated Logic Analyzer / Pattern Generator instrument with a built-in Protocol Analyzer provides everything required for IC test and validation. Excite the system with arbitrary sequences, measure the resulting behavior, and overlay that behavior with decoded communication buses for a complete picture of your chip's performance.

Simple APIs accessible from dozens of languages, from Python and LabVIEW to C and C#, make automated and scripted testing easy and fun.

FPGA development

FPGA development often starts with a series of frustrations. Installation of a massive monolithic development suite, finding the right HDL to drive your peripherals, and installing the cable drivers to program the board, all before you've written a line of code. Moku Cloud Compile removes that complexity and allows students to focus just on the code at hand.

Further extend your dedicated FPGA courses with DSP modules. Students have access to high-speed, high-quality analog front-ends and can run HDL designs alongside our standard instruments in Multi-Instrument Mode, providing simple, live system excitation and performance analysis.