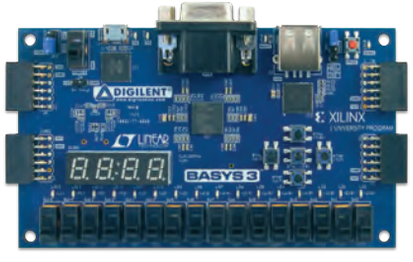
Digilent in Education

2024



DIGILENT®

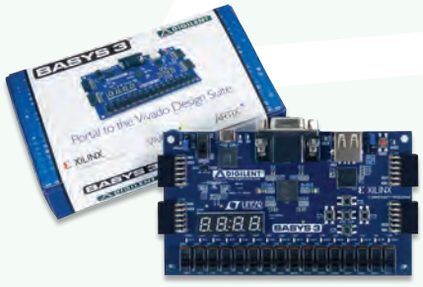
Digilent is now part of Emerson.

Teaching with Digilent

At Digilent, our mission has always been - and still is - to make engineering technologies understandable and accessible to all. We provide professors, lab managers and students with low-cost, fundamental tools and coursework to turn this mission into reality. Products like the portable Analog Discovery 3 mixed signal oscilloscope for teaching electronics and circuits, or the entry-level Basys 3 FPGA development board put the hardware in the student's hands for maximum engagement and growth in a traditional classroom setting or remote.

As NI's myDAQ, myRIO, VirtualBench, and ELVIS III products become legacy products, equip yourself with Digilent's low cost, flexible options that make practical, hands-on teaching possible, whether classes are in person or remote.

digilent.com/academic



Solutions for Engineering Curricula

Collaborating with educators from around the world, Digilent has taken feedback to create learning tools that can work in multiple academic disciplines. In analog and circuits courses, portable test devices equipped with our popular WaveForms software allow students to use multiple test instruments (both input and output) on their PC or Mac while giving freedom and flexibility to complete projects either in the classroom or work on them at home. Digilent's FPGA development boards (AMD/Xilinx) give hands-on application experience in digital and computer architecture courses by providing multiple I/O and peripheral connection options. All of Digilent's education offerings can be extrapolated past graduation and the same skills can be applied in almost any professional setting.

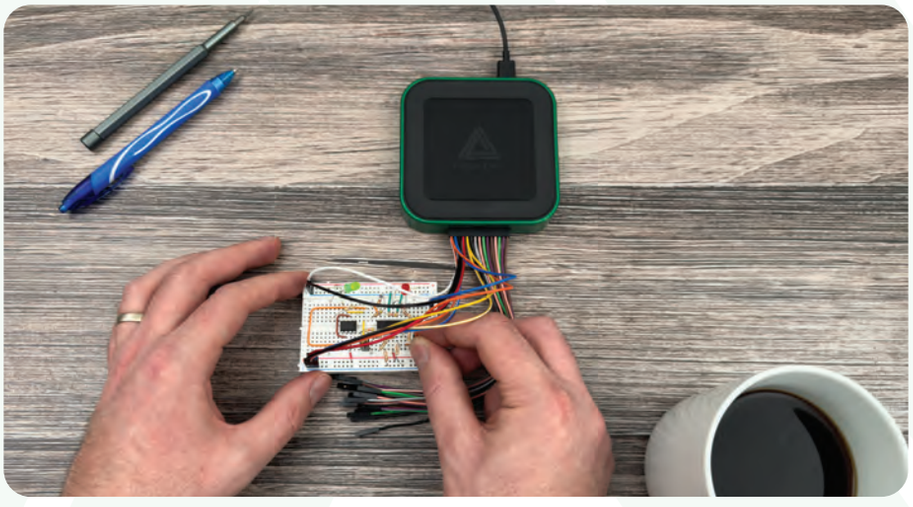
Product / *Course*	**Analog Discovery 3** 	**Analog Discovery Studio** 	**Analog Discovery Pro 5250** 	**Zybo Z7** 	**Basys 3** 
Analog	✓	✓	✓		
Digital	✓	✓	✓		✓
Power	✓	✓	✓		
Robotics		✓		✓	✓
Controls		✓*		✓	✓
Computer Architecture		✓		✓	✓
Projects	✓	✓	✓	✓	✓

* *While used in conjunction with a Cmod S7*

For users of NI's myDAQ:

ANALOG DISCOVERY 3

Discover More.



Digilent's Analog Discovery 3 is a versatile mainstay of EE/ECE labs and classrooms in over 200 universities in North America alone. This portable dynamo fits inside a student's pocket, but when connected to a PC, Mac, or Linux machine via USB-C, utilizes our intuitive test software, WaveForms, to act as an oscilloscope, logic analyzer, waveform generator, and more.

The AD3 is a key enabler for conducting engineering education remotely. It allows students to power their breadboards and take measurements just as if they were physically at a lab bench on campus.

Powered By WaveForms

WaveForms software allows for access to 10+ test instruments.

Scope Inputs:

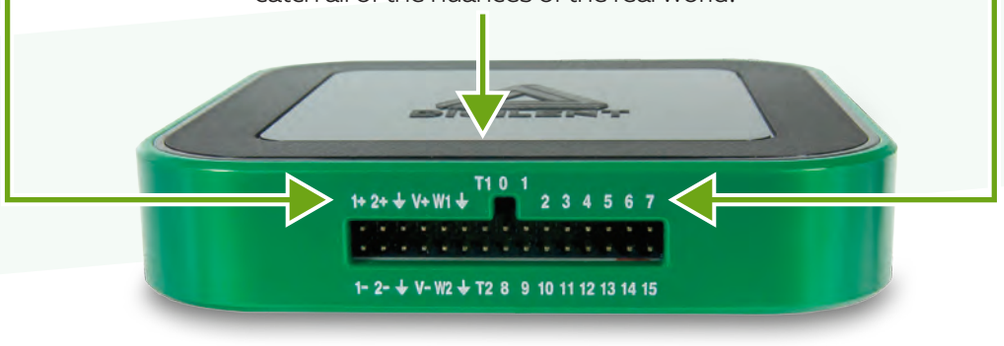
Learn about time and frequency domain by measuring an RC low-pass filter's time constant and plotting its frequency response in a bode plot.

Trigger Pins:

Use the complex triggering system for edge, pulse width, timeout, and transition triggers in addition to cross-instrumentation and external triggers to catch all of the nuances of the real world.

Digital I/O:

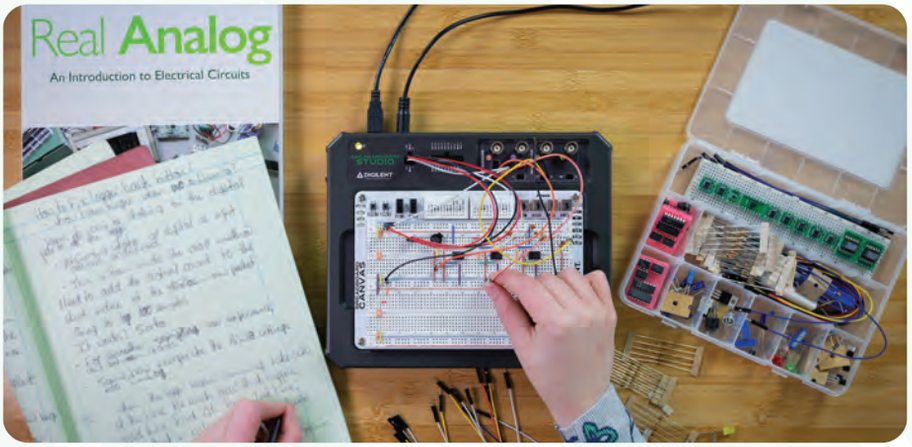
Explore digital signals and interfaces by sending, receiving, and spying on various standard protocols like UART, I2S, I2C, CAN, & more.



For users of NI's ELVIS III:

ANALOG DISCOVERY STUDIO™

The Portable Circuits Laboratory for Everyone.



The Analog Discovery Studio is a fully-functional portable test and measurement device that can turn any cross-functional space into a pop-up electronics laboratory. Equipped with 13 instruments including an Oscilloscope, Logic Analyzer, Spectrum Analyzer, Waveform Generator, and more; the Analog Discovery Studio provides an entire stack of benchtop instruments with a convenient breadboardable interface, perfect for enabling circuit design anywhere! When lab spaces are not always available or convenient, the Analog Discovery Studio is a great choice as a supplement to traditional laboratories.

Power Supplies

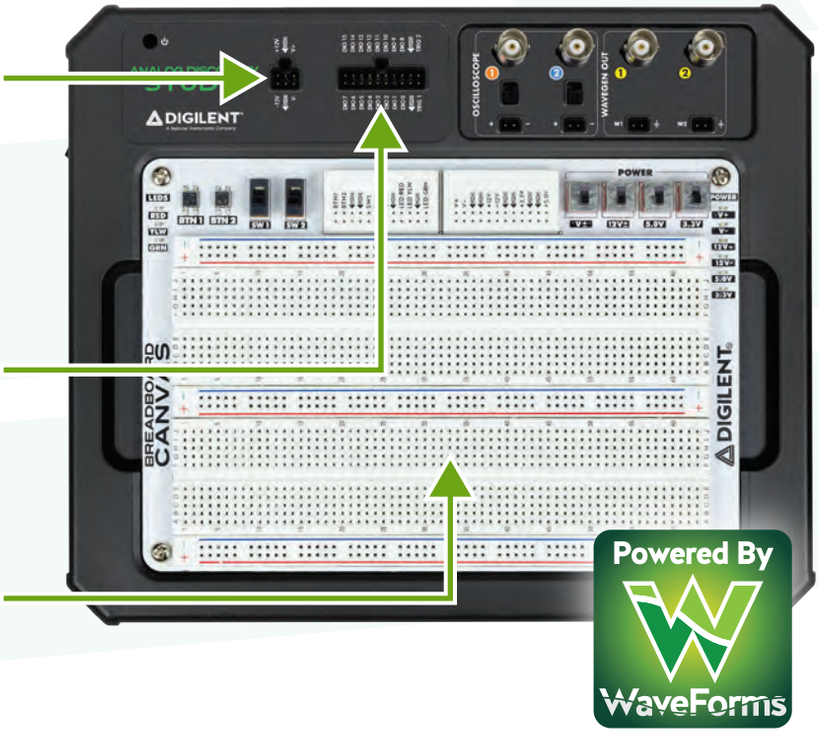
Analyze the effect of amplifier circuits using op amps, providing power to both positive and negative supply pins with a dedicated power supply.

Digital I/O

When used with an Interposer Canvas, the Studio can be used to connect FPGA boards like the Basys 3 and Zybo Z7 to create a reconfigurable device to teach digital gates and protocol implementation.

Canvas Add-On Boards

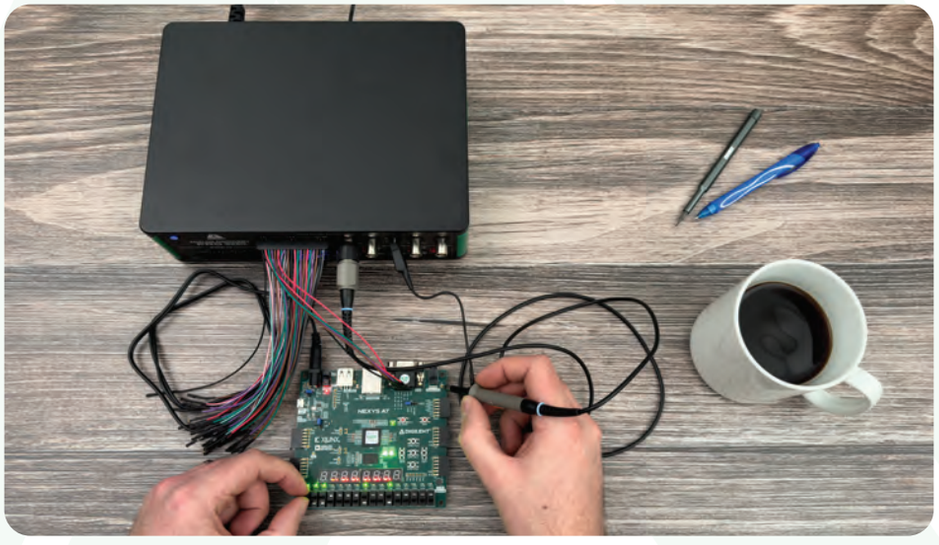
A variety of removable breadboard canvases can be attached to the board, allowing students to swap them out and share a single lab unit.



For users of NI's VirtualBench:

ANALOG DISCOVERY™ PRO ADP5250

The Ultimate All-In-One Test System.



A Complete 1GS/s 100MHz Mixed Signal Oscilloscope, Function Generator, Power Supply and DMM, All-In-One!

The ADP5250 takes multiple tools and puts them into a single system that any test engineer can benefit from providing a reliable way to work on a majority of their needs. It combines high performance analog (two at 100MHz) and digital (32) channels, external triggering, and a built-in programmable DMM and tri-output power supply capable of up to 25 V. The ADP5250 is also supported by Digilent's WaveForms software.

Digilent Support

Extensive software support for familiar languages and tools, like LabVIEW, MATLAB, C, C++, and Python.

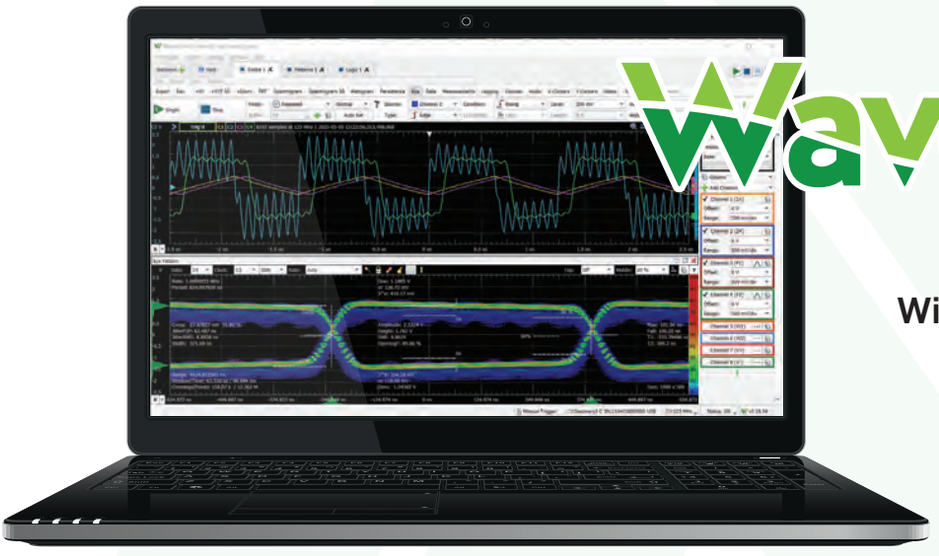
DMM & Power Supply

A built-in DMM and variable power supply provide a lab station with a complete benchtop experience.

High-Speed Analog Inputs

100MHz bandwidth and up to 1 GS/s sample rate make the ADP5250 uniquely suited to analyze real radio signals.

Powered By WaveForms



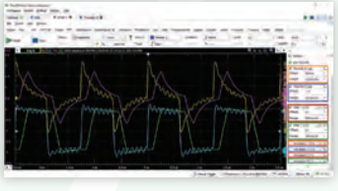
WaveForms

Supported by
Windows, MacOS, and Linux

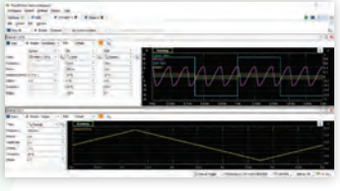
All of our Test and Measurement devices come with the multi-instrument software application, WaveForms. It seamlessly connects our Analog Discovery products and the Digital Discovery with full Windows, Mac OS X, and Linux support.

Designed with a clean, easy-to-use graphical interface for each instrument, WaveForms makes it easy to acquire, visualize, store, analyze, produce and reuse analog and digital signals. And as an added perk, it's FREE for all to download and use.

Oscilloscope



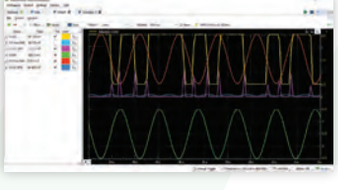
Arbitrary Waveform Generator



Power Supplies

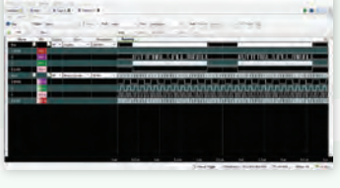
Voltmeter

Data Logger



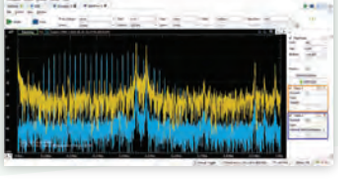
Logic Analyzer

Digital Pattern Generator

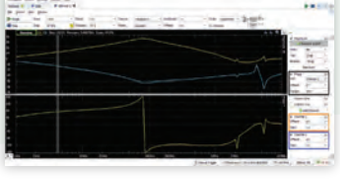


Virtual I/O

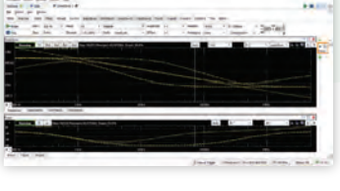
Spectrum Analyzer



Network Analyzer



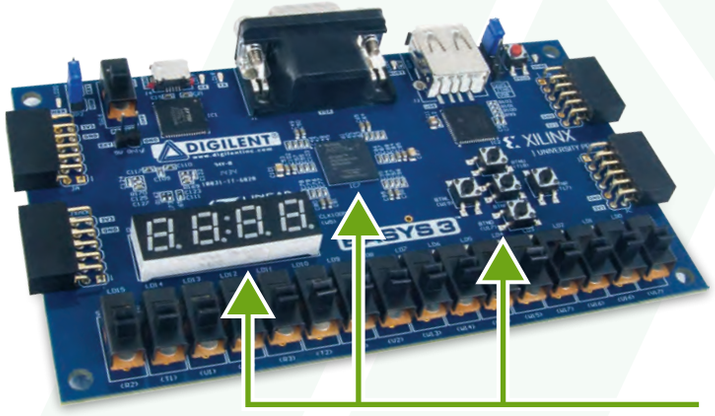
Impedance Analyzer



Protocol Analyzer

For users of NI's myRIO:

BASYS 3



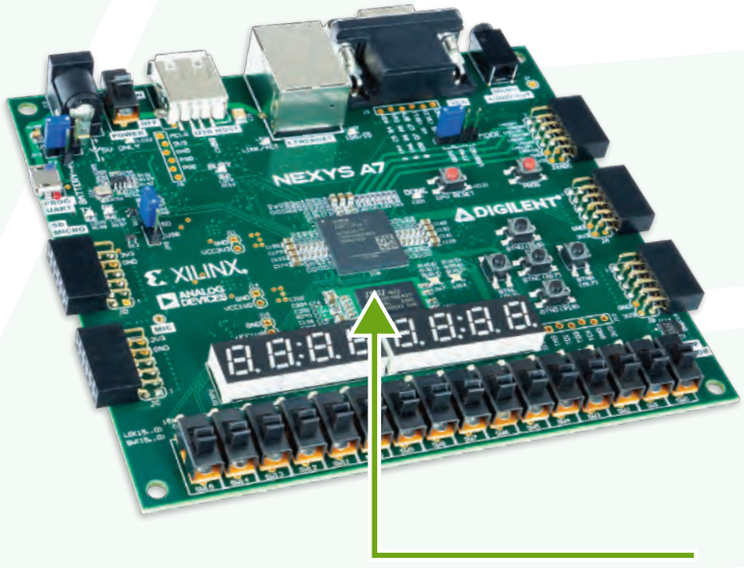
FPGA Trainer Board Perfect for Introductory Users

Designed to facilitate hands-on learning, Digilent's Basys 3 FPGA development board empowers students to grasp complex concepts of digital design through practical experimentation. Its versatility and user-friendly interface make it an ideal platform for teaching fundamental digital design principles.

Tangible Switches, Buttons and LEDs

Create and interact with a variety of combinatorial digital logic circuits, from basic gates up to adders, comparators, and multipliers.

NEXYS A7



FPGA Trainer Board Recommended for ECE Curriculum

The Nexys A7 is an incredibly accessible, yet powerful, FPGA development board. It is a ready-to-use digital circuit development platform that brings industry applications into the classroom environment and allows students to start learning right away with the Nexys A7 thanks to its versatile selection of interfaces.

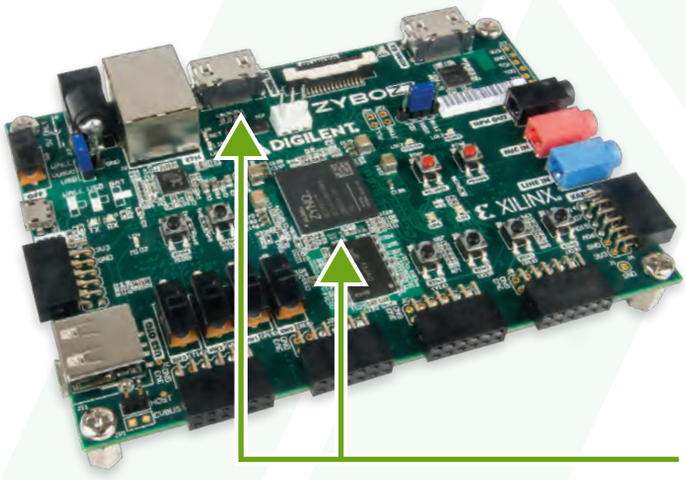
Versatile Interfaces and DDR Memory

Put computer architecture into practice by building your own processor from scratch.

For users of NI's myRIO:

ZYBO Z7

Zynq-7000 ARM/FPGA SoC Development Board



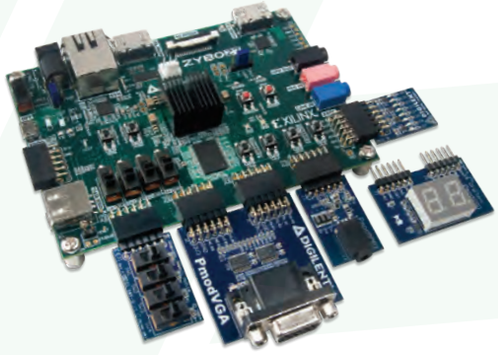
The Zybo Z7's integration of both a programmable FPGA and a dual-core ARM Cortex-A9 processor provides an ideal starting point for hands-on learning and experimentation in system-on-chip (SoC) architecture. By demonstrating how hardware and software components can be seamlessly integrated on a single chip, students can gain a deeper understanding of how complex systems function and understand the relevance of advanced digital design in various industries like embedded systems and IoT devices to multimedia processing and industrial automation.

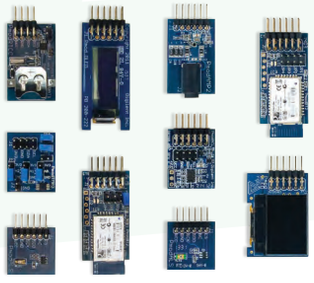
Advanced Digital Applications

Experiment with vision applications making use of complex system-on-chip subsystems, including built-in processor cores and memory controllers.

Pmod

A diverse ecosystem of Peripheral I/O Modules





Digilent Pmod™ (peripheral module) devices are a line of small plug-and-play digital I/O interface boards that offer an ideal way to extend the capabilities of programmable logic and embedded control boards. When used with a compatible host board, they provide a variety of ways for students to easily add new features and functionality by providing interfaces for their projects to interact with external systems and users.

Versatile Standard for Any Project

Expand functionality by adding peripheral modules that provide access to sensors, motor controllers, and various I/O devices.

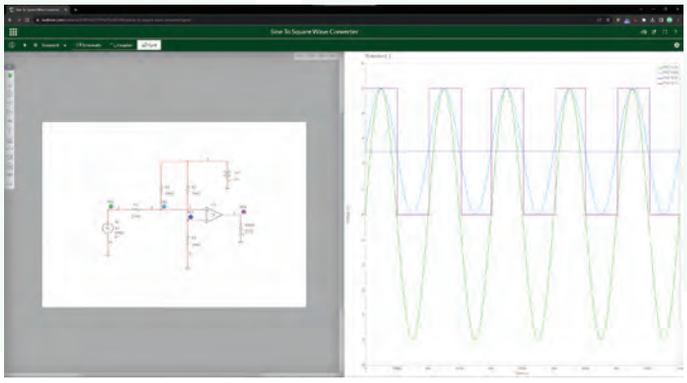
MultisimLive

Simulation Software: Design and Simulate Analog Circuits

Multisim™ is NI's online SPICE simulator that provides an interactive schematic environment to instantly visualize and analyze electronic circuit behavior. With powerful circuit simulation and analyses incorporated into circuit design flow, Multisim helps researchers and designers reduce printed circuit board (PCB) prototype iterations and save development costs and can provide a valuable teaching tool to students.

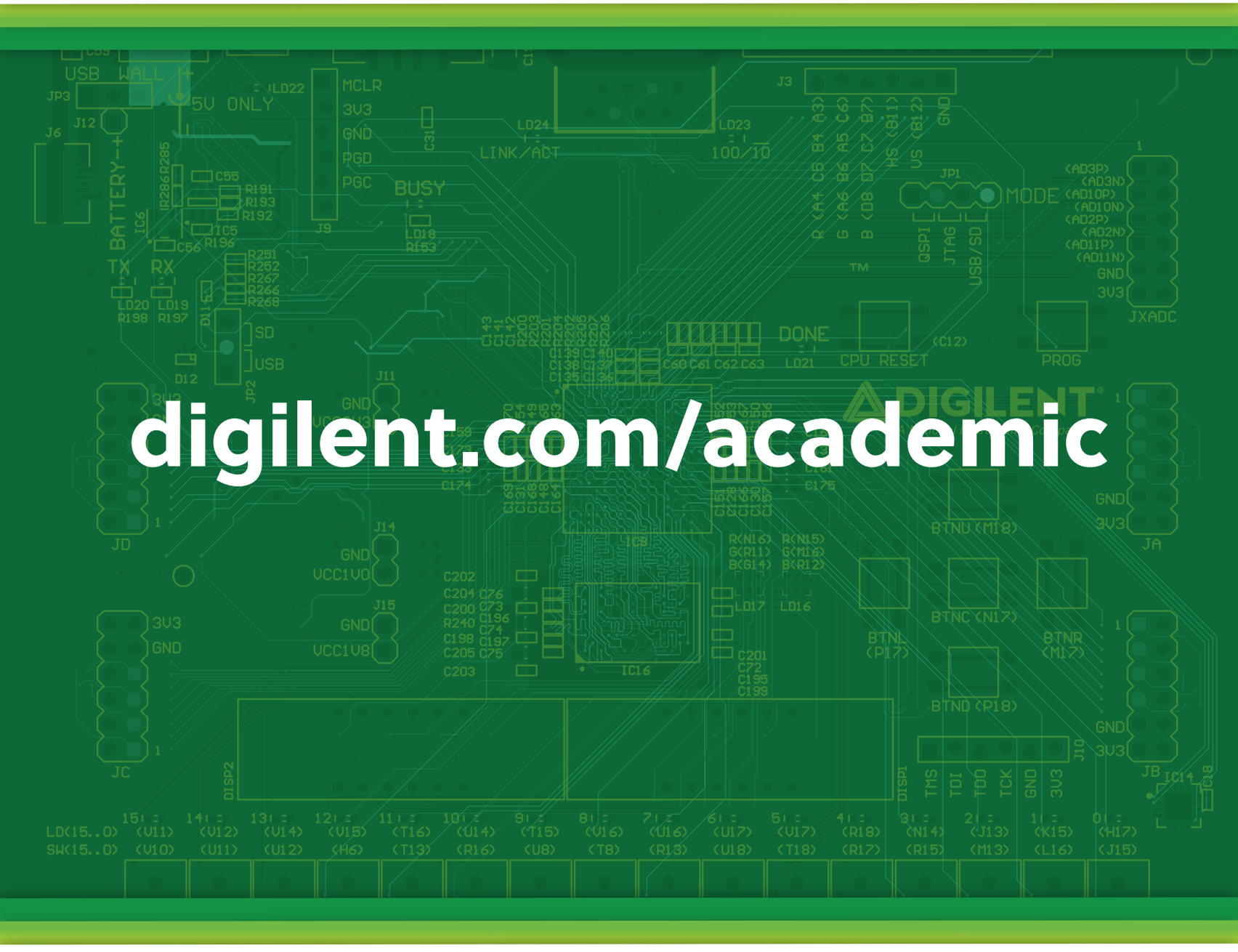
Multisim Live takes a core subset of the Multisim Software suite and allows users to take the same simulation technology used in academic institutions and industrial research today, and use it anywhere, anytime, on any device.

Until recently, Multisim Live was only available as a feature of Multisim for Desktop (retailing for $2,000-$3,000), but now NI is offering a subscription-based Premium Version (for a monthly fee) that allows unlimited circuits, an advanced components library, and more simulation types among other features.



Key Features:

- **Expanding the Multisim experience**
- **Create circuit schematics on any platform**
- **Interactive circuit simulation with no installation**
- **Same industry-standard SPICE simulation**
- **Share your designs or explore circuits created by others**



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