DIGILENT®

An **NI** Company

2023
Product Catalog

Founded in 2000 by two Washington State University electrical engineering professors, Digilent's original mission was to make electrical engineering and design technologies understandable and accessible to educators and students with high-value, industry-relevant educational tools and curriculum. After laying down successful roots in Academia, Digilent — now a subsidiary of test and measurement powerhouse NI — has proven to be an invaluable resource for professional engineers as well. With a diverse offering of multi-instrument PC-based test devices and system boards, Digilent's products empower engineers, researchers, and scientists with the flexibility to design rapidly and test the world around them in either the lab or at home.

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Logicbus

Hello valued customers and partners!

I'd like to take this opportunity to update all of you on our progress on a variety of fronts, including persistent supply-chain challenges but also some exciting developments as we expand our product offerings and continue to integrate Measurement Computing into our e-commerce experience.

New Cloud-based Software Initiatives

Perhaps most exciting is the work that we have been doing to enhance the functionality and ease-of-use of our products with new software investments leveraging Cloud technology. Our first foray into this world was our web-based circuit simulation application, Multisim Live. This tool allows anyone with a web-browser to build mixed-signal circuits using a web and touch-friendly editor and run a variety of simulations - all for free and with no download or installation. Building on this technology, we'll be introducing new apps this year for measurement and waveform data storage and management, data visualization, and even on-line monitoring and datalogging using IoT technology. Keep your eyes open for opportunities to get involved with this new technology and be part of our development process – we're eager to hear what you will want to do with new measurement technology that leverages the Cloud.

Supply Chain Update

We are finally seeing some easing in the restrictions sourcing the critical electronic components that we need to build our products. We are not totally out of the woods, but the lead times for procuring components and the premiums that we have (mostly) absorbed are easing. Perhaps most importantly, the confidence in the information we are receiving about lead-times is improving. As a result, you should see more of the products that you need on our website and distributors shelves ready for immediate delivery.

Merger with Measurement Computing (MCC)

You have likely noticed that we have been adding many of MCC's most popular DAQ and datalogging products to our website. This is part of a process that started last year to fully integrate MCC into Digilent, expanding the range of solutions that we can offer for automated measurement applications that require higher channel counts with more sensor and measurement types. Starting in January of this year, all of MCC's product catalog will be available for purchase through Digilent as we transition all order processing and fulfillment from MCC's website and systems to Digilent's. This also means that many of MCC's products will also be available from Digilent's distribution partners around the world, improving access and easing the purchasing experience. Ultimately, all of the most relevant content from MCC's website (mccdaq.com) will be migrated to Digilent.com as we work to make the overall customer experience consistent across product lines.

New Test & Measurement Products

We've been building on our modular FPGA-based embedded measurements systems with the introduction of more Zmod high-speed expansion modules, including a 125MS/S, 14-bit digitizer module with a very low-jitter clock generator. It's perfect for direct conversion of RF signals in software-defined radio applications. And with new Waveforms support for the Eclypse FPGA board, we now have a no-programming option for those wanting to get started quickly with this powerful embedded platform. On the other end of the spectrum, we just launched a USB programmable triple-output power supply to supplement the Analog Discovery family, and will continue to bolster that product line with additional options later in 2023. With full control from within the Waveforms app, more complex test automated tests are now well within your budget.

As always, we deeply appreciate your business.

Best Regards,

Steve Johnson
President – Digilent

Discover More.

ANALOG DISCOVERY 3

The Analog Discovery 3 is a digital oscilloscope, logic analyzer, waveform generator, pattern generator, and much more. Using the flexible WaveForms software (supported by Windows, Mac, and Linux), the Analog Discovery 3 can be used in the lab, in the field, or even at home - you're no longer tied down to a traditional benchtop and stacks of expensive test instruments.

Mixed-Signal USB Oscilloscope:
- Two differential channels with 14-bit resolution at up to 125 MS/s per channel with a +/-25 V input range, 30+ MHz bandwidth with BNC Adapter
- FFT, Spectrogram, Eye Diagram, XY Plot views, and more

Arbitrary Waveform Generator:
- Two channels with 14-bit resolution at up to 125 MS/s per channel with a +/-5 V output range, 12 MHz bandwidth with BNC Adapter
- Standard waveforms, amplitude and frequency modulated signals, direct playback from analog inputs, custom waveforms, and more

Logic Analyzer and Pattern Generator:
- 16 digital I/O channels at up to 125 MS/s per channel
- SPI, I2C, UART, CAN, JTAG, ROM logic, custom protocols, and more

Programmable Power Supplies

Additional Features:
- Additional software instruments including Spectrum Analyzer, Network Analyzer, Impedance Analyzer plus many more!
- SDK for hardware control in C, C++, Python, & other languages
- Support for LabVIEW and MATLAB
- Plus more than we can list!
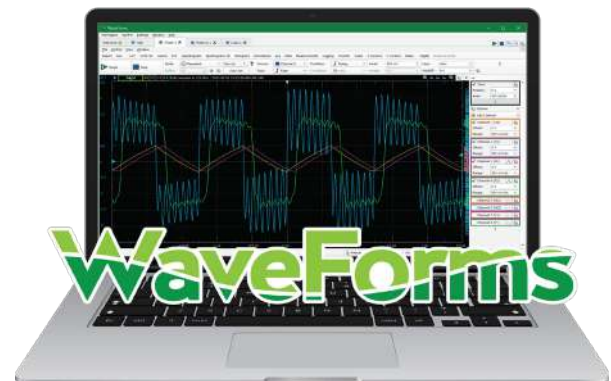
DISCOVERY POWER SUPPLY DPS3340

The Discovery Power Supply, coming later this year, is a flexible, programmable, three-channel power supply that can deliver up to ±15 V at 0.5 A and up to 3 A on the +5 V supply. Connection to WaveForms provides the ability to vary the voltage and current manually or automatically by scripts in the application or custom applications built in the WaveForms SDK.

ZMOD DIGITIZER

2-channel 14-bit Digitizer Module

The Digilent Zmod Digitizer is a SYZYGY™ compatible module containing a dual-channel ADC and the associated front end. When coupled to a base board using the SYZYGY™ expansion, like the Eclypse Z7 or Genesys ZU, the combination will serve as a powerful prototyping platform for instrumentation, high-speed control, and SDR.
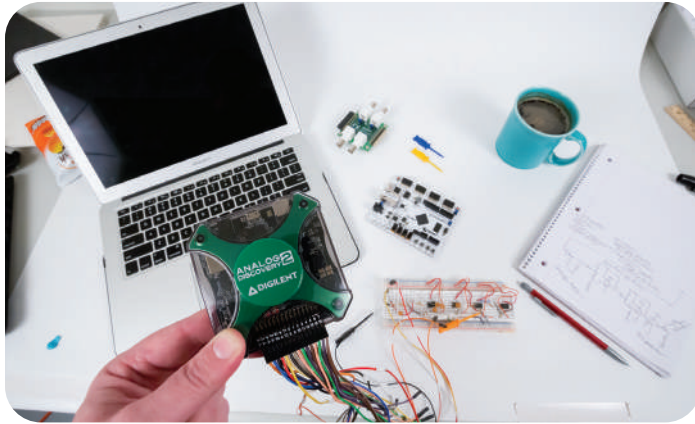
Key Features

- **Channels: 2**
- **Channel type: Single-ended**
- **Resolution: 14-bit**
- **Input range: ±1 V**
- **Absolute Resolution: 0.13 mV**
- **Sample rate (real time): 125 MS/s, max**
- **Input impedance: 1 MΩ || 5 pF**
- **Analog bandwidth:**
  - **60+ MHz @ -3 dB**
  - **20 MHz @ -0.5 dB**
  - **8 MHz @ -0.1 dB**
- **Input protected to: ±50 V**
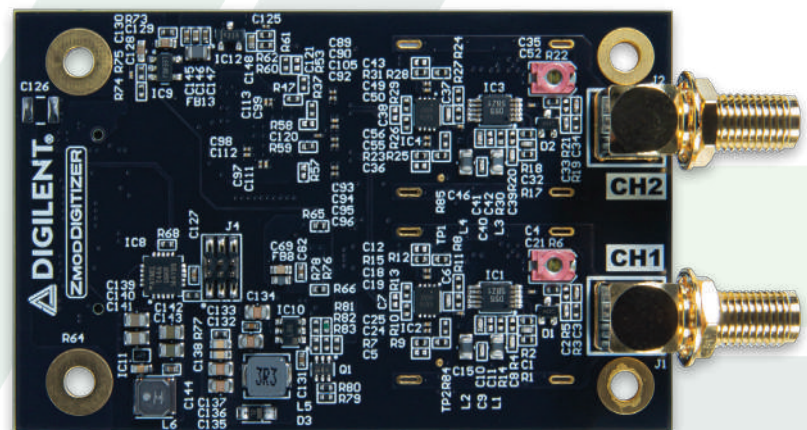
With lab spaces decreasing and engineering teams becoming more distributed, companies are choosing all-in-one instruments as a supplement to traditional laboratories, creating a need for a portable test and measurement bench that can support all types of designs.

Engineers all over the world use Digilent Test and Measurement devices to decrease their design cycle time and increase their impact by always having an oscilloscope, logic analyzer, waveform generator and more within reach. Our line of Test and Measurement products enables engineers to continue their designs in the library, home office, or even a coffee shop without having to reserve a lab that has all the necessary equipment.

13-in-1: The Analog Discovery Product Family

There isn't a more flexible scope solution or cost-effective value in the industry. With 13 functions and a range of specifications between them, products like the Analog Discovery Studio, Analog Discovery Pro ADP3450, and the Analog Discovery Studio are perfectly perfectly capable of acting as an entire stack of lab instruments.

- **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**
- **Script Editor**

WaveForms

Supported by Windows, MacOS, and Linux

All of our Test and Measurement devices come with the FREE 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.
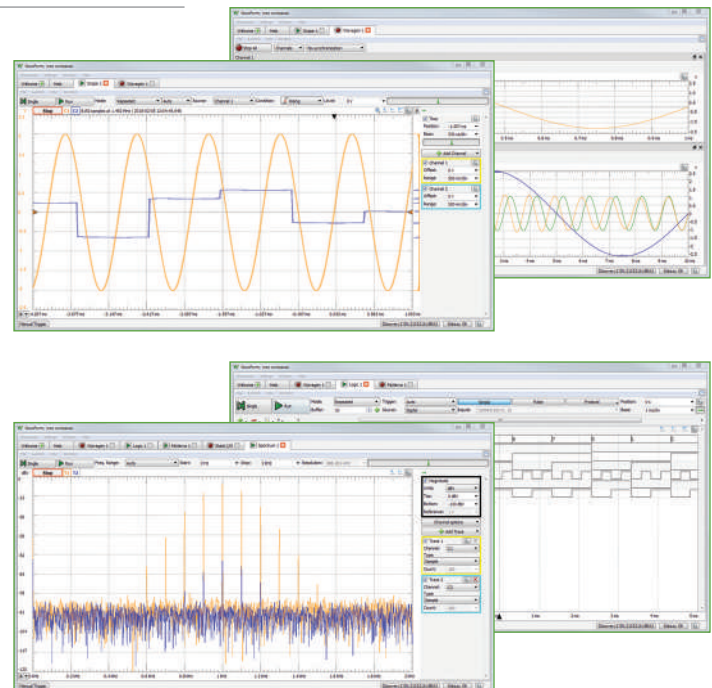
ANALOG DISCOVERY™ PRO ⟨ADP3450⟩

Portable High Resolution Mixed Signal Oscilloscope

FRONT

BACK

What is the Analog Discovery Pro 3000 Series?

Devices in the Analog Discovery Pro 3000 series provide the utility of professional benchtop equipment with the flexibility of a portable instrument. With myriad choices available for test and measurement devices, adding to your benchtop can be a daunting task, especially sorting through which features on your new instrument are included versus what you'll need to pay extra for. With the ADP3450, every listed feature is an included feature, making it an investment that will last — *at a price without surprises.*

Introducing Linux Mode

Linux Mode provides an on-device terminal-based operating system that, when combined with WaveForms SDK, is a flexible starting point for all kinds of custom tests and applications. Running embedded on the device itself or via WaveForms, engineers and measurement enthusiasts alike can take advantage of data streaming via ethernet, and the on-device storage to capture buffers of millions of samples.

Key Features

Analog Inputs

- Two (ADP3250) or Four (ADP3450) analog input channels accessible via front panel BNC connectors
- Analog input bandwidth: 55+ MHz @ 3 dB
- 14-bit resolution analog inputs and outputs
- Max sampling rate 100 MS/s default, oversample to 0.5 GS/s
- Ethernet connectivity
- 32 Digital IO with LVCMOS 1.2 V to 3.3 V
- Maximum record length: 1 MS per channel

Analog Outputs

- Used in the Waveform Generator, Impedance Analyzer, and Network Analyzer
- Two arbitrary waveform generator channels, accessible via front panel BNC connectors
- 14-bit Resolution
- AC amplitude (max): ±5 V
- Analog bandwidth: 15 MHz @ 3 dB
- Maximum Sampling Rate: 125 MS/s

ANALOG DISCOVERY™ PRO ADP5250

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

FRONT

BACK

What is the ADP5250?

The ADP5250 brings higher sample rate and bandwidth and a more rugged design to the Analog Discovery Pro family, keeping our free highly rated WaveForms application software at the controls.

The Ultimate All-In-One Test System

Analog Discovery Pro devices feature a variety of advanced triggering options. Instruments within WaveForms can be cross-triggered, for example, by activating an oscilloscope capture based on a received and decoded digital protocol. In addition, external signals can trigger events using the dedicated external trigger input/output. Our free WaveForms software provides these features configurable in the instruments themselves, or for more control or automation in one of the available scripting interfaces.

Key Features

Analog Inputs

- **Two analog input channels**
- **Channel type: single ended**
- **Analog bandwidth: 100 MHz @ -3 dB**
- **8-bit resolution**
- **Max sampling rate: 1 GS/s single channel**
- **Maximum input range: 40 V peak to peak**
- **Maximum record length: 1 MS per channel**

Analog Outputs

- **One channel**
- **14-bit resolution**
- **AC amplitude (max): ±12 V**
- **Maximum analog bandwidth: 5 MHz @ -3 dB**
- **Maximum sampling rate: 125 MS/s**
- **Software-switchable filter: 36 MHz lowpass, 7-pole, elliptical**

ANALOG DISCOVERY STUDIO™

The Portable Circuits Laboratory for Everyone
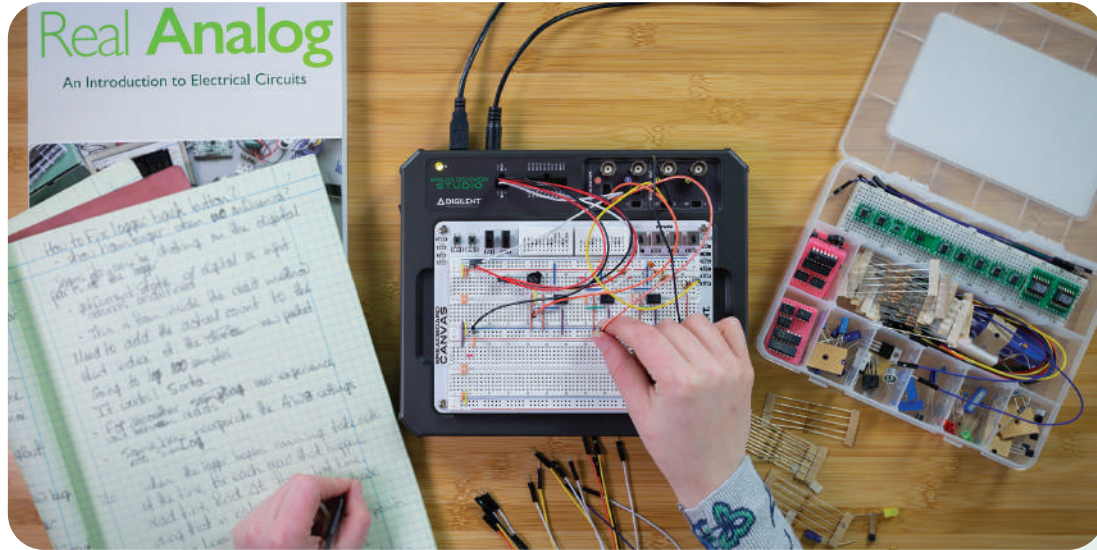
The Analog Discovery Studio is a fully-functional portable test and measurement device that can turn any cross-functional space into a pop-up electronics laboratory. Equipped with 13 instruments including an Oscilloscope, Logic Analyzer, Spectrum Analyzer, Waveform Generator, and more; the Analog Discovery 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
- Fixed: +12 V, -12 V
- Variable: +1 to +5 V, -1 to -5 V

Logic Analyzer and Pattern Generator
- 16 Inputs and Outputs

Triggers
- Cross-instrument triggering
- Two external triggers

Oscilloscope
- Two Channels
- BNC (single-ended) or MTE (differential) connection

Waveform Generator
- Two Channels
- BNC or MTE connection

Included Breadboard Canvas
- Removable and replaceable breadboard interface
- Built in switches, buttons, and LEDs
- Switches for every power supply
- Secure magnetic connection
- Additional fixed supply: 3.3 V

Additional Instruments
- Network Analyzer
- Spectrum Analyzer
- Voltmeter
- Impedance Analyzer
- Data Logger
- Protocol Analyzer
- Digital Inputs or Outputs
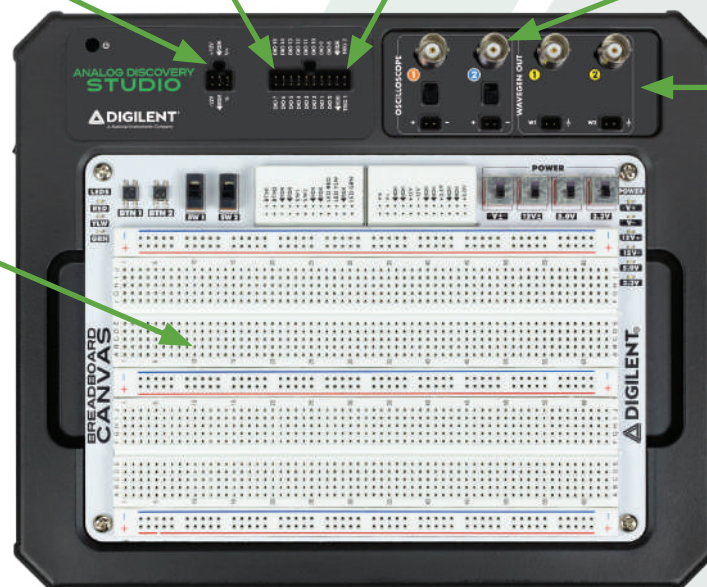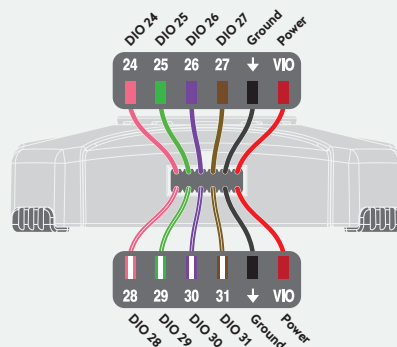
DIGITAL DISCOVERY

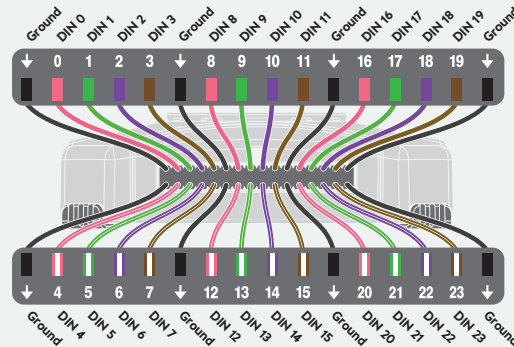## A USB Embedded Development Tool for High-speed and Multi-channel Applications

The Digital Discovery is a combined Logic Analyzer, Protocol Analyzer, and Pattern Generator instrument that was created to be the ultimate embedded development companion. Designed with flexibility in mind, the Digital Discovery has selectable voltage levels, output drive, channel number, and sample rate. One portable device provides access to advanced features to debug, visualize, and simulate digital signals for a wide range of embedded projects. Its digital inputs and outputs can be connected to a circuit using the included MTE cables or breadboard wires.

For designs that require speeds up to 800 MS/s, the High-Speed Adapter and impedance-matched probes can be used to connect the inputs and outputs for more advanced projects. The Digital Discovery is driven by the free WaveForms software and can be configured to any combination of power supplies, logic analyzer, pattern generator, static inputs and outputs, and protocol analyzer.
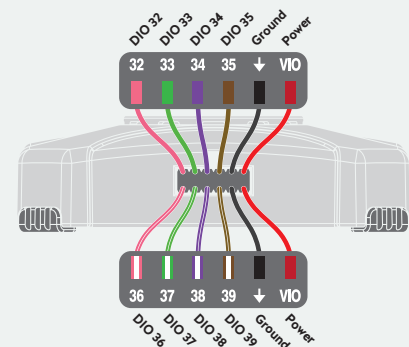
### Digital Inputs/Outputs (left side)　　　High-Speed Digital Inputs　　　Digital Inputs/Outputs (right side)

Plenty of attention goes into making sure that the Digilent FPGA board you're buying is optimized for both performance and cost. Our proud partnership with Xilinx means that each of our kits features one of their industry-leading devices. Our FPGA boards range from the accessible Cora S7 to more powerful system-on-a-chip offerings like the Genesys ZU 5EV, featuring UltraScale+ technology.
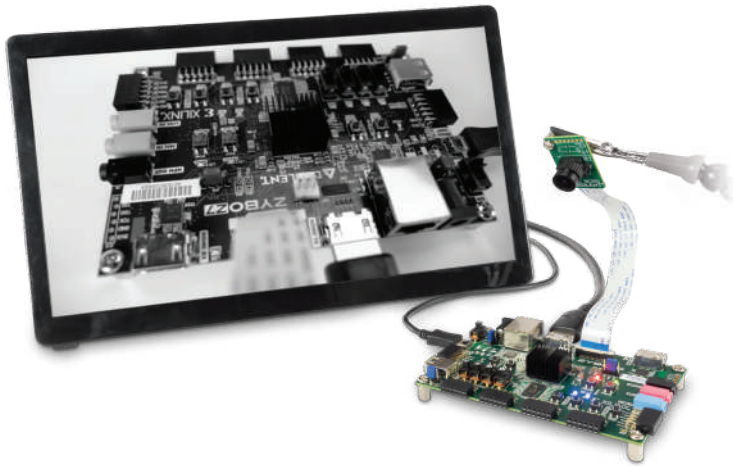
Why FPGAs?

- **PARALLEL:** FPGAs can be programmed as parallel processing devices, whereas CPUs execute operations in a sequential manner.

- **ACCURACY:** FPGAs can perform consistent time critical processing.

- **FLEXIBILITY:** FPGAs can be configured for a specific application, and then changed again after installation.

- **POWER:** FPGAs have high performance per watt.

- **EFFICIENT:** No overhead of an Operating System, such as you would have with a CPU.

- **CUSTOMIZABLE:** The programmer decides what is accomplished with each clock cycle.

ARTY S7

Spartan-7 FPGA Development Board

The Arty family of Digilent FPGA/SoC boards was designed with versatility and flexibility in mind. With universally popular Arduino™ headers and multiple Pmod™ ports, an Arty will be the most adaptable FPGA/SoC board in your toolbox.

The Arty S7 is an affordable, ready-to-use development platform designed around the Xilinx Spartan®-7 FPGA family. With the Spartan-7 devices, the Arty S7 board offers best-in-class performance-per-watt, along with small form-factor packaging to meet the most stringent requirements. With the MicroBlaze Soft Processor Core from Xilinx, you can create embedded applications with a variety of peripherals, memory, and interfaces.

The Arty S7 is supported by Xilinx's Vivado Design Suite, including the free WebPACK version. You can also leverage the Vitis Core Development Kit or Xilinx Software Development Kit to start developing for the MicroBlaze processor with no prior FPGA experience.
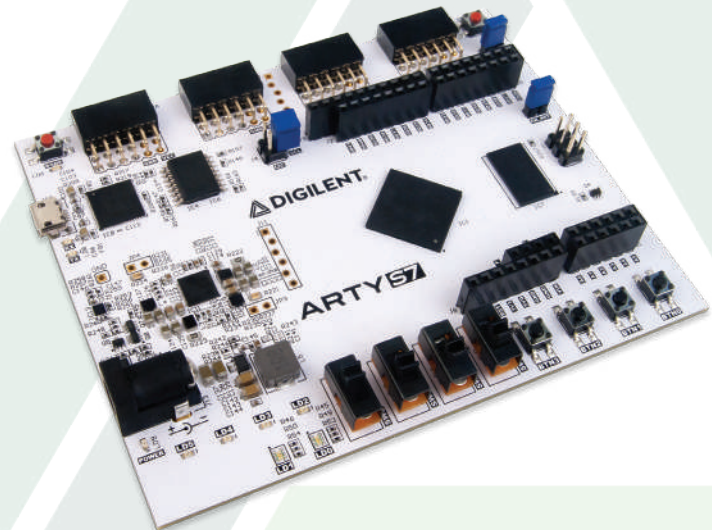
Key Features

- **Internal clock speeds exceeding 450 MHz;**
- **On-chip analog-to-digital converter (XADC).**
- **Programmable over JTAG and Quad-SPI Flash**
- **256 MB DDR3L with a 16-bit bus @ 650 MHz**
- **128 Mbits Quad-SPI Flash**
- **100 MHz External Clock**

ZYBO Z7

Zynq-7000 ARM/FPGA SoC Development Board

The Zybo Z7 is a ready-to-use embedded software and digital circuit development board built around the Xilinx Zynq™-7000 family. The Zynq-7000 tightly integrates a dual-core ARM Cortex-A9 processor with Xilinx 7-series Field Programmable Gate Array (FPGA) logic.

A rich set of multimedia and connectivity peripherals make the Zybo Z7 a formidable single-board computer. A MIPI CSI-2 compatible Pcam connector, HDMI input, HDMI output, and high DDR3L bandwidth establish the Zybo Z7 as an affordable, yet capable, solution for high-end embedded vision applications. Attaching additional hardware is made easy by the Zybo Z7's Pmod connectors, allowing access to Digilent's catalog of over 70 Pmod peripheral boards, including motor controllers, sensors, displays, and more.

The Zybo Z7 is supported by Xilinx's Vivado Design Suite, including the free WebPACK version. You can also interact with the processing system (PS) with Xilinx's Vitis Unified Software Platform and PetaLinux Tools.
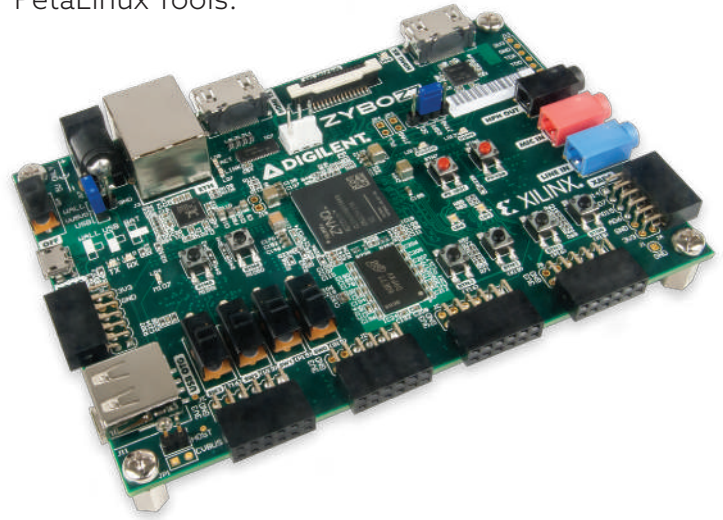
GENESYS ZU

Zynq Ultrascale+ MPSoC Development Board

The Genesys ZU is a standalone Zynq UltraScale+ EG/EV MPSoC development board, designed to provide an ideal entry point by combining cost-effectiveness with powerful multimedia and network connectivity interfaces. There are two variants of the Genesys ZU: 3EG and 5EV. These two variants are differentiated by the MPSoC chip version and some peripherals. As compared to the 3EG, with the 5EV you get faster DDR4, more FPGA fabric, a video codec, and GTH transceivers allowing HDMI Source, Sink and 10G SFP+. Both variants support multiple multimedia and network interfaces with an excellent mix of on-board peripherals, upgrade-friendly DDR4, Mini PCIe and microSD slots, along with multi-camera and high-speed expansion connectors which are designed to support a wide range of use-cases.

The Genesys ZU is primarily targeted towards Linux-based applications that facilitate access to Wi-Fi, cellular radio (WWAN), SSD, USB SuperSpeed and 4K video. Two different specialized ports, including Pmod and high-speed SYZYGY-compliant expansion

module ports for our new Zmods, enable flexible expansion and easy access to a wide ecosystem of add-on modules, perfect for silicon evaluation and rapid prototyping.
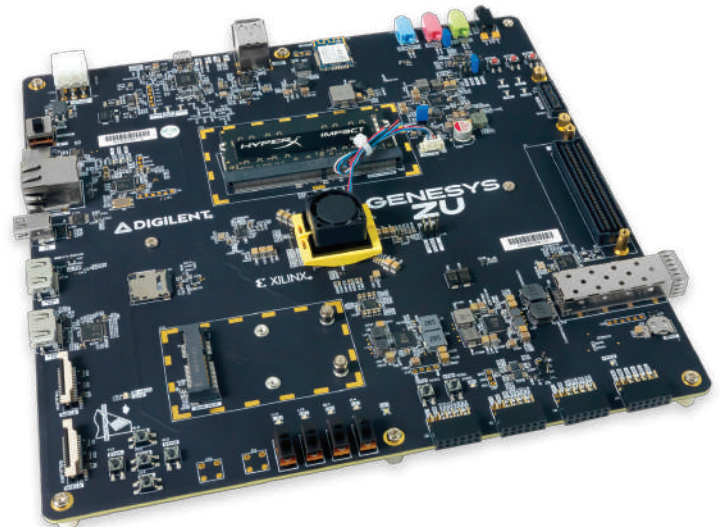
ECLYPSE Z7

A New Way to Accelerate Design Flow
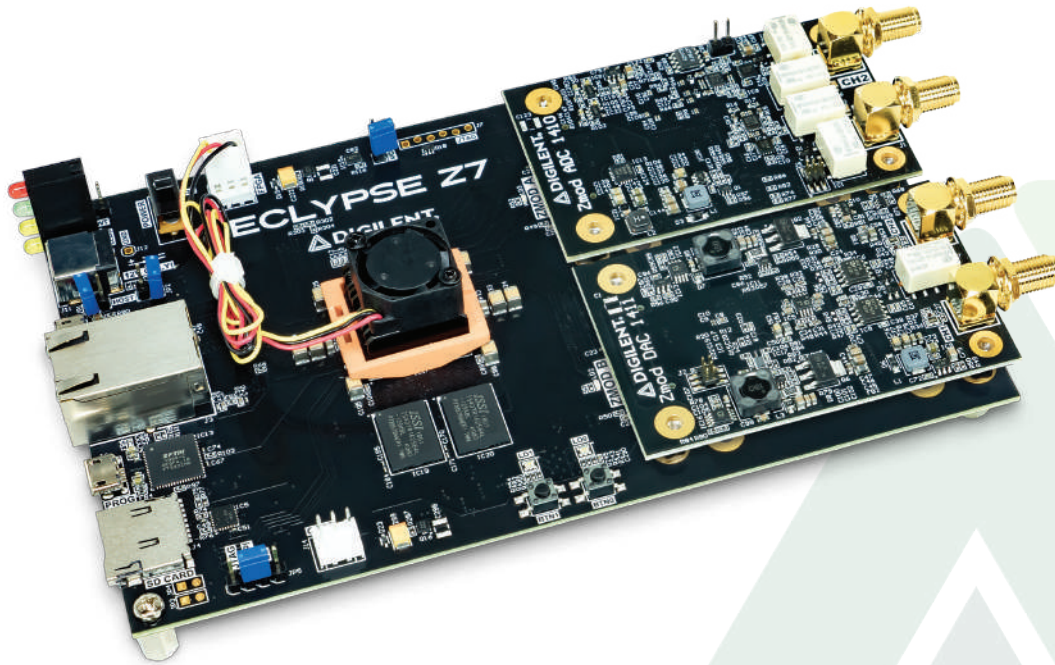
Digilent's Eclypse platform can accelerate your design flow and decrease your project's time-to-market. The Eclypse platform consists of our Eclypse Z7 development board, the Zmod Scope 1410, and the Zmod AWG 1411, used together to increase your prototyping productivity. Eclypse's software framework provides the FPGA IP and a common hardware abstraction layer that exposes a straight-forward API to the user — think of how a software driver for a printer works. This gives engineers that aren't fluent in hardware languages the ability to efficiently navigate them with software languages, and ultimately harness the incredible power and flexibility of an FPGA.

Powerful Hardware

The Eclypse Z7 is specifically designed to enable the rapid prototyping and development of Embedded Measurement Systems including applications like software-defined radio, ultrasound, other medical devices, and much more. Pick and choose the hardware specs based on the performance requirements of your specific application, or design your own powerful hardware that best suits your specific needs with SYZYGY-compatible Zmod connector boards.

Flexible Software

To create and modify designs for your Eclypse Z7, you can use Xilinx's Vivado Design Suite, PetaLinux, and SDK tools to customize, build, and deploy solutions on the Eclypse's Zynq-7000. For those who want to get started without FPGA experience, Digilent provides several example designs using the Eclypse with C/C++®, including both baremetal and Linux® software applications.

ZYNQ   ZMOD   SYZYGY

ZMOD **SYZYGY**

The Zmod SCOPE and Zmod AWG are intended to be included in user-defined data acquisition or signal processing systems. They use Opal Kelly's SYZYGY standard, which fits — in cost, size, and performance — somewhere between our existing Pmod and FPGA Mezzanine Card (FMC) standards. Although not much larger than Pmods, SYZYGY-compatible modules are capable of high-bandwidth connections to an FPGA (such as the Eclypse Z7), enabling very compact and cost-effective high performance I/O. We recommend them for compact, configurable, and rugged systems, though the high bandwidth and sampling rate (100 MS/s), the flexible input/output range, the high resolution, and the flexibility provided by the FPGA interface make the Zmods an ideal solution for a wide variety of applications.

ZMODSCOPE

## 2-channel Oscilloscope Module (available in 10-, 12-, or 14-bit)

- Channels: 2
- Channel type: single-ended
- Resolution: 10-bit
- Input range: ±1 V (High Gain) or ±25 V (Low Gain)
- Absolute Resolution 51.3 mV (High Gain) or 2 mV (Low Gain)
- Sample rate (real time): Ranging from 40 MS/s to 125 MS/s, depending on model
- Input impedance: 1 MΩ||18 pF
- Analog bandwidth:
  -40 Models: 1010-40: 20 MHz @ 3 dB, 8 MHz @ 0.5 dB, 4 MHz @ 0.1 dB
  -105 and -125 Models: 70 MHz @ 3 dB, 30 MHz @ 0.5 dB, 20 MHz @ 0.1 dB
- Input protected to: ±50 V
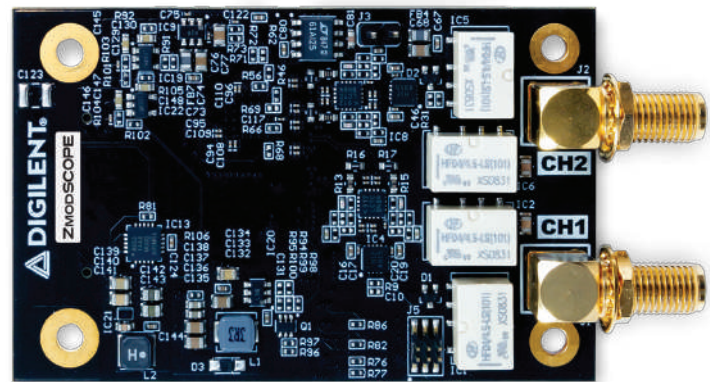
ZMODAWG

2-channel 14-bit Arbitrary Waveform Generator Module

- Channels: 2
- Channel type: single-ended
- Resolution: 14-bit
- Absolute Resolution (amplitude ≤1.25 V): 167 µV
- Absolute Resolution (amplitude >1.25 V): 665 µV
- Sample rate (real time): 100 MS/s
- Output impedance: 50 Ω
- Analog bandwidth: 40 MHz+ @ 3 dB, 20 MHz @ 0.5 dB, 14 MHZ @ 0.1 dB
- Slew rate (2 V step): 180 V/µs
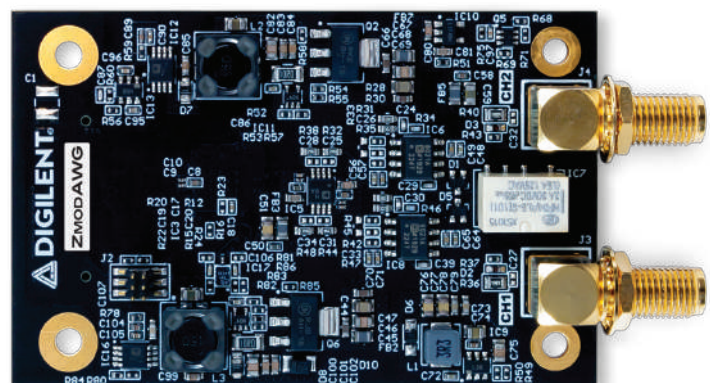
What is Data Acquisition?

Data acquisition, or DAQ as it is often referred, is the process of digitizing data from the world around us so it can be displayed, analyzed, and stored in a computer. A simple example is the process of measuring the temperature in a room as a digital value using a sensor such as a thermocouple. Modern data acquisition systems can include the addition of data analysis and reporting software, network connectivity, and remote control and monitoring options.

USB, Ethernet, Temperature, and Remote DAQ

Multifunction USB DAQ

MCC multifunction data acquisition devices are available with analog input and output, digital I/O, and counter/timers to suite your various application requirements. Devices are available with up to 64 analog inputs, sample rates up to 2 MS/s, and resolution from 12-24 bits. Signal conditioning for measuring sensors like pressure, strain, and accelerometers is also available.

USB-200 Series: These low-cost, multifunction devices are designed for general purpose DAQ applications and feature analog input, analog output, DIO, and one counter input.

Ethernet DAQ

Ethernet-based data acquisition devices are ideal for remote measurement and control applications. These devices feature up to eight analog inputs, analog output, and digital I/O.

E-1608 Series: These Ethernet devices have built-in 10/100 BASE-T auto-negotiation, high-speed communication port for data transfers over a network.

Temperature Measurement

Temperature is one of the most common measurement types in DAQ applications. These devices are offered in USB, Ethernet, or stand alone configurations, with the ability to measure 8-64 thermocouples, RTD's, or thermistors. Built-in cold-junction compensation and up to 24-bit resolution provide superior measurement capability.

TC-32 DAQ system devices provide high accuracy thermocouple inputs and include both USB and Ethernet interfaces.

Data Acquisition Software

Out-of-the-box software provides the ability to log and view data and generate signals. Drivers are also included for the most popular applications and programming languages including DASYLab®, Visual C++®, Visual C#®, Visual Basic®.NET, NI LabVIEW™, MATLAB®, Linux®, and Python™.
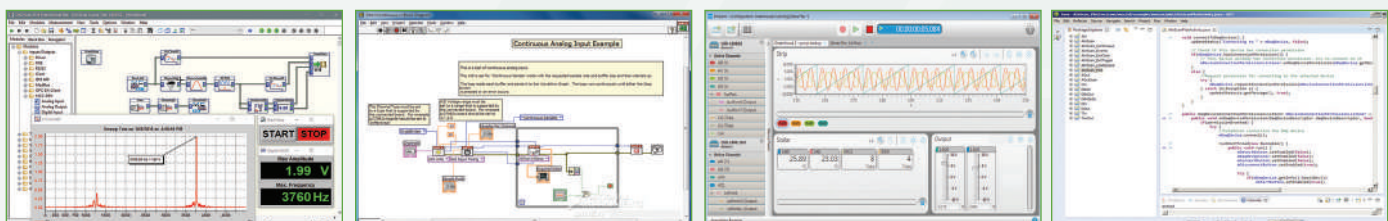
DATA ACQUISITION

MCC DAQ HAT Series for Raspberry Pi®

Precision Voltage, Thermocouple, and IEPE Measurements, Plus Analog and Digital I/O
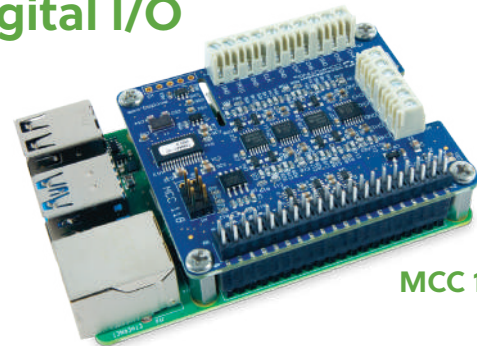
	Analog Inputs	Sample Rate	Resolution
MCC 118	8 SE Voltage	100 kS/s	12-bit
MCC 128	8 SE/4 DIFF Voltage	100 kS/s	16-bit
MCC 134	**Analog Inputs**	**Update Interval**	**Resolution**
	4 Thermocouple	1 Sec	24-bit
MCC 152	**Analog Outputs**	**Digital I/O**	**Resolution**
	2 Voltage	8	12-bit
MCC 172	**Analog Inputs**	**Sample Rate**	**Resolution**
	2 IEPE	51.2 kS/s/ch	24-bit

MCC 118

Raspberry Pi is the most popular single-board computer in use today. Many traditional DAQ users are designing systems around it because of its flexibility and low cost. This growing base of Raspberry Pi users, along with open-source software becoming more industry accepted, is driving growth and making single-board computer use more prevalent in professional DAQ applications.

WebDAQ Series

Internet Enabled Data Loggers for the Internet of Things

WebDAQ Series internet data logger devices offer a complete and easy-to-use remote data acquisition solution. With an embedded web server, users can configure and run simple to complex data logging operations, log data, set alarm conditions, and view the data in real-time from anywhere on an internet-enabled device.

|	Analog Inputs	Sample Rate	Resolution
WebDAQ 316	16 Thermocouple	75 S/s/ch Max	24-bit
WebDAQ 504	**Analog Inputs**	**Sample Rate**	**Resolution**
	4 IEPE	51 kS/s/ch Max	24-bit
WebDAQ 904	**Analog Inputs**	**Sample Rate**	**Resolution**
	4 Universal	100 S/s/ch Max	24-bit

WebDAQ 504

There are three devices in the WebDAQ Series. Devices are available to log multiple signal types including voltage (up to ±60 V), thermocouples, IEPE-based sensors like accelerometers, current, RTDs, resistance, and bridge-based sensors.

Ettus USRP Products

Software-Defined Radio Solutions

By supporting a wide variety of development environments on an expansive portfolio of high-performance RF hardware, the USRP platform is the SDR platform of choice for thousands of engineers, hobbyists, and students worldwide for exploration, prototyping and developing next-generation wireless technologies across a wide variety of applications. This software- defined radio portfolio combines ease of use and a robust open-source software community.
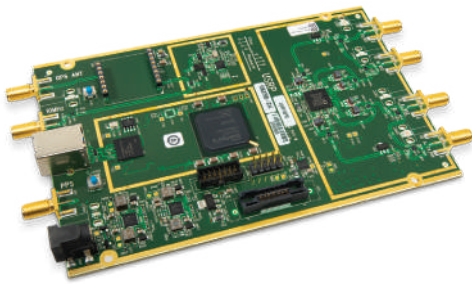
Ettus USRP B210
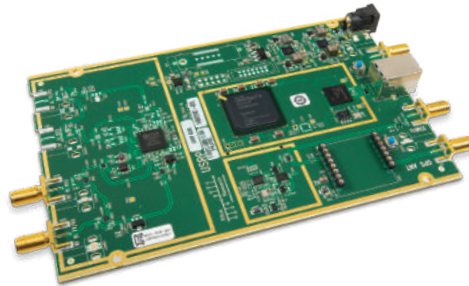
Ettus USRP B200

Ettus USRP B205mini-i

Multisim Live

Simulation Software: Design and Simulate Analog Circuits

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 $9.99/month) that allows un-limited 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**

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.

www.multisim.com

Engineering Tools Every Student Can Own

Academic Program Details

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 2 mixed-signal oscilloscope, 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.

New in 2023 – Expanded Discounts

Verified academic accounts will now receive 15% off all products that weren't already discounted. Visit our site to begin the verification process.

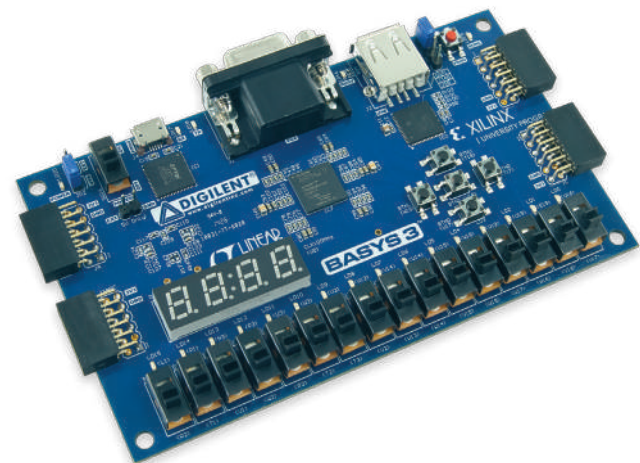Once we verify your academic information, a confirmation email will be sent out and academic pricing will be applied automatically when you are logged into your Digilent account.

Analog Discovery 2: 100MS/s USB Oscilloscope, logic analyzer and variable power supply
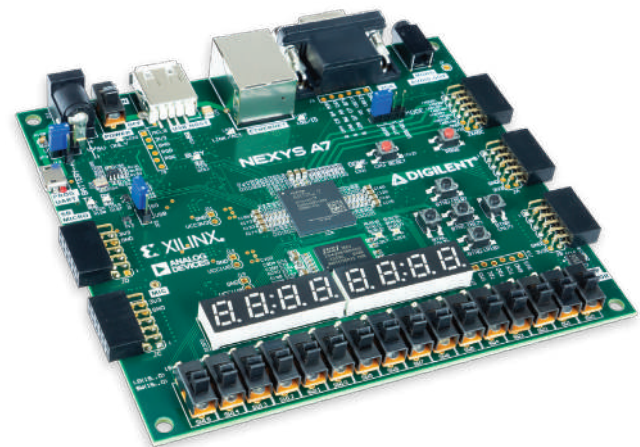
Nexys A7: An incredibly accessible, yet powerful, FPGA development board

Basys 3 Artix-7 FPGA Trainer Board: Recommended for introductory users

Product Comparison Charts

Test and Measurement							
Product	**Analog Input**	**Analog Output**	**Digital Input**	**Digital Output**	**Analyzer and Full Protocol Support**	**Power Supplies**	**OS Support**
Analog Discovery 2	2 Channel, 14-bit, 100 MS/s, ±25 V, 30 MHz+ bandwidth with BNC Adapter	2 Channel, 14-bit, 100 MS/s, ±5 V	16 Channel, 100 MS/s, 3.3 V CMOS, 5 V tolerant	16 Channel, 100 MS/s, 3.3 V CMOS	Spectrum, Network, Impedance, SPI, I2C, UART, etc.	-0.5 to -5 V, 0.5 to 5 V, 500 mW over USB, 2.1 W via ext power	Windows, Mac, Linux
Digital Discovery	N/A	N/A	32 Channel, 800 MS/s, 1.2 V to 3.3 V CMOS, 5 V tolerant	16 Channel, 100 MS/s, 1.2 V to 3.3 V CMOS	Spectrum, Network, Impedance, SPI, I2C, UART, etc.	1.2 to 3.3 V, 100 mA current total	Windows, Mac, Linux
Analog Discovery Studio	2 Channel, 14-bit, 100 MS/s, ±25 V, 30 MHz+ bandwidth with BNC Adapter	2 Channel, 14-bit, 100 MS/s, ±5 V	16 Channel, 100 MS/s, 3.3 V CMOS, 5 V tolerant	16 Channel, 100 MS/s, 3.3 V CMOS	Spectrum, Network, Impedance, SPI, I2C, UART, etc.	-1 to -5 V, 1 to 5 V, each at 2.1 W, ±12 V at 0.2 A, 5 V and 3.3 V at 1 A	Windows, Mac, Linux
Analog Discovery Pro ADP3450/ ADP320	4 channel / 2 channel, 14-bit, 125 MS/s, ±25 V, 55 MHz+ bandwidth	2 Channel, 14-bit, 125 MS/s, ±5 V	16 Channel, 125 MS/s, 1.2 V to 3.3 V CMOS, 5 V tolerant	16 Channel, 125 MS/s, 1.2 V to 3.3 V CMOS	Spectrum, Network, Impedance, SPI, I2C, UART, etc.	1.2 to 3.3 V, 300 mA current total	Windows, Mac, Linux
Analog Discovery Pro ADP5250	2 channel, 8-bit, 1 GS/s, 40 V peak to peak, 100 MHz bandwidth	1 Channel, 14-bit, 125 MS/s, ±12 V	32 Channel, 1 GS/s, 0 V to 5 V input	N/A	Spectrum, Network, Impedance	0 to 6 V up to 1 A, 0 to 25 V up to 500 mA, 0 to -25 V up to 500 mA	Windows

System Boards						
Product	**FPGA Chip**	**Expansion Connectors**	**Connectivity**	**Audio**	**Video**	**External Memory**
Arty S7	Spartan-7 (XC7S50/XC7S25)	4x Pmod	USB-UART	none	none	256 MB DDR3L
Arty A7	Artix-7 (XC7A100T/XC7A35T)	4x Pmod	USB-UART, 10/100 Ethernet	none	none	256 MB DDR3L
Arty Z7	Zynq-7000 (XC7Z020/XC7Z010)	2x Pmod	USB-UART, Gigabit Ethernet, USB 2.0 Host PHY	Mono output	HDMI source and sink	512 MB DDR3
Genesys ZU	Zynq UltraScale+ (XCZU5EV/XCZU3EG)	1x Zmod, 4x Pmod, FMC LPC, FMC Gigabit (5EV-only), dual-slot Mini-PCIe / mSATA	USB-UART, 2.4 GHz Wi-Fi, Gigabit Ethernet, SFP+ 10G Ethernet (5EV-only), USB 2.0 Host PHY	Line-in, line-out, headphone-out, and microphone-in jacks	HDMI source and sink (5EV-only), 2x Pcam connectors, DisplayPort source	4 GB DDR4
Zybo Z7	Zynq-7000 (XC7Z020/XC7Z010)	6x Pmod (Z7-20) / 5x Pmod (Z7-10)	USB-UART, Gigabit Ethernet, USB 2.0 Host/Device/OTG PHY	Line-in, headphone-out, and microphone-in jacks	HDMI source and sink, 1x Pcam connector	1 GB DDR3L
Zedboard	Zynq-7000 (XC7Z020)	5x Pmod, 1x FMC LPC	USB-UART, Gigabit Ethernet, USB 2.0 OTG	Line-in, line-out, headphone-out, and microphone-in jacks	HDMI source, VGA output	512 MB DDR3
Eclypse Z7	Zynq-7000 (XC7Z020)	2x Zmod, 2x Pmod	USB-UART, Gigabit Ethernet, USB 2.0 Host/Device/OTG PHY	none	none	1 GB DDR3L
Basys 3	Artix-7 (XC7A35T)	3x Pmod	USB-UART	none	VGA output	none
Nexys A7-100T	Artix-7 (XC7A100T)	5x Pmod	USB-UART, 10/100 Ethernet	Mono output, microphone	VGA output	128 MB DDR2

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