

# Answering the Needs of Practicing Engineers

Analog Devices participates in many vibrant hardware and software ecosystems, from Arduino to Pmod. Rapidly make your prototype and test your concepts. ADI's reference designs support many different applications and technologies, and include everything from hardware to embedded firmware that makes it easier for engineers to get their product concepts up and running fast.

#### Adapter Boards

Not all development platforms support the popular hardware interfaces that ADI uses. So for some of the platforms, we've produced adapter boards that enable additional hardware interface options to help scale the number of add-on boards that can be used. Analog Devices' goal is to ensure that we can provide hardware add-on boards for as many of the popular development platforms as possible to assist you with creating applications that work on your preferred embedded target. Below is a selection of the current supported development platforms along with a list of the available hardware interfaces they support without additional adapter boards.

#### **MAXREFDES72**

Arduino to Pmod-compatible adapter

- One Pmod-compatible port with universal serial interfacing
- 1.8 V to 5 V digital logic compatible
- On-board real-time clock
- ► Visit analog.com/MAXREFDES72



#### **PMD-ARD-INTZ**

4-channel Pmod-compatible peripheral to Arduino controller

- Two SPI, one I<sup>2</sup>C, and one UART port
- Channel independent level translation
- Channel independent IOREF selection
- ► Visit analog.com/PMD-ARD-INTZ

#### **PMD-RPI-INTZ**

4-channel Pmod-compatible peripheral to Raspberry Pi controller

- Two SPI, two I<sup>2</sup>C Pmodcompatible ports
- QuikEval and power system management ports
- Flexible pin remapping matrix
- ► Visit analog.com/PMD-RPI-INTZ



# FTHR-PMD-INTZ FeatherWings to Pmod Adaptor

- One SPI, one I<sup>2</sup>C Pmod-compatible port
- Selectable Pmod-compatible power (3.3 V or 5 V)
- Selectable digital I/O voltage (3.3 V or 1.8 V)
- ► Visit analog.com/FTHR-PMD-INTZ



#### Arduino Shields

Arduino shields, first standardized by Arduino, are a popular hardware form factor that is typically mechanically and eletrically compatible with the Arduino Uno Rev 3 board. Many different FPGA, microprocessor, and DSP vendors provide plug and play connectivity into their development boards and environments using this form factor. Arduino shields provide analog and digital pins to configure devices and digitize signals coming from the real world. The digital communications protocols supported by Arduino shields are SPI, I<sup>2</sup>C, UART, PWM, and GPIO. Most of the boards below are compatible with either the EVAL-ADICUP360 or EVAL-ADICUP3029 and should work with most compatible Arduino form factor microcontroller platforms. All software is open-source and can be found on qithub.com/analogdevicesinc/.

#### DC2847A-KIT

Dual RF rms power detector with integrated bidirectional bridge

- Measure forward and reverse rms power
- 9 kHz to 7 GHz
- SMA input connector
- Visit analog.com/DC2847A-KIT



#### DC2870A-KIT

RF/microwave rms power detector

- ► 100 MHz to 40 GHz
- SMA input connector
- On-board voltage reference
- Visit analog.com/DC2807A-KIT



#### EVAL-AD8302-ARDZ

RF gain and phase detector

- Low frequency to 2.7 GHz
- SMA input connector
- Easily digitized using platform ADC
- ► Visit analog.com/EVAL-AD8302-ARDZ



#### **EVAL-ADL5902-ARDZ**

TruPWR™ rms detector

- ► 50 MHz to 9 GHz
- SMA input connector
- 65 dB rms power monitor
- ► Visit analog.com/EVAL-ADL5902-ARDZ



#### **EVAL-ADM3055E-ARDZ**

SPI to CAN FD transceiver

- Fully isolated CAN FD bus
- Operates in standby mode and remote wake-up mode
- Switchable termination
- Visit analog.com/CN0401

# EVAL-AI

#### **EVAL-ADXL362-ARDZ**

Ultra low power, 3-axis, programmable g accelerometer with display



- ▶ Ultra low power sleep and wake-up modes
- Programmable acceleration ranges
- Board mounted LCD display
- Visit analog.com/EVAL-ADXL362-ARDZ

#### **EVAL-ADXL372-ARDZ**

Micropower, 3-axis, ±200 *g* digital output accelerometer

- Ultra low power sleep and wake-up modes
- ► ±200 *q* measurement range
- Adjustable high-pass filter
- Visit analog.com/EVAL-ADXL372-ARDZ

#### **EVAL-CN0216-ARDZ**

Precision weigh scale/load cell measurement system



- 4- or 6-wire load cell compatible
- Full-scale sensor output up to 10 mV
- Visit analog.com/EVAL-CN0216-ARDZ



#### **EVAL-CN0338-ARDZ**

NDIR thermopile-based gas detection

- Optimized for CO<sub>2</sub> gas
- Maintains accuracy in high humidity
- Single supply
- Visit analog.com/CN0338

## **EVAL-CN0357-ARDZ**

Electrochemical toxic gas detector

- Programmable for multiple other gases
- Resolution down to 1 ppm
- Low power, single-supply operation
- ► Visit analog.com/EVAL-CN0357-ARDZ



#### **EVAL-CN0391-ARDZ**

Universal 4-channel thermocouple measurement system (digital)

- Flexible 4-channel thermocouple system
- Cold junction compensation
- 24-bit digitization
- Visit analog.com/CN0391



#### **EVAL-CN0394-ARDZ**

Universal 4-channel thermocouple measurement system (analog)

- Flexible 4-channel thermocouple system
- Cold junction compensation
- 24-bit digitization
- Visit analog.com/CN0394



#### **EVAL-CN0395-ARDZ**

Volatile organic compound gas detection

- Temperature and humidity compensation
- Can be used with multiple sensor types
- Low power
- Visit analog.com/CN0395



#### **EVAL-CN0397-ARDZ**

Ultra low power visible light recognition measurement system

- Recognizes red, green, and blue light sources
- Sensors are integrated on board
- Ultra low power
- Visit analog.com/CN0397



#### **EVAL-CN0409-ARDZ**

Water turbidity measurement system

- ▶ 0 FTU to 1000 FTU measurement range
- ±0.5 FTU system accuracy (up to 1000 FTU)
- Integrated ambient light rejection
- Visit analog.com/CN0409



current source

- ▶ 1A max current load per channel
- blue LEDs



#### **EVAL-CN0411-ARDZ**

Total dissolved solids measurement system

- Temperature compensation
- 1 μs to 1 s measurement range
- Standard BNC conductivity probe connector
- Visit analog.com/CN0411



#### **EVAL-CN0415-ARDZ**

Robust closed-loop solenoid control design

- Overvoltage and undervoltage sensor control
- Useful for on/off and proportional solenoids
- Closed-loop driver circuit for precise control
- Visit analog.com/CN0415

#### **EVAL-CN0418-ARDZ**

4-channel analog output PLC module with HART

- ±10 V, 4 mA to 20 mA output
- Programmable output values
- HART compliant
- Visit analog.com/CN0418



# **EVAL-CN0396-ARDZ**

Dual electrochemical gas detector

- Temperature compensation
- Work with industry-standard gas sensors
- Programmable for a variety of gases
- Visit analog.com/CN0396

#### **EVAL-CN0398-ARDZ**

Soil moisture and pH with temperature measurement system

- Temperature compensation
- Uses BNC standard pH probe
- Uses voltage output moisture probes
- Visit analog.com/CN0398

#### **EVAL-CN0410-ARDZ**

Programmable, 3-channel LED 1 A

- Designed to drive red, green, and
- Isolated repeater for multiple LED banks
- Visit analog.com/CN0410

#### **EVAL-CN0414-ARDZ**

4-channel analog input PLC module with HART®

- ±10 V, 4 mA to 20 mA input
- Hardware open wire detection
- **HART** compliant
- Visit analog.com/CN0414

# **EVAL-CN0416-ARDZ**

RS-485 communications design

- Isolated and nonisolated bus path
- Selectable as a main or a subordinate node
- Connects up to 32 boards together
- Visit analog.com/CN0416

# **EVAL-CN0428-ARDZ**

Conductivity, pH, and ODR water quality measurement system

- Measure from one to four sensor channels
- Selectable SPI, I2C, or UART communication
- 10-pin JTAG/SWD connector for easy programming
- Visit analog.com/CN0428









#### **EVAL-CN0429-EBZ**

Multichannel electrochemical gas detector

- 3- or 4-wire electrochemical gas sensors
- Gas sensor diagnostics and life expectancy
- ► Temperature and humidity compensation
- ► Visit analog.com/CN0429

#### **EVAL-AD5941BATZ**

Electrochemical impedance spectroscopy for batteries



- Designed for lithium-ion battery testing
- ► MHz to kHz frequency sweep
- Accurate data for state of health and state of charge calculation
- Visit analog.com/CN0510

#### **EVAL-CN0537-ARDZ**

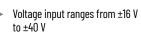
Multistandard verified smoke detector solution



- UL 217 and UL 268 algorithm available
- Highly integrated analog front end
- Dual wavelength sensing technology
- Visit analog.com/CN0537

### **EVAL-CN0548-ARDZ**

Isolated, high voltage and current measurement system



- ► ±10 A current input
- 250 V isolation
- Visit analog.com/CN0548

#### **MAX11410B0B**

24-bit multichannel low power 1.9 kSPS sigma-delta ADC with PGA breakout board

- ▶ 10 channels with PGA, buffers
- Burnout current sources for fault detection
- 90 dB simultaneous 60 Hz/50 Hz line rejection
- Visit analog.com/MAX11410B0B

#### **MAX5719B0B**

Ultralow noise 20-bit voltage output DAC

- 20-bit resolution, 0.05 nV/s glitch
- ► Ultralow noise: 6 nV/√Hz
- Unipolar or bipolar operation
- Visit analog.com/MAX5719B0B



#### **EVAL-CN0503-ARDZ**

Multichannel optical-based water quality analysis platform



- Measures colorimetry/absorbance, fluorescence, turbidity
- Photometric front end reduces component count and rejects ambient light
- Swappable LEDs and photodiode
- ► Visit analog.com/CN0503

#### **EVAL-CN0536-ARDZ**

Geiger counter with adjustable high voltage power supply



- Power supply adjustable from 280 V to 500 V
- Compatible with center excited Geiger-Müller tubes
- Audible and visual indication of radiation
- Visit analog.com/CN0536

#### **EVAL-CN0540-ARDZ**

IEPE-compatible data acquisition system



- ► 54 kHz analog input bandwidth
- 24-bit resolution, >108 dB SNR
- ► Visit analog.com/CN0540

#### **MAX11131B0B**

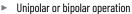
3 MSPS, low power, serial 12-/10-bit, 8-/16-channel ADCs breakout board



- 16 sample FIFO
- Unipolar or bipolar input range
- ► Visit analog.com/MAX11131B0B

#### **MAX5171B0B**

14-bit DAC with force-sense voltage output



- Force/sense connections for improved load regulation
- Minimize power-up glitch
- Visit analog.com/MAX5171B0B



#### **MAXREFDES130**

Building automation platform, Arduino/ Mbed compatible



- Eight 0 V to 10 V, one 4 mA to 20 mA analog output
- Eight nonlatching relays, three latching relays
- ► 4 mA to 20 mA output, 1-Wire® main
- Visit analog.com/MAXREFDES130

#### **MAXREFDES161**

High performance frequency synthesizer

- Frequencies between 23.5 MHz to 6 GHz
- On-board clock reference
- SMA input/output connectors
- Visit analog.com/MAXREFDES161



## **FeatherWings**

Adafruit's FeatherWing boards have a hardware form factor similar to shields and hardware attached on top (HAT) components but with a much smaller physical footprint and a design meant for connecting to feather motherboards. By design, you can plug as many wings onto a feather as you want, as long as you don't run out of power, space, or pin contentions.

#### **MAX11301WING**

20-port configurable ADC/DAC/GPIO/ analog switch device



- Up to 20 analog/digital inputs/outputs
- Individually configured channels
- 12-bit ADC/DAC resolution, internal reference
- Visit analog.com/MAX11301WING

#### **MAX30101WING**

Pulse oximetry measurement sensor

- Integrated LEDs and PDs
- Ambient light cancellation
- 0.7 µA of shutdown power
- Visit analog.com/MAX30101WING



#### MAX30003WING

Biopotential front end for ECG measurements



- Programmable offset for wide electrode use
- On-chip FIFO and interrupts reduce software complexity
- Decreased power usage for extended battery life
- Visit analog.com/MAX30003WING

#### **MAXREFDES220**

Pulse oximeter smart sensor with digital signal processing



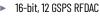
- Low power heart rate and pulse oximetry measurements
- Available algorithms for both measurements
- 3-axis accelerometer increases measurement accuracy
- Visit analog.com/MAXREFDES220

### **FMC Boards**

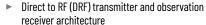
The FPGA mezzanine card (FMC) is an ANSI/VITA standard that defines the input/output pins of FPGAs and other reconfigurable devices. There are two types of connectors, low pin count (LPC) and high pin count (HPC) variations depending on the devices on the FMC card. It specifies a low profile connector and compact board size for compatibility with several industry-standard slot card, blade, low profile motherboard, and mezzanine form factors.

#### **AD-FMCOMMS11-EBZ**

Direct RF-to-baseband transmit radio up to 5 GHz



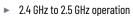




Visit analog.com/AD-FMCOMMS11-EBZ

#### **AD-FMCOMMS 2-EBZ**

AD9361 software-defined radio board (optimized for 2.4 GHz)



- 200 kHz to 56 MHz bandwidth
- Two receivers, two transmitters
- Visit analog.com/AD-FMCOMMS2-EBZ



#### **AD-FMCOMMS3-EBZ**

AD9361 wideband software-defined radio board

- 70 MHz to 6 GHz operation
- 200 kHz to 56 MHz bandwidth
- Two receivers, two transmitters
- Visit analog.com/AD-FMCOMMS3-EBZ



#### **AD-FMCOMMS4-EBZ**

AD9364 wideband software-defined radio board

- 70 MHz to 6 GHz operation
- 200 kHz to 56 MHz bandwidth
- One receiver, one transmitter
- Visit analog.com/AD-FMCOMMS4-EBZ



#### **AD-FMCOMMS5-EBZ**

Synchronized 4 × 4 dual AD9361 transceiver board

- ► 70 MHz to 6 GHz operation
- 200 kHz to 56 MHz bandwidt
- Four receivers, four transmitters
- Visit analog.com/AD-FMCOMMS5-EBZ

#### **EVAL-CN0506-FMCZ**

10 Mbps/100 Mbps/1000 Mbps dual-channel, low power Industrial Ethernet PHY

- ▶ IEEE 1588 time stamping
- 1 Gbps with 180 m cable
- Supports managed and unmanaged operation via pin strapping
- Visit analog.com/CN0506

#### **EVAL-CN0585-FMCZ**

Quad-channel, low latency, data acquisition, and signal generation module

- Four analog input channels with configurable voltage ranges
- Four analog output channels with configurable voltage range
- 200 ns latency between ADC measurement and DAC settling
- ► Visit analog.com/CN0585

#### **AD-FMCOMMS8-EBZ**

Dual  $4 \times 4$  ADRV9009 transceiver platform with observation receiver for DPD

- 75 MHz to 6 GHz operation
- ▶ 200 MHz receiver bandwidth
- Multichip phase synchronization
- Visit analog.com/AD-FMCOMMS8-EBZ

#### **EVAL-CN0577-FMCZ**

Analog front end and digital interface for serial LVDS SAR ADCs

- 18-bit resolution, 15 MSPS
- Arbitrary voltage inputs supported
- All clocking and power generated on board
- ► Visit analog.com/CN0577

#### **AD-FMCDA02-EBZ**

High speed, dual-channel ADC and DAC with synchronization

- ► 14-bit, 1 GSPS ADC
- ▶ 16-bit, 800 MSPS DAC
- Input/output synchronization
- Visit analog.com/AD-FMCDAQ2-EBZ



## **Development Platforms**

Development platforms are used to design, develop, test, and debug embedded software that will target a particular processor, controller, or configurable device. These development platforms provide additional peripherals and functions that enable them to be compatible with various industry-standard communications protocols, connectivity interfaces, and hardware interfaces (such as Arduino shields, Pmod devices, FMC, Raspberry Pi HATs, and FeatherWings). The goal of a development board is to provide a means to take your design and ensure it functions on the embedded target of your choice, so when you move to the end, the design, code, and hardware have already been proven out.

ADI's goal is to ensure that we can provide hardware add-on boards for as many of the popular development platforms as possible to assist you with creating applications that work on your preferred embedded target. Below is a selection of the current supported development platforms along with a list of the available hardware interfaces they support without additional adapter boards.

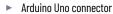
#### **Arria 10 SoC Dev Kit**

Intel® Arria® 10 SoC Development Kit

- Two LPC FMC connectors
- PCIe connector (Gen 3 ×8)
- Ethernet jack
- Visit intel.com/content/www/us/en/ products/details/fpga/development-kits/arria/10-sx.html

#### CoraZ7-07S

Xilinx® Zynq®-7000 all programmable SoC



- ► Two Pmod-compatible connectors
- Ethernet jack
- Visit projects.digilentinc.com/products/cora-z7-07s



#### **DE10-Nano**

Intel Cyclone V SoC

- Arduino Uno connector
- ► USB OTG
- Ethernet jack
- Visit intel.com/content/www/us/en/developer/topictechnology/edge-5g/hardware/fpga-de10-nano.html



#### **KCU105**

Kintex® UltraScale™ FPGA KCU105 evaluation kit LPC FMC Connector, HPC FMC connector, Pmod-compatible connector, DDR4

- Two FMC connectors (LPC and HPC)
- Pmod-compatible connector
- ► PCle edge connector (Gen 3 ×8)
- Visit xilinx.com/products/boards-and-kits/kcu105.html



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#### **KC705**

Kintex-7 FPGA KC705 evaluation kit LPC FMC connector, HPC FMC connector, DDR3

- Two FMC connectors (LPC and HPC)
- PCle edge connector (×8)
- Ethernet jack
- Visit xilinx.com/products/boards-and-kits/ek-k7-kc705-g.html

#### **VCU118**

Virtex UltraScale+™ FPGA VCU118 evaluation kit

- HPC FMC connector
- HSPC FMC+ connector
- Two Pmod-compatible connectors
- Visit xilinx.com/products/boards-and-kits/vcu118.html

#### **ZC706**

Zynq-7000 SoC ZC706 evaluation kit

- Two FMC connectors (LPC and HPC)
- Pmod-compatible connector
- PCIe edge connector (Gen 2 ×4)
- Visit xilinx.com/products/boards-and-kits/ek-z7-zc706-g.html

#### **ZedBoard**

Single-core Arm SoC, FPGA with 8.5k logic slices, FMC, Pmod-compatible expansion headers

- ► LPC FMC connector
- Five Pmod-compatible connectors
- USB OTG
- Visit digilent.com/reference/programmable-logic/ zedboard/start

#### **EVAL-ADICUP360**

ADuCM360, dual simultaneous 24-bit sigma-delta converter, Arduino form factor Arm Cortex-M3 development platform

- Arduino Uno connector
- Arduino Due connector
- Two Pmod-compatible connectors
- Visit analog.com/EVAL-ADICUP360

#### MAX32620FTHR

MAX32620 feather form factor microcontroller board

- FeatherWings connector
- Pmod-compatible connector
- USB lowercase
- Visit analog.com/MAX32620FTHR

#### MAX32650FTHR

MAX32650 feather form factor microcontroller board

- FeatherWings connector
- USB FeatherWings connector
- Visit analog.com/MAX32650FTHR

# **VC707**

Virtex®-7 FPGA VC707 evaluation kit

- ► Two HPC FMC connectors
- PCle edge connector (Gen 2 ×8)
- Ethernet jack
- Visit xilinx.com/products/boards-and-kits/ek-v7-vc707-g.html

#### **ZC702**

Xilinx Zyng-7000 SoC ZC702 evaluation kit

- Two LPC FMC connectors
- Two Pmod-compatible connector
- Ethernet jack
- Visit xilinx.com/products/boards-and-kits/ek-z7-zc702-q.html

#### **ZCU102**

XCZU9EG Zynq Ultrascale+ SoC, 2× LPC FMC expansion connectors

- ► Two LPC FMC connectors
- Two Pmod-compatible connector
- ► PCle edge connector (Gen 2 ×4)
- Visit xilinx.com/products/boards-and-kits/ek-u1-zcu102-g.html

#### **EVAL-ADICUP3029**

ADuCM3029, ultra low power Arduino form factor Arm® Cortex®-M3 development platform



- Arduino Uno connector
- Two Pmod-compatible connectors
- Grove connector
- Visit analog.com/EVAL-ADICUP3029

#### MAX32520FTHR

MAX32520 feather form factor microcontroller board



- Pmod-compatible connector
- USB programming
- Visit analog.com/MAX32520FTHR

#### MAX32630FTHR

MAX32630 feather form factor microcontroller board



- FeatherWings connector
- USB programming
- Bluetooth® connectivity
- Visit analog.com/MAX32630FTHR

## MAX32655FTHR

MAX32655 feather form factor microcontroller board

- ► FeatherWings connector
- USB programming
- Bluetooth connectivity
- ► Visit analog.com/MAX32655FTHR



#### MAX32666FTHR

MAX32666 feather form factor microcontroller board

- FeatherWings connector
- USB programming
- Bluetooth connectivity
- Visit analog.com/MAX32666FTHR

#### Raspberry Pi 3B+

Quad Arm core Cortex-A53 SoC, 1.5 GHz, 1 GB RAM, gigabit Ethernet, SPI, I<sup>2</sup>C, GPIO, USB

- Raspberry Pi HAT connector
- Four USB ports
- Ethernet jack
- ► Visit raspberrypi.com/products/raspberry-pi-3-model-b-plus/

### Raspberry Pi Zero 2W

1 GHz, quad Arm core Cortex-A53, 512 MB RAM, Wireless Ethernet, SPI, I<sup>2</sup>C, GPIO

- Raspberry Pi HAT connector
- USB OTG
- ▶ Wi-Fi
- Visit raspberrypi.com/products/raspberry-pi-zero-2-w/

#### MAX78000FTHR

MAX78000 feather form factor microcontroller board



- FeatherWings connector
- USB programming
- Audio input/output jacks
- ► Visit analog.com/MAX78000FTHR

#### Raspberry Pi 4

Quad Arm core Cortex-A72 SoC, 1.5 GHz, 8 GB RAM, dual display, qiqabit Ethernet, SPI, I<sup>2</sup>C, USB, GPIO

- Raspberry Pi HAT connector
- Four USB ports
- Ethernet jack
- Visit raspberrypi.com/products/raspberry-pi-4-model-b/

#### Raspberry Pi Zero W

1 GHz, single Arm core, 512 MB RAM, wireless Ethernet, SPI, I<sup>2</sup>C, GPIO

- Raspberry Pi HAT connector
- USB OTG
- ▶ Wi-Fi
- Visit raspberrypi.com/products/raspberry-pi-zero-w/

## **Pmod-Compatible Devices**

The Pmod (peripheral module)-compatible interface is an open standard by Digilent (a National Instruments company) for peripherals used with FPGAs or microcontroller development boards. The modules are available from simple push buttons to more complex modules with analog-to-digital converters (ADCs), digital-to-analog converters (DACs), or LCD displays. These modules can be used with a variety of FPGA or microcontroller development boards from different vendors and support major digital communication protocols such as SPI, I<sup>2</sup>C, and UART. Pmod-compatible interfaces normally have additional software drivers and configuration is required. All software is open source and can be found on github.com/analogdevicesinc/.

#### **DS1086LPMB1**

Low EMI 3 V all-silicon clock oscillator

- ▶ 130 kHz to 66.6 MHz frequency range
- Selectable spread spectrum dither for EMI reduction
- Internal nonvolatile configuration memory
- Visit analog.com/DS1086LPMB1

#### **DS3231MPMB1**

Real-time clock peripheral module



- Coin cell backup
- ▶ ±2 ppm accuracy
- ► Visit analog.com/DS3231MPMB1



#### **EVAL-AD5592R-PMDZ**

8-channel, 12-bit, configurable ADC/DAC/ GPIO module with SPI interface

- Universal analog and digital I/O
- Per-channel configuration
- Internal reference and temperature sensor
- Visit analog.com/EVAL-AD5592R-PMDZ

#### **EVAL-AD5593R-PMDZ**

8-channel, 12-bit, configurable ADC/DAC/ GPIO module with I<sup>2</sup>C interface

- Universal analog and digital I/O
- Per-channel configuration
- Internal reference and temperature sensor
- ► Visit analog.com/EVAL-AD5593R-PMDZ



#### **EVAL-AD5770R-PMDZ**

6-channel, current output DAC

- ► 14-bit resolution
- Per-output supply pins for reducing dissipation
- Output ranges from -60 mA to +300 mA
- Visit analog.com/EVAL-AD5770R-PMDZ



## **EVAL-AD7124-8-PMDZ**

8-channel, 24-bit sigma-delta ADC with PGA and reference

16-input crosspoint mux with sequencer

**EVAL-AD7686-PMDZ** 

compatible evaluation board

16-bit, 500 kSPS ADC

16-bit, 500 kSPS PulSAR ADC Pmod-

- 1.7 SPS to 19.2 kSPS conversion rate
- PGA gain from 1 to 128
- Visit analog.com/EVAL-AD7124-8-PMDZ

Unipolar, single-ended analog input

On-board input buffers and reference

Visit analog.com/EVAL-AD7686-PMDZ



16-bit, 250 kSPS PulSAR® ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 250 kSPS ADC
- On-board input buffers and reference



## **EVAL-AD7688-PMDZ**

16-bit, 500 kSPS Pulsar ADC Pmodcompatible evaluation board



- 16-bit, 500 kSPS ADC
- On-board input buffers and referenc
- Visit analog.com/EVAL-AD7688-PMDZ

# Visit analog.com/EVAL-AD7685-PMDZ

#### **EVAL-AD7687-PMDZ**

16-bit, 250 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 250 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7687-PMDZ



#### **EVAL-AD7690-PMDZ**

18-bit, 400 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, fully differential analog input
- 18-bit, 400 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7690-PMDZ

#### **EVAL-AD7691-PMDZ**

16-bit, 250 kSPS PulSAR ADC Pmodcompatible evaluation board



- 16-bit, 250 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7691-PMDZ

#### **EVAL-AD7693-PMDZ**

16-bit, 500 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, fully differential analog input
- 16-bit, 500 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7693-PMDZ

### **EVAL-AD7942-PMDZ**

14-bit, 250 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 14-bit, 250 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7942-PMDZ

# **EVAL-AD7946-PMDZ**

14-bit, 500 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 14-bit, 500 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7946-PMDZ



#### **EVAL-AD7980-PMDZ**

16-bit, 1000 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 1000 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7980-PMDZ









#### **EVAL-AD7982-PMDZ**

18-bit, 1000 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, fully differential analog input
- 18-bit, 1000 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7982-PMDZ



18-bit, 1333 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, fully differential analog input
- 18-bit, 1333 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7984-PMDZ

#### **EVAL-AD7988-5-PMDZ**

16-bit, 500 kSPS Pulsar ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 500 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7988-5-PMDZ

#### **EVAL-ADT7420-PMDZ**

±0.25°C accurate digital temperature sensor

- 16-bit digital temperature resolution
- I<sup>2</sup>C interface for up to four nodes on a sinale bus
- Low power (700 µW at 3.3 V normal mode, 7 μW at 3.3 V in shutdown mode)

# Visit analog.com/EVAL-ADT7420-PMDZ

### **EVAL-ADXRS290-PMDZ**

Ultralow noise, dual-axis MEMS gyroscope for stabilization applications

- Full-scale output range of ±100°/s
- Ultralow noise: 0.004°/s/√Hz
- Programmable high-pass and low-pass filters
- Visit analog.com/EVAL-ADXRS290-PMDZ

#### **EVAL-CN0216-PMDZ**

Precision weigh scale/load cell measurement system

- High gain, low noise
- 4- or 6-wire load cell compatible
- Full-scale sensor output up to 10 mV
- Visit analog.com/CN0216



#### **EVAL-AD7983-PMDZ**

16-bit, 1333 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 1333 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7983-PMDZ

#### EVAL-AD7988-1-PMDZ

16-bit, 100 kSPS PulSAR ADC Pmodcompatible evaluation board

- Unipolar, single-ended analog input
- 16-bit, 100 kSPS ADC
- On-board input buffers and reference
- Visit analog.com/EVAL-AD7988-1-PMDZ

#### **EVAL-ADF7242-PMDZ**

Low power, 2.4 GHz ISM band radio

- Global ISM band
- High sensitivity
- Programmable output power
- Visit analog.com/EVAL-ADF7242-PMDZ

#### **EVAL-ADXL355-PMDZ**

Low power, low noise 3-axis digital accelerometer

- 20-bit ADC resolution
- Programmable high- and low-pass digital filters
- Low power (200  $\mu$ A in measurement mode and 21  $\mu$ A in standby mode)
- Visit analog.com/EVAL-ADXL355-PMDZ

#### **EVAL-CN0179-PMDZ**

Programmable 4 mA to 20 mA current loop transmitter



- Low power
- 14-bit resolution control
- High-side current source compatible with grounded loads
- Visit analog.com/CN0179

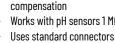
#### **EVAL-CN0326-PMDZ**

Isolated pH monitor with temperature compensation



- ±0.5% accurate with temperature
- Works with pH sensors  $1 M\Omega$  to  $1 G\Omega$  output impedance
- Uses standard connectors (BNC for pH and RCA for temperature)
- Visit analog.com/CN0326







#### **EVAL-CN0335-PMDZ**

Fully isolated, ±10 V data acquisition system

- Galvanically isolated from processor
- Standard ±10 V industrial input
- Works from single 3.3 V supply
- Visit analog.com/CN0335





# **EVAL-CN0336-PMDZ**

Fully isolated, 4 mA to 20 mA data acquisition system



- Galvanically isolated from processor
- Standard 4 mA to 20 mA industrial input
- Works from single 3.3 V supply
- Visit analog.com/CN0336

#### **EVAL-CN0337-PMDZ**

Fully isolated, 3-wire RTD temperature measurement system



- Galvanically isolated from processor
- Uses standard 3-wire RTD sensors
- Includes lead-wire temperature compensation
- Visit analog.com/CN0337



#### **EVAL-CN0349-PMDZ**

Fully isolated conductivity measurement system



- Galvanically isolated from processor
- 1% accurate conductivity measurements after calibration
- Visit analog.com/CN0349

#### **EVAL-CN0346-PMDZ**

Accurate relative humidity measurement system



- Contactless humidity measurement
- Highly accurate
- I<sup>2</sup>C digital output
- Visit analog.com/CN0346

#### **EVAL-CN0350-PMDZ**

Piezoelectric vibration measurement system



- Vibration measurements up to 500 kHz
- Uses wide variety of charge crystal sensors
- Low power
- Visit analog.com/CN0350

#### **EVAL-CN0354-PMDZ**

Multichannel thermocouple measurement system with cold junction compensation



- Measure up to 4 channels
- Overall power consumption of <8 mW
- <2°C error from -25°C to +400°C
- Visit analog.com/CN0354

#### **EVAL-CN0355-PMDZ**

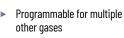
Temperature compensated bridge signal conditioner and driver system



- Connect pressure sensor or load cells
- Drive voltage range or 5 V to 15 V
- Full-scale sensor output from 10 mV to 1 V
- Visit analog.com/CN0355

#### **EVAL-CN0357-PMDZ**

Electrochemical toxic gas detector





- Resolution down to 1 ppm
- Low power, single-supply operation
- Visit analog.com/CN0357

#### **EVAL-CN0363-PMDZ**

**Dual-channel** colorimeter

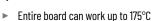




- Digital synchronization between channels
- Visit analog.com/CN0363

# **EVAL-CN0365-PMDZ**

High temperature 16-bit data acquisition system



- Low power for battery applications
- 16-bit, 600 kSPS DAQ
- ► Visit analog.com/CN0365



#### **EVAL-CN0370-PMDZ**

Single-supply LED current driver

- Programmable output current
- Range from 0 mA to 20 mA
- Low power
- Visit analog.com/CN0370





#### **EVAL-CN0372-PMDZ**

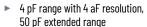
Ultra low power, multichannel data acquisition with energy harvesting



- Photovoltaic or thermoelectric energy
- 4-channel 16-bit DAQ
- Visit analog.com/CN0372

#### **EVAL-CN0552-PMDZ**

Extended range capacitance to digital converter



- Dual capacitance inputs with internal temperature sensor
- 10 Hz to 90 Hz sample rate
- Visit analog.com/CN0552

#### **MAX11205PMB1**

16-bit, single-channel sigma-delta ADC with 2-wire interface

- ► 2.1 µV rms noise
- 50 Hz/60 Hz line noise rejection
- Ultra low power
- Visit analog.com/MAX11205PMB1

#### **MAX11300PMB1**

20-port configurable ADC/DAC/GPIO/ analog switch device



- Up to 20 analog/digital inputs/outputs
- Individually configured channels
- 12-bit ADC/DAC resolution, internal reference
- Visit analog.com/MAX11300PMB1

#### **MAX11312PMB**

12-port configurable ADC/DAC/GPIO/analog switch device via I<sup>2</sup>C

- Up to 12 analog/digital inputs/outputs
- Individually configured channels
- 12-bit ADC/DAC resolution, internal reference
- Visit analog.com/MAX11312PMB

#### **MAX14840PMB1**

RS-485 half-duplex transceiver

- 40 Mbps max baud rate
- Fail-safe receiver input
- ±35 kV human body model ESD protection
- Visit analog.com/MAX14840PMB1

#### **MAX14912PMB**

High voltage octal digital output driver with diagnostics



- Octal 24 V inductive-load tolerant push-pull driver
- SPI interface with CRC error checking
- Per-pin diagnostics fault/status LED indicators
- Visit analog.com/MAX14912PMB

#### **EVAL-CN0531-PMDZ**

Programmable 20-bit, linear, precision, bipolar ±5 V DC voltage source

- ±5 V output range
- 20-bit signal generation control
- Single 3.3 V power supply
- Visit analog.com/CN0531

#### **EVAL-CN0569-PMDZ**

Infrared gesture recognition module

- Light sensing
- Highly integrated optical front end
- Dual receive sensors for intensity and directionality measurements
- Open source gesture detection algorithm
- Visit analog.com/CN0569

#### **MAX11259PMB**

24-bit, 6-channel, 64 kSPS sigma-delta ADC with PGA



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- Six 24-bit analog inputs
- 64 kSPS (I2C fast mode plus)
- 133 dB SNR at 50 SPS
- Visit analog.com/MAX11259PMB

#### **MAX11311PMB**

12-port configurable ADC/DAC/GPIO/analog switch device via SPI

- Up to 12 analog/digital inputs/outputs
- Individually configured channels
- 12-bit ADC/DAC resolution, internal reference
- Visit analog.com/MAX11311PMB

#### **MAX14001PMB**

Dual-channel, isolated ADC for load and line measurements



- 10-bit, 10 kSPS isolated ADC
- 3.75 kV rms isolation
- Integrated isolated supply
- Visit analog.com/MAX14001PMB

## **MAX14850PMB1**

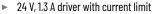
6-channel digital isolator for SPI/UART isolation



- SPI or UART Pmod-compliant isolation
- Data rate DC to >20 Mbps
- 600 V isolation (60 s)
- Visit analog.com/MAX14850PMB1

#### **MAX14914PMB**

24 V, 1.3 A high-side industrial input/ output driver



- 5 V logic compatible
- Drives unlimited inductance
- Visit analog.com/MAX14914PMB





#### **MAX22190PMB**

Octal industral digital input with diagnostics



- ► 12 V/24 V logic, no HV supply required
- CRC error checking on SPI interface

Peripheral module for MAX31723, digital

thermometer and thermostat with SPI/3-

Measures temperature from -55°C

Thermometer accuracy of ±0.5°C

Visit analog.com/MAX31723PMB1

Programmable, nonvolatile, thermostat output

Per-input LED indicator

**MAX31723PMB1** 

wire interface

to +125°C

Visit analog.com/MAX22190PMB



#### **MAX31855PMB1**

**MAX22191PMB** 

Cold-junction compensated, type-K thermocouple-to-digital converter



- Type-K thermocouple optimized
- Integrated cold junction compensation
- Open and short wire detection
- Visit analog.com/MAX31855PMB1

Passively powered 24 V digital inputs

One isolated, one nonisolated input

Visit analog.com/MAX22191PMB

24 V logic compatible

250 ns response time



#### **MAX31865PMB1**

RTD-to-digital temperature converter

- Handles both PT100 and PT1000
- 2-, 3-, and 4-wire sensor compatible
- Open, short, and overrange fault detection
- Visit analog.com/MAX31865PMB1

#### **MAX3232PMB1**

±15 kV ESD-protected true RS-232 transceiver



- 1 Mbps max baud rate
- Single-supply, no external negative supply required
- DB9 receptacle RS-232 connection
- Visit analog.com/MAX3232PMB1

#### **MAX5216PMB1**

16-bit high performance buffered DAC

- 16-bit DAC with 1.2 LSB INL
- On-board 0.15% accurate reference
- Low power (<80  $\mu$ A)
- Visit analog.com/MAX5216PMB1

#### **MAX5487PMB1**

Independentally controlled, dual-output potentiometer



- ▶ Dual-channel, 256-tap potentiometer
- Wiper position stored in nonvolatile memory
- Independent control to each output
- Visit analog.com/MAX5487PMB1

#### **MAX9611PMB1**

12-bit, programmable current limiter

- Programmable current limit up to 1A
- 30 V max operating voltage
- Nine selectable I<sup>2</sup>C addresses
- Visit analog.com/MAX9611PMB1

#### **MAXREFDES11**

16-bit high accuracy 0 V to 10 V input isolated analog front end



- 16-bit, 200 kSPS
- On-board reference and isolated power
- 5 kΩ input impedance
- Visit analog.com/MAXREFDES11

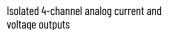
#### **MAXREFDES18**



16-bit PLC analog output

- ±20 mA, 0 mA to 20 mA, 4 mA to 20 mA
- ±10 V, 0 V to 10 V, 0 V to 5 V
- Data and power isolation
- Visit analog.com/MAXREFDES18

# **MAXREFDES24**





- 16-bit, 0.1% total error
- Inut: ±24 mA, up to 1 kA load
- V<sub>OUT</sub>: ±12 V
- Visit analog.com/MAXREFDES24

### **MAXREFDES4**

16-bit high accuracy 4 mA to 20 mA loop input isolated analog front end



- On-board power and data isolation 0.02% accurate reference
- 4 mA to 20 mA or 0.2 V to 4.096 V voltage input
- Visit analog.com/MAXREFDES4

#### **MAXREFDES5**

16-bit high accuracy multichannel isolated analog front end



- Two high impedance ±10 V input
- Two 17 k $\Omega$  impedance ±10 V inputs
- 16-bit, 2 LSB INL, on-board 3 ppm/°C max reference
- Visit analog.com/MAXREFDES5

## Raspberry Pi HATs

Raspberry Pi HATs are add-on boards specifically designed to be compatible with the Raspberry Pi 3B+ and later devices. In a nutshell, a HAT is a rectangular board that has four mounting holes in the corners that align with the mounting holes on the B+, has a 40-pin GPIO header, and supports the special autoconfiguration system that allows automatic GPIO setup and driver setup. The automatic configuration is achieved using two dedicated pins (ID\_SD and ID\_SC) on the GPIO header that are reserved for an I<sup>2</sup>C EEPROM. The EEPROM holds the board manufacturer information, GPIO setup, and a thing called a device tree fragment—basically a description of the attached hardware that allows Linux to automatically load the required drivers.

#### **EVAL-ADISIMU1-RPIZ**

Inertial measurement unit to Raspberry Pi adapter

- Direct sensor mount or remote mount with cable
- Supports multiple IMU families
- Powered from Raspberry Pi
- Visit analog.com/EVAL-ADISIMU1-RPIZ

#### **EVAL-CN0511-RPIZ**

DC to 5.5 GHz signal generator with ±0.5 dB calibrated output power

- DC to 5.5 GHz GHz sine output, 48-bit tuning resolution
- 83 dB SFDR at 51 MHz
- On-board reference oscillator
- ► Visit analog.com/CN0511

#### **EVAL-CN0566-RPIZ**

Phased array development platform

- 10 GHz to 10.5 GHZ beamsteering platform
- ► 360° phase shift with 2.8° resolution
- ▶ 31 dB amplitude tuning range with 0.5 dB resolution
- ► Visit analog.com/CN0566

#### **EVAL-CN0508-RPIZ**

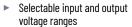
Programmable, 75 W, single output benchtop power supply

- Software programmable
- Manual current and voltage control
- On-board diagnostics
- ► Visit analog.com/CN0508



#### **EVAL-CN0554-RPIZ**

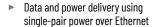
±10 V analog input and ±15 V analog output for Raspberry Pi platforms



- 16 single-ended input and output channels
- All power rails derived from the Raspberry Pi
- ► Visit analog.com/CN0554



10BASE-T1L field device development platform with Class 12 and 13 SPoE



- Power Class 12 and 13 delivery capable
- Provides speeds up to 10 MBPS at 1 km
- ► Visit <u>analog.com/CN0575</u>





# Analog Devices Software Stack

The software stack ADI develops, maintains, and supports is made up of many layers designed to be modular at every step of the design process. Providing device specific drivers, hardware abstraction, interface layers, application layers, and example code allows for easy customization and integration of available software into your end design.

Application Layer	Python, MATLAB®, LabVIEW, IIO-Scope						
Application Interface Layer	pyadi-iio, MATLAB Toolboxes, LabVIEW-iio						
Infrastructure Layer	iiod/	iiod/tinyiiod					
Device Driver	Linux Driv	Bare Metal Drivers					
Peripheral Configuration	Device Tree	Device Tree Overlay	Microcontroller SDK/BSP				
Development Platform	FPGA	RPI	Microcontroller				

# Development Platforms: Hardware Interfaces and Software Device Drivers

	Development Platform	Hardware Interfaces				Software Device Drivers		
		FMC	Arduino	Pmod	RPI HAT	Feather	Bare Metal Driver Support	Linux Driver Support
Xilinx	ZC702	•						•
	ZC706	•						•
	ZCU102	•		•				•
	KC705	•						•
	KCU105	•						•
	VC707	•						•
	VCU118	•						•
	ZedBoard	•		•				•
	CoraZ7-07s		•	•				•
	Arria 10 SoC Dev Kit	•						•
Intel	Arria 10gx	•						•
	DE10-Nano		•					•
Raspberry Pi Foundation	Raspberry Pi 4			•	•			•
	Raspberry Pi 3B+			•	•			•
	Raspberry Pi 3B			•	•			•
	Raspberry Pi Zero			•	•			•
	Raspberry Pi Zero W			•	•			•
	Raspberry Pi Zero 2 W			•	•			•
Analog Devices	EVAL-ADICUP3029		•	•			•	
	EVAL-ADICUP360		•	•			•	
	MAX32520FTHR					•	•	
	MAX32620FTHR			•		•	•	
	MAX32630FTHR			•		•	•	
	MAX32650FTHR			•		•	•	
	MAX32655FTHR			•		•	•	
	MAX32666FTHR					•	•	
	MAX78000FTHR			•		•	•	
ST Micro	Nucleo		•				•	
	STM32						•	
Arduino	Arduino Uno Rev 3		•				•	

Circuits from the Lab® reference designs are built and tested by ADI engineers with comprehensive documentation and factory-tested evaluation hardware.

**Circuits** from the **Lab**° Reference Designs

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Visit ez.analog.com

