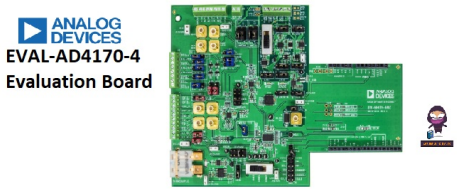
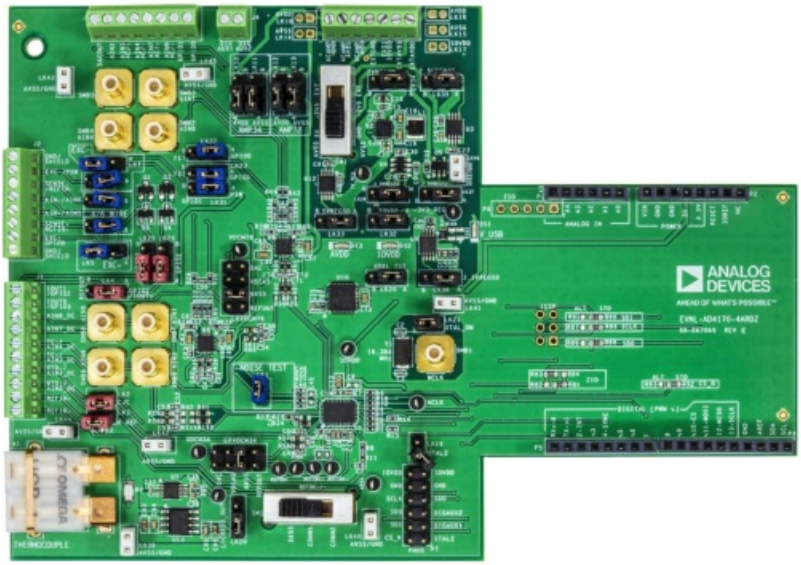


ANALOG DEVICES EVAL-AD4170-4 Evaluation Board Instruction Manual

Contents

ANALOG DEVICES EVAL-AD4170-4 Evaluation Board



Specifications

- **Product Name**: EVAL-AD4170-4ARDZ Evaluation Kit
- **ADC**: AD4170-4, 24-bit, DC to 50 kHz input bandwidth, multichannel, low noise precision sigma-delta ADC
- **References**: On-board 2.5 V ADR4525 and LTC6655 references
- **Connectors**: SMB connectors for AC/DC inputs
- **Additional Features**: ADXL1002 on-board vibration sensor
- **PC Control**: Compatible with Analog Devices, Inc., SDP (EVAL-SDP-CK1Z) software for control and data analysis

FEATURES

- Full-featured evaluation board for the AD4170-4
- On-board 2.5 V ADR4525 and LTC6655 references
- SMB connectors for AC/DC inputs
- ADXL1002 on-board vibration sensor
- PC control in conjunction with Analog Devices, Inc., SDP (EVALSDP-CK1Z)
- PC software for control and data analysis (time domain and frequency domain)
- Compatible interface with ACE, IIO Scope, Python, and MATLAB

EVALUATION KIT CONTENTS

- EVAL-AD4170-4ARDZ evaluation board

ONLINE RESOURCES

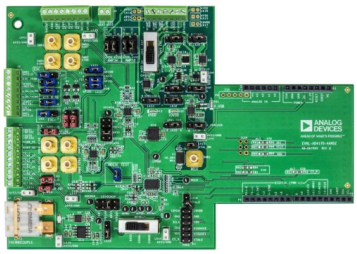
- Documents needed
  - AD4170-4 data sheet
  - Evaluation board schematics
  - Bill of materials
- Required software

- AD417x ACE plugin

EQUIPMENT NEEDED

- EVAL-AD4170-4ARDZ evaluation board
- EVAL-SDP-CK1Z (SDP-K1) system demonstration platform
- DC signal source
- USB cable
- PC running Windows with a USB 2.0 port

EVALUATION BOARD PHOTOGRAPH



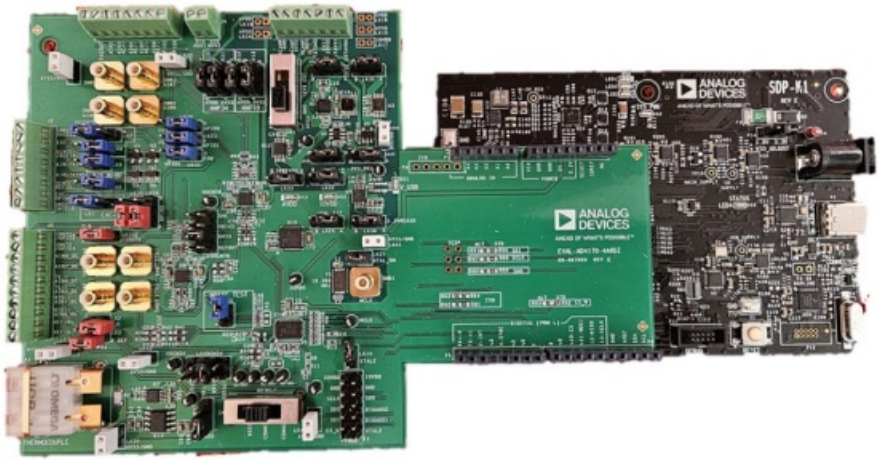
GENERAL DESCRIPTION

The EVAL-AD4170-4ARDZ evaluation kit features the AD4170-4, which is a 24-bit, DC to 50 kHz input bandwidth, multichannel, low-noise precision sigma-delta analog-to-digital converter (ADC). The EVAL-AD4170-4ARDZ board connects to the USB port of the PC by connecting to the EVAL-SDP-CK1Z controller board. A5VV USB supply via the PC is regulated to supply the AD4170-4 and support all necessary components. The AD4170-4 analysis, control, evaluation (ACE) plugin fully configures the AD4170-4 device register functionality and provides DC time domain analysis in the form of waveform graphs and associated noise analysis for ADC performance evaluation. The AC analysis is also provided by the software, such as a fast Fourier transform (FFT), displaying the first five harmonics of the following parameters: SNR, SFDR, S/N+D, and THD. The EVAL-AD4170-4ARDZ is an evaluation board that allows the user to evaluate the features of the ADC. The user PC software executable controls the AD4170-4 over the USB through the EVALSDP-CK1Z system demonstration platform (SDP) board. Full specifications on the AD4170-4 are available in the product data sheet, which must be consulted in conjunction with this user guide when using the evaluation board.

QUICK START GUIDE

To begin using the evaluation board, do the following:

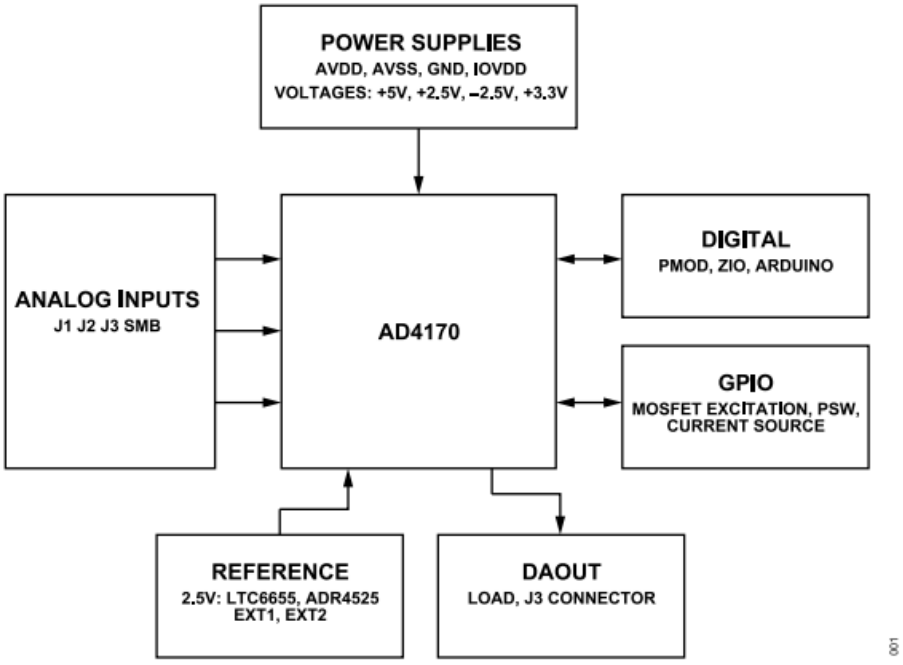
1. With the EVAL-SDP-CK1Z board disconnected from the USB port of the PC, install the ACE software (can be downloaded at **analog.com**). Restart the PC after the software installation is complete. (For complete software installation instructions, see the Evaluation Board Software section.)
2. Download the Board.AD417x plugin on the ACE plugin manager.
3.



Connect the EVAL-SDP-CK1Z board to the EVALAD4170-4ARDZ board using the Arduino connector.

4. Connect the EVAL-SDP-CK1Z board to the PC using the supplied USB cable. If you are using Windows® XP, you may need to search for the EVAL-SDP-CK1Z drivers. Choose to automatically search for the drivers for the EVAL-SDP-CK1Z board if prompted by the operating system.
5. From the Programs menu, go to the Analog Devices subfolder, and click ACE to launch the ACE software (see the Launching the Software section).

BLOCK DIAGRAM



EVALUATION BOARD HARDWARE

DEVICE DESCRIPTION

The AD4170-4 is a low-noise, precision complete analog front end (AFE) for high-precision measurement applications. It contains a low-noise, 24-bit Σ-Δ ADC. The AD4170-4 can support four differential inputs, eight pseudodifferential or single-ended inputs. The on-chip low-noise instrumentation amplifier means that signals of small amplitude can interface directly to the ADC. Other on-chip features include a low-drift 2.5 V reference, excitation currents, reference buffers, multiple filter options, and many diagnostic features. Complete specifications for the AD4170-4 are provided in the product data sheet and must be consulted in conjunction with this user guide when using the evaluation board. Full details about the EVAL-SDP-CK1Z are available at **analog.com**.

HARDWARE LINK OPTIONS

The default link options are listed. By default, the board operates from the USB power supply via the EVAL-SDP-

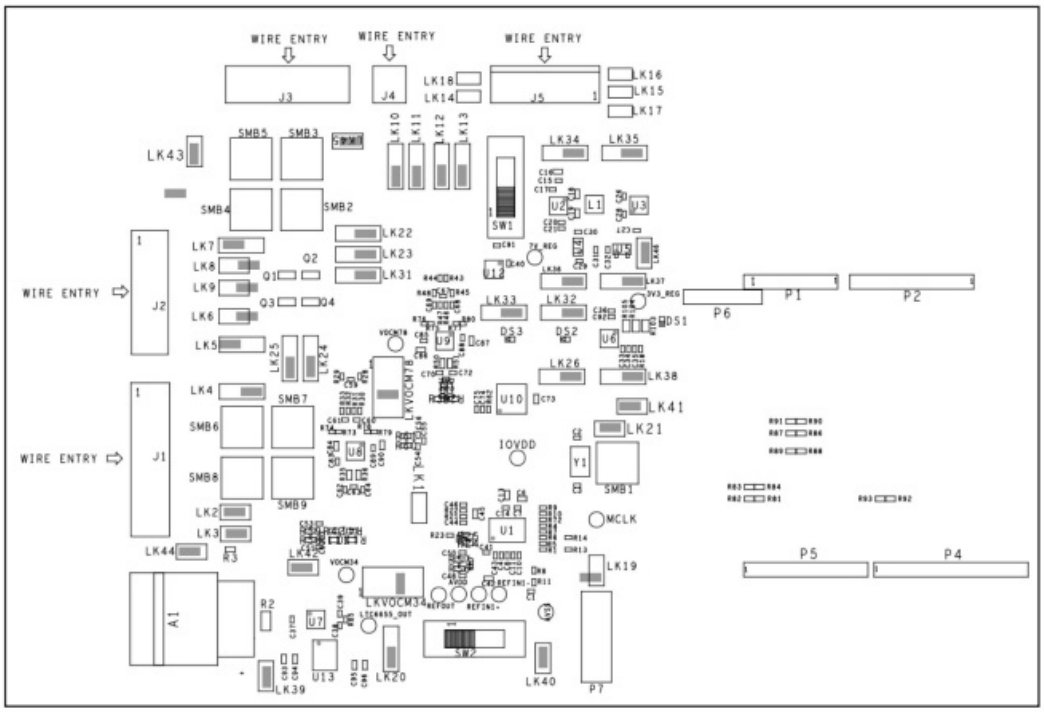
CK1Z. The 5 V default supply required for the AD4170-4 comes from the onboard LTC3129-1 low-dropout regulators (LDOs), which generate their voltages from the EVAL-SDP-CK1Z.

Link No	Color	Default Option	Description	Pitch
LK1	Blue	1 Pin	Noise test, Channel AIN5 + Channel AIN6	2 mm
LK2	Red	1 Pin	Thermocouple, cold junction resistor bypass	2 mm
LK3	Red	1 Pin	Precision reference resistor bypass	2 mm
LK4	Red	A	Position (pos) A: GPIO1 (IOUT1) to J1, Pos B: REFOUT	2.54 mm
LK5	Blue	B	Wire bridge EXC+ select, Pos A: MOSFET+, Pos B: AVDD	2.54 mm
LK6	Blue	1 Pin	Short EXC+/REFIN+: pos inserted = 4-wire bridge	2 mm
LK7	Blue	B	Wire bridge EXC– select, Pos A: MOSFET– Pos, B: power switch (GPIO1)	2.54 mm
LK8	Blue	1 Pin	Short EXC–/AVSS: pos inserted = 4-wire bridge	2 mm
LK9	Blue	1 Pin	Short EXC–/REFIN–: pos inserted = 4-wire bridge	2 mm
LK10	Black	A	ADA4945-1 AIN3 AIN4, AVDD select, Pos A: internal AVDD, Pos B: external AVDD	2.54 mm
LK11	Black	A	ADA4945-1 AIN3+ AIN4, AVSS select, Pos A: internal AVSS, Pos B: external AVSS	2.54 mm
LK12	Black	A	ADA4945-1 AIN7+ AIN8, AVDD select, Pos A: internal AVDD, Pos B: external AVDD	2.54 mm
LK13	Black	A	ADA4945-1 AIN7+ AIN8, AVSS select, Pos A: internal AVSS, Pos B: external AVSS	2.54 mm
LK14	N/A[1]	DNI	SCP connect external AC_AMP_AVSS and ground	2 mm

LK15	N/A[1]	DNI	SCP connects external AVSS and ground	2 mm
LK16	N/A[1]	DNI	SCP connects the external AVDD and ground	2 mm
LK17	N/A[1]	DNI	SCP connects the external IOVDD and ground	2 mm
LK18	N/A[1]	DNI	SCP connect external AC_AMP_AVDD and ground	2 mm
LK19	Black	1 Pin	XTAL2 to digital connector	2 mm
LK21	Black	1 Pin	Inserted: external crystal, uninserted: external clock	2 mm
LK22	Blue	A	GPIO0, Pos A: to connector J4, Pos B: MOSFET	2.54 mm
LK23	Blue	A	GPIO1, Pos A: to connector J4/J2 (LK31), Pos B: MOSFET	2.54 mm
LK24	Red	A	GPIO2, Pos A: to connector J1, Pos B: MOSFET	2.54 mm
LK25	Red	A	GPIO3, Pos A: to connector J1, Pos B: MOSFET	2.54 mm
LK26	Black	A	**ADXL1001** test, Pos A: test, Pos B: standard	2.54 mm
LK31	Blue	A	GPIO1 connector select, Pos A: J2 (power switch), Pos B: J4	2.54 mm
LK32	Black	A	IOVDD select, Pos A: 3.3 V, Pos B: EXT	2.54 mm
LK33	Black	A	**LT1962-5** power-down, Pos A: on	2.54 mm
LK34	Black	A	**LTC3129** power-down, Pos A: on	2.54 mm
LK35	Black	A	**LT1962-2.5** power-down, Pos A: on	2.54 mm

LK36	Black	A	LTC1983 power-down, Pos A: on	2.54 mm
LK37	Black	A	ADP7182 power-down, Pos A: on	2.54 mm
LK38	Black	A	ADP150 power-down, Pos A: on	2.54 mm
LK39 to LK 46	Gray	Inserted	AVSS – GND short	2 mm
LKVOCM3 4	Black	4525	VOCM ADA4945-1, Pos A: DACOU T, Pos B: VBIAS, Pos C: ADR4525, Pos D: REFOUT	2.54 mm
LKVOCM7 8	Black	4525	VOCM ADA4945-1, Pos A: DACOU T, Pos B: VBIAS, Pos C: ADR4525, Pos D: REFOUT	2.54 mm
R27, R40, R26, R39	N/A[1]	R27, R40 (Mo unted) R26, R 39 (Not Mount ed)	AIN7 and AIN8 R27, R40 (Mount for AC input on J3 (default)) R26, R39 (Mount for DC input on J1 connector)	N/A[1]
R41, R110, R42, R111	N/A [1]	R41, R110 (M ounted) R42, R111 (Not Mo unted)	AIN3 and AIN4 R41, R110 (Mount for AC input on J 3 (default)) R42, R111 (Mount for DC input on J 1 connector)	N/A[1]

Silkscreen Showing Link Locations



On-Board Connectors

Provides information about the external connectors on the EVAL-AD4170-4ARDZ.

Connector Function Pin No. Pin Function

Connector	Function	Pin No.	Pin Function
J1	DC analog inputs	1	IOUT1/GPIO2 excitation current for 3-wire RTD REFOUT
		2	IOUT0 GPIO3 excitation current for RTDs
		3	AIN8 with DC filtering

		4	AlN7 with DC filtering
		5	AlN4 with DC filtering (TC–connection)
		6	AlN3 with DC filtering (TC+connection)
		7	AlN1 with DC filtering (RTD – connection); (Cold Junction–connection)

		8	AIN0 with DC filtering (RTD + connection); (Cold Junction+ connection)
		9	External reference + (REFIN1+)
		10	External reference– (REFIN1–)
J2	Analog inputs	1	Ground/ shield connection

	Wirebridge	2	Excitation–(MOSFET)/power switch function (GPIO 1) for wire bridge
		3	External reference –/sense–
		4	AIN6 (AINN) with DC filtering (DNl) and noise test channel

		5	AIN5 (AINP) with DC filtering (DNI) and noise test channel
		6	External reference +/sense+
		7	Excitation+ (MOSFET)/ AVDD supply for wire bridge
		8	Ground/ shield connection

J3	AC analog inputs	1	GPIO 0
		2	GPIO 1
		3	AIN8 with AC filtering
		4	AIN7 with AC filtering
		5	AIN4 with AC filtering
		6	AIN3 with AC filtering
		7	AIN2 with DC filtering

		8	DACOUT with 2 kΩ load
J4	Digital outputs	1	DIGAUX1
		2	DIGAUX2
J5	External power	1	External AVDD connection
		2	External AVSS connection
		3	External IOVDD connection

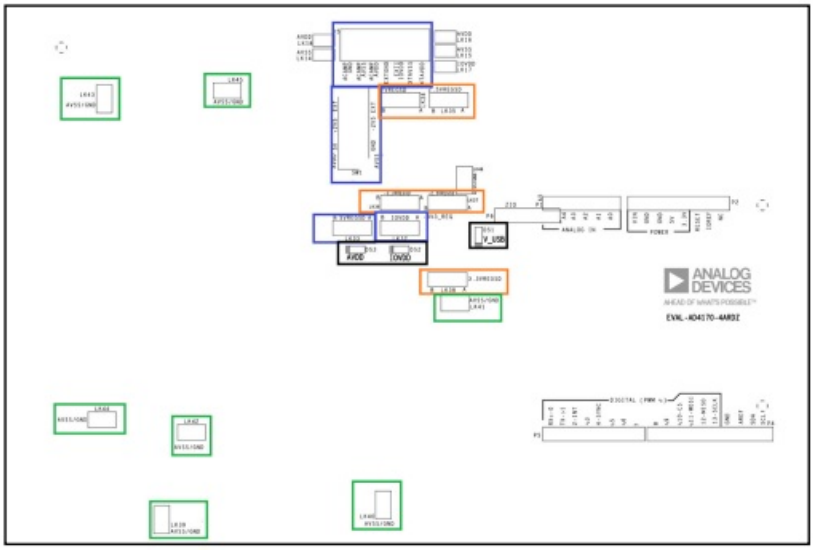
		4	External GND connection
		5	External AVDD connection for the amplifier
		6	External AVSS connection for the amplifier
		7	External GND connection for the amplifier

P1 to P5	Arduino connector	N/A [1]	N/A[1]
P6	PMOD connection	N/A 1	N/A[1]

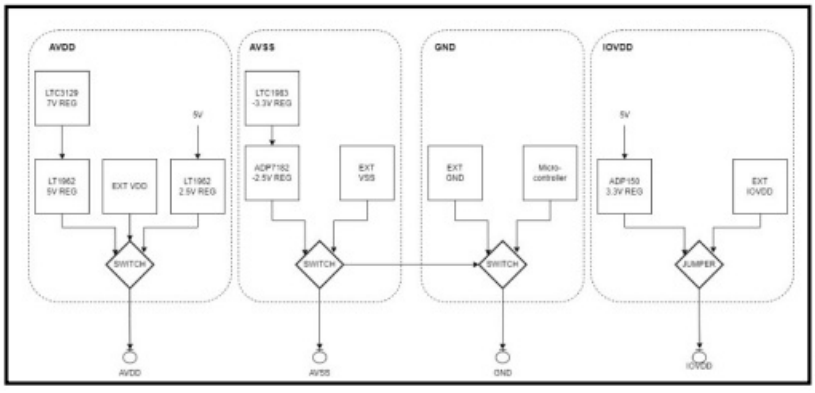
[1] N/A means not applicable.

[1] N/A means not applicable.

POWER SUPPLIES



The evaluation board receives power through the controller board when connected to the PC via USB. Linear regulators generate the required power supply levels from the applied USB voltage. The location of AVDD, AVSS, and IOVDD control links is highlighted in blue.



Each regulator can be shut down using their shutdown links highlighted in orange. AVDD (LK30) and AVSS (LK33) selections are as follows:

- 5 V supply (default)
  - 55V regulator supplies AVDD
  - AVSS tied to GND (LK43 to LK50 highlighted in green,5)
- ±2.5 V split supply
  - +2.5 regulator supplies AVDD
  - –2.5V regulator supplied AVSS
- External AVDD/AVSS
  - Connections on Connector J5

Supply	Regulator	Shutdown Link (Orange)
+7 V regulator	LTC3129-1	LK34
+5 V regulator	LT1962-5	LK33
+2.5 V regulator	LT1962-2.5	LK35

AVDD/AVSS Regulators and Their Shutdown Links (Continued)

Supply	Regulator	Shutdown Link (Orange)
–3.3 V regulator	LTC1983	LK36
–2.5 V regulator	ADP7182	LK37

IOVDD (LK32) selection is as follows:

- 3.3 V supply (default)
  - 3.3 V regulator supplies IOVDD
  - GND tied to AVSS (LK43 to LK50 highlighted in green)
- External IOVDD
  - Connections on Connector J5

IOVDD Regulator and Shutdown Link

Supply	Regulator	Shutdown Link (Orange)
3.3 V regulator	ADP150A	LK34

SERIAL INTERFACE
There are four primary signals: CS, SCLK, SDI, and SDO (all are inputs, except for SDO, which is an output). By default, the RDY function is also available on the SDO pin. These are the following serial communication options:

- Arduino connection SDP-K1
- PMOD connector

- Standalone mode
    - Removing the R92, R86, R88, and R90 jumper resistors, and mounting them on R93, R87, R89, and R91, respectively, give exposure to SPI signals on the P3 connector. Using the pins from these links can then be used to flywire the signals to an alternative digital capture setup. See Introduction to SPI Interface.

REFERENCE OPTIONS

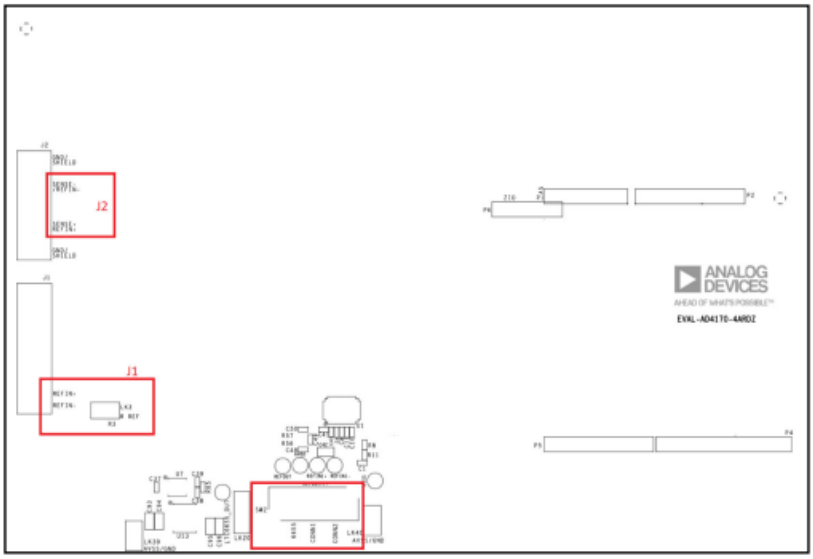
The AD4170-4 reference can be selected to be internal or external. The user can select the preferred reference by register settings or jumper/switch options as follows:

- On-board external references asare follows:
    - Default: LTC6655(LN)
    - ADR4525
- External Reference Connector J1 as follows:
    - Option to use on board PT1000 precision resistor (R3) insert LK3
- External Reference Connector J2

Selecting Reference Source

For software, follow these steps to set a reference for Channel 0 and for Channel n, or go to the AFE[n] register:

1. The board must be connected to ACE.
2. Open the AD417x memory map window.
3. Search for the AFE[0] register.
4. Set the data(control) to the desired reference source or the data(hex) to the relevant bits as follows:
    1. Dedicated reference pins REFIN1+/– (hex value 0)
    2. From GPIO0/1 REFIN2+/– (hex value 1)
    3. Internal reference REFIN_REFOUT (hex value 2)



For hardware, if REFIN1+/– is selected, the following options are available using SW2

- LTC6655(LN), REFIN– shorted to AVSS
- External Reference Connector J1
- External Reference Connector J2

EVALUATION BOARD SETUP PROCEDURE
After following the instructions in the EVAL-AD4170-4ARDZ Quick Start Guide section, set up the evaluation and SDP boards.

Warning
The evaluation software and drivers must be installed before connecting the EVAL-AD4170-4ARDZ evaluation board and the EVAL-SDP-CB1Z board to the USB port of the PC to ensure the PC correctly recognizes the evaluation system.

SOFTWARE INSTALLATION PROCEDURES

Each software is explained as follows:

- Evaluation software: plug and play board evaluation is provided by the Analog Devices ACE application. ACE is an evaluation platform and board specific support is installed as add-on called plugins from within the ACE software. For installation and documentation instructions, see www.analog.com/ace. ACE can configure the embedded software on supported controller boards and provides a quick and easy way to set up, configure the board, and start capturing signals or generating waveforms.
- Embedded software: The embedded software used for evaluation is typically built using open-source firmware examples, drivers, and hardware description language (HDL), which can be found in the software section on the relevant product page. Note that if the software you are looking for is not available, you can submit a request on the product page. Evaluation boards using Linux-based controller boards run a version of Analog Devices Kuiper Linux (**www.analog.com/kuiper-linux**). The evaluation kit ships with a fully configured SD card that can be used to set the system up and running. Note that if there is an issue or updates are available for this SD card, the image can be found in the Software section on the relevant evaluation board page.
- Host PC software: the firmware and Linux embedded software stacks are based on an IIO architecture (industrial I/O). This enables the use of other tools such as Python and MATLAB with the platform. These tools can be found in the Software section of the product page. Other tools such as IIO oscilloscope and IIO command line tools that provide generic low level support and debug for an IIO-based platform are also available on the product page.

Detailed Description of Evaluation Board Usage with ACE Software
Download the ACE software from the ACE software page. Install ACE on a PC before using the EVAL-AD4170-4ARDZ. The ACE installation process in the Installing the ACE Software section includes the ACE software installation and the SDP driver installation. Install the ACE software and SDP drivers before connecting the EVAL-AD4170-4ARDZ and the SDP board to the USB port of the PC to ensure that the evaluation system is properly recognized when it is connected to the PC.

Installing the ACE Software
To install the ACE software, take the following steps:

1.

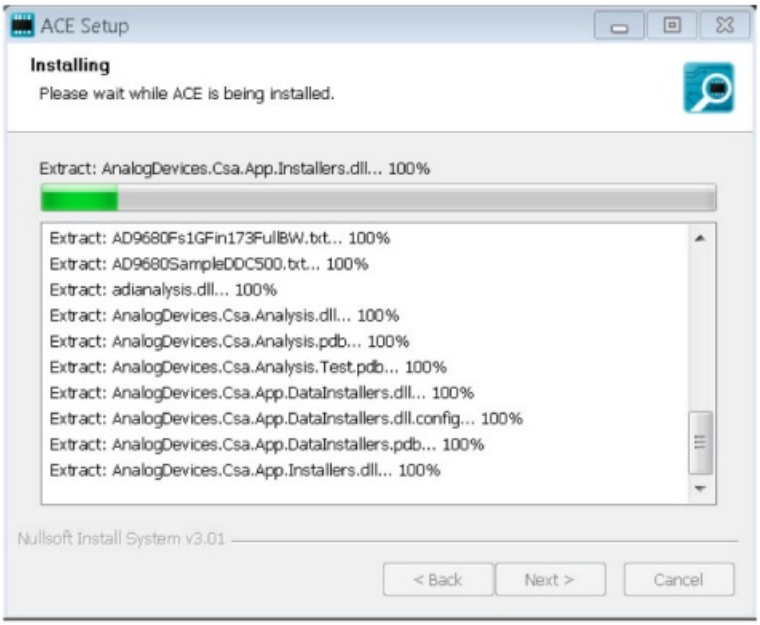
Download the ACE software to a Windows®-based PC.

2. Double-click the ACEInstall.exe file to begin the installation. By default, the software is saved to the following location: C:\Program Files (x86)\Analog Devices\ACE.
3. A dialog box opens asking for permission to allow the program to make changes to the PC. Click Yes to begin the installation process.
4. In the ACE Setup window, click Next > to continue the installation.
5. Read the software license agreement and click I Agree.
6.

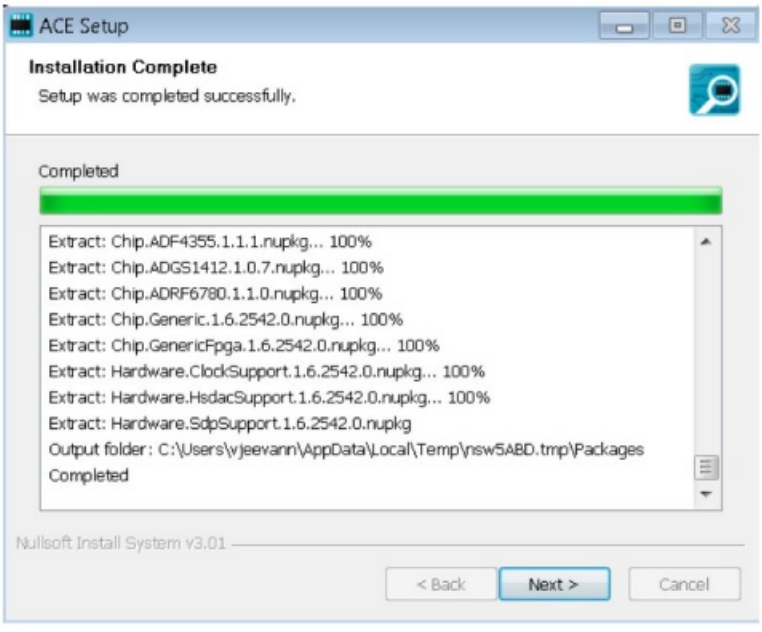
Click Browse… to choose the installation location and then click Next >

7. The ACE software components to install are preselected. Click Install.
8. 

The Windows Security window opens. Click Install. The installation is in progress. No action is required.

9. 

When the installation is complete, click Next >, and then click Finish to complete the installation process.



EVALUATION BOARD SETUP PROCEDURES

The EVAL-AD4170-4ARDZ connects to the SDP-K1. The SDPK1 is the communication link between the PC and the EVALAD4170-4ARDZ. Figure 2 shows a diagram of the connections

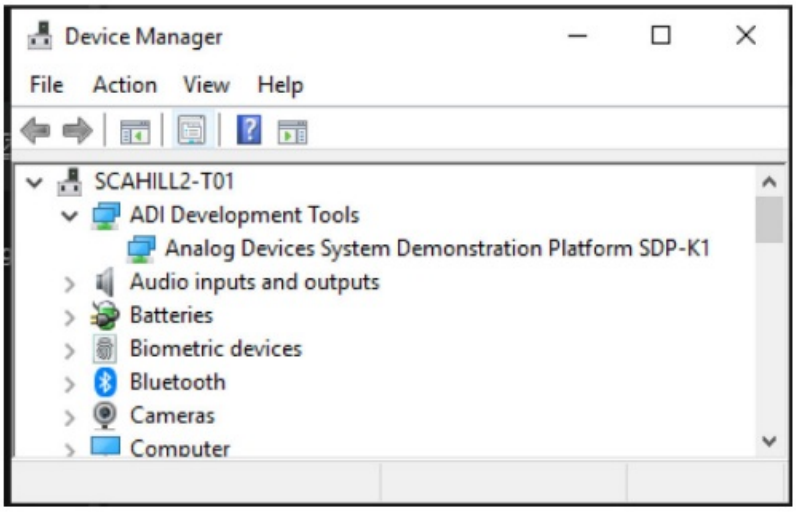
between the EVAL-AD4170-4ARDZ and the SDP-K1.

Connecting the EVAL-AD4170-4ARDZ and the SDP-K1 to a PC
After the ACE software is installed, take the following steps to set up the EVAL-AD4170-4ARDZ and the SDP-K1:

1. Ensure that all configuration links are in the appropriate positions, as detailed in Table 1.
2. Connect the EVAL-AD4170-4ARDZ to the Arduino header on the SDP-K1 (see the Evaluation Board Setup Procedure section for more details). The EVAL-AD4170-4ARDZ does not require an external power supply adapter.
3. Connect the SDP-K1 to the PC via the USB cable included in the SDP-K1 kit.

Verifying the Board Connection
After connecting the power and the USB cable from the SDP-K1 to the PC, take the following steps to verify the board connection:

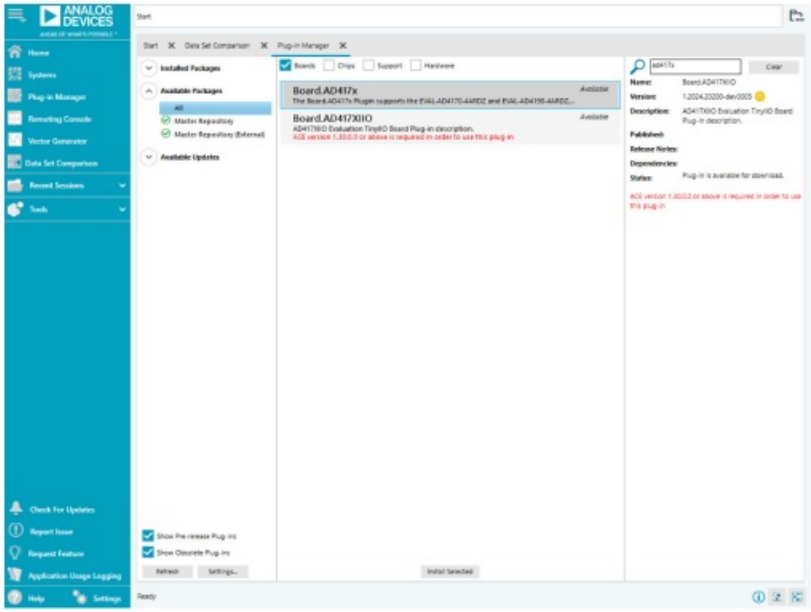
1. After connecting the SDP-K1 to the PC, allow the Found New Hardware Wizard to run. Choose to automatically search for the drivers for the SDP-K1 if prompted by the operating system.
2. Navigate to the Device Manager window on the PC.
3. A dialog box may open asking for permission to allow the program to make changes to the computer. Click Yes.
4. The Computer Management window opens. From the list labeled System Tools, click Device Manager. If the SDP-K1 driver is installed and the board is properly connected to the PC, Analog Devices System Demonstration Platform SDPK1 is shown in the ADI Development Tools list in the Device Manager window.



Disconnecting the EVAL-AD4170-4ARDZ
Disconnect power from the SDP-K1, or press the reset tact switch on the SDP-K1, before removing the EVAL-AD4170-4ARDZ from the SDP-K1.

AD4170-4 ACE PLUGIN DOWNLOAD AND INSTALL
The Board. The D417x plugin can be installed through the following steps:

1.



From the Start menu of the PC, select All Programs > Analog Devices > ACE > ACE.exe to open the ACE software main window shown in Figure 17.

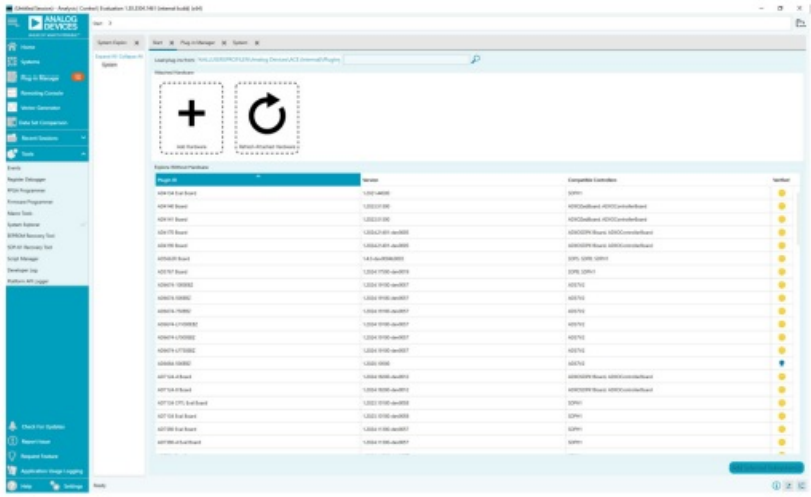
2. Click the Plug-in Manager tab on the top left panel in ACE.
3. Expand Available Packages and click on All. In the search bar on the left side of the panel, enter AD417x.
4. Select Board.AD417x and click on Install Selected at the bottom of the panel.
5. The plugin for the EVAL-AD4170-4ARDZ evaluation board is installed.

ACE SOFTWARE OPERATION

LAUNCHING THE SOFTWARE

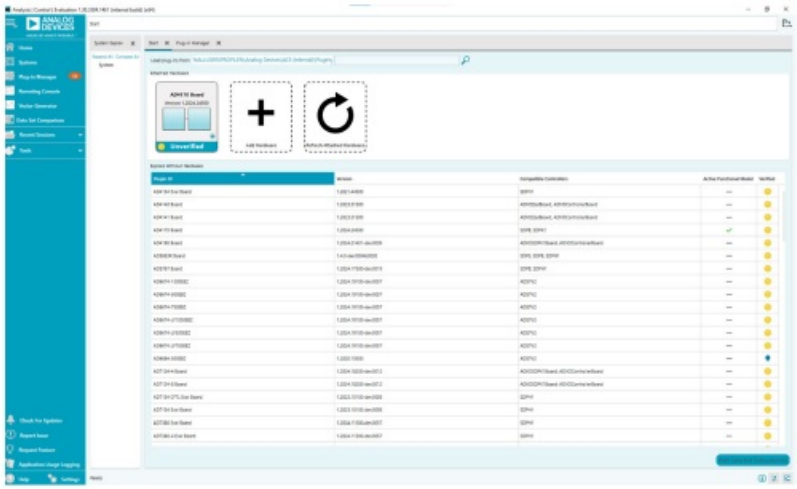
After the EVAL-AD4170-4ARDZ and SDP-K1 are properly connected to the PC, launch the ACE software by taking the following steps:

1.



From the Start menu of the PC, select All Programs > Analog Devices > ACE > ACE.exe to open the ACE software main window.

2. If the EVAL-AD4170-4ARDZ is not connected to the USB port via the SDP-K1 when the software launches, the AD4170 Board icon does not appear in the Attached Hardware section in ACE.T o make the AD4170 Board icon appear, connect the EVAL-AD4170-4ARDZ and the SDP-K1 to the USB port of the PC, click Refresh Attached Hardware, wait a few seconds, and then follow the instructions in ithe dialogog box that opens.
3.

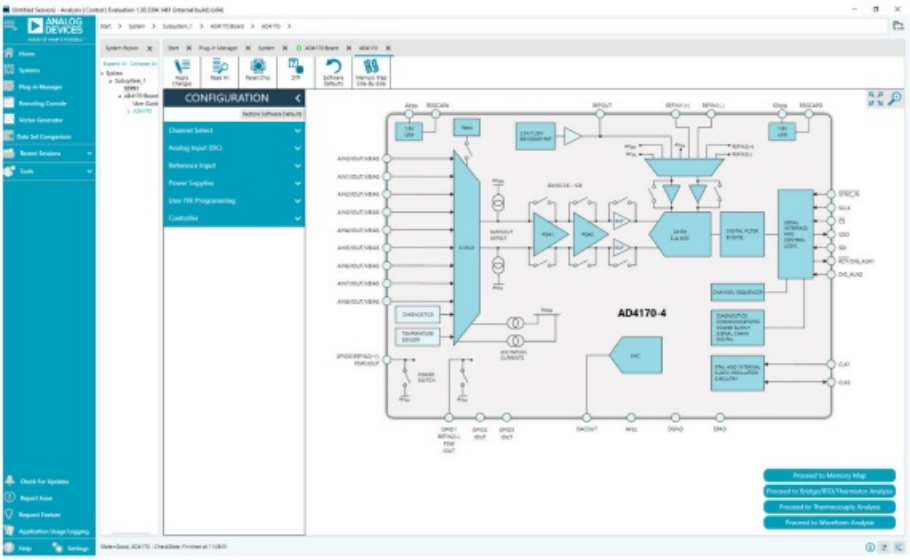


Double-click the AD4170 Board icon to open the AD4170 Board view window.

4.

Double-click the AD4170 chip icon in the AD4170 Eval Board view window to open the AD4170 chip view window.

5.



Click Software Defaults and then click Apply Changes to apply the default settings to the AD4170-4

DESCRIPTION OF CHIP VIEW WINDOW

After completing the steps in the Software Installation Procedures section and the Evaluation Board Setup Procedures section, set up

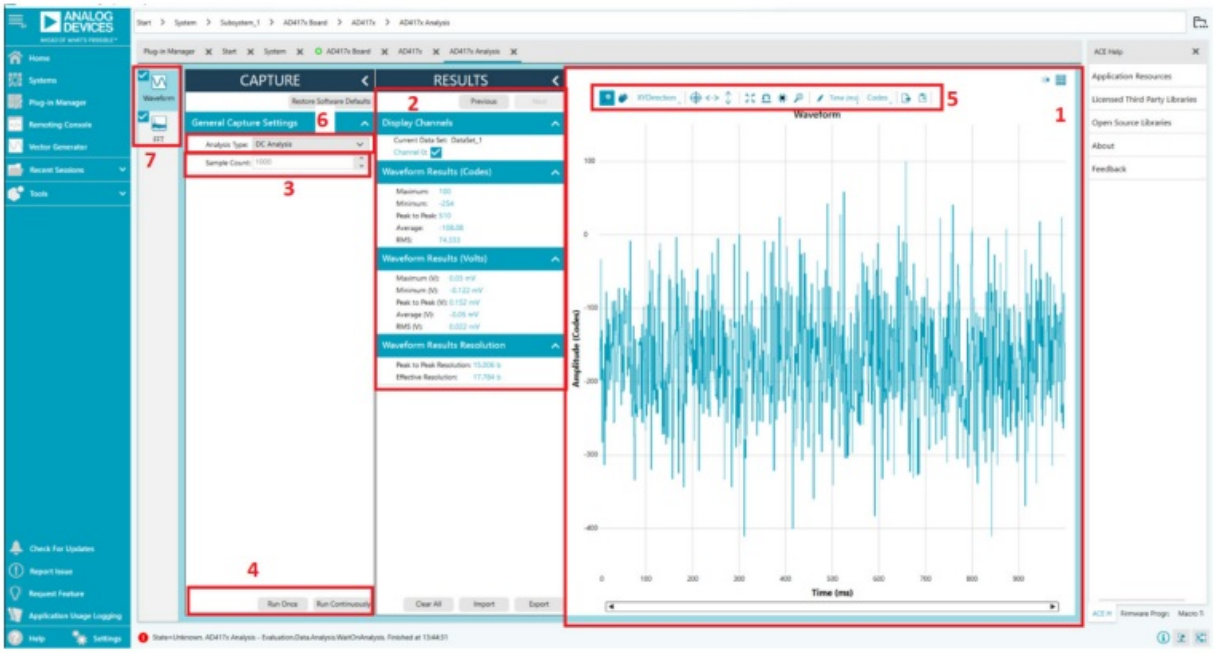
the system for data capture by using the following buttons:

- The Proceed to Memory Map button brings the user to the memory map of the AD4170-4. This allows the user to configure the AD4170-4.
- The Proceed to Bridge/RTD/Thermistor Analysis, Proceed to Thermocouple Analysis, and Proceed to Waveform Analysis buttons bring the user to the Analysis tab, which allows the user to see the performance results of the AD4170-4 and displays the data.

WAVEFORM TAB
The Waveform tab graphs the conversions gathered and processes the data, calculating the peak-to-peak noise, RMS noise, and resolution.

Waveform Graph and Controls
The data waveform graph shows each successive sample of the ADC output. Zoom in on the data in the graph using the scroll wheel on your mouse or by selecting the magnifying glass.

Analysis Channel



The Results section shows the analysis of the channel selected. Multiple channels can be selected or deselected as desired.

Samples
The Sample Count numeric control sets the number of samples gathered per batch. This control is unrelated to the ADC mode.

Capture
Click the Run Once button to start gathering ADC results. The number of samples in the batch is defined by the sample value set. Click the Run Continuously button to start continuously gathering batches of ADC results. Results appear in the waveform graph.

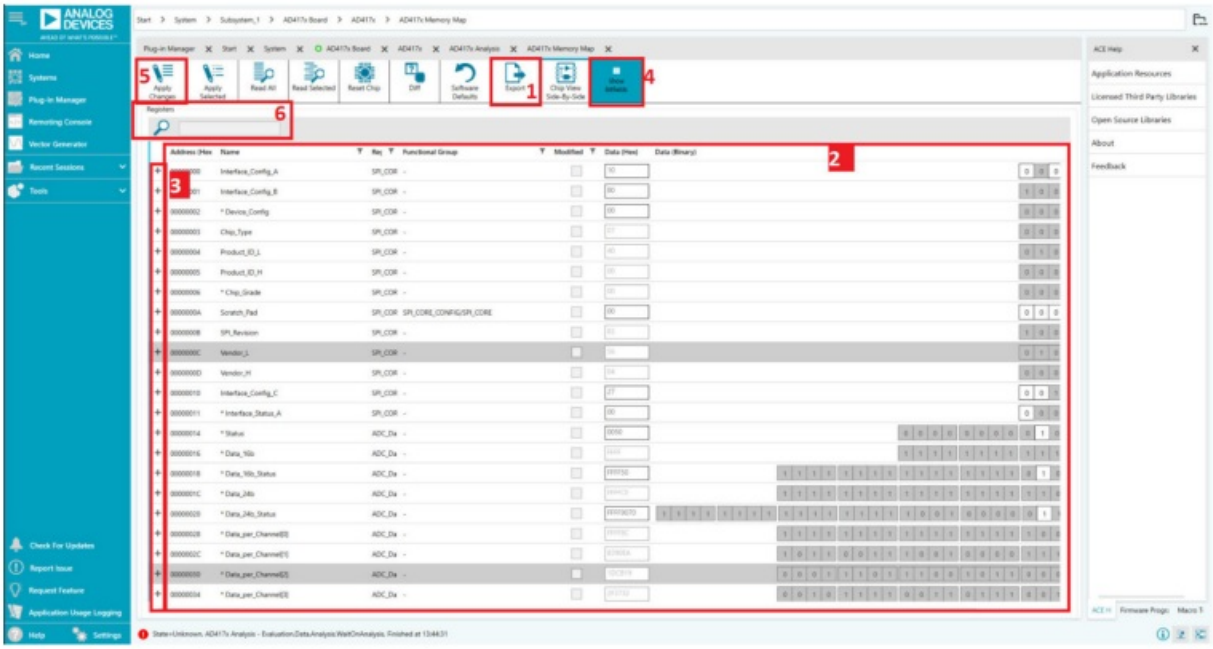
Display Units and Axis Controls
Click the Codes dropdown menu to select whether the data graph displays in units of voltages or codes. The axis controls are fixed. When selecting Fixed, the axis ranges can be programmed. However, these ranges do not automatically adjust after each batch of samples.

Noise Analysis

The noise analysis section displays the results of the noise analysis for the selected analysis channel, including both noise and resolution measurements.

AC Analysis
The Analysis Type dropdown menu controls the DC or AC analysis. AC Analysis allows for the use of the FFT plot.

MEMORY MAP TAB



Use the AD417x Memory Map tab to access the registers of the AD4170-4. Shows the AD417x Memory Map tab. This tab changes register settings and shows additional information about each bit in each register.

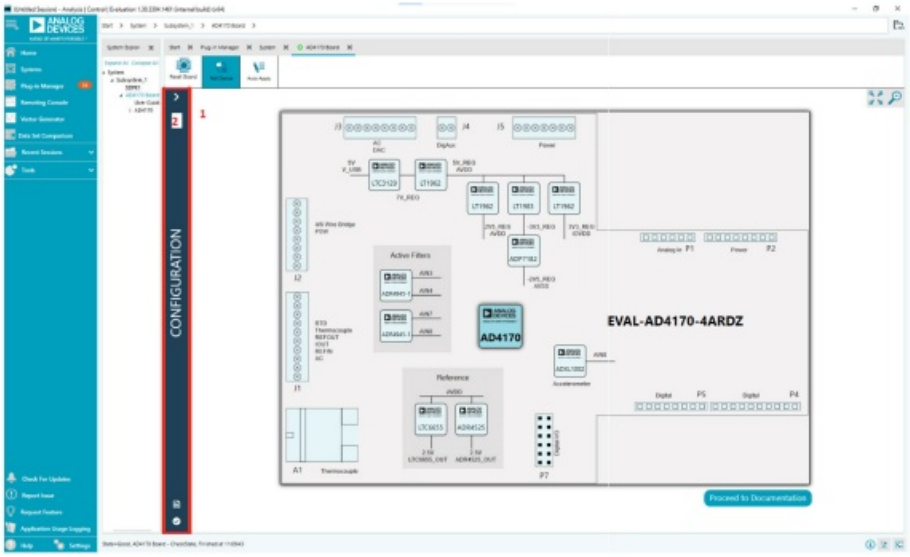
Export Button
The Export button on the Registers map tab allows the user to save and load register settings. Click Save to save all the current register settings to a file for later use. Click Load to load a previously saved register map.

Registers
The Registers section shows the value that is set in the selected register. Check the value of the register in this window by clicking on the bits. Clicking any individual bit changes the bit from 1 to 0 or 0 to 1, depending on the initial state of the bit. The register value can also be changed by writing the hexadecimal value in the input field to the right of the individual bits.

Bitfields
The bitfields sectionshows the individual bitfield of the selected register. The register is broken by name into its bitfields, name of the bitfields, a description of each bitfield, and access information. Show each bitfield by pressing the Show Bitfields button. Apply these changes using Apply Changes. Search for specific registers using the Registers section.

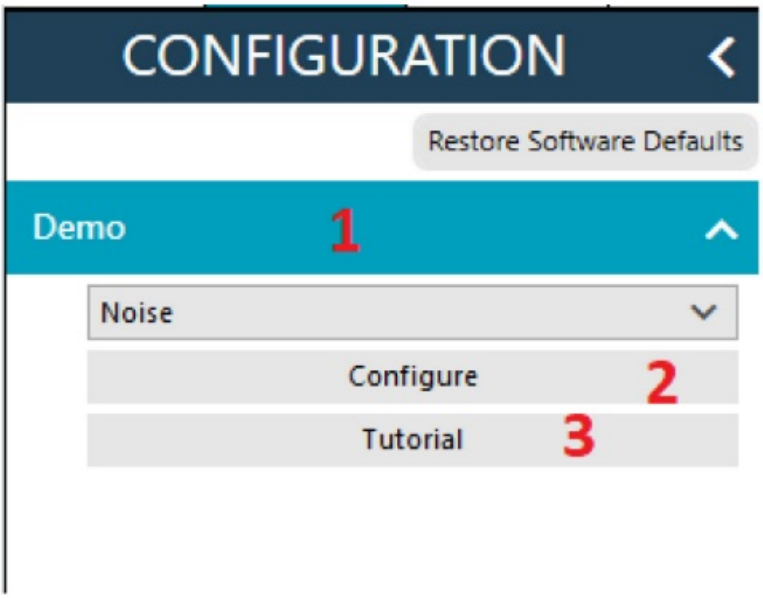
NOISE TEST—QUICK START DEMONSTRATION
To perform a noise test, take the following steps:

1.



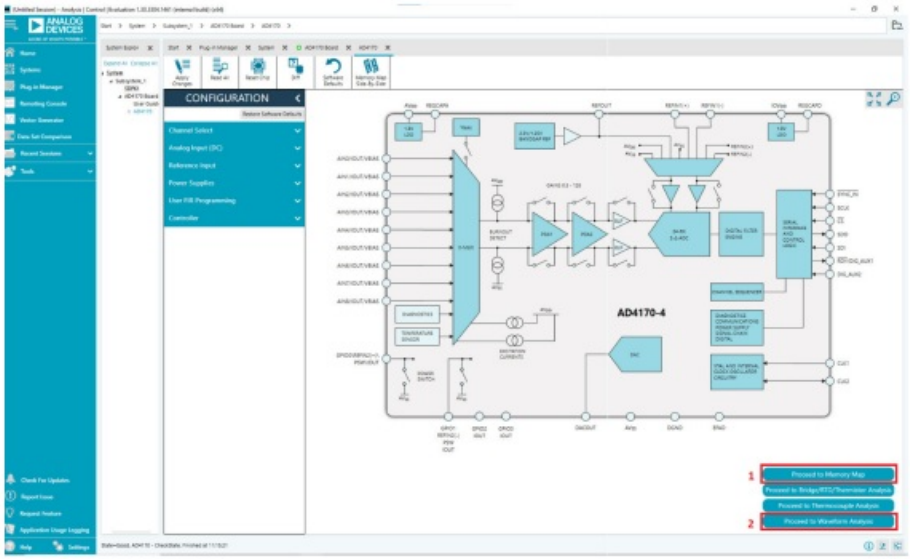
Double click the AD4170 Board icon to open the AD4170 Board view window. CONFIGURATION is on the left, either already expanded. Expand CONFIGURATION by clicking the arrow.

2.



The settings required for the demo can be seen by clicking Tutorial before writing to the AD4170-4. Click Configure (Label 2, Figure 25) to write these settings to the board.

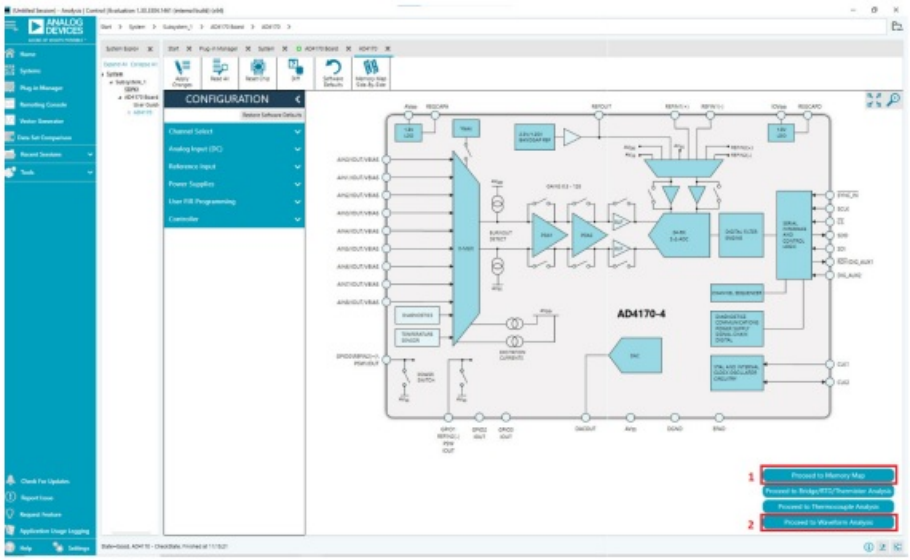
3.



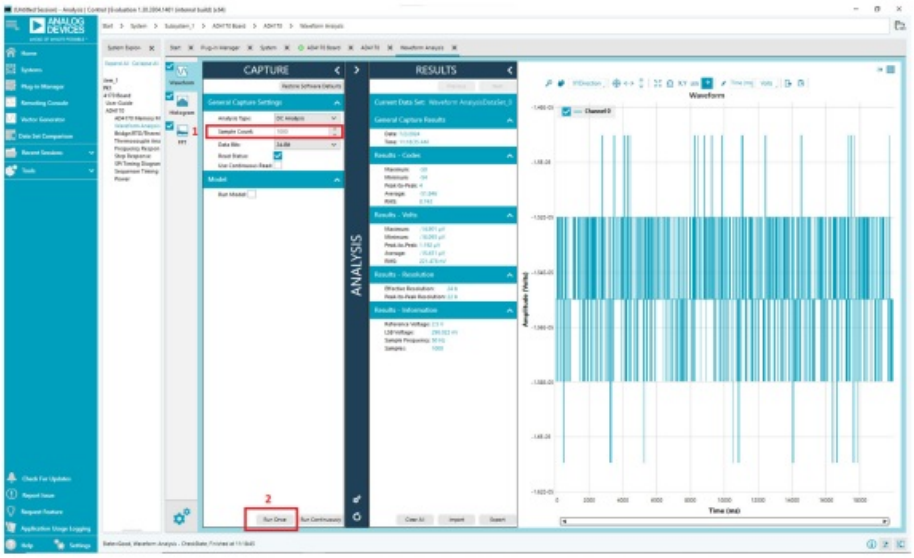
The summary is then displayed once the write is complete. From the displayed summary, navigate to the chip

view by double-clicking the AD4170-4 chip (Figure 26). To make further changes to the configuration, double-click the Proceed to Memory Map button (Label 1, Figure 26). To begin capturing data, double-click the Proceed to Waveform Analysis button.

4.



To gather samples, change Sample Count to the number of samples required, then click the Run Once button (Label 2, Figure 27) to acquire the samples from the ADC. Figure 27 shows an example of the Waveform Analysis window after running a noise test.



FAQs

Q: What are the main features of the EVAL-AD4170-4ARDZ Evaluation Kit?
A: The kit includes the AD4170-4 ADC, on-board references, SMB connectors, a vibration sensor, PC control software, and compatibility with various interfaces.

Q: What equipment is required to use the evaluation board?
A: You will need the evaluation board itself, the EVAL-SDP-CK1Z system demonstration platform, a DC signal source, a USB cable, and a PC running Windows with a USB 2.0 port.

Documents / Resources

	**ANALOG DEVICES EVAL-AD4170-4 Evaluation Board** [pdf] Instruction Manual EVAL-AD4170-4ARDZ, EVAL-SDP-CK1Z, UG-2243, EVAL-AD4170-4 Evaluation Board, EVAL-AD4170-4, Evaluation Board, Board

References

- **User Manual**