Evaluation Board for the AD7400 and AD7401
EVAL-AD7400/AD7401

FEATURES

Full-featured evaluation board for the AD7400 and AD7401
EVAL-CED1Z compatible
Standalone capability
On-board analog buffering
Various linking options
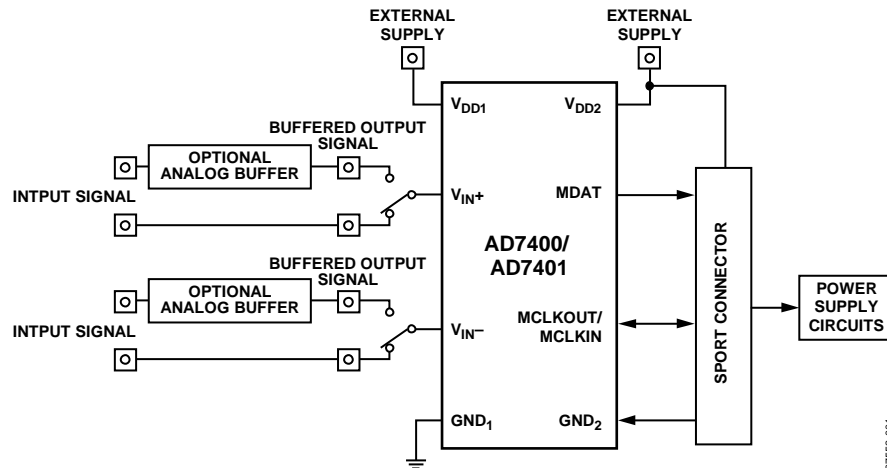**PC software for control and data analysis when using the
EVAL-CED1Z**

GENERAL DESCRIPTION

This data sheet describes the evaluation board for the AD7400 and AD7401, which are second-order, sigma-delta (Σ-Δ) modulators that convert an analog input signal into a high speed, 1-bit data stream with on-chip digital isolation based on Analog Devices Inc., *i*Coupler® technology. The AD7400 and AD7401 operate from a 5 V power supply and accept a differential input signal of ±200 mV (±320 mV full scale).

The analog input is continuously sampled by the analog modulator, eliminating the need for external sample-and-hold circuitry. The input information is contained in the output stream as a density of ones with a data rate of 10 MHz. The original information can be reconstructed with an appropriate digital filter. The serial I/O can use a 5 V or a 3 V supply (V_{DD2}). Full details on the AD7400 and AD7401 are available in the AD7400 and AD7401 data sheets, which are available from Analog Devices and should be consulted in conjunction with this data sheet when using the evaluation board.

On-board components include two AD797 analog op amps for buffering the differential analog input to the AD7400 and AD7401. Various link options are explained in the Link Options section. Interface to this board using a standard 2-row 34-pin SPORT connector. This SPORT connector is compatible with the EVAL-CED1Z, which is available from Analog Devices. External sockets are also provided for a number of signals.

FUNCTIONAL BLOCK DIAGRAM

Figure 1.

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REVISION HISTORY

7/08—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

POWER SUPPLIES

When using this evaluation board with the EVAL-CED1Z, the V_{DD1} and V_{DD2} supplies (that is, the isolated and nonisolated supplies) must be supplied by an external source via the J1 and J4 connectors respectively. The isolated supply, V_{DD1}, can be supplied with a voltage from 4.5 V to 5.25 V while V_{DD2} must be supplied with a 3.3 V supply when used in conjunction with the EVAL-CED1Z. This is because the EVAL-CED1Z operates with a 3.3 V logic level. When using the board as a standalone unit, external supplies must be provided for V_{DD1}, V_{DD2}, and the op amp supplies. This evaluation board has the following power supply inputs: V_{DD1} (+5 V), V_{DD2} (+3V to +5 V), (−5 V), GND_1. and GND_2. The (−5 V) supply is only required if the external AD797 op amps are used to buffer the analog inputs to the AD7400 and AD7401.

The supplies are decoupled to the relevant ground plane with 10 μF tantalum and 0.1 μF multilayer ceramic capacitors at the point where they enter the board.

The AD7400 and AD7401 evaluation board has split ground planes, that is, both the isolated and nonisolated side of the device have completely separate ground plans to preserve the isolation. The board is split beneath the AD7401 and AD7400 package so that signals on one side of the AD7400 and AD7401 are completely isolated from signals on the other side.

LINK OPTIONS

There are seven link options and two solder links that must be set correctly to select the appropriate operating setup before using the evaluation board. The functions of the options are outlined in Table 1.

Table 1. Link Option Functions

Link No.	Function
J7	This link selects the destination for the MCLKOUT output on the AD7400 and the source of the MCLKIN input on the AD7401.
	In Position A, the MCLKOUT signal on the AD7400 goes to the SPORT connector on the EVAL-CED1Z board. The MCLKIN signal on the AD7401 is supplied via the SPORT connector by the EVAL-CED1Z board.
	In Position B, the MCLKOUT signal on the AD7400 goes to the J5 SMB socket. The MCLKIN input on the AD7401 must be supplied by an external source via the J5 SMB socket.
J8	This link option selects the destination of the MDAT output signal from the AD7400 or AD7401.
	In Position A, the MDAT signal goes to the SPORT connector on the EVAL-CED1Z board.
	In Position B, the MDAT signal goes to the J6 SMB socket.
J9	This link option selects the source of the V_{DD2} supply, the nonisolated supply, for the AD7400 or AD7401.
	In Position A, V_{DD2} must be supplied from an external source via the J4-1 connector.
	In Position B, the V_{DD2} input on the AD7400 or AD7401 is connected to the 5 V supply from the EVAL-CED1Z.
	In Position C, the V_{DD2} input on the AD7400 or AD7401 is connected to the 2.5 V supply from the EVAL-CED1Z.
J10	This link option selects the source of the $V_{IN}+$ analog input to the AD7400 or AD7401.
	In Position A, the $V_{IN}+$ analog input to the AD7400 or AD7401 is buffered by the AD797 (U2). This link option should be used in conjunction with J11, which should be placed in Position A.
	In Position B, the $V_{IN}+$ analog input to the AD7400 or AD7401 is not buffered by the AD797 (U2). This link option should be used in conjunction with J11, which should be placed in Position B.
	In Position C, the $V_{IN}+$ analog input to the AD7400 or AD7401 is tied directly to GND_1.
J11	This link selects if the analog input to the J2 SMB, is buffered by the AD797 (U2).
	In Position A, the analog input signal supplied to the J2 SMB is fed directly to the AD797 for buffering. This link option should be used in conjunction with J10, which should be placed in Position A.
	In Position B, the analog input signal supplied to the J2 SMB is fed directly to the $V_{IN}+$ input of the AD7400 or AD7401; therefore, it is not buffered. This link option should be used in conjunction with J10, which should be placed in Position B.
J13	This link selects if the analog input to the J3 SMB, is buffered by the AD797 (U3).
	In Position A, the analog input signal supplied to the J3 SMB is fed directly to the AD797 (U3) for buffering. This link option should be used in conjunction with J14, which should be placed in Position A.
	In Position B, the analog input signal supplied to the J3 SMB is fed directly to the $V_{IN}+$ input of the AD7400 and AD7401; therefore, it is not buffered. This link option should be used in conjunction with J14, which should be placed in Position B.

Link No.	Function
J14	This link option selects the source of the $V_{IN}-$ analog input to the AD7400 or AD7401.
	In Position A, the $V_{IN}-$ analog input to the AD7400 or AD7401 is buffered by the AD797 (U3). This link option should be used in conjunction with J13, which should be placed in Position A.
	In Position B, the $V_{IN}-$ analog input to the AD7400 or AD7401 is not buffered by the AD797 (U3). This link option should be used in conjunction with J13, which should be placed in Position B.
	In Position C, the $V_{IN}-$ analog input to the AD7400 or AD7401 is tied directly to GND_1.
MCLKOUT/MCLKIN	This is a solder link that selects the destination of the MCLKOUT for the AD7400 and the source of the MCLKIN for the AD7401.
	In Position A, the MCLKOUT/MCLKIN pin of the AD7400 or AD7401 is tied directly to GND_2.
	In Position B, the MCLKOUT/MCLKIN pin of the AD7400 or AD7401 is connected directly to J7, that is, the signal is received/supplied by either the EVAL-CED1Z or an external source via the J5 SMB socket.
MDAT	This is a solder link that selects the destination of the MDAT for the AD7400 or AD7401.
	In Position A, the MDAT pin of the AD7400 or AD7401 is tied directly to GND_2.
	In Position B, the MDAT pin of the AD7400 or AD7401 is connected directly to J8, that is, the signal is received by either the EVAL-CED1Z or an external source via the J6 SMB socket.

Table 2. Link Positions on the Packaged EVAL-AD7400/AD7401

Link No.	Position	Function
J7	A	The MCLKOUT signal from the AD7400 is supplied to the EVAL-CED1Z. The MCLKIN signal from the AD7401 is supplied by the EVAL-CED1Z.
J8	A	The MDAT signal from the AD7400 or AD7401 is supplied directly to the EVAL-CED1Z.
J9	A	The V_{DD2} supply (the nonisolated supply) for the AD7400 or AD7401 is supplied by a 3.3 V supply from an external source via the J4 connector.
J10	B	The $V_{IN}+$ analog input to the AD7400 or AD7401 is not buffered by the AD797 (U2). This link option should be used in conjunction with J11, which should be placed in Position B.
J11	B	The analog input signal supplied to the J2 SMB is fed directly to the $V_{IN}+$ input of the AD7400 or AD7401; therefore, it is not buffered. This link option should be used in conjunction with J10, which should be placed in Position B.
J13	B	The analog input signal supplied to the J3 SMB is fed directly to the $V_{IN}-$ input of the AD7400 or AD7401; therefore, it is not buffered.
J14	C	The $V_{IN}-$ analog input to the AD7400 or AD7401 is tied directly to GND_1.
MCLKOUT/MCLKIN	B	The MCLKOUT/MCLKIN pin of the AD7400 or AD7401 is connected directly to J7.
MDAT	B	The MDAT pin of the AD7400 or AD7401 is connected directly to J8.

SETUP CONDITIONS

Care should be taken before applying power and signals to the evaluation board. It is necessary to ensure that all links are positioned correctly for the chosen operating mode. There are two different modes in which to operate the evaluation board. The user can either operate the board with the EVAL-CED1Z or it can be used as a standalone board.

Table 2 shows the position in which all the links are set when the evaluation board is packaged. When the board is shipped, it is assumed that the user operate with the EVAL-CED1Z board. The links are set so that the control signals are supplied by the EVAL-CED1Z. The V_{DD1} supply, which is the supply for the

isolated side of the device, must be supplied by an external source via the J1-1 connector. The V_{DD2} supply, which is the supply for the nonisolated side of the device, must be supplied by 3.3 V from an external source via the J4 connector. The board is configured to enable the user to supply a single-ended input signal to the $V_{IN}+$ terminal of the ADC while the $V_{IN}-$ terminal of the ADC is connected to GND_1. The J10, J11, J13, and J14 links can be modified to enable a differential signal to be applied to the AD7400 or AD7401 inputs if required. The EVAL-AD7400/AD7401 is configured to accept analog input signals directly from the user's source. Alternatively, the AD797 op amps (U2, U3) can be used to buffer the analog input signals if required.

INTERFACING THE EVALUATION BOARD TO THE EVAL-CED1Z

Interface the EVAL-CED1Z board to the evaluation board via a SPORT connector, J12. This standard 2-row, 0.1" connector is used to connect the EVAL-AD7400/AD7401 board to the EVAL-CED1Z controller board. Table 3 gives a description of the pins and the pin designations on the SPORT connector used to interface between the EVAL-CED1Z board and the EVAL-AD7400/AD7401.

Table 3. SPORT Connector Pin Functions

Pin	Connection	Description
1	+5VD_Edge	5 V digital supply.
2	+7V	7 V analog supply.
3	DGND	Digital ground. These lines are connected to the digital ground plane on the evaluation board.
4	NC	No connect. Do not use this pin.
5	$\overline{RESET}$	Reset.
6	SPORT_TSCLK0/SPI_SEL5	Sport 0 transmit serial clock. SPI Peripheral Chip Select 5.
7	SPORT_RFS0/SPI_SEL3	Sport 0 receive frame sync. SPI Peripheral Chip Select 3.
8	SPORT_DROPRI/SPI_SEL4	Sport 0 Data Receive Primary. SPI Peripheral Chip Select 4. This input is connected to the MDAT pin of the AD7400 or AD7401.
9	DGND	Digital ground.
10	SPORT_DR0SEC	Sport 0 data receive secondary; parallel.
11	SPORT_TFS0/SPI_SEL6	Sport 0 transmit frame sync. SPI Peripheral Chip Select 6.
12	SPORT_DT0SEC	Sport 0 data transmit secondary.
13	+2.5VD/3.3V_EDGE	2.5 V/3.3V digital supply.
14	SPORT_DT0PRI/SPI_SEL7	Sport 0 data transmit primary. SPI Peripheral Chip Select 7.
15	+3.3VD_EDGE	2.5 V/3.3V digital supply.
16	SPORT_RSCLK0/SPI_SEL2	SPORT 0 receive serial clock. SPI Peripheral Chip Select 2. This continuous clock is connected to the MCLKOUT pin of the AD7400 via J7.
17	$\overline{SPI\_SS}$	SPI slave select.
18	SPI_MOSI	SPI master out, slave in data line.
19	SPI_SEL1	SPI Peripheral Chip Select 1.
20	SPI_MISO	SPI master in, slave out data line.
21	SPI_SEL2	SPI Peripheral Chip Select 2.
22	SPI_CLK	SPI clock.
23	SPI_SEL3	SPI Peripheral Chip Select 3.
24	TWI_SDA	2-wire interface serial data.
25	SPI_SEL4	SPI Peripheral Chip Select 4.
26	TWI_SCL	2-wire interface serial clock.
27	SPI_SEL5	SPI Peripheral Chip Select 5.
28	RXINT/GPIO2/PPI_FS3	Receive data interrupt. General Purpose I/O Bit 2. Parallel Peripheral Interface Frame Sync 3.
29	SPI_SEL6	SPI Peripheral Chip Select 6.
30	GPIO3/TMR1/PPI_FS1	General Purpose I/O Bit 3. Timer 1. Parallel Peripheral Interface Frame Sync 1.
31	SPI_SEL7	SPI Peripheral Chip Select 7.
32	TMR0/PPI_FS2	Timer 0. Parallel Peripheral Interface Frame Sync 2.
33	DGND	Digital ground.
32	DGND	Digital ground.

SOCKETS

There are four SMB input sockets relevant to the operation of the AD7400 or ADAD7401 on this evaluation board. All of these sockets are used for applying an externally generated signal to the evaluation board. When operating the board with the EVAL-CED1Z, the only external sockets necessary are those used to supply the differential input signals to the analog inputs of the ADC (that is, J2 (V_{IN}+), J3 (V_{IN}−)). All of the other sockets are optional and if they are not used, their signals are supplied by the EVAL-CED1Z. Most of these sockets are used when operating the board as a standalone unit, as all the signals required are supplied from external sources. The functions of these sockets are outlined in Table 4.

The V_{DD1} supply, which is the supply for the isolated side of the device, must be supplied by an external source via the J1-1 connector. The V_{DD2} supply must be supplied by 3.3 V from an external source via the J4 connector.

Table 4. Socket Functions

Socket	Function
J2 (V_{IN}+)	Subminiature BNC socket for a unipolar differential input that is applied directly to the V_{IN}+ pin of the AD7400 or AD7401.
J3 (V_{IN}−)	Subminiature BNC socket for a unipolar differential input that is applied directly to the V_{IIN}− pin of the AD7400 or AD7401.
J5 (MCLKOUT/ MCLKIN)	Subminiature BNC socket for the MCLKOUT output on the AD7400 or subminiature BNC socket for the MCLKIN input to the AD7401.
J6 (MDAT)	Subminiature BNC socket for the MDAT output.

CONNECTORS

There are three connectors on the EVAL-AD7400/AD7401 as outlined in Table 5.

Table 5. Connector Functions

Connector	Function
J1-1	External V_{DD1} power connector.
J1-2	External GND_1 power connector.
J1-3	External −5 V power connector.
J4-1	External V_{DD2} power connector.
J4-2	GND_2 power connector.
J12	SPORT connector for the digital interface and power supply connections.

TEST POINTS

There are numerous test points on the EVAL-AD7400/AD7401. These testpoints enable the user to have easy access to these signals for probing, evaluation, and debugging.

OPERATING WITH THE EVAL-CED1Z

The evaluation board can be operated in standalone mode or operated in conjunction with the EVAL-CED1Z. This evaluation board controller is available from Analog Devices under the order entry EVAL-CED1Z.

When interfacing the EVAL-AD7400/AD7401 directly to the EVAL-CED1Z, the control signals to operate the EVAL-AD7400/AD7401 are provided by the EVAL-CED1Z. The device supplies, V_{DD1}, V_{DD2} and the −5 V, need to be supplied by an external source via the J1 and J4 connectors. If the AD797 op amps are not being used, then the −5 V is not required.

The AD7400 and AD7401 are isolated Σ-Δ modulators that convert an analog input signal into a high speed (10 MHz typical for AD7400 and 20 MHz for the AD7401), single-bit data stream. The time average of the single-bit data from the modulator is directly proportional to the input signal. To generate an output digital word similar to a conventional ADC the 1 bit output data stream from the AD7400 or AD7401 needs to be processed by a digital filter. A sinc3 filter is recommended for use with a decimation rate of 256, this results in a 16-bit word with a throughout rate of 39 kHz, assuming a 10 MHz clock frequency. The sinc3 filter has been implemented in the FPGA on the EVAL-CED1Z and, therefore, the performance results displayed by the software are generated using this filter with a decimation rate of 256.

For the AD7401 the MCLKIN is supplied by the EVAL-CED1Z. The MSCLK frequency is set at 16 MHz. This gives a through-put rate of 62.5 kSPS for a decimation rate of 256. The software allows the user to change the throughput rate by effectively modifying the decimation rate.

Software to communicate with the EVAL-CED1Z and AD7400 or AD7401 is provided with the EVAL-AD7400/ AD7401 package.

The SPORT connector on the EVAL-AD7400/AD7401 plugs directly into the SPORT connector on the EVAL-CED1Z board. The EVAL-CED1Z board is powered from a 7 V, 15 W power supply which accepts input voltages from 100 V to 240 V ac and contains the relevant adaptors for worldwide use. The power supply is provided with the EVAL-CED1Z.

Connection between the EVAL-CED1Z and the USB port of a PC is via a standard USB 2.0 connection cable that is provided as part of the EVAL-CED1Z package.

EVALUATION BOARD SOFTWARE

INSTALLING THE SOFTWARE

The EVAL-AD7400/AD7401 evaluation kit includes self-installing software on CD, for controlling and evaluating the performance of the AD7400 or AD7401 when it is operated with the EVAL-CED1Z. The software is compatible with Windows® 2000/XP. If the setup file does not run automatically, **setup.exe** can be run from the CD.

When the CD is inserted into the PC, an installation program automatically begins. This program installs the evaluation software. The user interface on the PC is a dedicated program written especially for the AD7400 or AD7401 when operating with the EVAL-CED1Z.

Note that the software should be installed before the USB cable is connected between the EVAL-CED1Z and the PC.

This ensures that the appropriate USB driver files have been properly installed before the EVAL-CED1Z is connected to the PC.

When the software is run for the first time with EVAL-CED1Z connected to the PC, the PC automatically finds the new device and identifies it. Follow the on-screen instructions that appear automatically. This installs the drivers for the EVAL-CED1Z on the PC. If an error appears on screen when the software is first opened, then the PC does not recognize the USB device. Correct this error with the following steps:

1. Click the **My Computer** icon, then select **Properties**. When the **System Properties** window opens, select the **Hardware** tab.
2. Click **Device Manager** in the **Hardware Tab** of the **System Properties** window.
3. Examine the devices listed under the **Universal Serial Bus Controller** heading.
4. If an unknown device is listed, right click this option and select **Update Driver**.
5. The New Hardware Wizard runs twice. Under **ADI Development Tools**, the hardware is listed as **ADI Converter Evaluation and Development Board (WF)**.
6. Reboot your PC.

SETTING UP THE EVAL-CED1Z

This section describes how the evaluation board, the EVAL-CED1Z, and the software should be setup to begin using the complete system.

1. Install the EVAL-AD7400/AD7401 software.
2. Connect the EVAL-CED1Z board and the evaluation board via the SPORT connector. Apply power to the EVAL-CED1Z via the 7 V, 15 W power supply provided. At this stage, the green LED labeled **Power**, on the EVAL-CED1Z, should be lit indicating that the EVAL-CED1Z is receiving power.
3. The USB cable can then be connected between the PC and the EVAL-CED1Z. A green LED positioned beside the USB connector on the EVAL-CED1Z board lights up indicating that the USB connection has been established.
4. The EVAL-AD7400/AD7401 is detected. Proceed through any dialog boxes that may appear (use the recommended options) to finalize the installation.
5. Start the EVAL-AD7400/AD7401 software. The FPGA on the EVAL-CED1Z is automatically programmed when the software is opened. The two red LEDs (D14 and D15) on the EVAL-CED1Z now light up. This indicates that the EVAL-CED1Z is functional and ready to receive instructions.
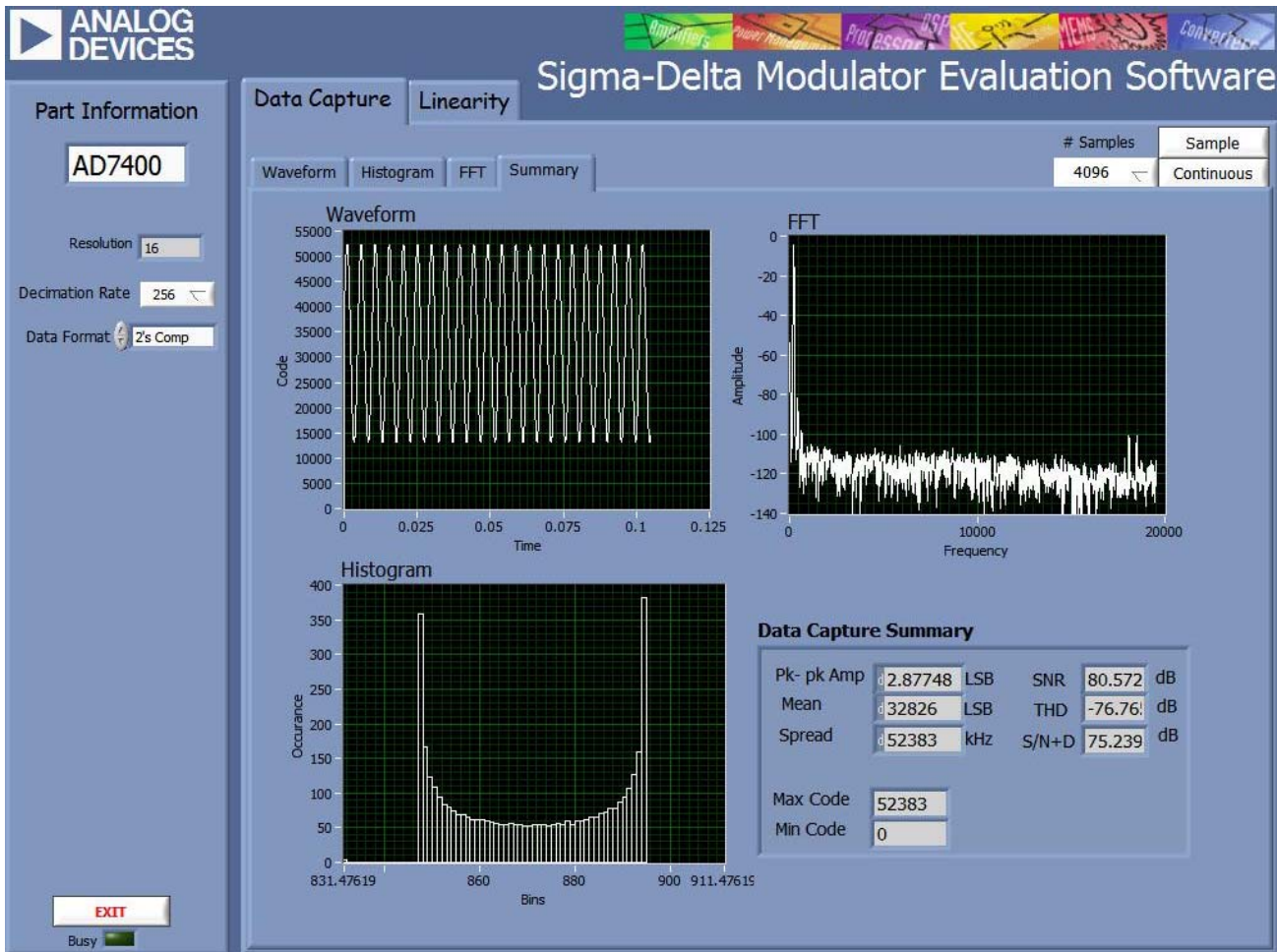
Figure 2. AD7400 Summary Window

SOFTWARE OPERATION

With the hardware set up, you can now use the software to control the EVAL-CED1Z and the EVAL-AD7400/AD7401. To launch the software from the **Analog Devices** menu, click the **AD7400/AD7401** submenu, then click the **AD7400/AD7401** icon. Figure 2 displays the main window that is opened. If an error message appears, click **OK** and restart the application after checking the connection between the adapter board and the USB port on the PC. Also check that the USB device is identified by the **Device Manager** as detailed in the Installing the Software Section.

The software that controls the EVAL-CED1Z and, therefore, the EVAL-AD7400/AD7401, has two main windows. Figure 2 shows the window that appears when the software is run. The main function of this window is to allow you to read a pre-determined number of samples from the evaluation board and display them in both the time and frequency domain. The screen can be divided into three main sections: **Part Information**, **Data Capture**, and **Linearity**. The top portion of the screen contains the menu bar, including the **Part Information** tab on the left hand side of the screen and a **Data**

Capture tab in the center, which consists of four sub-tabs: **Waveform**, **Histogram**, **FFT**, and **Summary**.

The **Linearity** tab is also located in the center and enables you to generate a linearity plot for the device.

USING THE SOFTWARE

Menu Bar

The menu bar consists of the following menus: **File**, **Edit**, **Operate**, **Tools**, **Window**, and **Help**.

Part Information Tab

The **Part Information** tab allows you to select the following three configuration options:

- **Resolution**: The software automatically sets the resolution to 16 bits for the AD7400 or AD7401.
- **Decimation Rate**: The default decimation rate for the sinc3 filter is 256. A variety of decimation rates can be selected from the pull-down menu.
- **Data Format**: The data format is set to binary by default.

The **Part Information** tab also includes a **Busy** status indicator which lights up when the evaluation board is busy. There is also an **Exit** button, which allows you to quit the program.

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Data Capture Tab

In the **Data Capture** tab, you can select the number of samples to be captured from the drop-down menu. The default number of samples is 8192; you are free to change this as required. The desired display option is selected by clicking the **Waveform**, **Histogram**, or **FFT** tab.

Waveform Tab

The **Waveform** tab displays a digital storage oscilloscope (DSO) that allows you to display a waveform. When samples are uploaded from the EVAL-CED1Z, they are displayed here. The samples are displayed as integer code values.

At the bottom left of the graph are the zoom options. These allow you to zoom in and out to get a closer look at a sample, if required. The **Waveform Analysis** section, located beneath the waveform graph, contains information about the samples taken, for example minimum/maximum position or velocity, the spread, the standard deviation, and the mean.

Histogram Tab

The **Histogram** tab displays a histogram of the captured ADC codes. It can be used to give an indication of the ADC's performance in response to dc inputs. The **Histogram Analysis** section contains information about the samples taken, for example maximum and minimum codes captured.

FFT Tab

The **FFT** tab displays a fast Fourier transform (FFT) plot. The FFT is typically used for examining the ADC's performance in the frequency domain. The **Spectrum Analysis** section contains information about the samples taken, for example, ac specifications.

Linearity Tab

In the **Linearity** tab, you can select the number of hits per code to be captured for the linearity analysis. The desired display option is selected by clicking the **Histogram**, **INL**, **DNL**, or **Summary** tab buttons. To initiate the data collection, select the **Get Linearity Data** button. The data collection and analysis takes a few seconds to complete. The greater the number of hits per code selected the longer the analysis takes.

Histogram Tab

The **Histogram** tab displays a histogram of the captured ADC codes. It can be used to give an indication of the ADC's performance in response to dc inputs. The **Histogram Analysis** section contains information about the samples taken, for example maximum and minimum codes captured.

INL Tab

The **INL** tab displays an INL plot for the AD7400 or AD7401. This plot can be used to examine the dc performance of the ADC. The **Linearity Analysis** section contains information on the maximum and minimum INL error and the code at which this error occurred. It also shows the total number of hits per code and the number of samples taken.

DNL Tab

The **DNL** tab displays a DNL plot for the AD7400 or AD7401. This plot can be used to examine the dc performance of the ADC in conjunction with the INL plot. The **Linearity Analysis** section contains information on the maximum and minimum DNL error and the code at which this error occurred.

TAKING SAMPLES

To initiate a conversion and capture the sample data, you must click the **Sample** button or the **Continuous** button. Both the **Sample** and the **Continuous** buttons are located on the top right hand corner of the **Data Capture** tab. When you click the **Sample** button, the software instructs the EVAL-CED1Z to take the required number of samples at the required frequency from the evaluation board. The EVAL-AD7400/AD7401 runs with sampling speeds less than or equal to 39 kSPS. This sampling rate can be altered by changing the decimation rate selected for the filter. You can choose the decimation rate and the number of samples to be taken.

The samples taken are then uploaded and displayed. An FFT and/or histogram can be calculated and displayed. If you click the **Continuous** button, the software repeats the process indefinitely until you click **Stop.** (The **Continuous** button switches to **Stop** when selected).

EVALUATION BOARD SCHEMATICS AND ARTWORK

EVAL-AD7400/AD7401 schematics, silkscreen, and layout diagrams can be found in Figure 3 to Figure 6.
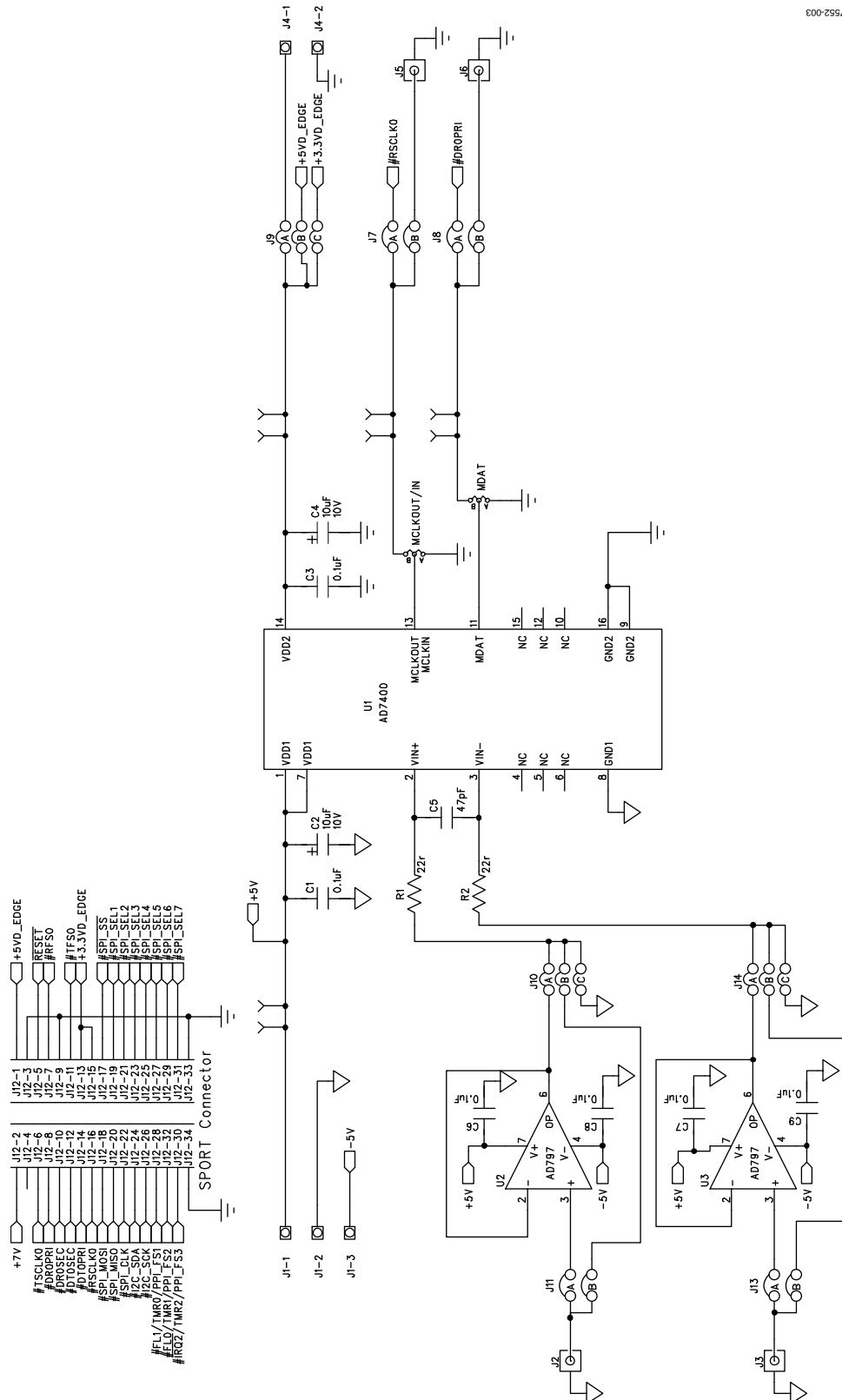
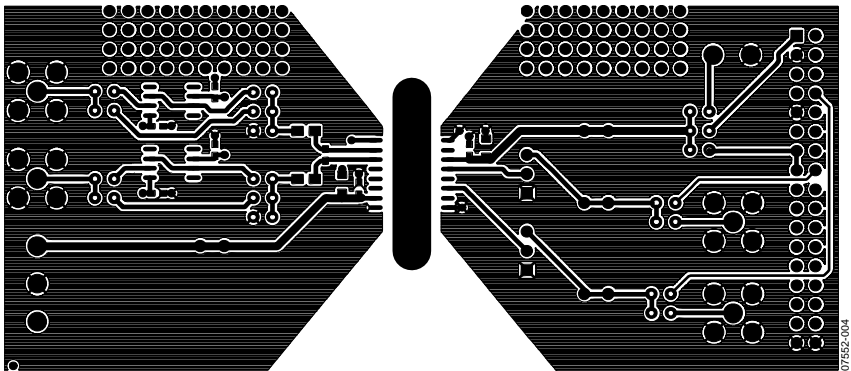
Figure 3. AD7400/AD7401 Evaluation Board Circuit Diagram 1
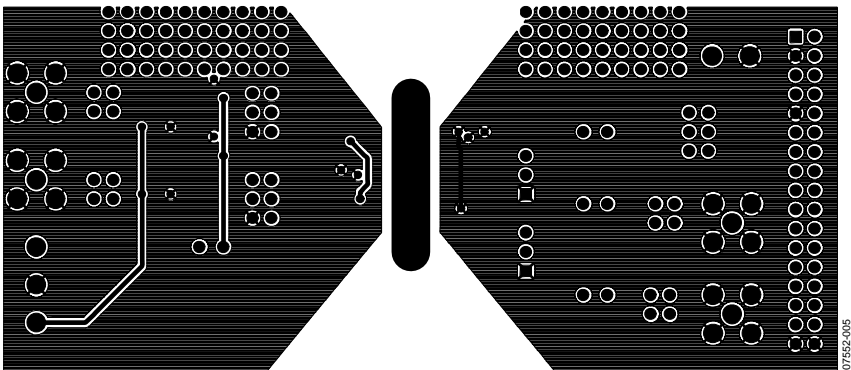
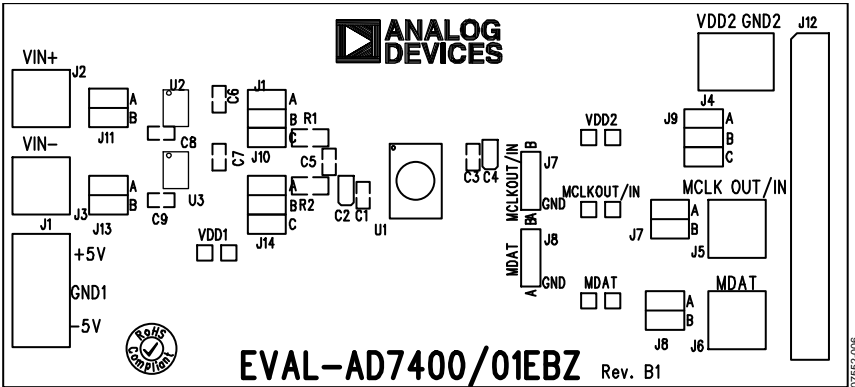Figure 4. Component Side Artwork

Figure 5. Solder Side Artwork

Figure 6. Silkscreen

ORDERING INFORMATION
BILL OF MATERIALS

Table 6.

Qty	Reference Designator	Description	Supplier/Number[1]
6	C1, C3, C6, C7, C8, C9	0.1 μF capacitor	FEC 9406140
2	C2, C4	10 μF capacitor	FEC 197130
1	C5	47 pF capacitor	FEC 498567
2	R1, R2	22 Ω resistor	FEC 1099789
1	U1	ADC, AD7400 or AD7401	Analog Devices AD7400YRWZ or AD7401YRWZ
2	U2, U3	Op amp, AD797ARZ	Analog Devices AD797ARZ
1	J1	Terminal block, connector\power 3-way	FEC 9632980
4	J2, J3, J5, J6	SMB Connector	FEC 419 4512
1	J4	Terminal block, connector\power	FEC 151789
4	J7, J8, J11, J13	Jumper 2	FEC 1022244
3	J9, J10, J14	Jumper 3	FEC 1022244
1	J12	Header 34	Digi-Key S7085-ND

[1] FEC = Farnell Electronics, Inc.

ORDERING GUIDE

Model	Description
EVAL-AD7400EDZ[1]	Evaluation Board for AD7400
EVAL-AD7401EDZ[1]	Evaluation Board for AD7401
EVAL- CED1Z[1]	Converter Evaluation and Development Board

[1] Z = RoHS Compliant Part.

ESD CAUTION

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

ANALOG DEVICES

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