

EVM User's Guide: ADS9308V8IEVM

ADS9308V8I Evaluation Module

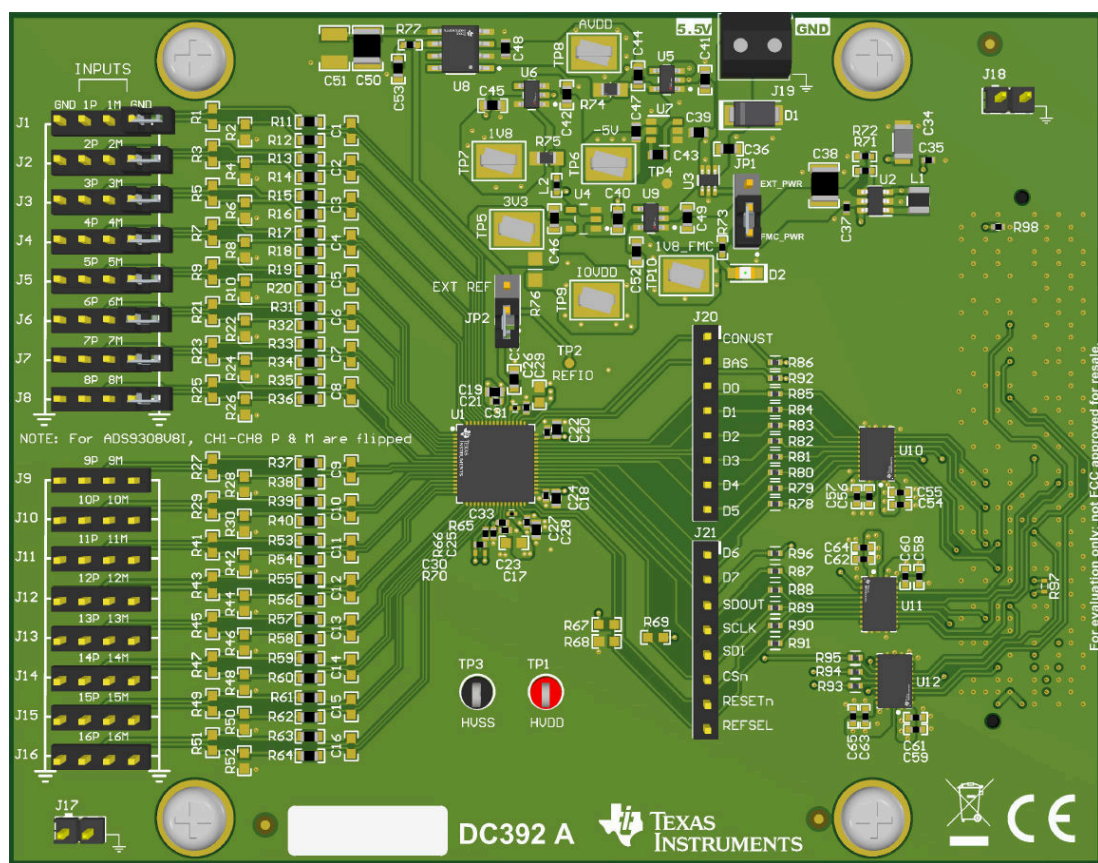


Description

The ADS9308V8I evaluation module (EVM) is a platform for evaluating the performance of the ADS9308V8I, 16-channel, 24-bit, 100ksps/channel SAR ADC with integrated analog front-end and ADC reference. The ADS9308V8IEVM includes a standard FMC connector that can interface with standard FPGA development boards. Computer software that works with the TSWDC155EVM (sold separately) is provided to enable the user to communicate with the ADC over universal serial bus (USB), capture data, and perform data analysis.

Features

- EVM hardware features all required support circuitry for the ADS9308V8I, including power tree and ADC reference voltage options
- Easy-to-use evaluation software for Windows® 10 64-bit operating systems
- EVM software suite includes graphical tools for data capture and analysis
- Software for communications is facilitated with TSWDC155EVM data capture card (sold separately)



ADS9308V8IEVM

1 Evaluation Module Overview

1.1 Introduction

This EVM eases the evaluation of the ADS9308V8I device with hardware, software, and computer connectivity through the universal serial bus (USB) interface. This EVM user's guide includes complete circuit descriptions, schematic diagrams, and a bill of materials (BOM). Throughout this document, the terms *demonstration kit*, *evaluation board*, *evaluation module*, and *EVM* are synonymous with the ADS9308V8IEVM.

1.2 Kit Contents

The ADS9308V8IEVM kit comes with an evaluation module for ADS9308V8I. The [TSWDC155EVM](#) controller card is sold separately.

1.3 Specification

The ADS9308V8IEVM include the following features:

- ADS9308V8IEVM has the hardware required for diagnostic testing and accurate performance evaluation of the ADS9308V8I ADC
- Easy-to-use evaluation GUI for Microsoft® Windows 10, 64-bit operating systems requires the TSWDC155EVM (sold separately) for operation.

[Figure 1-2](#) shows the connections and basic subsystems of the EVM.

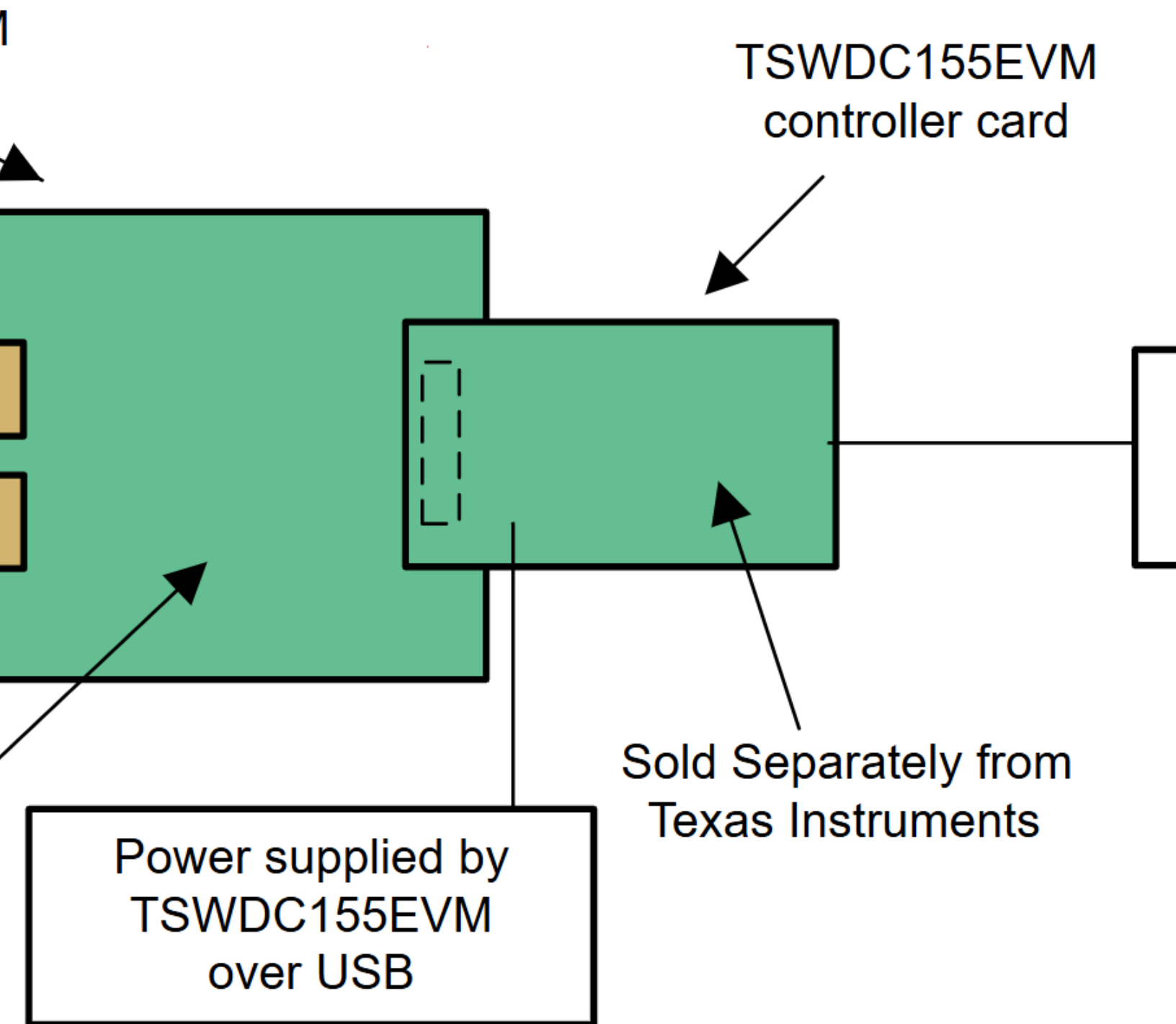


Figure 1-1. System Using GUI and TSWDC155EVM

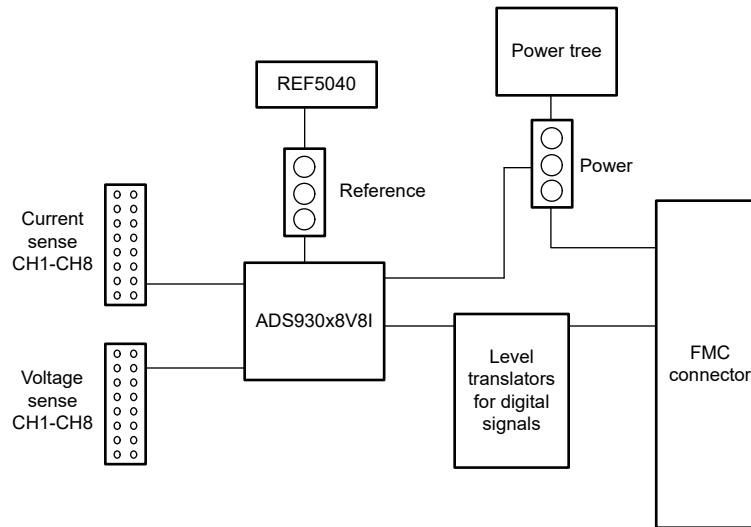


Figure 1-2. ADS9308V8IEVM Block Diagram

1.4 Device Information

The ADS9308V8IEVM is a platform for evaluating the performance of the ADS9308V8I SAR ADC with integrated analog front end for simultaneous current and voltage sensing, and maximum throughput of 100kSPS on each channel. The ADS9308V8I features eight zero-drift programmable gain amplifiers for current sensing with ESD protection of $\pm 8\text{kV}$, and eight low-drift programmable gain amplifiers (PGA) for voltage sensing with input impedance of $1\text{M}\Omega$. The eight current sense channels have the following input ranges: $\pm 25\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$, $\pm 150\text{mV}$, $\pm 200\text{mV}$. The eight voltage sense channels have the following input ranges: $\pm 12.5\text{V}$, $\pm 10\text{V}$, $\pm 6.25\text{V}$, $\pm 5\text{V}$, $\pm 2.5\text{V}$.

2 Hardware

2.1 ADS9308V8IEVM Quick Start Guide

The following instructions are a step-by-step guide for connecting the ADS9308V8IEVM to the computer and evaluating the performance of the ADS9308V8I.

1. Review the default jumper settings in [Figure 2-1](#) and the power guidelines in [Section 2.4.1](#).
2. **IMPORTANT:** Please set the J5 jumper on the TSWDC155EVM to the +1.8V option.
3. Physically connect J1 of the TSWDC155EVM to J22 of the ADS9308V8IEVM. This component is the digital communications and power signal connection in default configuration.
4. Set jumper JP1 to the FMC_PWR position so the TSWDC155EVM provides power. Otherwise, set JP1 to EXT_PWR and connect an external 5.2V to 5.5V supply on screw terminal connection J7.
5. Bypass any external USB hub and connect the USB on the TSWDC155EVM directly to the computer.

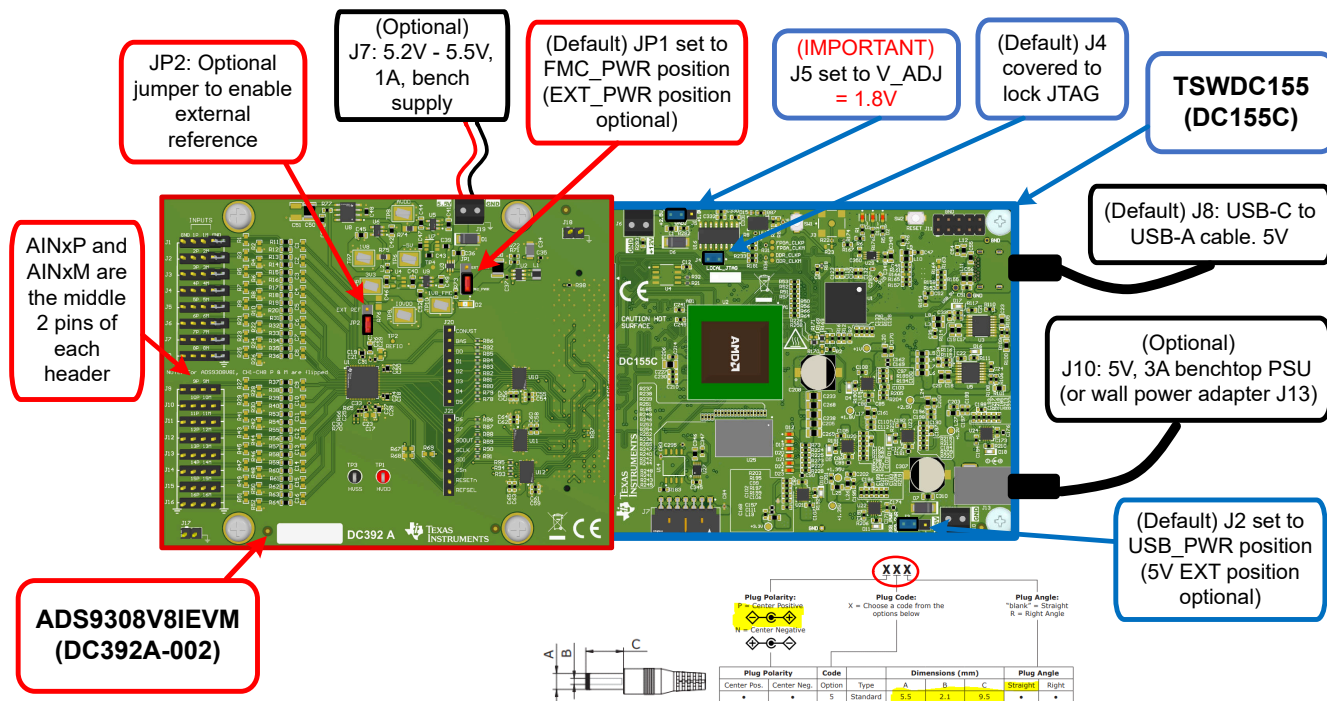


Figure 2-1. Connecting the Hardware

1. Install the GUI as described in [Section 3.1](#).
2. Install the necessary USB drivers as described in [Section 3.1.1](#).
3. Launch the GUI.
4. For ADS9308V8IEVM and GUI, press the *Board Startup* and *Initialize Device* buttons, in order, on the *Configuration* tab to power up and configure the EVM, (see [Section 3.2.1](#) for details).
5. Connect a 40mV_{PP}, differential sine wave signal from a function generator to any current sense channel (CH1 - CH8 on EVM) through the J1 header or connect a 9V_{PP}, differential sine wave signal to any voltage sense channel (CH9 - CH16 on EVM) through the J2 header.
6. Select the number of samples to be at least 32k points, and choose the Hanning window type for best frequency domain results.
7. Press the *Start Capture* button to collect and analyze the data displayed on the appropriate channel; see [Section 3.2](#) for more details.

2.2 Analog Interface

This section details the analog input connections to the ADS9308V8IEVM.

2.2.1 ADC Input SMA Connections

Each ADC current sense channel is connected to two pins on input header J1. Each ADC current voltage channel is connected to two pins on input header J2. 0402 footprints are provided to add a first-order, low-pass filter network on all ADC channels. By default, the filter capacitors are uninstalled and the filter resistors are populated with 0Ω. Use NP0/C0G type capacitors and low-tolerance resistors to maintain AC performance when choosing to populate these footprints with a low-pass filter circuit. Capacitors and resistors can also be used to protect the current sense input channels. For channel 1, for example, C1 can be populated with a 3nF capacitor and R11 and R12 can be populated with 499Ω resistors.

Additionally, resistors (like R1) can be populated to short AINxP and AINxM. Other resistors (like R2) can be populated to short inputs to GND.

Note

Please note, for header J1, the positive and negative polarity pins are switched. For example, 1P is actually 1M, and 1M is 1P. This will be edited in the next EVM revision.

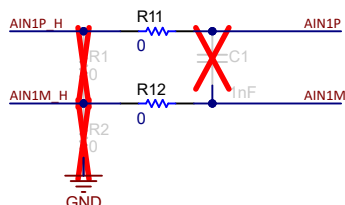


Figure 2-2. Current Sense Input Channel

2.2.2 Voltage Reference

The ADS9308V8I uses an internal 4.096V reference voltage, which can be measured on the REFIO pin when configured as an output (default). For applications that require improved drift performance, configure the REFIO pin as an input and apply an external reference voltage to the pin. The REFIO pin can be configured through the REFSEL pin or by configuring an ADC register. To use the REFSEL pin, connect REFSEL to GND for the external reference or connect REFSEL to IOVDD for the internal reference. This can be done through the J21 header or through the R67 and R68 resistors.

The ADS9308V8IEVM include a provision for evaluating the REF5040 reference IC. The REF50xx family of high precision series voltage references offers low noise (3μV_{PP}/V), very low temperature drift coefficient (2.5ppm/°C), and high accuracy (±0.025%). To connect the REF5040 to the ADS9308V8I, configure the REFIO pin as an input via the GUI and then install a shunt on jumper JP2.

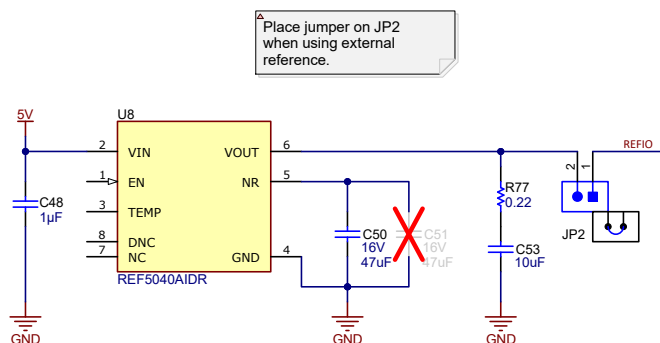


Figure 2-3. REF5040

2.3 Digital Interface and Clock Inputs

This section details the digital interface connections for the ADS9308V8IEVM.

2.3.1 Digital Interface Connections

The ADS9308V8I uses SPI to configure the internal device registers using pins SCLK, SDI, SDOUT, and CSn. The data interface can be configured to be output in 1, 2, 4, or 8 lanes. The EVM and GUI software allows evaluation of the 8-lane data interface mode. These SPI signals, CONVST, DRDY, and D0-D7 signals are available via test points for scope measurements as indicated in PCB silkscreen.

Note

The DRDY pin is marked on the J20 header as **BAS**.

The FMC connector pinout below can also be interfaced with standard FPGA development kits. Note that the TI-provided software GUI is only compatible with the TSWDC155EVM and third-party software development is not supported.

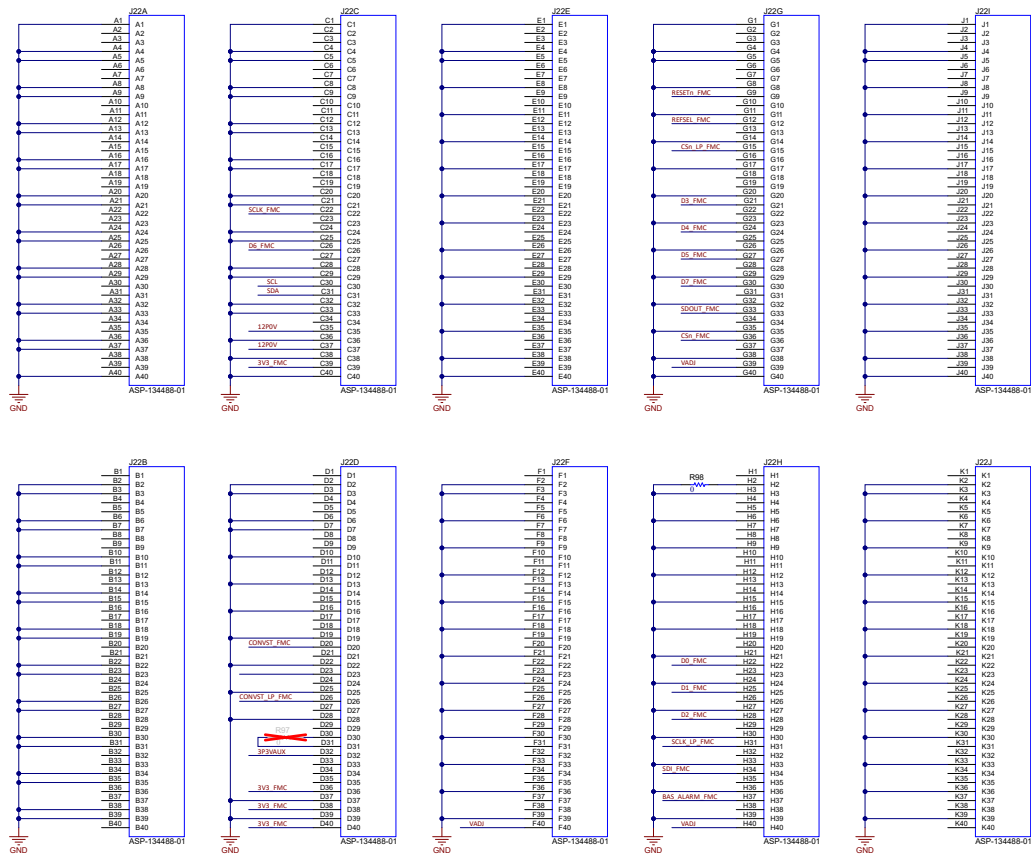


Figure 2-4. Digital I/O

Figure 2-5 shows the necessary decoupling capacitors for analog supplies, digital supplies, and ADC reference voltages.

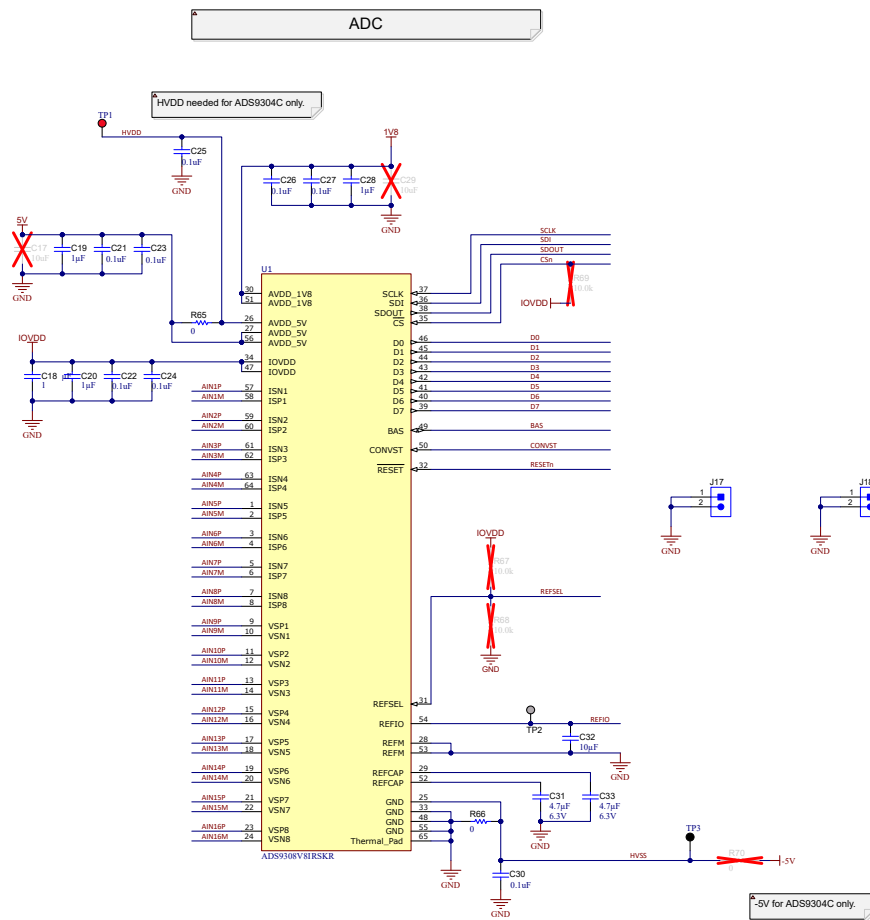


Figure 2-5. Connections to ADS9308V8I

2.3.2 Level Translators

The ADS9308V8IEVM has level translators to shift 3.3V digital signals to 1.8V for use with the FPGA on the TSWDC155EVM. This is done for testing purposes. When using the ADS9308V8I on a user board and interfacing with an FPGA requiring 1.8V I/O levels, the level shifters are not necessary. The IOVDD voltage on the ADS9308V8I can be set to 1.8V directly. Instructions on how to configure the IOVDD voltage on the EVM can be found in [Power Supplies](#).

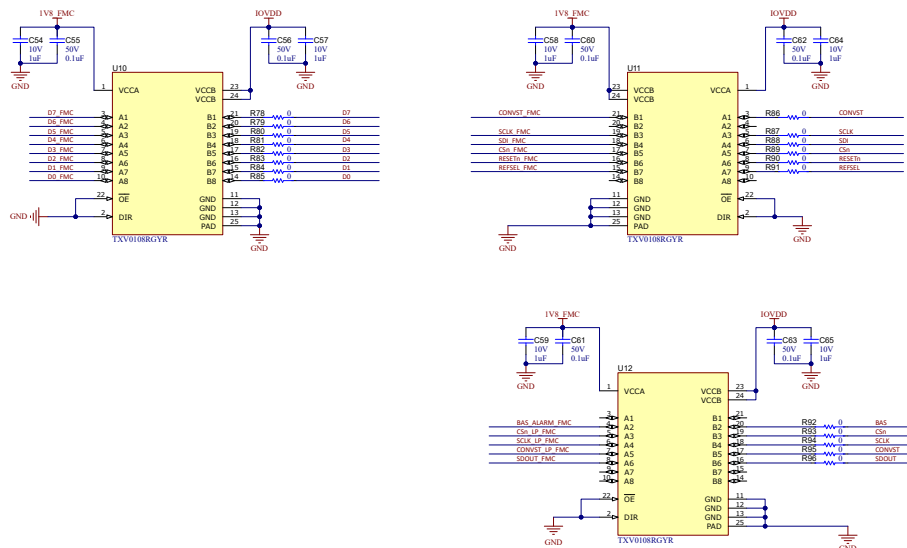


Figure 2-6. Level Translators

2.4 Power Supplies

By default, the TSWDC155EVM provides the ADS9308V8IEVM with a 3.3V supply (3P3V). The ADS9308V8IEVM has a TPS61070 boost converter that boosts the 3.3V supply to 5.4V. By default, this voltage is applied to low-dropout regulators (LDOs) to derive the AVDD_5V, AVDD_1V8, and IOVDD supplies when JP1 is in the [1-2] position. U5 (TPS7A2050) provides the 5V AVDD_5V supply, U6 (TPS7A2018) provides the AVDD_1V8 supply, and U4 (TPS7A2033) provides 3.3V for IOVDD, respectively. The LDO input voltage can be changed to an external source (5.2V to 5.5V) applied to terminal block J7 by placing a shunt on JP1 in the [2-3] position. In this case, U3 (LM66100) provides reverse polarity protection if the connection is wired incorrectly.

IOVDD can be either 1.8V or 3.3V. This allows ADS9308V8I the interface with both FPGAs and MCUs.

To set the IOVDD = 1.8V on the EVM:

- Populate R75 and depopulate R76

To set the IOVDD = 3.3V on the EVM:

- Populate U4 with TPS7A2033
- Populate R76 and depopulate R75

Figure 2-7 shows the power tree schematic for the ADS9308V8IEVM.

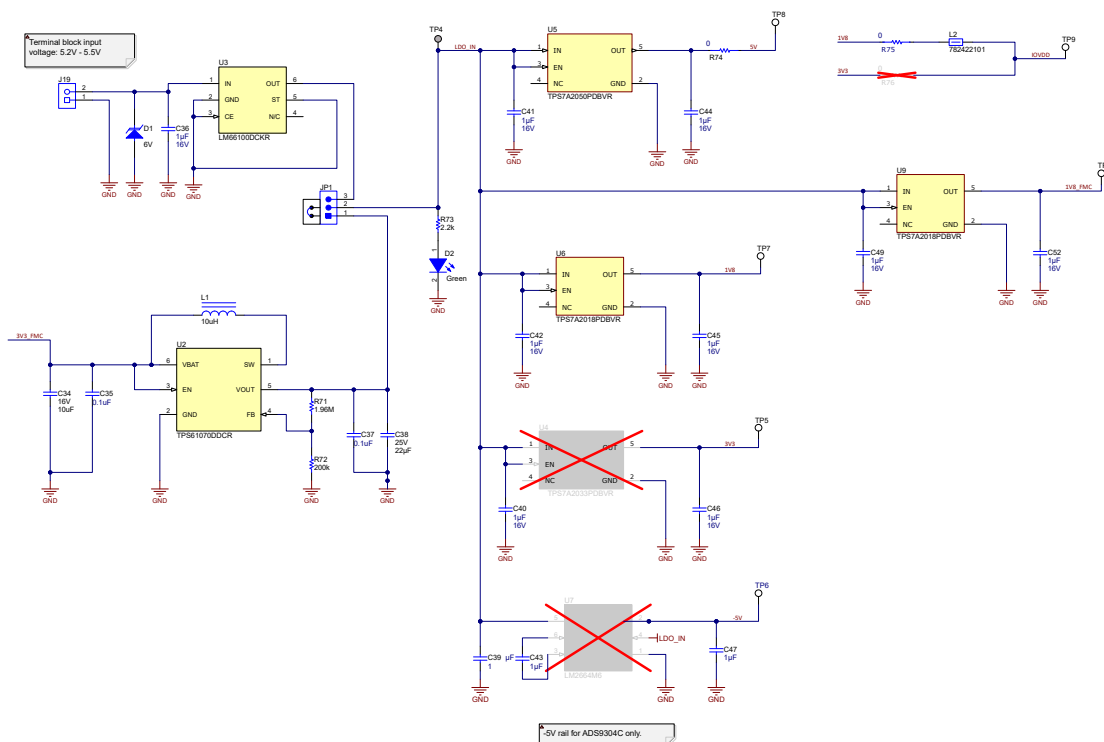


Figure 2-7. Power Entry and Regulators

2.4.1 USB Power and When to Power the Board Externally

As discussed in [Section 2.1](#), the USB-C® connector is able to provide power to the TSWDC155EVM and ADS9308V8IEVM using the default configuration.

The TWDC155EVM is a high-power SuperSpeed (USB 3.0) device. This means a PC supplies up to 900mA from a compliant USB 3.0 port. However, many PC USB port configurations allow much less than this limit depending on the unit load handshake process, usually resulting from other devices on the bus. Tripping the current limit on a USB can result in cutting power to the USB port, excessive power dissipation or heating, depending on the PC port configuration. As a result, TI highly recommends to consider switching to an externally powered ADS9308V8IEVM and/or TSWDC155EVM if:

- Only USB 1.0 or USB 2.0 ports are available.
- There are multiple devices connected to the PC by USB at the same time.
- The USB 3.0 port configuration for the PC is unknown.

To switch to the external power configuration on the ADS9308V8IEVM, move the jumper on JP1 to the EXT_PWR [2-3] position and use the J7 terminal block to provide the required 5.2V to 5.5V supply. To switch to the external power configuration on TSWDC155EVM, move the jumper on J2 to the 5V (external) position and use the J10 terminal block or barrel jack connector to provide the required 5V supply.

USB hubs can cause possible device enumeration issues and are not recommended when communicating through the TSWDC155EVM.

3 Software

3.1 ADS9308V8IEVM Software Installation

This section details the installation and operation of the ADS9308V8IEVM software graphical user interface (GUI). This software requires the TSWDC155EVM (sold separately) controller to operate. The first step to installing the software (as shown in [Figure 3-1](#)) is to download the latest version of the EVM GUI installer as per [Table 3-1](#).

Table 3-1. EVM GUI Installers

EVM	Software Download Link
ADS9308V8IEVM	ADS9308V8IEVM-GUI

Accept all the license agreements and choose the destination location, project directory, and start menu. Typically, the default values work, but these values can be customized as needed based on the user's requirements.

Note

The GUI installer and GUI buttons can differ slightly depending on which specific GUI is being installed.

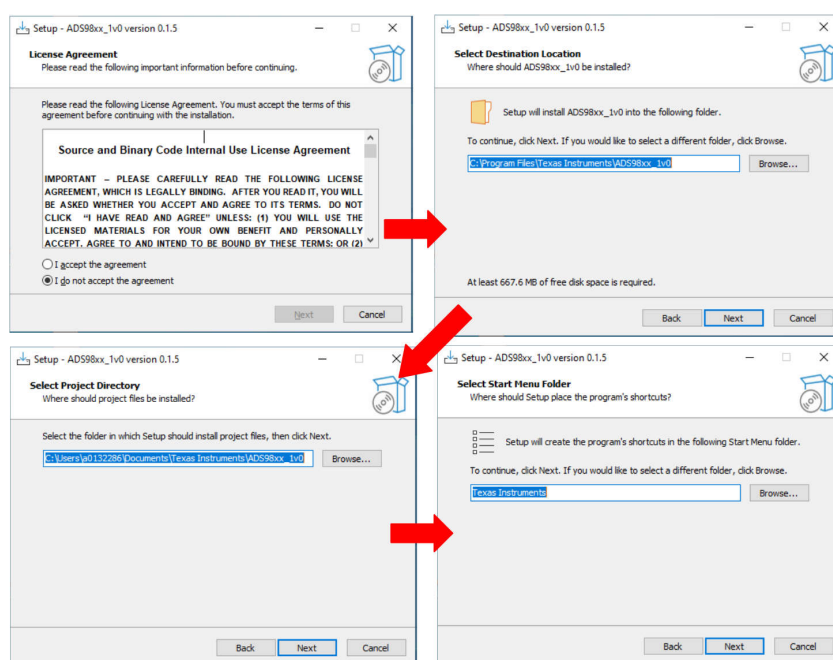


Figure 3-1. Initial Software Installation

Next, the installer prompts the user to create a desktop icon and summarize the installation plan. Selecting *Install* begins copying software onto the computer. This process takes a few minutes. At completion, the user can launch a readme text file and the application. Figure 3-2 shows these steps.

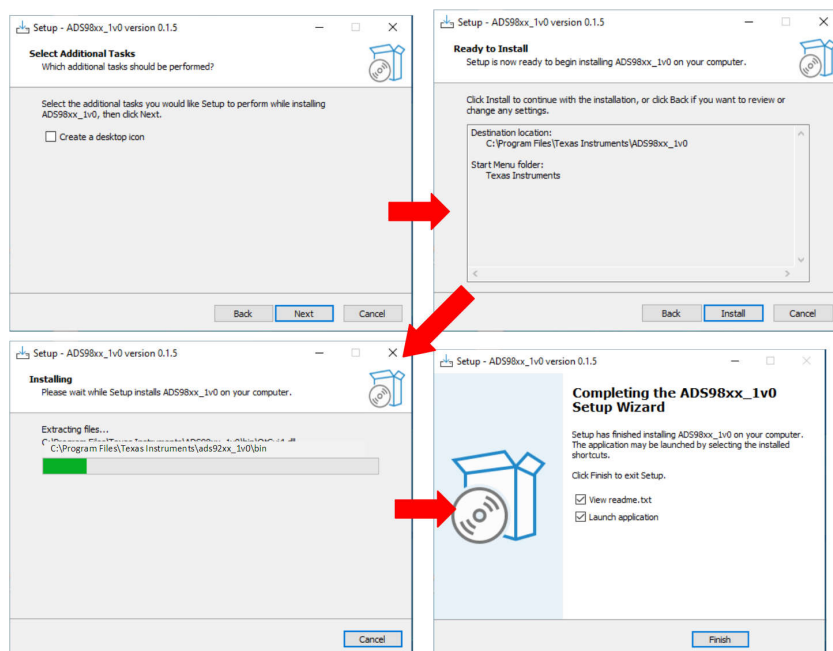


Figure 3-2. Installation Process

3.1.1 USB Driver Installation

This section describes the steps for installing the USB driver.

1. For the TSWDC155, connect J8 to the workstation using a USB-C to USB-A cable.
2. Bypass any USB hub and connect directly to the computer.
3. Open the Windows Device Manager, as shown in [Figure 3-3](#), and right-click on the *WestBridge* folder in the Device Manager window and select the *Update Driver* button (see [Figure 3-4](#)).
4. In the next window that appears, select *Browse my computer for driver software*.
5. Then select *Let me pick from a list of available drivers on my computer* in the next pop-up window.
6. Select *Have Disk* in the pop-up window and navigate to: `C:\Program Files\Texas Instruments\ADS9308V8I\EVM-GUI\driver`

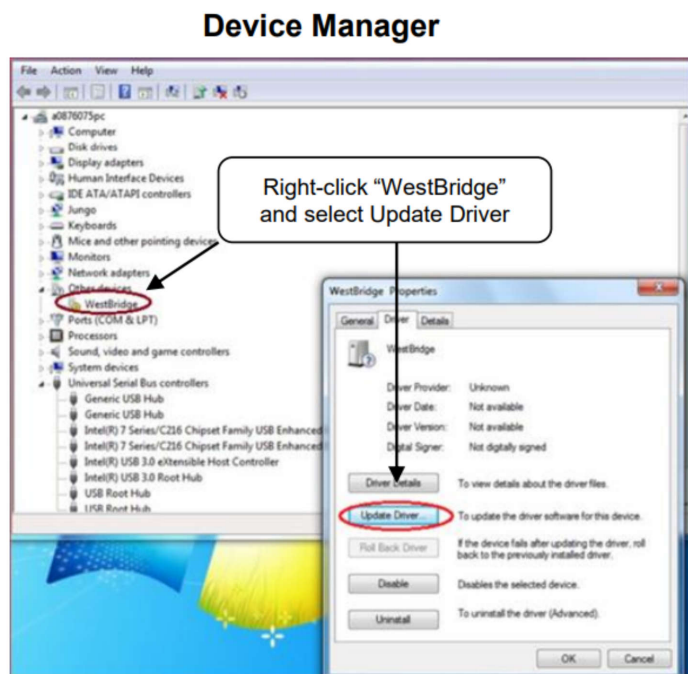


Figure 3-3. Open Device Manager

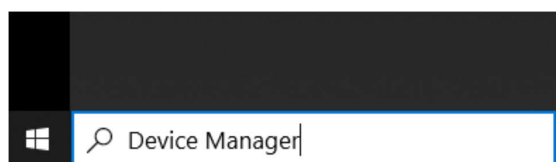


Figure 3-4. Update Driver With Device Manager

3.2 ADS9308V8IEVM Software (ADS9308V8IEVM-GUI)

3.2.1 Using Configuration Tab

After the EVM GUI is started, press the following buttons in the order shown below. After selecting the desired ADC from the drop-down menu, select **BOARD STARTUP**. After the **USB Status**, **FPGA Power**, and **FPGA Program** lights are green, select **INITIALIZE DEVICE**.

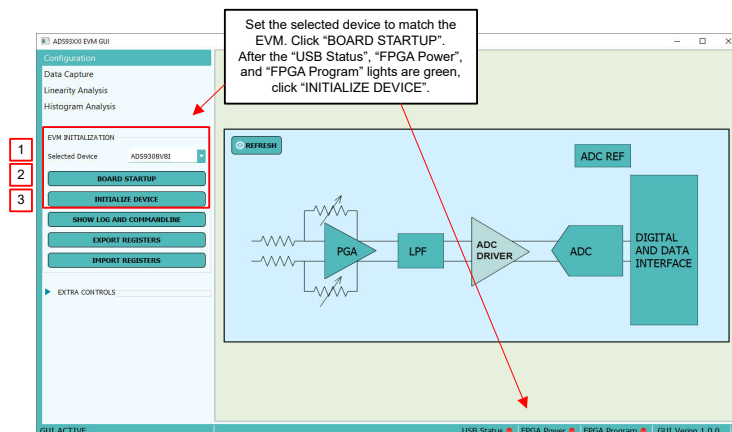


Figure 3-5. FPGA and ADC Initialization

The block diagram figures can be used to configure certain settings of the device. The "Device Registers" Tab can be used for more comprehensive device configuration. Press **REFRESH** on the block diagram to reflect updated device register settings.

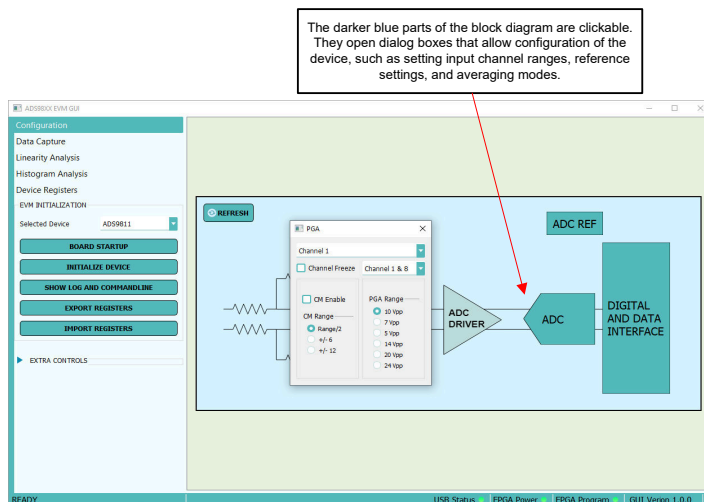


Figure 3-6. GUI Block Diagram

3.2.2 Using the Data Capture Tab

Figure 3-7 and Figure 3-8 show example data capture time-domain display and FFT display, respectively. In this step, the necessary updates to the *Data Capture* settings are made to capture the time domain data and to get a good frequency domain result. First, update the number of samples to at least 32k to get good frequency domain results (for example, accurate FFT display, SNR data, and THD data). The *Input Frequency* needs to be set to the frequency of the applied input signal.

When these changes are made, press the *Start Capture* button to collect time domain and frequency domain data. The Data Plot tab shows the time domain data and the FFT Plot tab shows the frequency domain data. The FFT plot window also shows the SNR, THD and SINAD performance measurements. Different channel data can be shown or hidden using the *Channels* tab above the plot.

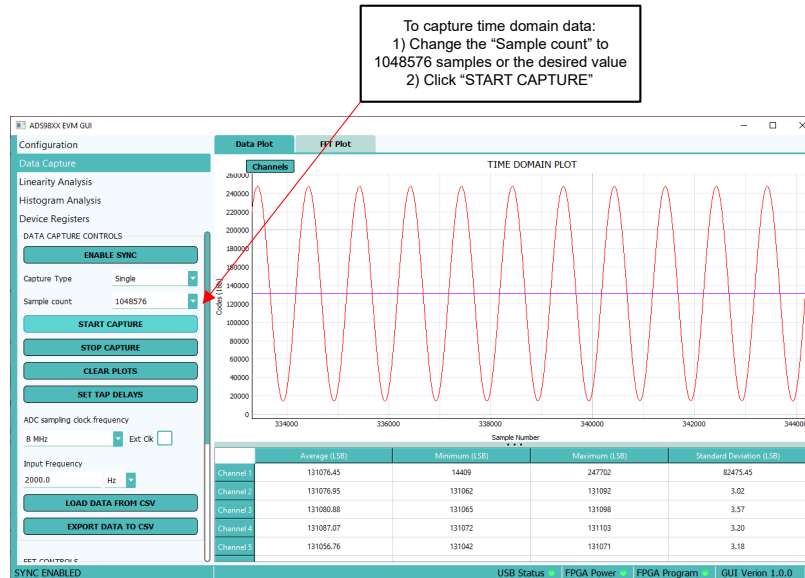


Figure 3-7. Time Domain Data



Figure 3-8. FFT Data

4 Hardware Design Files

4.1 Schematics

Figure 4-1 through Figure 4-5 show the various connections to the ADS9308V8I device. The digital signals connect to J22, as shown in Figure 4-5, and the analog signals connect to headers and input filtering. Figure 4-1 also shows the decoupling for the device.

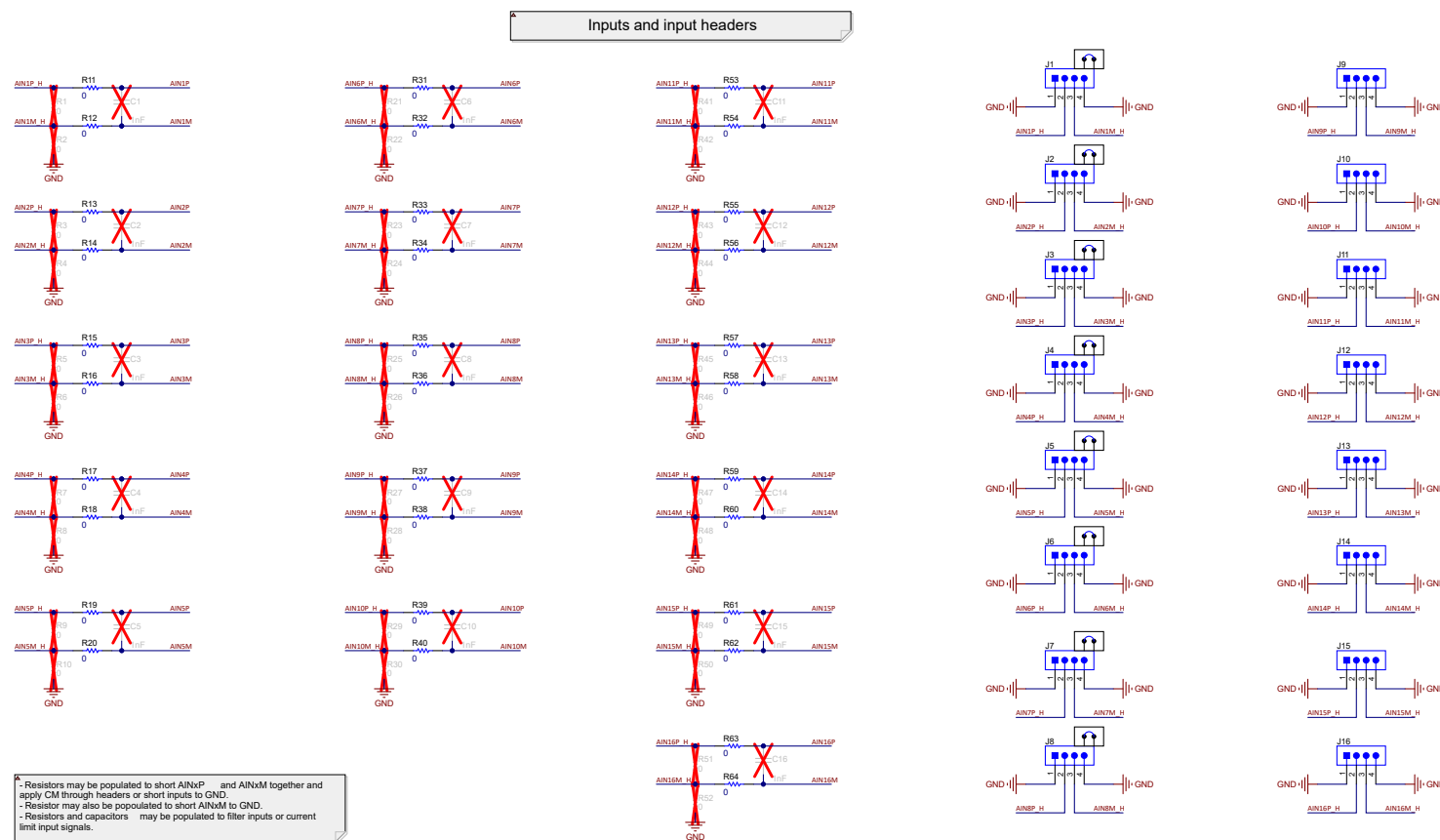
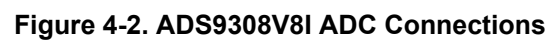


Figure 4-1. Inputs Schematic



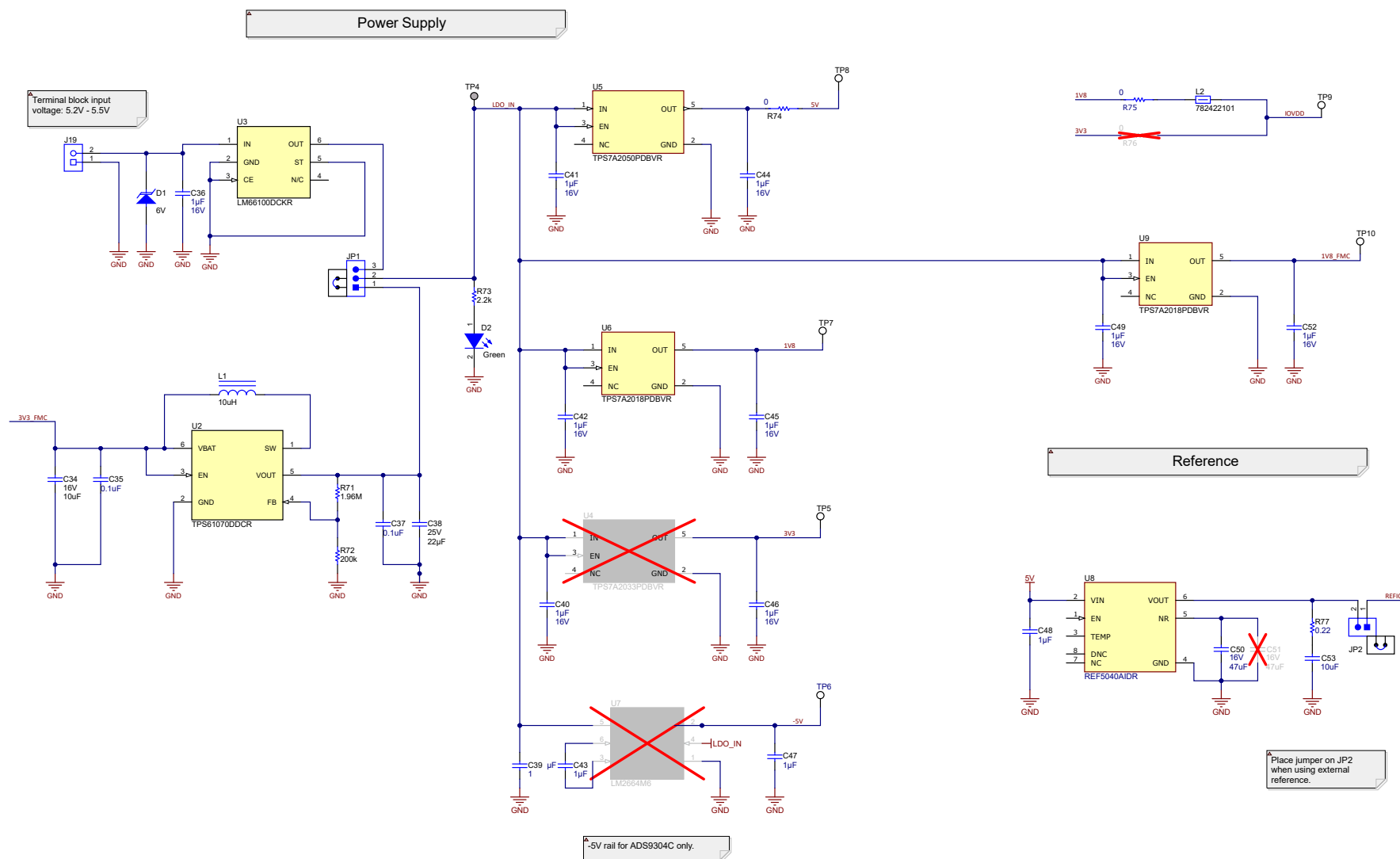


Figure 4-3. Power Connections and Regulators Schematic

Digital signal debug header

Level Translators

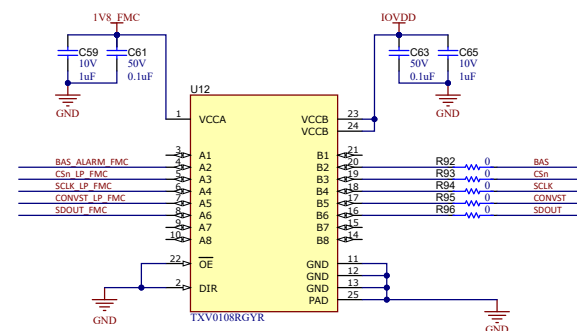
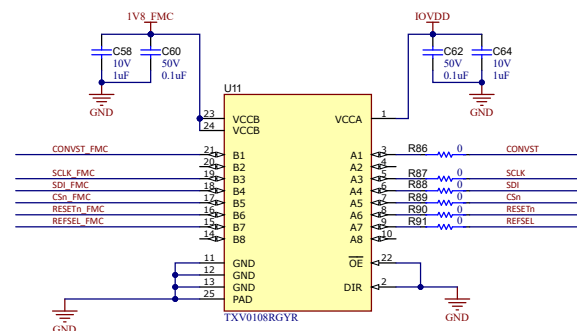
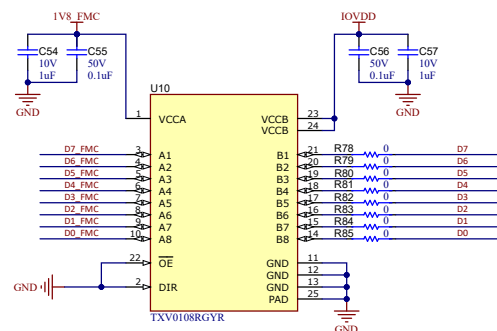
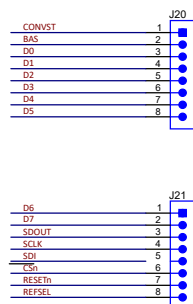


Figure 4-4. Level Translators

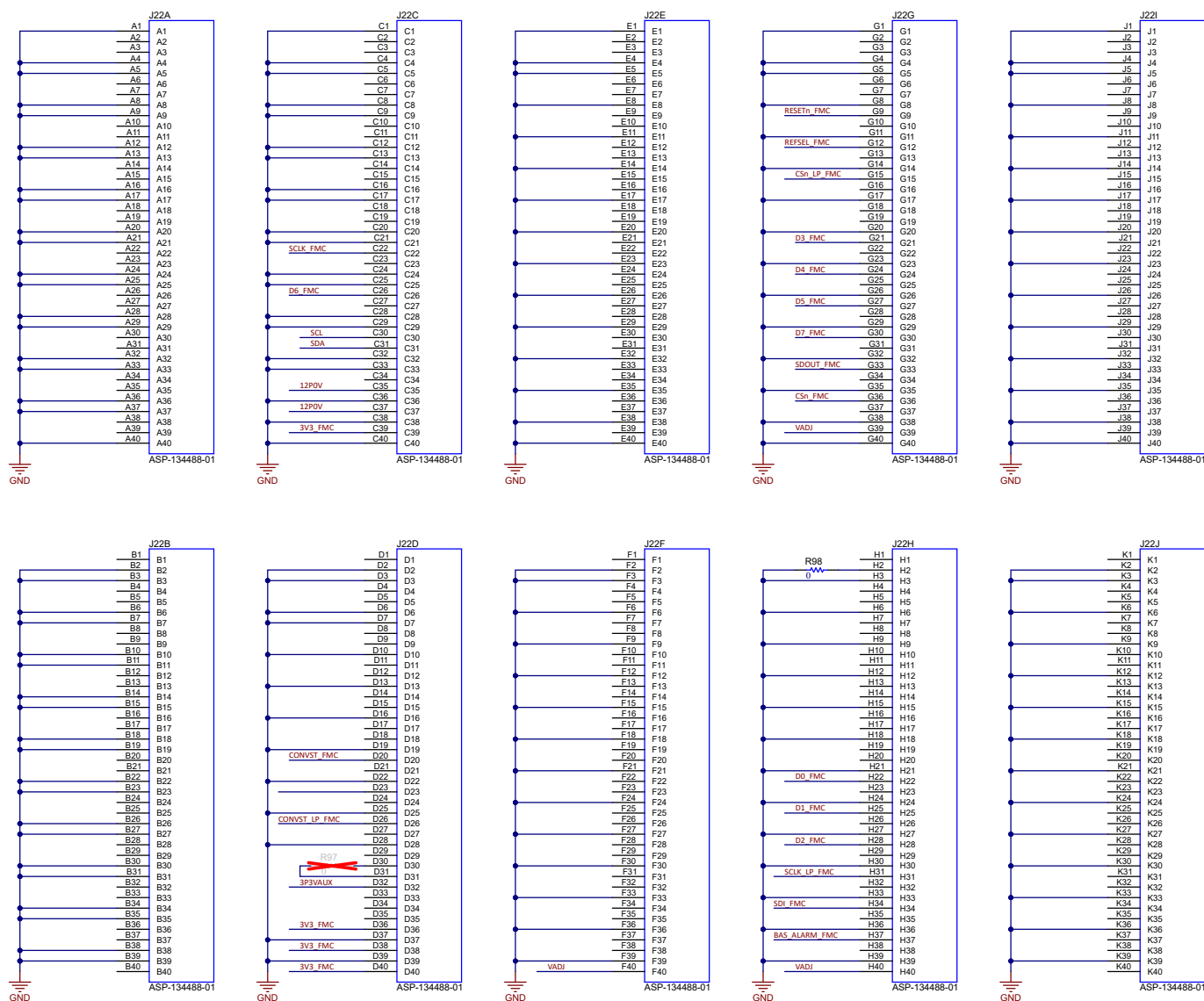


Figure 4-5. Digital Connector Schematic

4.2 PCB Layout

Figure 4-6 through Figure 4-11 show the PCB layer plots for the ADS9308V8IEVM.

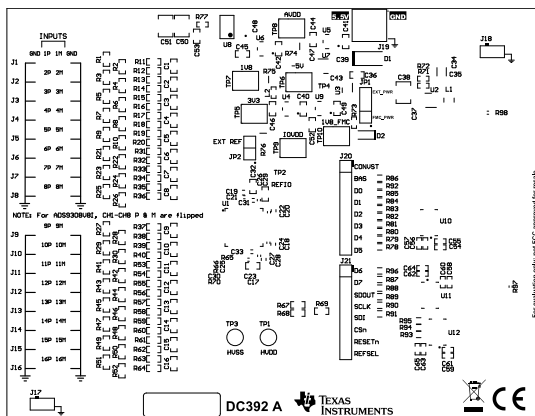


Figure 4-6. Top Overlay

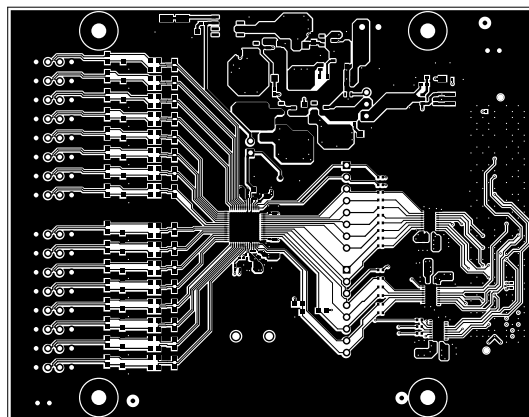


Figure 4-7. Top Layer

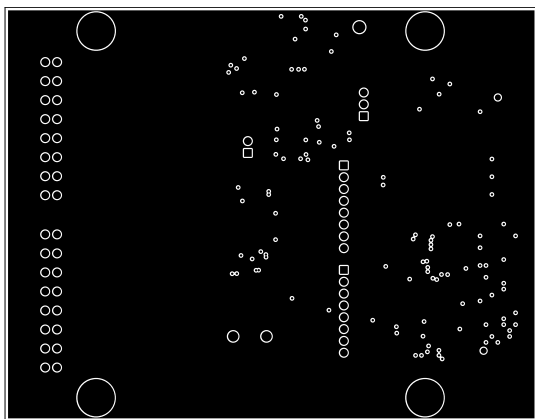


Figure 4-8. GND Layer

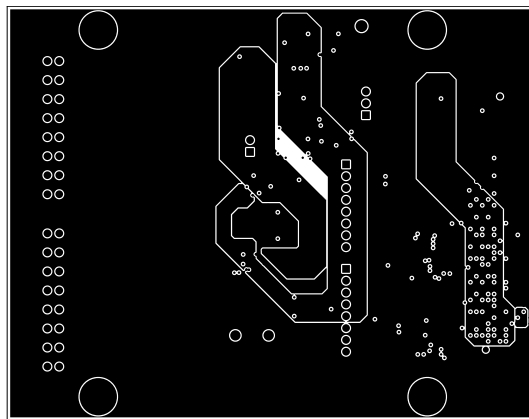


Figure 4-9. SIG Layer

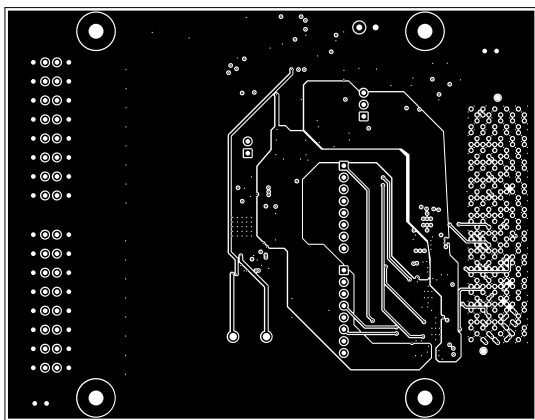


Figure 4-10. Bottom Layer

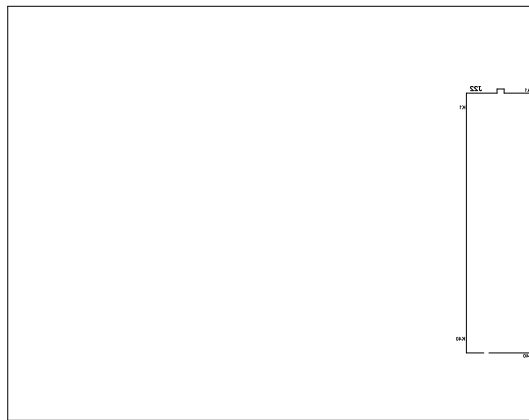


Figure 4-11. Bottom Overlay

4.3 Bill of Materials (BOM)

Table 4-1 lists the ADS9308V8IEVM bill of materials.

Table 4-1. ADS9308V8IEVM Bill of Materials

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
C18, C19, C20, C28, C39, C43, C47, C48	8	1 μ F	CAP, CERM, 1 μ F, 25V, $\pm$ 10%, X7R, AEC-Q200 Grade 1, 0603	0603	CGA3E1X7R1E105K080AC	TDK
C21, C22, C23, C24, C25, C26, C27, C30, C35, C37	10	0.1 μ F	CAP, CERM, 0.1 μ F, 16V, $\pm$ 10%, X5R, 0402	0402	GRM155R61C104KA88D	MuRata
C31, C33	2	4.7 μ F	CAP, CERM, 4.7 μ F, 6.3V, $\pm$ 20%, X5R, 0201	0201	GRM035R60J475ME15D	MuRata
C32	1	10 μ F	CAP, CERM, 10 μ F, 10V, $\pm$ 20%, X7R, 0603	0603	GRM188Z71A106MA73D	MuRata
C34	1	10 μ F	CAP, CERM, 10 μ F, 16V, $\pm$ 10%, X7R, 1206	1206	GRM31CR71C106KAC7L	MuRata
C36, C40, C41, C42, C44, C45, C46, C49, C52	9	1 μ F	CAP, CERM, 1 μ F, 16V, $\pm$ 10%, X7R, 0603	0603	C1608X7R1C105K080AC	TDK
C38	1	22 μ F	CAP, CERM, 22 μ F, 25V, $\pm$ 10%, X7R, AEC-Q200 Grade 1, 1210	1210	TMK325B7226KMHP	Taiyo Yuden
C50	1	47 μ F	CAP, CERM, 47 μ F, 16V, $\pm$ 20%, X6S, 1210	1210	GRM32EC81C476ME15L	MuRata
C53	1	10 μ F	CAP, CERM, 10 μ F, 25V, $\pm$ 20%, X5R, 0603	0603	GRM188R61E106MA73D	MuRata
C54, C57, C58, C59, C64, C65	6	1 μ F	CAP, CERM, 1 μ F, 10V, $\pm$ 10%, X5R, 0402	0402	GRM155R61A105KE15D	MuRata
C55, C56, C60, C61, C62, C63	6	0.1 μ F	CAP, CERM, 0.1 μ F, 50V, $\pm$ 10%, X7R, AEC-Q200 Grade 1, 0402	0402	GCM155R71H104KE02D	MuRata
D1	1	6V	Diode, TVS, Uni, 6V, 10.3Vc, 400W, 38.8A, SMA	SMA	SMAJ6.0A	Littelfuse
D2	1	Green	LED, Green, SMD	LED_0805	APT2012LZGCK	Kingbright
H1, H3, H5, H7	4	-	Standoff, Hex, 1"L #4-40 Nylon	Standoff	1902E	Keystone
H2, H4, H6, H8	4	-	Machine Screw, Round, #4-40x 1/4, Nylon, Philips panhead	Screw	NY PMS 440 0025PH	B&F Fastener Supply
J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16	16	-	Header, 100mil, 4x1, Gold, TH	4x1 Header	TSW-104-07G-S	Samtec
J17, J18	2	-	Header, 2.54mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH	TSW-102-08G-S	Samtec
J19	1	-	Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
J20, J21	2	-	Header, 100mil, 8x1, Gold, TH	8x1 Header	TSW-108-07G-S	Samtec

Table 4-1. ADS9308V8IEVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
J22	1	-	Connector, 1.27mm, 40x10, Black, SMT	Connector, 1.27mm, 40x10, SMT	ASP-134488-01	Samtec
JP1	1	-	Header, 100mil, 3x1, Gold, TH	Header, 100mil, 3x1, TH	HTSW-103-07G-S	Samtec
JP2	1	-	Header, 100mil, 2x1, Gold, TH	Header, 100mil, 2x1, TH	HTSW-102-07G-S	Samtec
L1	1	10 μ H	Inductor, Wirewound, Ceramic, 10 μ H, 0.48A, 0.36ohm, SMD	2.5x1.8x1.8mm	CBC2518T100M	Taiyo Yuden
L2	1	100 Ω	Ferrite Bead, 100 Ω at 100MHz, 0.3A, 0402	0402	782422101	Würth Elektronik
R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64	32	0	RES, 0, 5%, 0.1W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEY0R00V	Panasonic
R65, R66, R98	3	0	RES, 0, 5%, 0.063W, AEC-Q200 Grade 0, 0402	0402	CRCW04020000Z0ED	Vishay-Dale
R71	1	1.96Meg	RES, 1.96M, 1%, 0.063W, 0402	0402	CRCW04021M96FKED	Vishay-Dale
R72	1	200k	RES, 200k, 1%, 0.063W, 0402	0402	CRCW0402200KFKED	Vishay-Dale
R73	1	2.2k	RES, 2.2k, 5%, 0.063W, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R74, R75	2	0	0 Ω Jumper 0.5W, 1/2W Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Metal Foil	0805	HCJ0805ZT0R00	Stackpole
R77	1	0.22	RES, 0.22, 1%, 0.125W, AEC-Q200 Grade 0, 0402	0402	ERJ-2BQFR22X	Panasonic
R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96	19	0	Res Jumper Thick Film 0402 0 Ω 5% 1/16W Molded SMD Paper T/R	0402	RC0402JR-070RP	Yageo
SH-J1, SH-J2, SH-J3, SH-J4, SH-J5, SH-J6, SH-J7, SH-J8, SH-J9, SH-J10	10	-	Shunt, 2.54mm, Gold, Black	Shunt, 2.54mm, Black	60900213421	Würth Elektronik
TP1	1	-	Test Point, Multipurpose, Red, TH	Red Multipurpose Test point	5010	Keystone Electronics
TP3	1	-	Test Point, Multipurpose, Black, TH	Black Multipurpose Test point	5011	Keystone Electronics
TP5, TP6, TP7, TP8, TP9, TP10	6	-	Test Point, Compact, SMT	Testpoint_Keystone_Compact	5016	Keystone Electronics

Table 4-1. ADS9308V8IEVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
U1	1	-	24-Bit, 16-Channel, Simultaneous-Sampling, Precision ADC for Voltage and Current Sensing	QFN64	ADS9308V8IRSK	Texas Instruments
U2	1	-	Adjustable, 600mA Switch, 90% Efficient PFM/PWM Boost Converter in ThinSOT-23, DDC0006A (SOT-23T-6)	DDC0006A	TPS61070DDCR	Texas Instruments
U3	1	-	±6V, Low IQ Ideal Diode with Input Polarity Protection, DCK0006A (SOT-SC70-6)	DCK0006A	LM66100DCKR	Texas Instruments
U5	1	-	300mA, ultra-low-noise, low-IQ, low-dropout (LDO) linear regulator with high PSRR 5-SOT-23 –40 to 125	SOT23-5	TPS7A2050PDBVR	Texas Instruments
U6, U9	2	-	Linear Voltage Regulator IC Positive Fixed 1 Output 300mA SOT-23-5	SOT23-5	TPS7A2018PDBVR	Texas Instruments
U8	1	-	REF5040AIDR	SOIC8	REF5040AIDR	Texas Instruments
U10, U11, U12	3	-	Automotive Dual-supply RGMII Buffer with Configurable Voltage Translation and Tri-state Outputs	VQFN24	TXV0108RGYR	Texas Instruments
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16	0	1000pF	CAP, CERM, 1000pF, 100V, ±10%, X7R, 0603	0603	GRM188R72A102KA01D	MuRata
C17, C29	0	10µF	CAP, CERM, 10µF, 25V, ±20%, X5R, 0603	0603	GRM188R61E106MA73D	MuRata
C51	0	47µF	CAP, CERM, 47µF, 16V, ±20%, X6S, 1210	1210	GRM32EC81C476ME15L	MuRata
R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52	0	0	RES, 0, 5%, 0.1W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEY0R00V	Panasonic
R67, R68, R69	0	10.0k	RES, 10.0k, 1%, 0.1W, AEC-Q200 Grade 0, 0603	0603	CRCW060310K0FKEA	Vishay-Dale
R70, R97	0	0	RES, 0, 5%, 0.063W, AEC-Q200 Grade 0, 0402	0402	CRCW04020000Z0ED	Vishay-Dale
R76	0	0	0 Ohms Jumper 0.5W, 1/2W Chip Resistor 0805 (2012 Metric) Automotive AEC-Q200 Metal Foil	0805	HCJ0805ZT0R00	Stackpole

Table 4-1. ADS9308V8IEVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
U4	0	-	300mA, Ultra-Low-Noise, Low-IQ, High PSRR LDO	SOT23-5	TPS7A2033PDBVR	Texas Instruments
U7	0	-	Switched Capacitor Voltage Converter, 6-pin SOT-23	DBV0006A	LM2664M6/NOPB	Texas Instruments

5 Additional Information

5.1 Trademarks

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6 Related Documentation

The following related documents are available for download through the Texas Instruments web site at www.ti.com.

Table 6-1. Related Documentation

Device	Literature Number
TSWDC155EVM	SLAU870
TPS61070	SLVS510
TPS7A20	SBVS338
LM66100	SLVSEZ8
REF5040	SBOS410

7 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision * (September 2026) to Revision A (October 2026)	Page
• Added <i>Quick Start Guide</i> section.....	5
• Added <i>Voltage Reference</i> section.....	6
• Added information about clock source in <i>Digital Interface</i> section.....	7
• Added <i>Clock Select</i> section.....	9
• Added <i>USB Power and When to Power the Board Externally</i> section.....	11
• Changed Layout images.....	22

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