User's Guide
PCM6xx0Q1EVM-PDK Evaluation Module

TEXAS INSTRUMENTS

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ABSTRACT

This user's guide describes the function and use of the PCM6xx0Q1EVM-PDK. This document includes the hardware configuration instructions, a quick-start guide, jumper and connector descriptions, software description, schematics, and printed circuit board (PCB) layout that demonstrate TI's recommended practices for these devices.

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1 Introduction

The PCM6xx0Q1EVM-PDK is an evaluation module (EVM) designed to demonstrate the performance and functionality of the PCM6xx0 family of devices. This family includes the devices shown in Table 1-1 with differences in performance and function noted. Throughout this document, the abbreviation *EVM* and the term *evaluation module* are synonymous with the PCM6xx0Q1EVM-PDK.

Table 1-1. PCM6xx0Q1 Family

Device	Integrated Boost	Number of Channels
PCM6260Q1	Yes	6
PCM6240Q1	Yes	4
PCM6360Q1	No	6

2 Hardware Overview

The evaluation kit consists of the PCM6xx0EVM daughterboard and the AC-MB motherboard. The motherboard is used to provide power, control, and digital audio signals to the evaluation module. The daughterboard contains the PCM6xx0Q device and its input connections. A detailed functional overview of the PCM6xx0Q1EVM system is described in Section 6.

2.1 AC-MB Settings

2.1.1 Audio Serial Interface Settings

The AC-MB provides the digital audio digital signals to the evaluation module from the universal serial bus (USB), optical, stereo jack, and external audio serial interface (ASI) header. Figure 2-1 shows a block diagram of the ASI routing on the AC-MB.
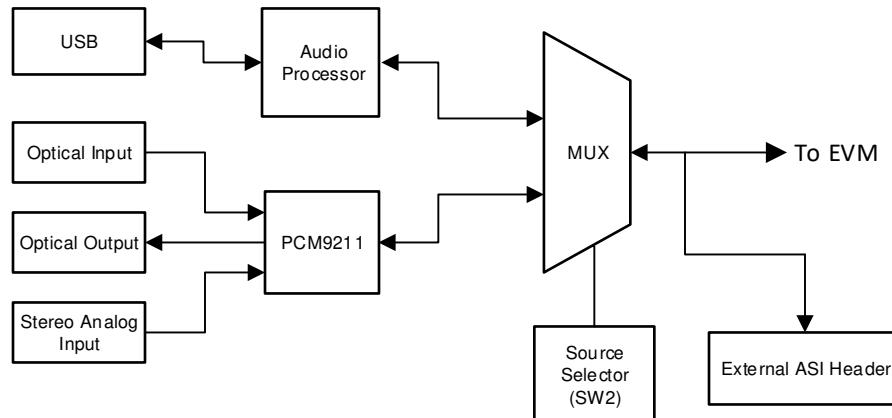
Figure 2-1. AC-MB Audio Serial Interface Routing

Switch SW2 on the AC-MB selects the audio serial bus that interfaces with the PCM6xx0EVM. Next to switch SW2, the AC-MB has a quick reference table to identify the audio serial interface source options and switch settings. The AC-MB acts as the master for the audio serial interface, with three different modes of operation (see Figure 2-2): USB, optical or analog, or external ASI.

2.1.1.1 USB

The serial interface clocks and data are provided from the USB interface. The sampling rate and format are determined by the USB audio class driver on the operating system. The default settings for the USB audio interface are 32-bit frame size, 48-kHz sampling rate, BCLK and FSYNC ratio is 256, and the format is time-division multiplexing (TDM).

2.1.1.2

The AC-MB is detected by the OS as an audio device with the name *TI USB Audio UAC2.0*. Figure 2-2 shows the AC-MB audio setting for the USB mode of operation.
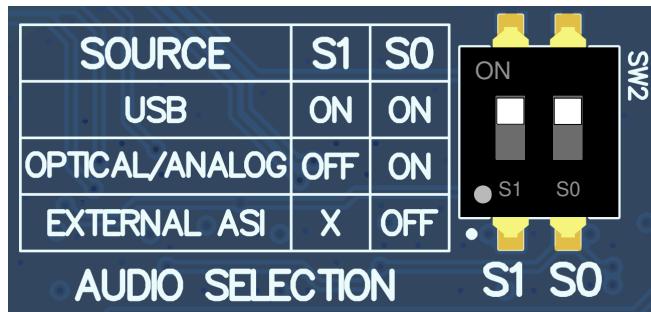
Figure 2-2. AC-MB USB Audio Setting

2.1.1.3 Optical or Auxiliary Analog Audio Input

Serial interface signals are provided from the PCM9211 digital transceiver, which is capable of sending digital data to the EVM from an analog input or optical input. Meanwhile, the data from the EVM can be streamed through the optical output. Figure 2-3 shows the AC-MB audio setting for the optical and analog mode of operation.


Figure 2-3. AC-MB Optical or Auxiliary Analog Audio Setting

The optical output of the AC-MB streams the data captured on the EVM with the format determined by the input source used. When there is an optical input connected, the LOCK LED must be ON, and the PCM9211 streams the audio serial interface clocks with the format determined by the optical input frame. The digital data from the optical input is streamed to the evaluation module. If the optical input is not connected, the PCM9211 captures the input signal provided through the analog input, and streams the signal to the evaluation module. This feature can be useful when a digital input digital-to-analog converter (DAC) is connected to the AC-MB, providing an analog input for quick evaluation. In auxiliary analog audio mode, the audio serial interface format is fixed to a 24-bit, 48-kHz, I^{2}S mode.

2.1.1.4 External

In this mode, the audio serial interface clocks for the evaluation board are provided through connector J7 from an external source. This architecture allows an external system to be used for communication with the evaluation board, such as a different host processor or test equipment (for instance, Audio Precision™ PSIA). The clocks generated from the USB interface and PCM9211 are isolated with this setting. Figure 2-4 shows the AC-MB audio setting for the external mode of operation.


Figure 2-4. AC-MB External Audio Setting

Figure 2-5 shows how to connect the external audio interface. Odd numbered pins are signal carrying, and even numbered pins are connected to ground.
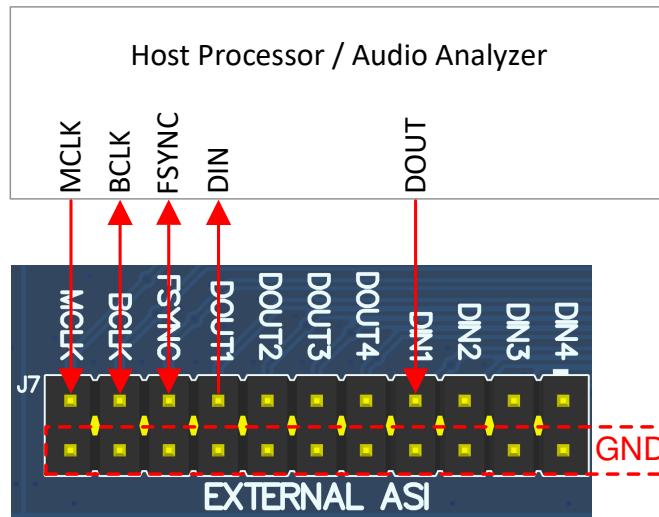

Figure 2-5. AC-MB Connection With External Audio Serial Interface

2.1.2 AC-MB Power Supply

The complete EVM system is powered from a single 5-V power supply. However, the motherboard has different low-dropout regulators (LDOs) integrated that provide the required power supplies to the different blocks of the board. Figure 2-6 shows a block diagram depicting the power structure of the AC-MB.
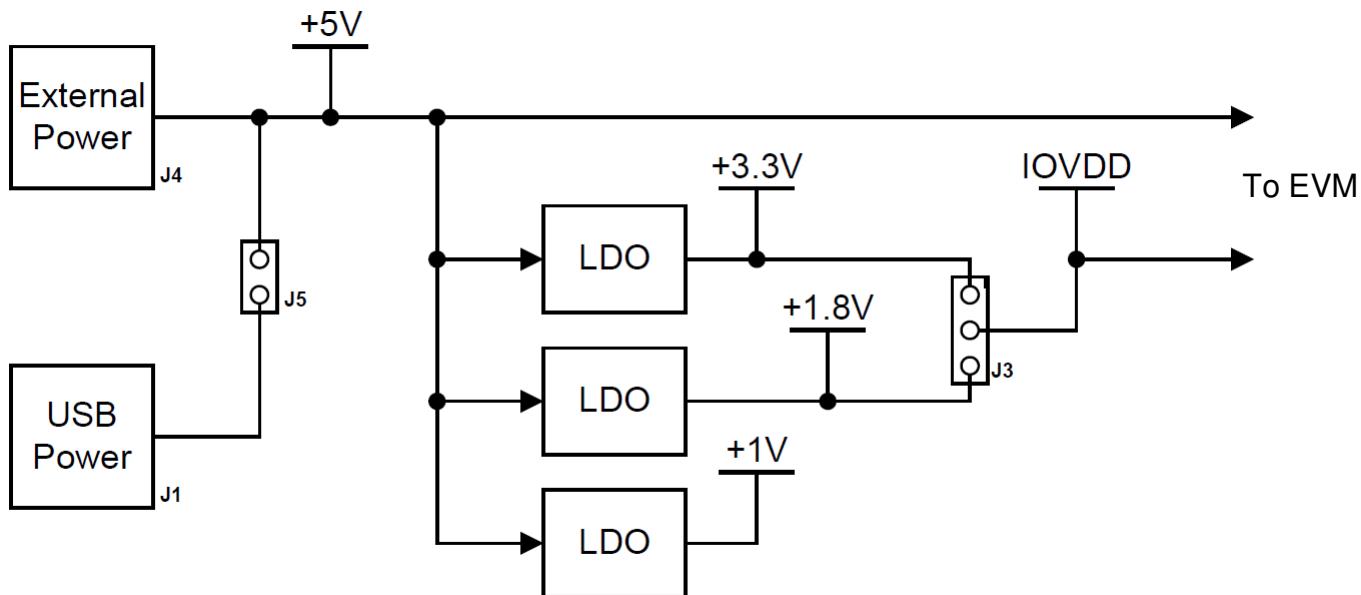
Figure 2-6. Power-Supply Distribution of the AC-MB

The AC-MB can be powered from the host computer by using the USB 5-V power supply (VBUS) by shorting header J5, USB POWER. Additionally, the AC-MB can be powered from an external power supply connected to terminal J4, EXTERNAL POWER. Header J5 must be open for external supply operation. The IOVDD voltage for the digital signals that is provided to the evaluation module is generated on the motherboard from the main power supply (USB or external).

The voltage levels available are 1.8 V and 3.3 V, and can be selected via the J3 header IOVDD. For 1.8-V operation, short pins 2 and 3 of header J3; for 3.3-V operation, short pins 1 and 2. When the motherboard is fully powered and the power supplies from the onboard LDOs are correct, the green POWER LED (D3) turns ON. The USB READY LED indicates that a successful USB communication is established between the AC-MB and the host computer.

2.2 PCM6xx0Q1EVM-PDK Hardware Settings

The PCM6xx0Q evaluation module has several input configuration options and offers extensive flexibility that allows the user to evaluate the device in multiple operation modes. The different operation modes are highlighted in this section. Figure 2-7 shows the architecture of the inputs to the evaluation module.
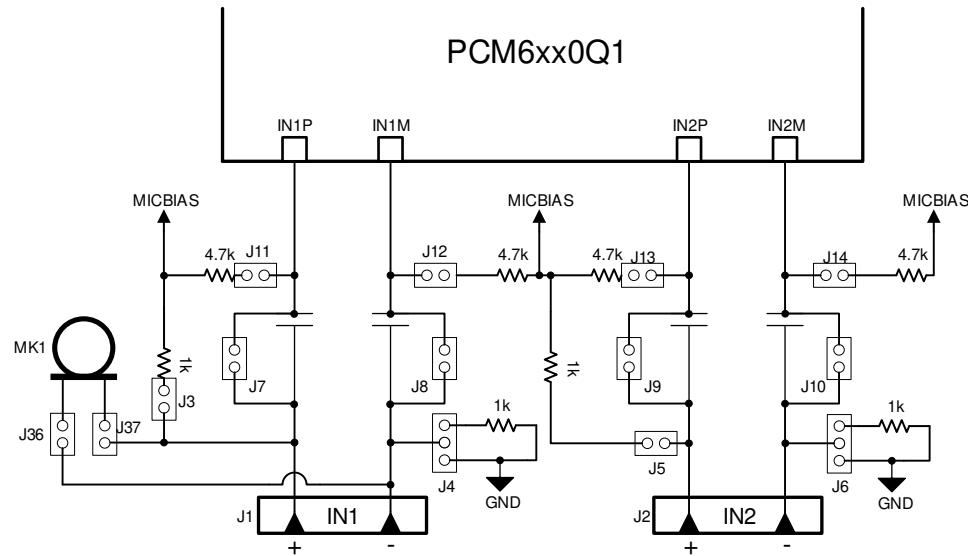
Figure 2-7. PCM6xx0EVM Input Architecture for Channels 1 and 2

The IN1 and IN2 input architecture allows these two channels to be quickly configured to support any of the supported operation modes. The IN1P and IN1M pins of the PCM6xx0 can optionally connect to an onboard microphone for quick evaluation of a microphone in AC- or DC-coupled modes. Jumper configuration details can be found in Table 2-1.

As shown in Figure 2-8, the input architecture for channels 3-6 of the PCM6xx0Q1EVM is streamlined. These channels support only AC-coupled line inputs by default, however DC-coupled line and Mic inputs are supported though the removal or replacement of R34-R45. Table 2-1 lists the recommended values for bias resistors for AC-coupled inputs across the MICBIAS voltage and input swing.
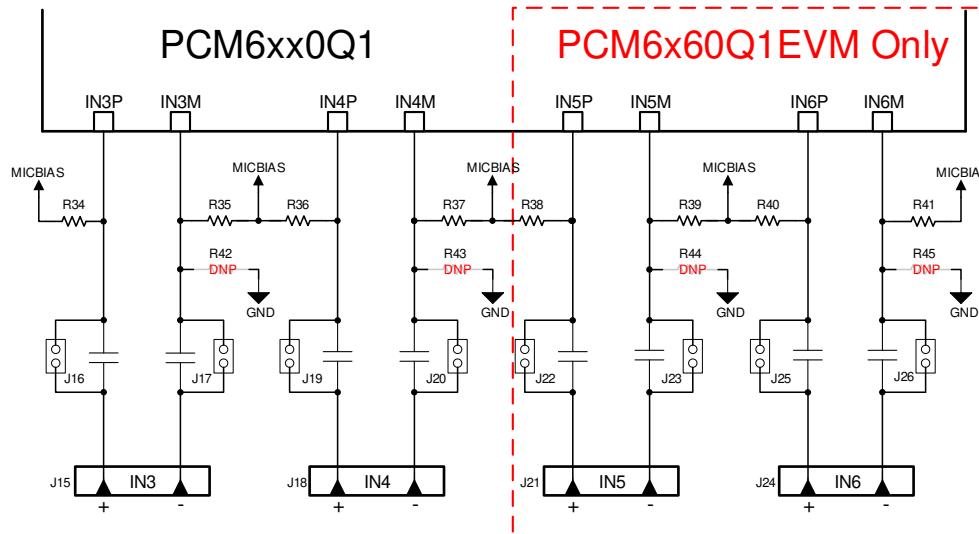
Figure 2-8. PCM6xx0Q1EVM Input Architecture for Channels 3-6

Table 2-1. Input Jumper Configuration

| Input Terminal	Input Mode	Jumpers	Input Swing
IN1	Differential, AC-coupled	J3, J7, J8 uninstalled; J11, J12, and J27 installed	10 V$_{RMS}$
	Single-ended, AC-coupled	J3, J7, J8 uninstalled; J4 (2-3), J11, J12, and J27 installed	5 V$_{RMS}$
	Differential, DC-coupled	J3, J4, J11, and J12 uninstalled; J7 and J8 installed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled	J3, J11, and J12 uninstalled; J4 (2-3), J7, and J8 installed	1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	On-board electrect microphone	J11 and J12 uninstalled; J3, J4 (2-1), J7, J8, and J27 installed	
IN2	Differential, AC-coupled	J5, J6, J9, J10 uninstalled; J13, J14, and J27 installed	10 V$_{RMS}$
	Single-ended, AC-coupled	J5, J9, and J10 uninstalled; J6 (2-3), J13, J14, and J27 installed	5 V$_{RMS}$
	Differential, DC-coupled	J5, J6, J13, and J14 uninstalled; J9 and J10 installed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled	J5, J13, and J14 uninstalled; J6 (2-3), J9 and J10 installed	1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	External electrect microphone	J5, J6 (2-1), J9, J10, and J27 installed	
IN3	Differential, AC-coupled	J16 and J17 uninstalled; J27 installed	10 V$_{RMS}$
	Single-ended, AC-coupled		5 V$_{RMS}$
	Differential, DC-coupled	J16 and J17 installed; J27 optional (MICBIAS); R34 and R35 removed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled		1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	External electrect microphone		
IN4	Differential, AC-coupled	J19, J20, and J27 uninstalled	10 V$_{RMS}$
	Single-ended, AC-coupled		5 V$_{RMS}$
	Differential, DC-coupled	J19 and J20 installed; J27 optional (MICBIAS); R36 and R37 removed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled		1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	External electrect microphone		
IN5	Differential, AC-coupled	J22, J23, and J27 uninstalled	10 V$_{RMS}$
	Single-ended, AC-coupled		5 V$_{RMS}$
	Differential, DC-coupled	J22 and J23 installed; J27 optional (MICBIAS); R38 and R39 removed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled		1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	External electrect microphone		
IN6	Differential, AC-coupled	J25, J26, and J27 uninstalled	10 V$_{RMS}$
	Single-ended, AC-coupled		5 V$_{RMS}$
	Differential, DC-coupled	J25 and J26 installed; J27 optional (MICBIAS); R40 and R41 removed	2 V$_{RMS}$ (normal mode)
			10 V$_{RMS}$ (high swing mode)
	Single-ended, DC-coupled		1 V$_{RMS}$ (normal mode)
			5 V$_{RMS}$ (high swing mode)
	External electrect microphone		

2.2.1 Line Inputs

For the line input configuration (shown in Figure 2-9), the PCM6xx0Q1 captures the audio signal provided through terminals J2 (IN1), J3 (IN2), J15 (IN3), and J18 (IN4). For six-channel variants, J21 (IN5) and J24 (IN6) are also available. The input accepted in this mode is a differential, 2-V_{RMS}, or 10-V_{RMS} (high swing mode) full-scale audio signal. If a single-ended source is used, the 1-V_{RMS} or 5-V_{RMS} (high swing mode) signal is supported. The input bias resistors have been selected to support line inputs in high swing mode.
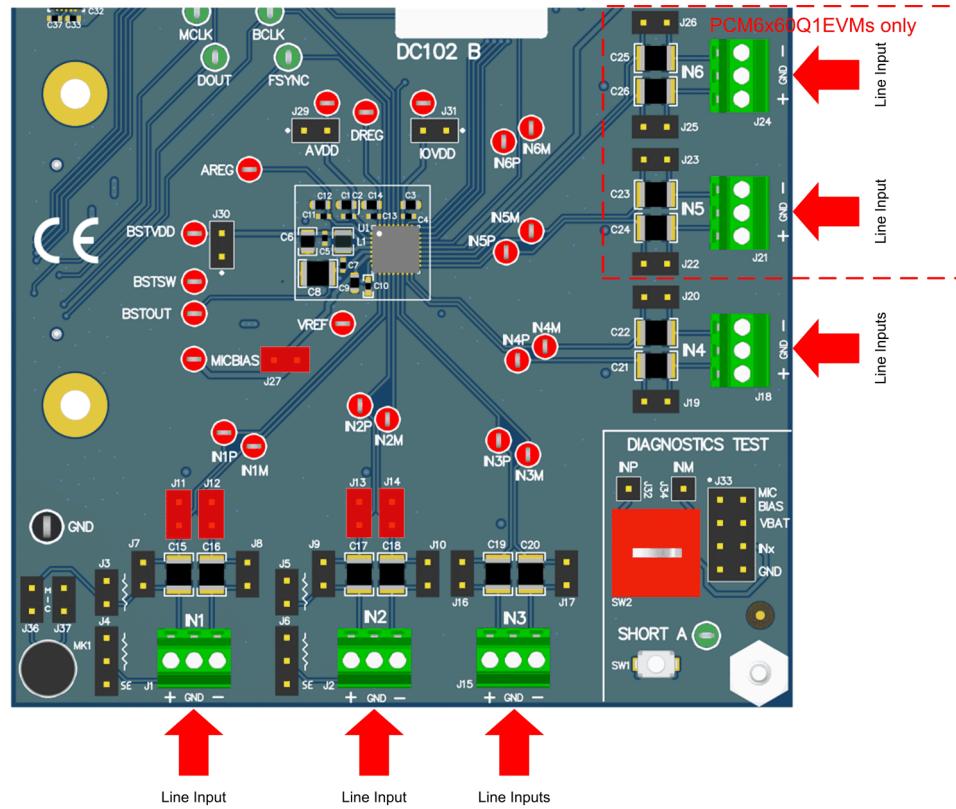

Figure 2-9. PCM6xx0Q1EVM Connection for Line Input Application

2.2.1.1 AC-Coupled Line Input Biasing

The default values for the input bias resistors have been optimized to support full-scale input, however if a lower input swing is used and higher input impedance desired, these bias resistors can be replaced with optimized values. Table 2-2 lists the recommended values for these resistors. For lower input swing, the PGA is required to reach full-scale input.

Table 2-2. Recommended AC-Coupled Line Input Bias Resistor Values

Input Type	Input Swing	MICBIAS Voltage	Recommended Bias Resistor for AC-Coupled Input
Differential	10 V_{RMS}	9 V	4.7 kΩ
	2 V_{RMS}	9 V	150 kΩ
		7 V	110 kΩ
		5 V	62 kΩ
Single-ended	5 V_{RMS}	9 V	4.3 kΩ
	1 V_{RMS}	9 V	47 kΩ
		7 V	30 kΩ
		5 V	15 kΩ

2.2.2 Onboard Microphone Input

For the onboard microphone input configuration (shown in Figure 2-10), the PCM6xx0Q1 records the audio captured from the microphones located on the bottom edge of the board. MICBIAS is used to power the onboard microphone, so header J27 must be shorted. There must not be any connections to J1 while the onboard microphone is used to preserve the performance of the microphone. J2 can be used for an external electret microphone; however this architecture may require the bias resistors R4 and R2 be changed to optimize microphone performance.


External
Electret
Microphone
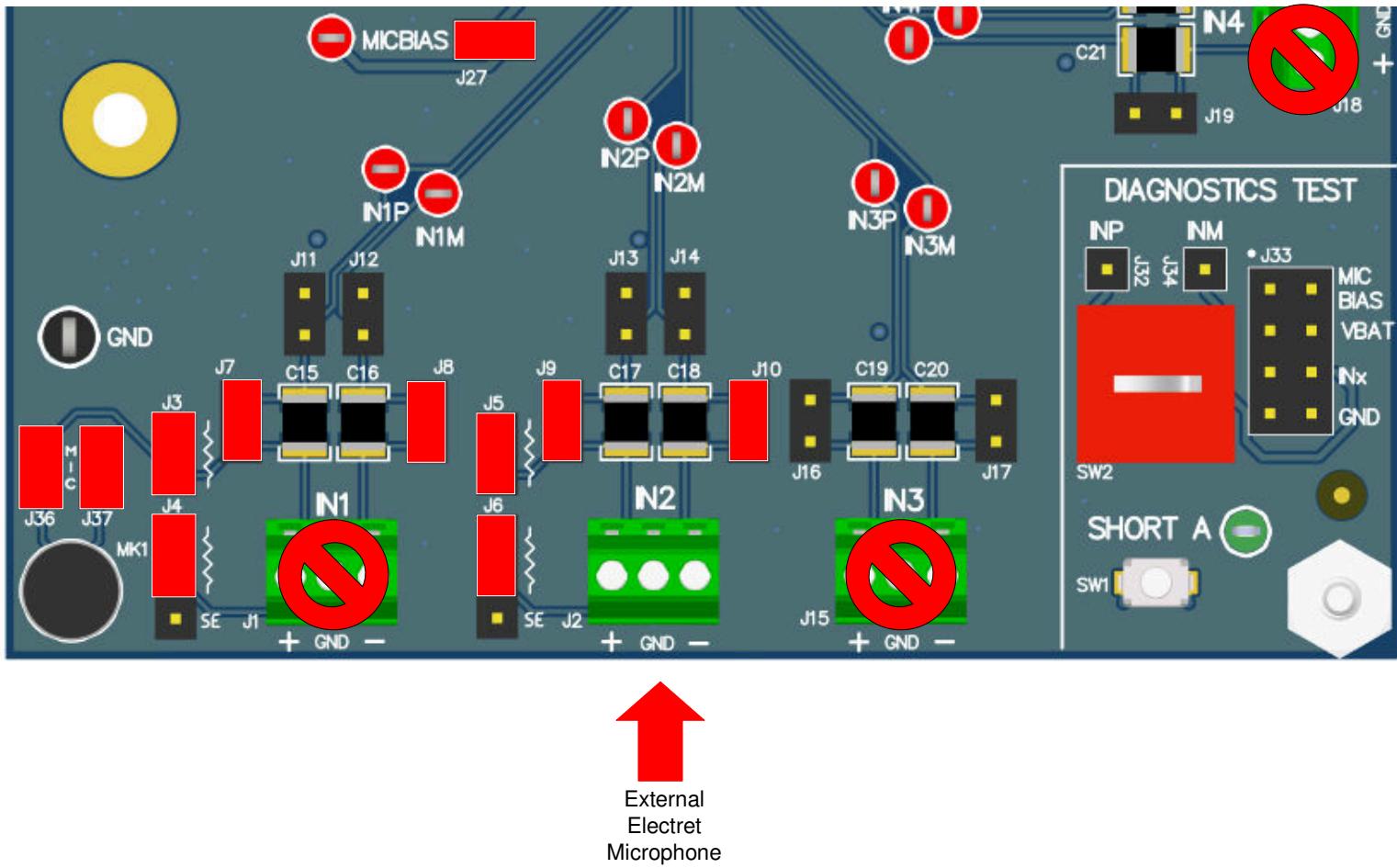
Figure 2-10. PCM6xx0Q1EVM Connection for the Onboard Microphone Test

2.2.3 Diagnostics Hardware Setup

The diagnostics test circuitry, as shown in Figure 2-11, is not connected to any channel by default. Connect J32 and J34 to the INxP and INxM pins of the channel under test. With the onboard diagnostics test circuitry, only one channel can be tested at a time. A fault is introduced by pressing SW1.
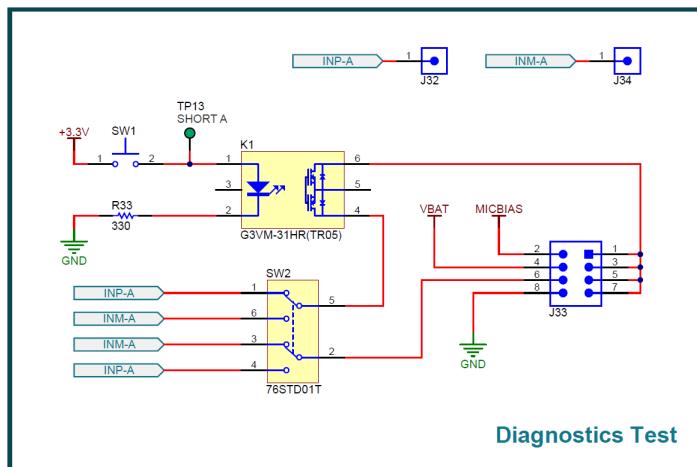
Figure 2-11. PCM6xx0Q1EVM Diagnostics Circuitry

The diagnostic test selection is done by populating a jumper on the pins of J33, but only install one jumper at any one time. TI's recommended settings for this diagnostics test circuit are discussed in this section.

2.2.3.1 Short to MICBIAS Setup

Figure 2-12 shows a short to the MICBIAS test. If using a single-ended input for the test channel, only connect INxP.
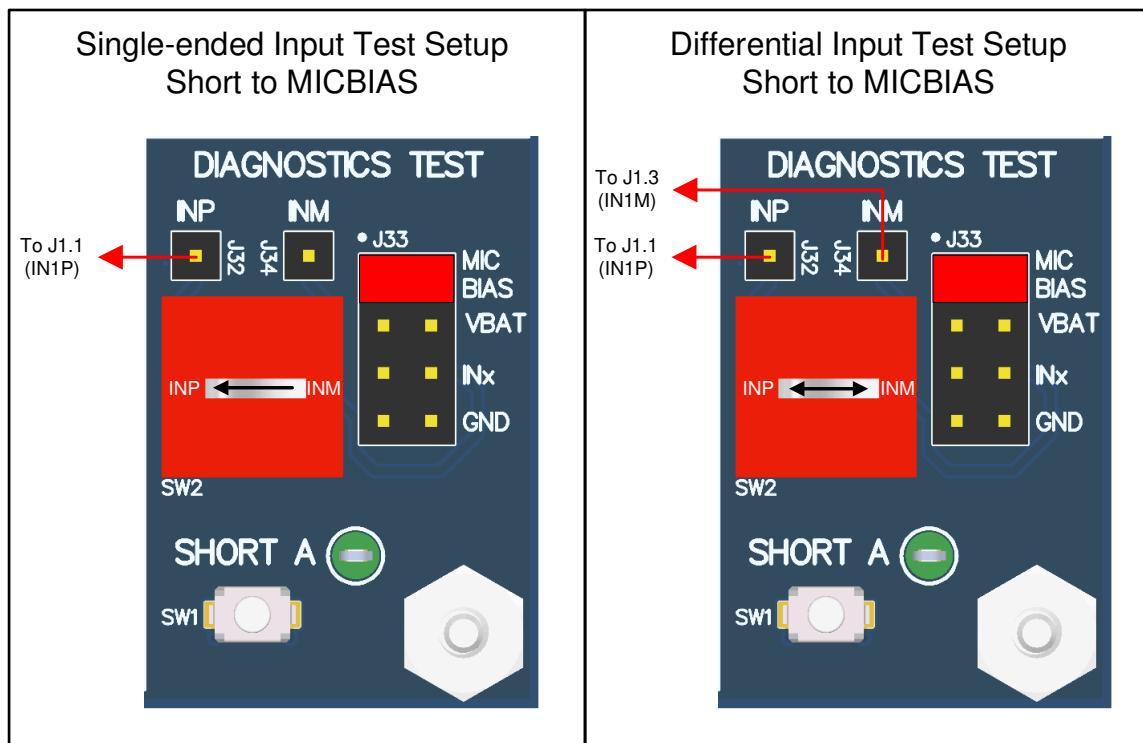
Figure 2-12. Short to MICBIAS Diagnostic Test Setup

2.2.3.2 Short to VBAT Setup

A short to VBAT tests (shown in Figure 2-13) requires an external voltage source connected to VBAT via J38. If no voltage is provided for VBAT, enable the diagnostic mask for a short to VBAT to prevent false triggers.
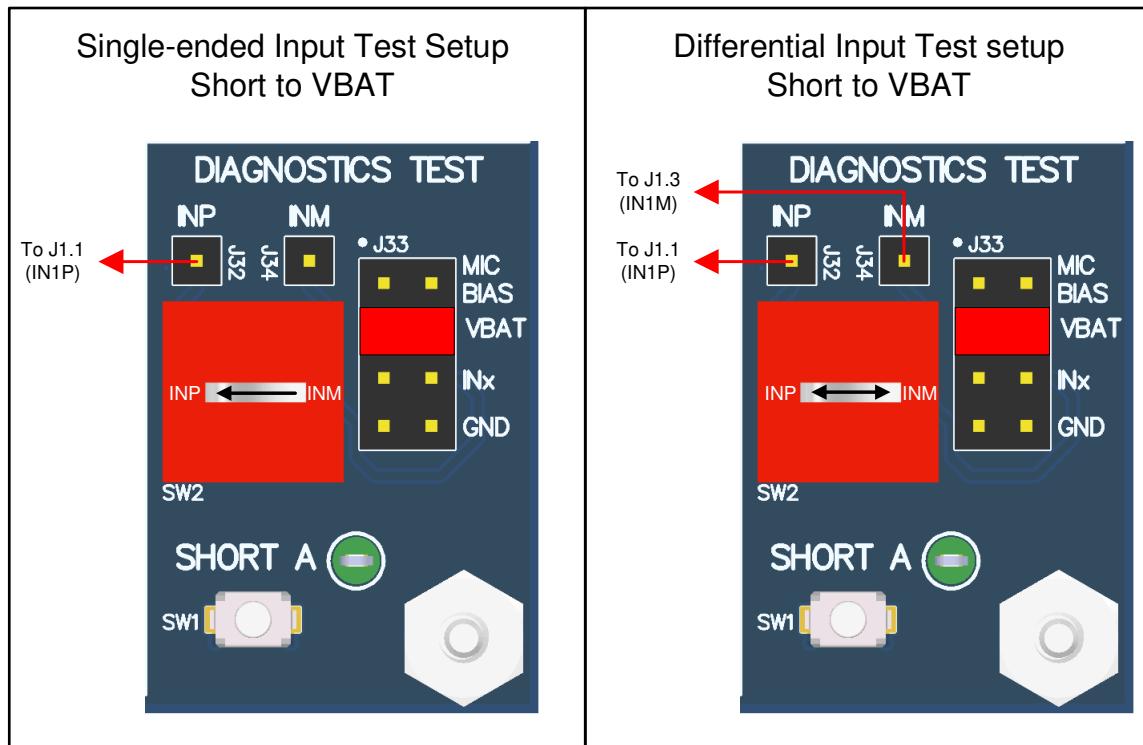

Figure 2-13. Short to VBAT Diagnostic Test Setup

2.2.3.3 Shorted Input Pins Setup

Shorted input testing (Figure 2-14) can be performed for differential inputs only.
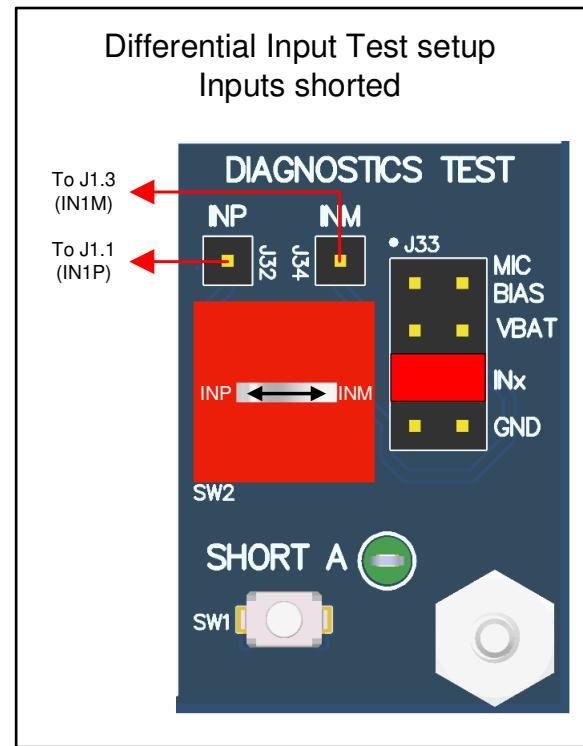
Figure 2-14. Inputs Shorted Diagnostic Test Setup

2.2.3.4 Short to GND Setup

Figure 2-15 shows the short to ground testing for the inputs.
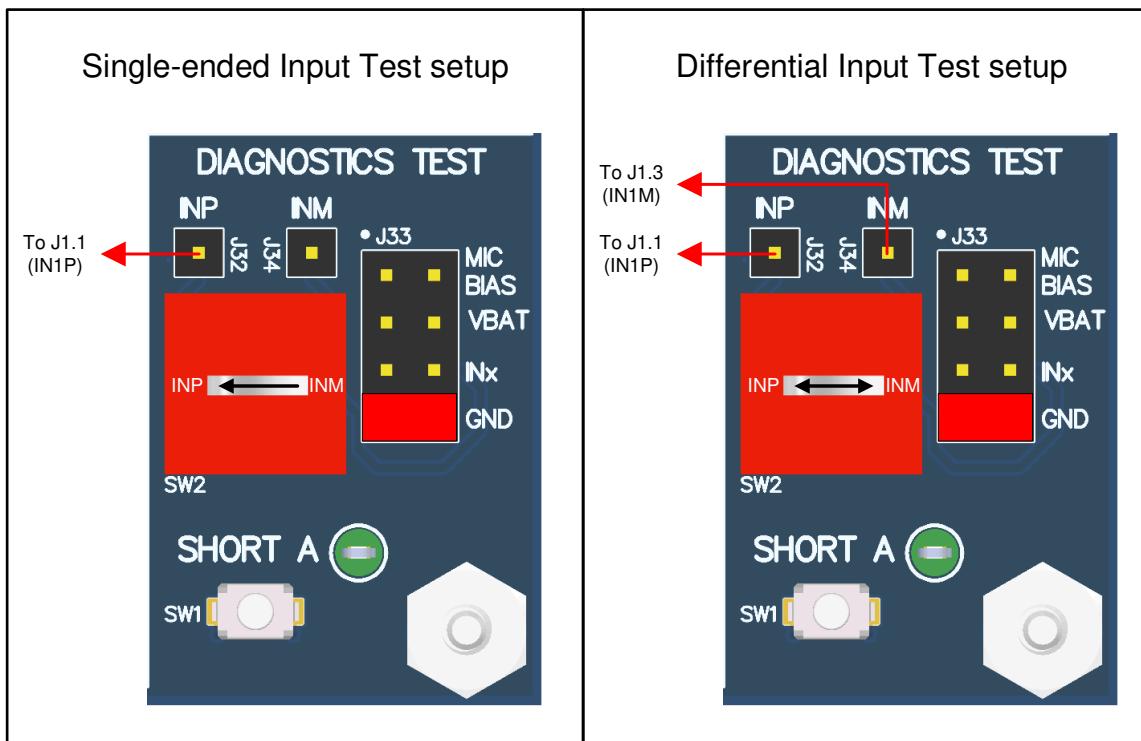
Figure 2-15. Short to Ground Diagnostic Test Setup

2.2.4 GPIO1 Hardware Configurations

GPIO1 has many configuration options, however the EVM supports three modes. These modes are configured, as shown in Figure 2-16, by the installation or removal of resistors on the bottom of the EVM.
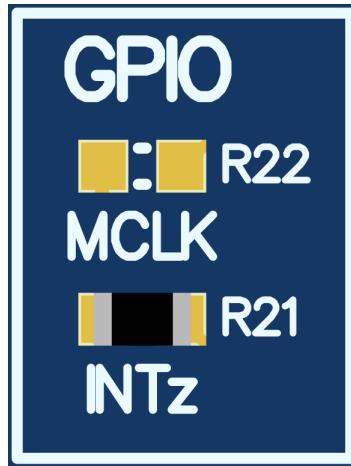
Figure 2-16. GPIO1 Hardware Configuration

2.2.4.1 GPIO1 as INTz (Default Configuration)

The default configuration for GPIO1 on the PCM6xx0Q1EVM is as an interrupt indicator. When configured in this state, and when the onboard diagnostics detect a fault, an interrupt request is sent on GPIO1, which causes LED D3 on the EVM to illuminate, indicating to the user that a fault is detected. The user can then use the EVM software to provide diagnostic feedback.

2.2.4.2 GPIO1 as an MCLK Input

When the PCM6xx0Q1 device must be configured as the audio serial bus master, an external MCLK is required. To support an external MCLK, remove R21 and install a R22. This process connects the GPIO to the MCLK pin of the external ASI header. Master mode is only supported with an external ASI.

2.2.4.3 Other Supported GPIO1 Functionality

Other GPIO functionality can also be supported by using the GPIO1 header (J28). This approach requires the removal of both R21 and R22. In this configuration the GPIO1 can be connected using J28.

2.2.5 I²C Address Configuration

Configuring the address of the PCM6xx0Q1 device on the EVM is typically not required for evaluation use, however configuring the address is supported by populating pullup or pulldown resistors on the I²C portion of the control selection area, as shown in Figure 2-17, on the bottom of the EVM.
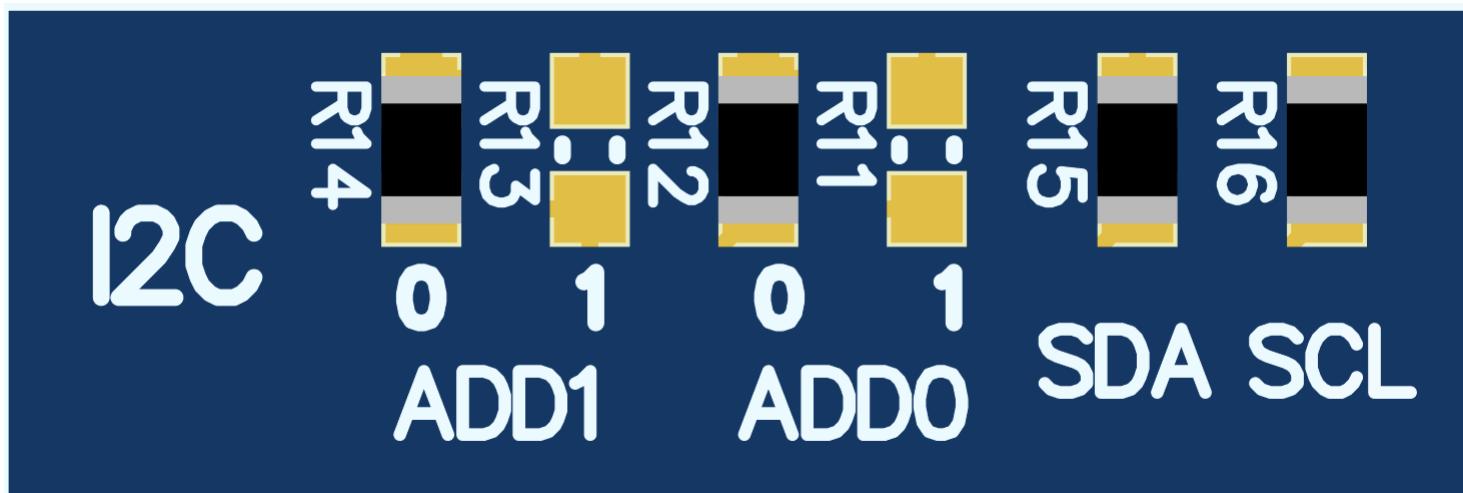

Figure 2-17. I²C Control Selection

A configuration guide is provided in Table 2-3 for the convenience of the user.

Table 2-3. I²C Address Selection

I²C Address	Installed	Uninstalled
1001 000	R12, R14	R11, R13
1001 001	R11, R14	R12, R13
1001 010	R12, R13	R11, R14
1001 011	R11, R13	R12,R14

3 Software Overview

Texas Instrument's PurePath™ console 3 (PPC3) graphical development suite is a program that serves as a platform for many of TI's audio products. PPC3 is designed to simplify the evaluation, configuration, and debug process associated with the development of audio products.

3.1 PurePath Console 3 Installation

The PCM6xx0Q1EVM-PDK GUI is an application that installs into the PPC3 framework. PPC3 must be installed prior to downloading the PCM6xx0Q1EVM-PDK GUI. To download the PPC3, visit www.ti.com/tool/ PUREPATHCONSOLE and request access. If the PPC3 is already installed, proceed to Section 3.2. Figure 3-1 shows the setup directory for the PPC3 installation.
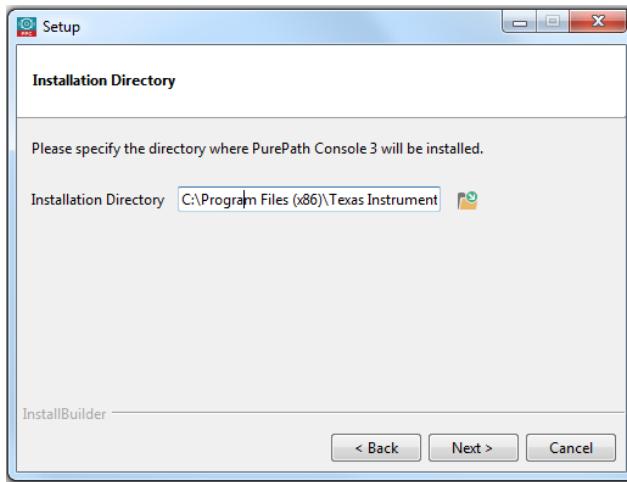
Figure 3-1. PurePath Console 3 Installation

Open the PPC3 installer and follow the instructions in the setup wizard.

3.2 PCM6xx0Q1EVM GUI Installation and Setup

3.2.1 Requesting Access to the PCM6260Q1EVM-SW

Access to the PCM6260Q1EVM-SW can be requested from the www.ti.com/tool/PCM6260Q1EVM.

3.2.2 USB Audio Setup

When using the USB audio interface, the Texas Instruments USB audio device control panel, shown in Figure 3-2, opens with the input setting configured for 8 channel, 32 bits. For USB audio, 32-bit mode must be used on the EVM as well.
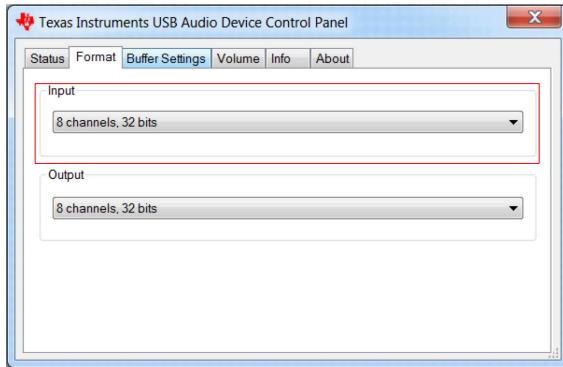
Figure 3-2. Texas Instruments USB Audio Device Control Panel

3.2.3 Software Setup

Open the PPC3 application in the directory chosen for the GUI installation in Section 3.1. Figure 3-3 shows the resulting app center window. Click on the PCM6xx0 app tile.
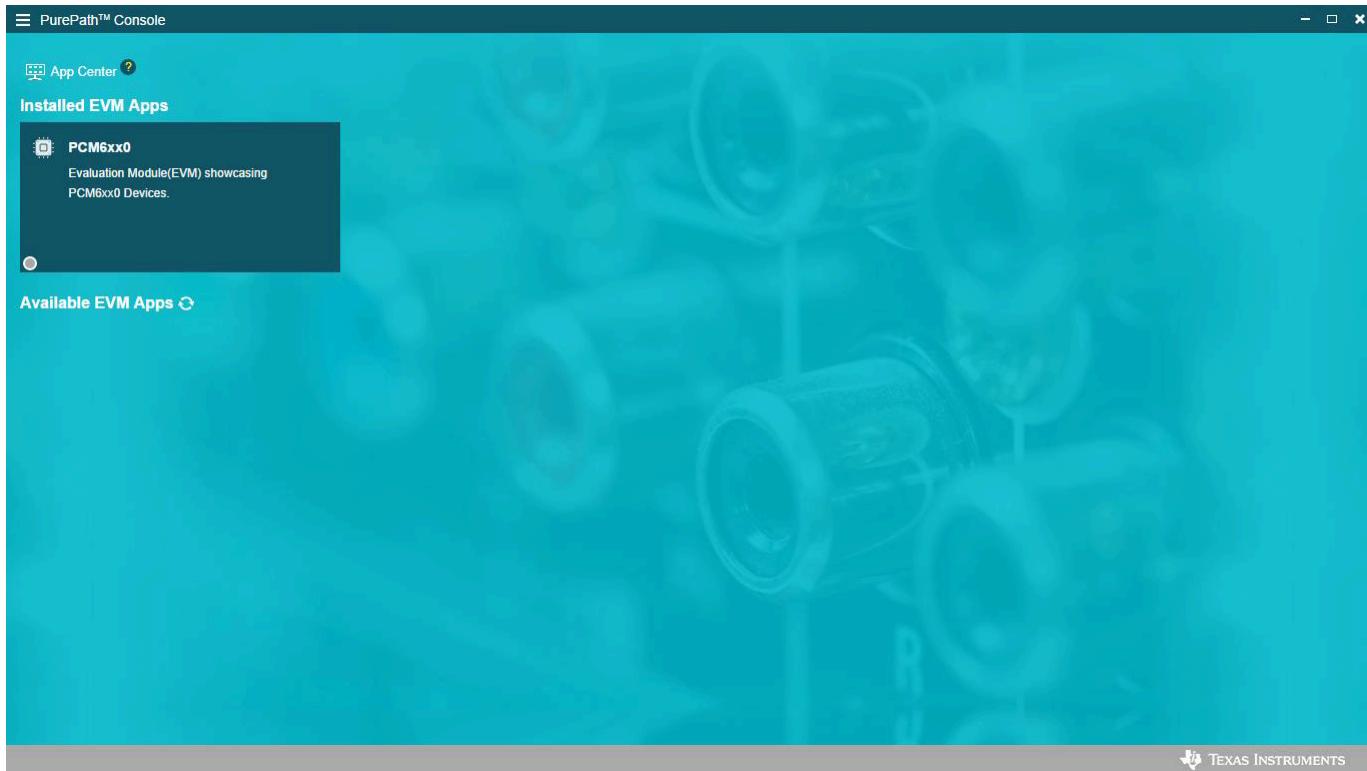
Figure 3-3. PurePath Console 3 App Center

The PCM6xx0 GUI is designed to work with up to four devices at any time. As shown in Figure 3-4, choose the *1* device radial button and click *New*.
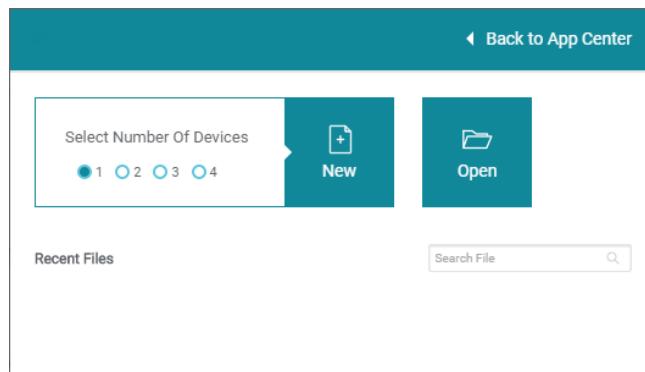
Figure 3-4. Initial GUI Configuration

As shown in Figure 3-5, the GUI opens to the *Audio Config* tab.

Figure 3-5. Audio Config Tab

Before changing any parameters, check the lower left corner of the PPC3 window, as shown in Figure 3-6, to verify that the EVM is connected. If no EVM is detected, the text reads *PCM6260 - offline*. If the EVM is detected but does not connect automatically, a *Connect* button appears. Clicking this button connects the hardware.
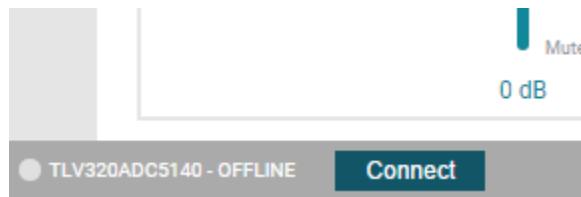
Figure 3-6. Hardware Connect
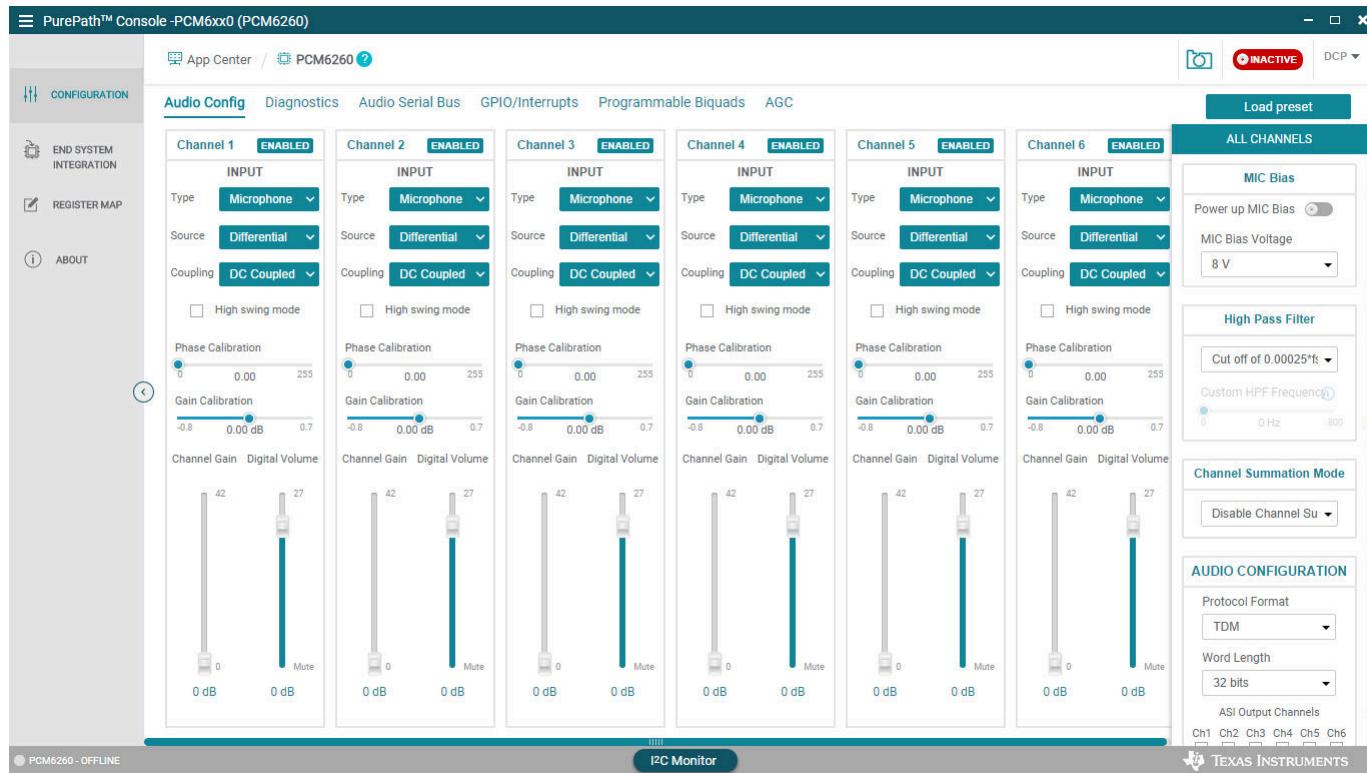
When the hardware is connected, the *Connect* button changes to read *Disconnect*, and the device is ready to be configured.

4 Software Overview

The PCM6260Q1EVM control software allows for the configuration of the PCM6xx0Q1EVM-PDK. The application is organized into three main views: configuration, end system integration, and register map. These modes are detailed in this section.

4.1 Configuration View

The configuration view, shown in Figure 4-1, contains all of the tools used to configure and program the PCM6xx0Q1EVM. This view features tabbed navigation for each of the device configuration panels. These different tabs are detailed in this section.

Figure 4-1. Configuration View

4.1.1 Audio Config

The audio config tab (Figure 4-2) contains the controls for the analog inputs and the associated input channels.
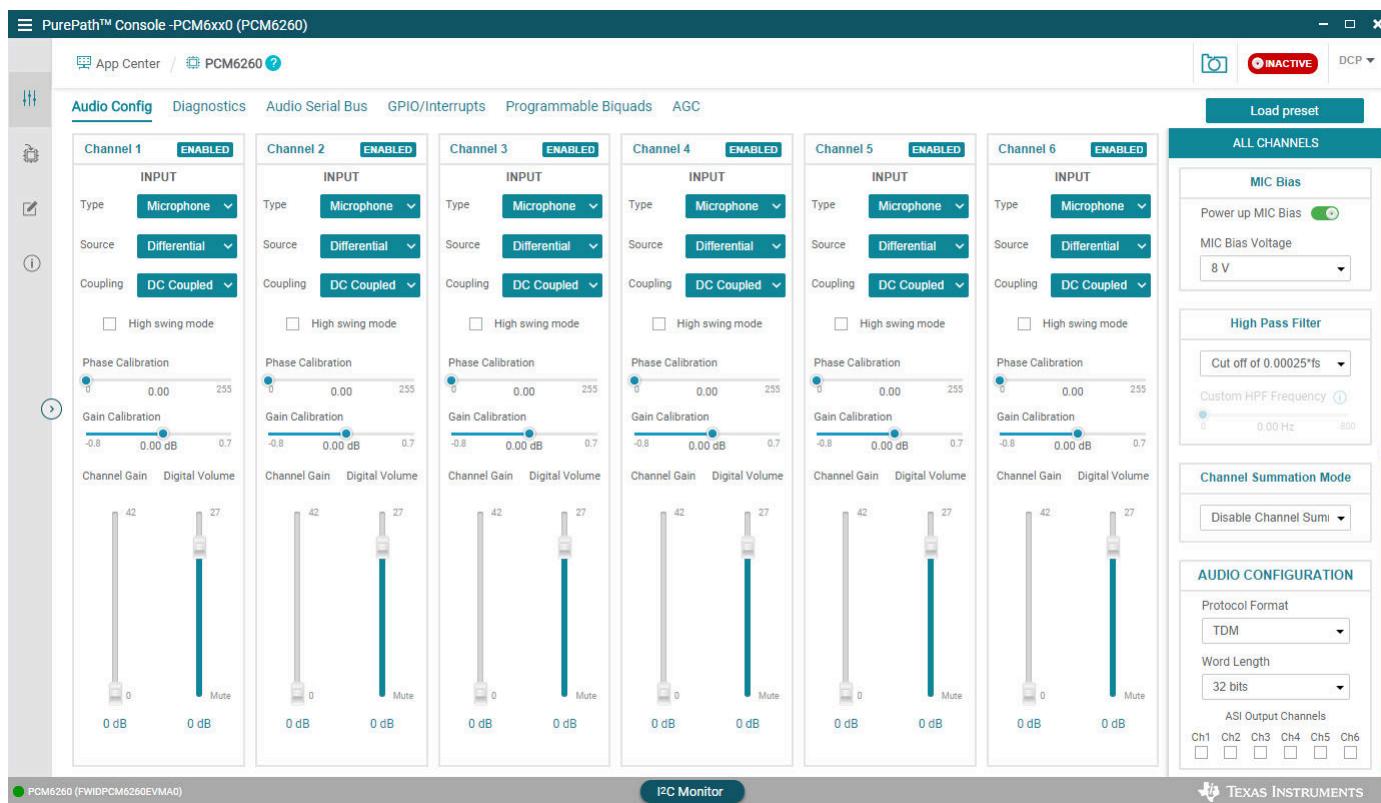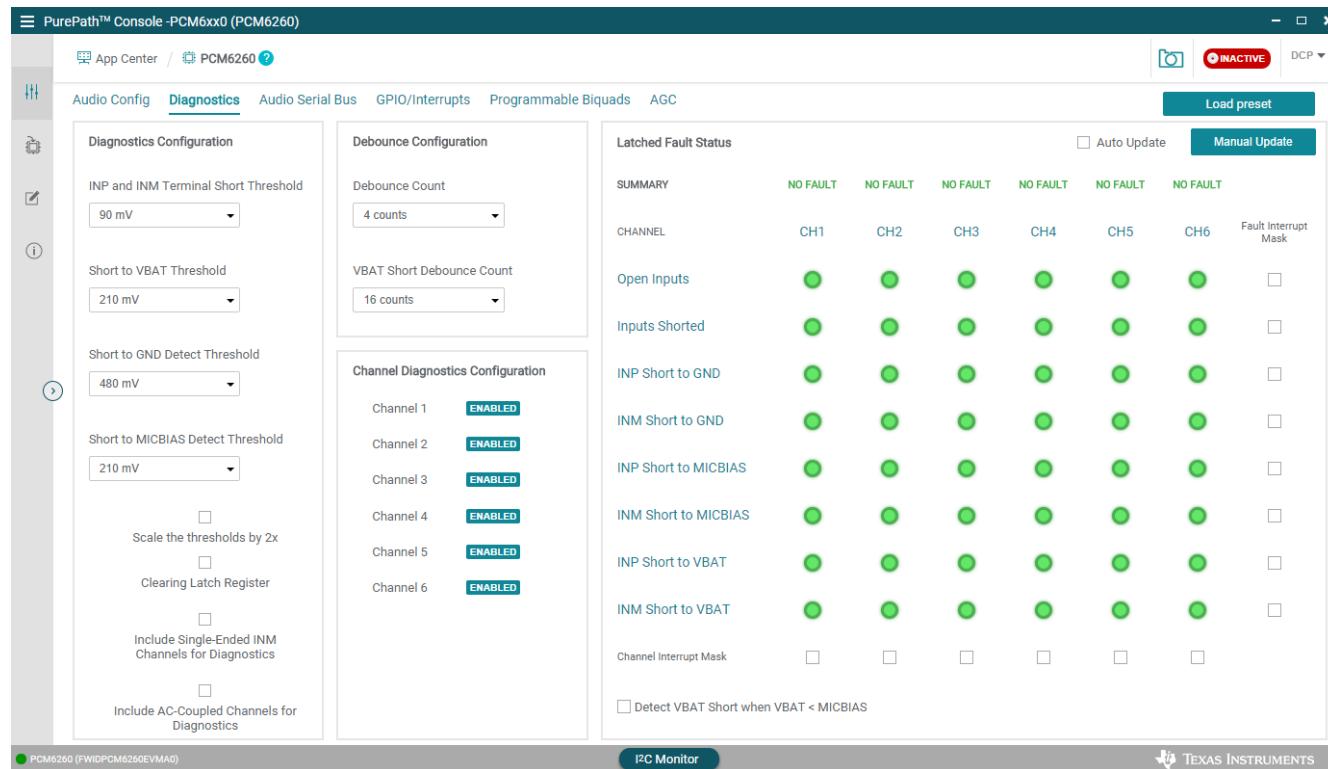
Figure 4-2. Audio Config Tab

4.1.2 Diagnostics

The diagnostics tab (Figure 4-3) allows for the configuration and monitoring of the integrated diagnostics features of the PCM6xx0Q1 devices. The latched fault status window also includes controls for interrupt masks. When a mask is enabled any masked faults still display, however these masks do not trigger an interrupt.

Figure 4-3. Diagnostics Tab

4.1.3 Audio Serial Bus

The PCM6xx0Q1 family of devices feature a very flexible audio serial bus. Allowing these devices to function seamlessly with a wide range of DSPs, SoCs, or other audio devices. The audio serial bus tab (Figure 4-4) provides controls to configure the EVM to the required format. The PCM62xx0 devices are configured for auto clock configuration by default. The clock monitor reports the clocks detected, see the *Phase-Locked Loop (PLL) and Clock Generation* section in the TLV320ADCx140 family of devices for details on supported formats.
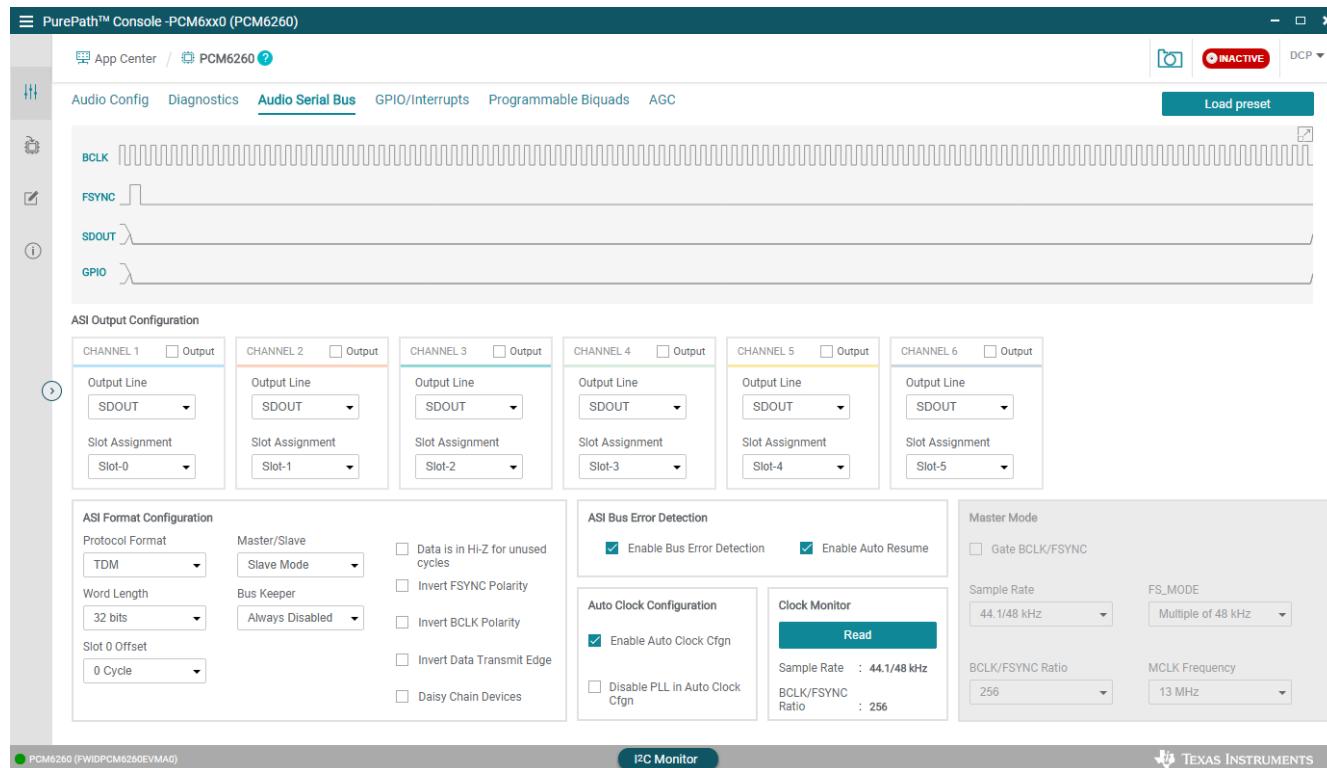
Figure 4-4. Audio Serial Bus Tab

4.1.3.1 Configuring the Audio Serial Bus for the I²S Output

The PCM6xx0Q1 features a highly flexible audio serial bus that can be configured to implement a wide range of data formats. The default format is TDM, however the GUI can be used to change the data format to I²S. This section describes how to configure the PCM6xx0Q1EVM for a 2-channel I²S output to a USB audio at 16 bits and 48 kHz. Configure the AC-MB for USB audio as described in Section 5. As shown in Figure 4-5, select the audio serial bus tab.
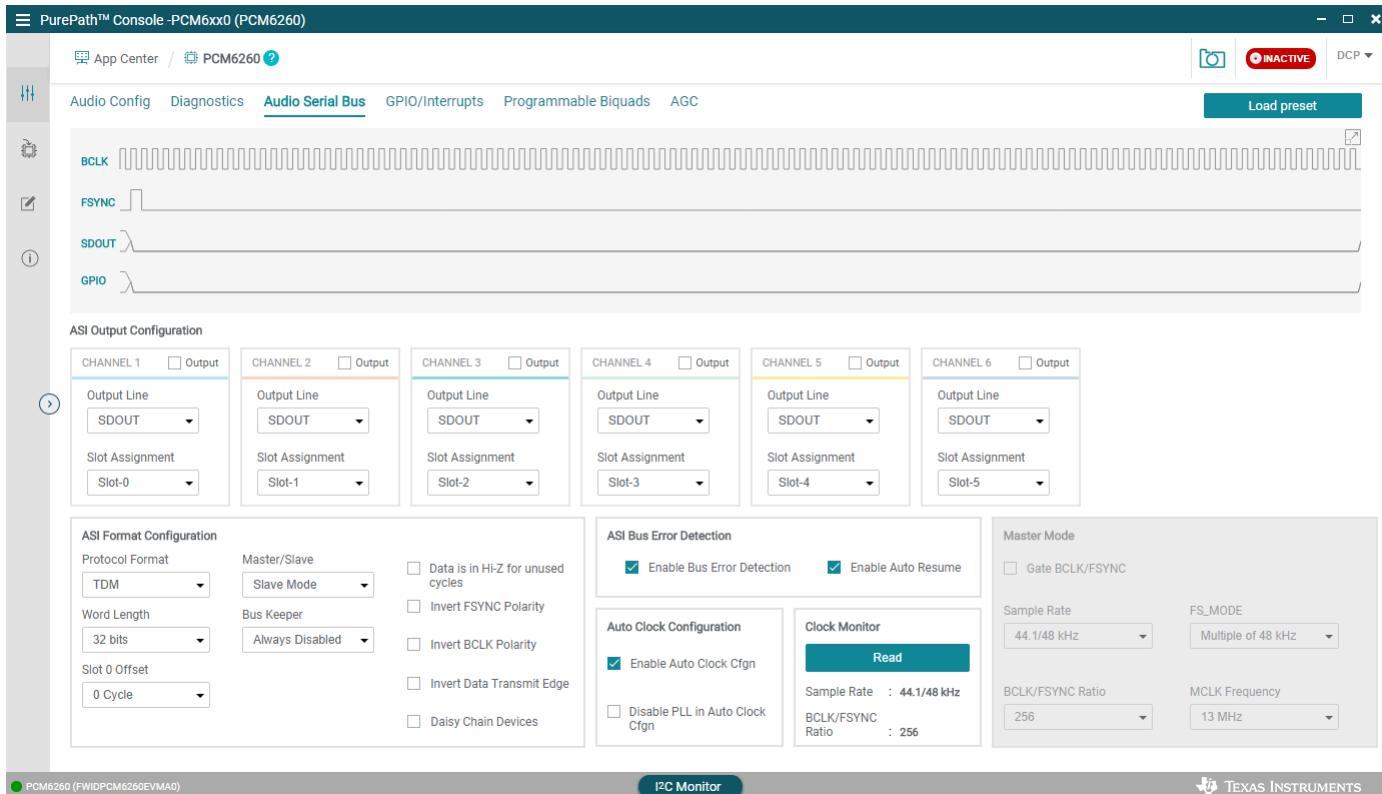
Figure 4-5. Audio Serial Bus Tab

In the ASI format configuration pane (shown in Figure 4-6), change the protocol format to I²S, and the word length to 16 bits.
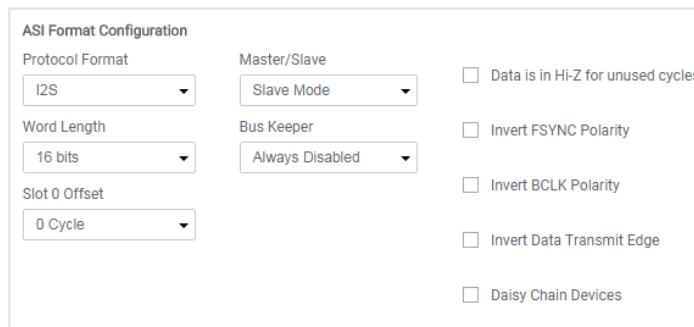
Figure 4-6. ASI Format Configuration

When the protocol format is changed to I^{2}S in the GUI, the USB audio processor on the AC-MB also changes the audio format to I^{2}S. The GUI reads the ASI status register (page 0 register 0x15), providing the detected sampling rate and BCLK and FSYNC ratio. The ASI status register can also be read manually in the audio serial bus tab by clicking the *Read* button, as shown in Figure 4-7, in the clock monitor pane.
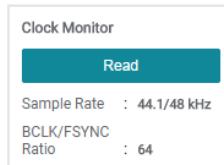
Figure 4-7. Clock Monitor Pane

The default slot assignment for channel 1 is left slot 0 and the default slot assignment for channel 2 is left slot 1. As shown in Figure 4-8, change the channel 2 slot assignment to right slot 0. The diagram at the top of the window updates to display the data format and slots selected.
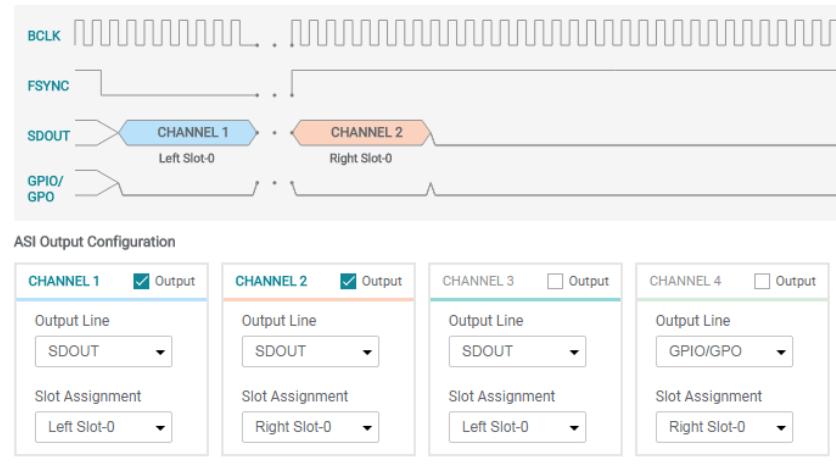
Figure 4-8. Channel Output Configuration and Diagram

The AC-MB motherboard currently supports only two channels per data line when in I^{2}S mode and the BCLK and FSYNC ratio is fixed at 64. The EVM is now ready for use with the audio recording program of your choice.

4.1.4 GPIO Interrupts

The GPIO function and interrupt behavior, as shown in Figure 4-9, can be configured in this tab. The default configuration for GPIO1 is always chip interrupt (IRQ). If alternate settings are required, see to ensure the proper hardware setup is followed.
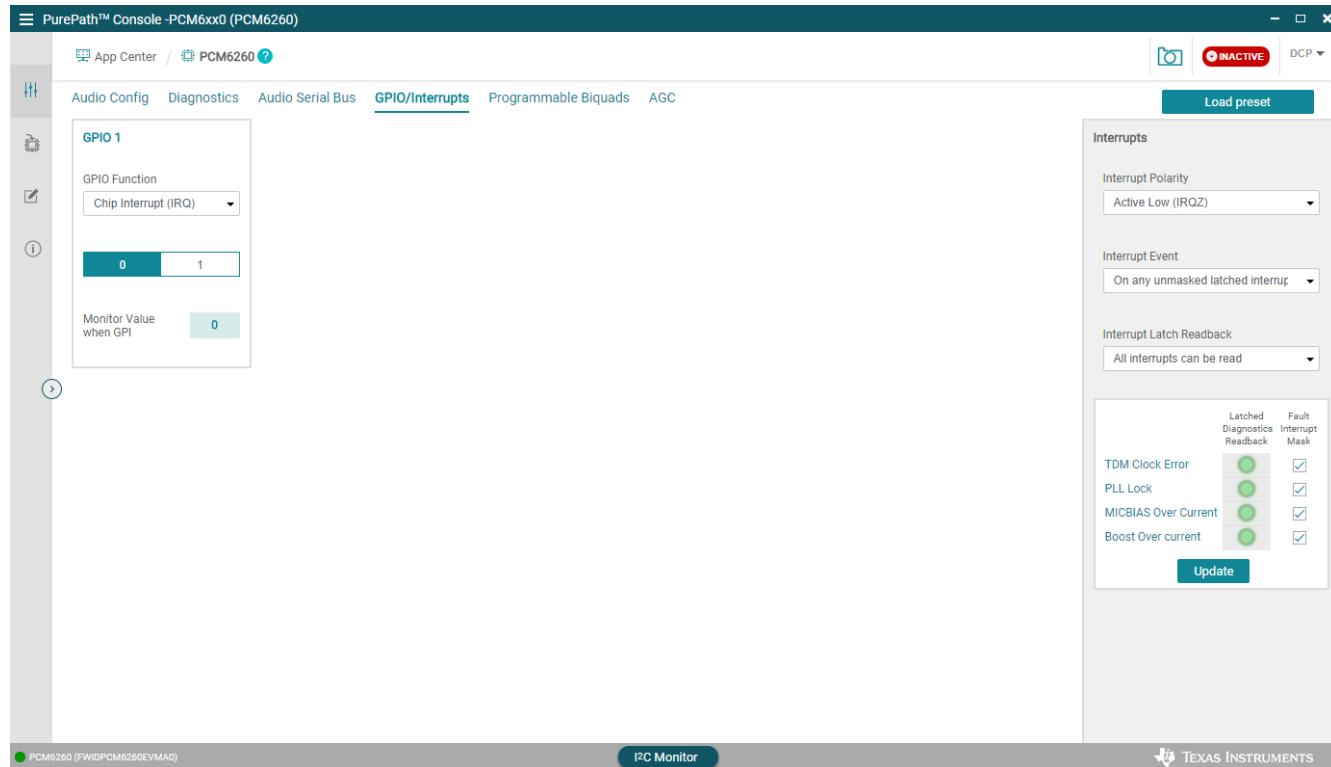
Figure 4-9. GPIO and Interrupts Tab

4.1.5 Programmable BiQuads

Configuration of the biquad filters is made easy with the GUI in the programmable biquads tab. Biquad coefficients can be generated using the filter designers within PPC3, or coefficients from an external filter design tool can be manually entered. Each biquad can be configured individually and then the gain and phase responses can be shown for individual channels or for all channels.

Note

PPC3 uses the detected sampling rate from the audio serial bus tab to determine the biquad coefficients. The PCM6xx0Q1 device must be receiving the desired sampling rate when the audio serial bus tab is opened, and the clock monitor must be updated by clicking on the *Read* button. If no EVM is connected, PPC3 assumes an f_S of 48 kHz for all biquad calculations.

For more information on the filter design tools included in the programmable biquads tab (Figure 4-10), and other methods for generating filter coefficients, see the *PCM6xx0 Programmable Biquad Filter Configuration and Applications* application report.
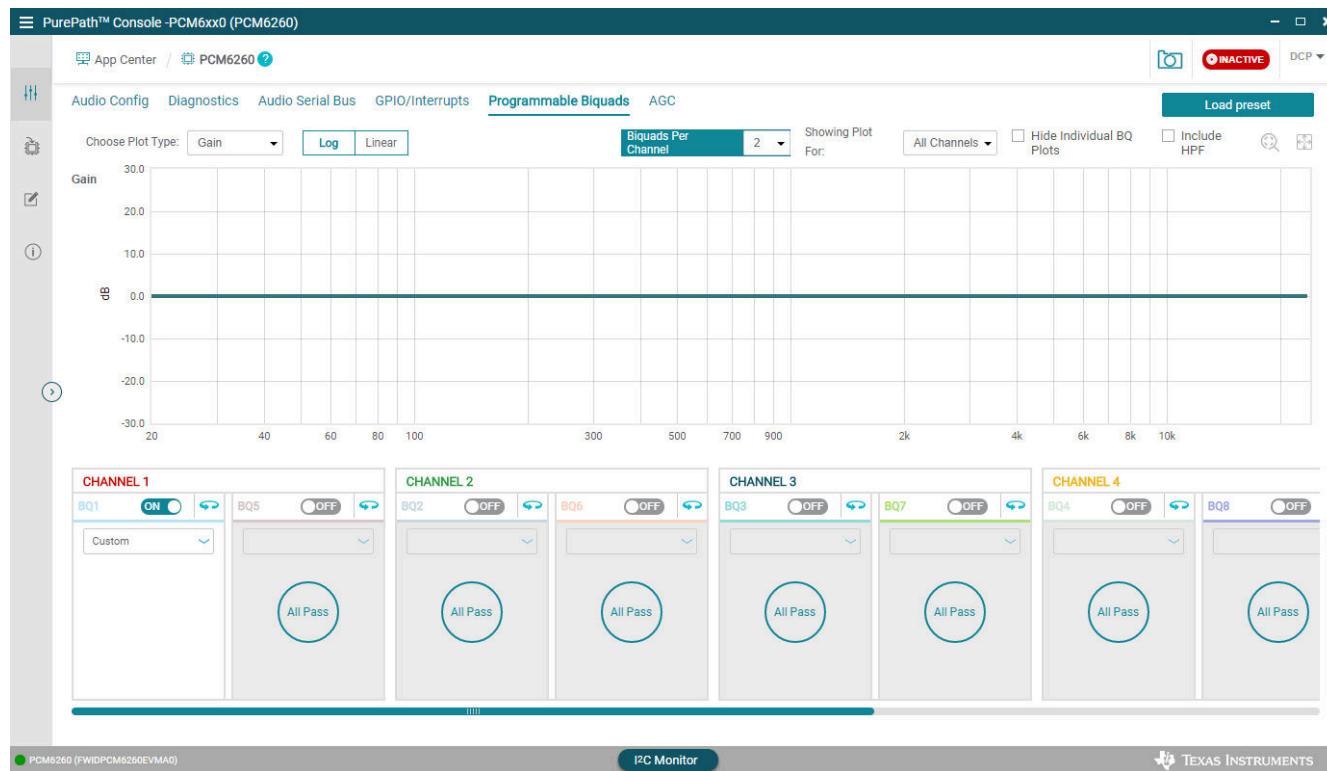
Figure 4-10. Programmable Biquads Tab

4.1.6 Automatic Gain Control (AGC)

The AGC parameters are global and can be configured in the AGC tab (Figure 4-11). Each channel must have the AGC enabled in the audio config tab for the AGC configuration to become active. These software controls are greyed out and inactive while the device is in active mode.
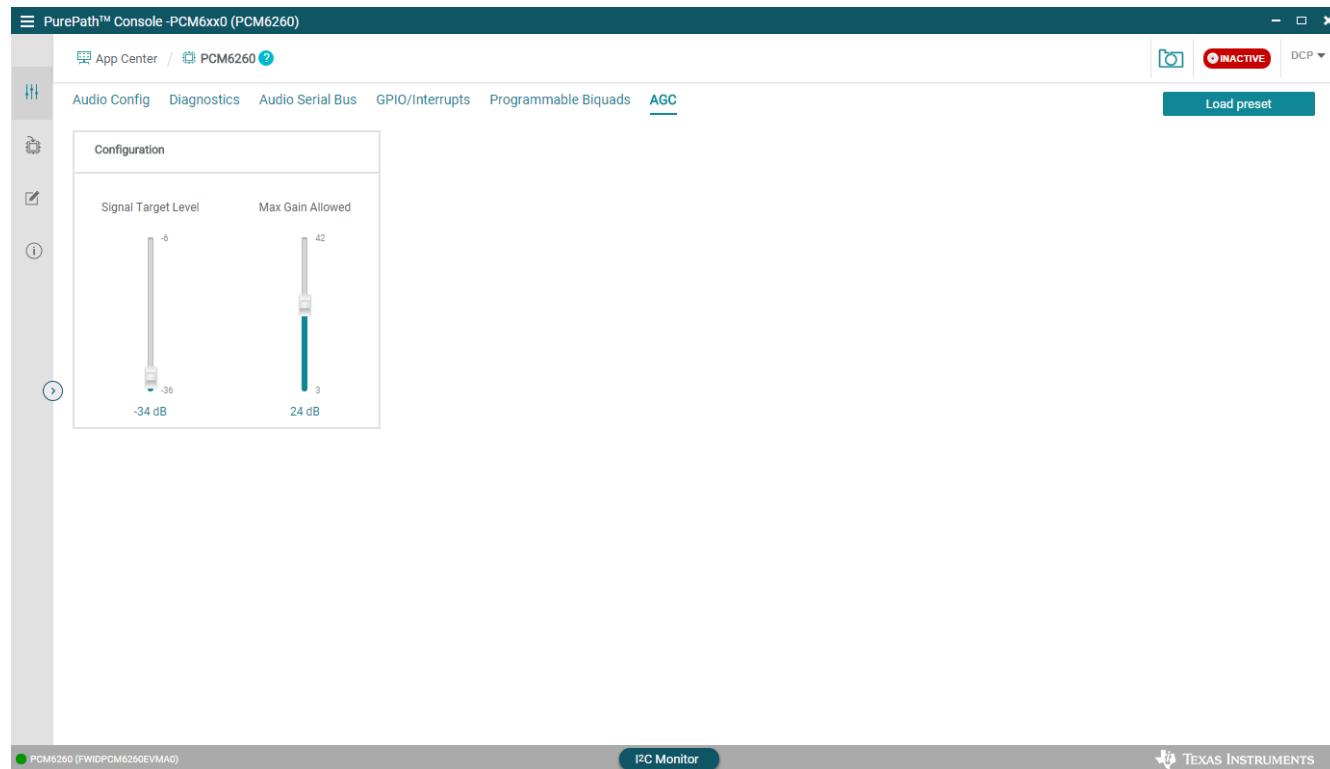
Figure 4-11. AGC Tab

4.2 End System Integration

The end system integration view ([Figure 4-12](#)) provides methods for exporting the current configuration to a header or .cfg file. The header file can be used for quick integration with a simple microcontroller.
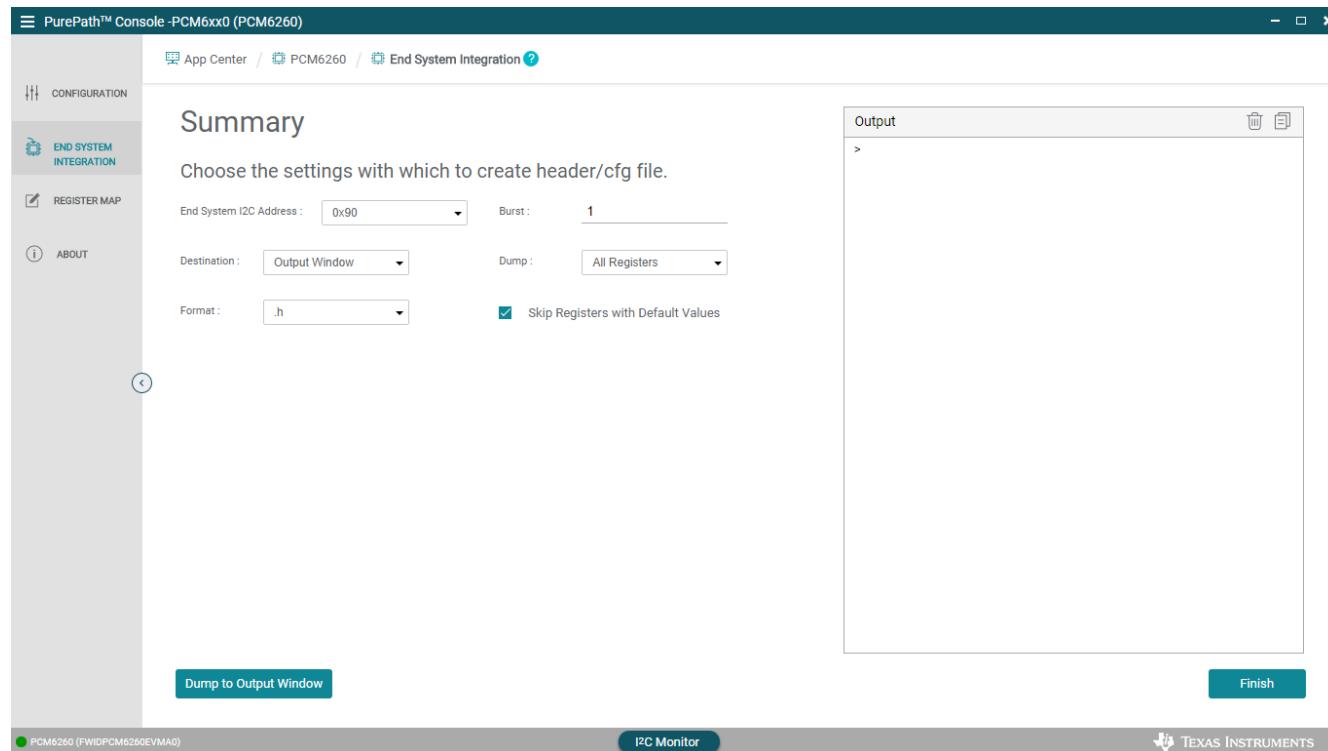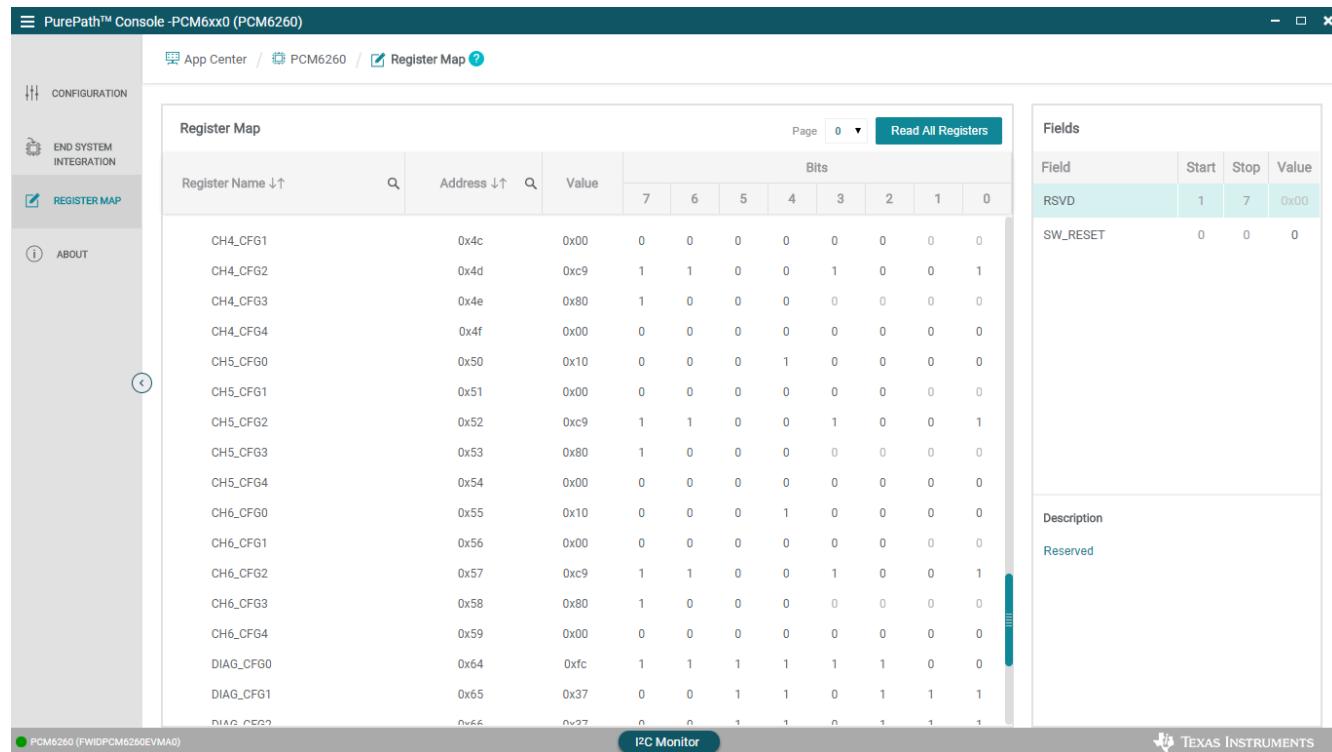
Figure 4-12. End System Integration View

4.3 Register Map

The register map view (Figure 4-13) provides a view of the first two pages of the register map.

Figure 4-13. Register Map View

5 Quick Start

Preset configurations are provided for common use cases. The following quick start procedure uses the onboard microphone preset.

Click on *load preset* in the configuration view, as shown in Figure 5-1, to open the preset selection window (Figure 5-2).
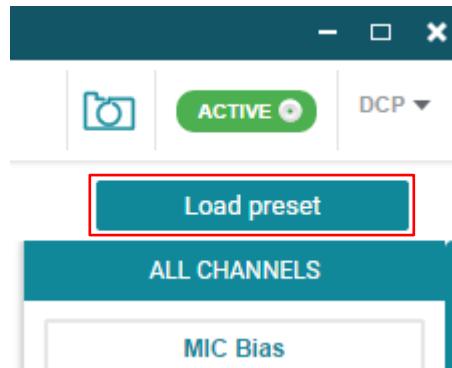
Figure 5-1. Load Preset Button
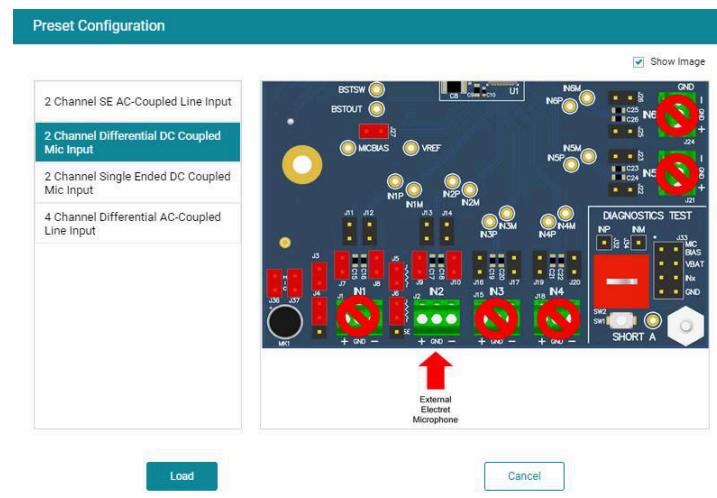
Figure 5-2. Preset Configuration Window

Select the two-channel differential DC-coupled Mic input from the preset options. Click *Show Image* to view the board configuration. Jumpers highlighted in red must be populated, all other jumpers must be removed. IN1 is connected to the onboard microphone, while IN2 can be connected to an external electret microphone. The preset configuration opens with the ADCs inactive, allowing for modification of the preset before activating the ADCs.

The default state for the PCM6xx0Q1 is inactive mode and, with the exception of the channel digital volume, all device configurations must be done when the device is inactive. The PCM6xx0Q1 does not provide a digital audio output in standby mode. Figure 5-3 shows how to change the mode from standby to active.

Figure 5-3. Inactive to Active Mode

When active mode is enabled, any controls not configurable in active mode are grayed out. These controls can be changed again when the device is brought out of active mode. Figure 5-4 shows which controls are disabled.
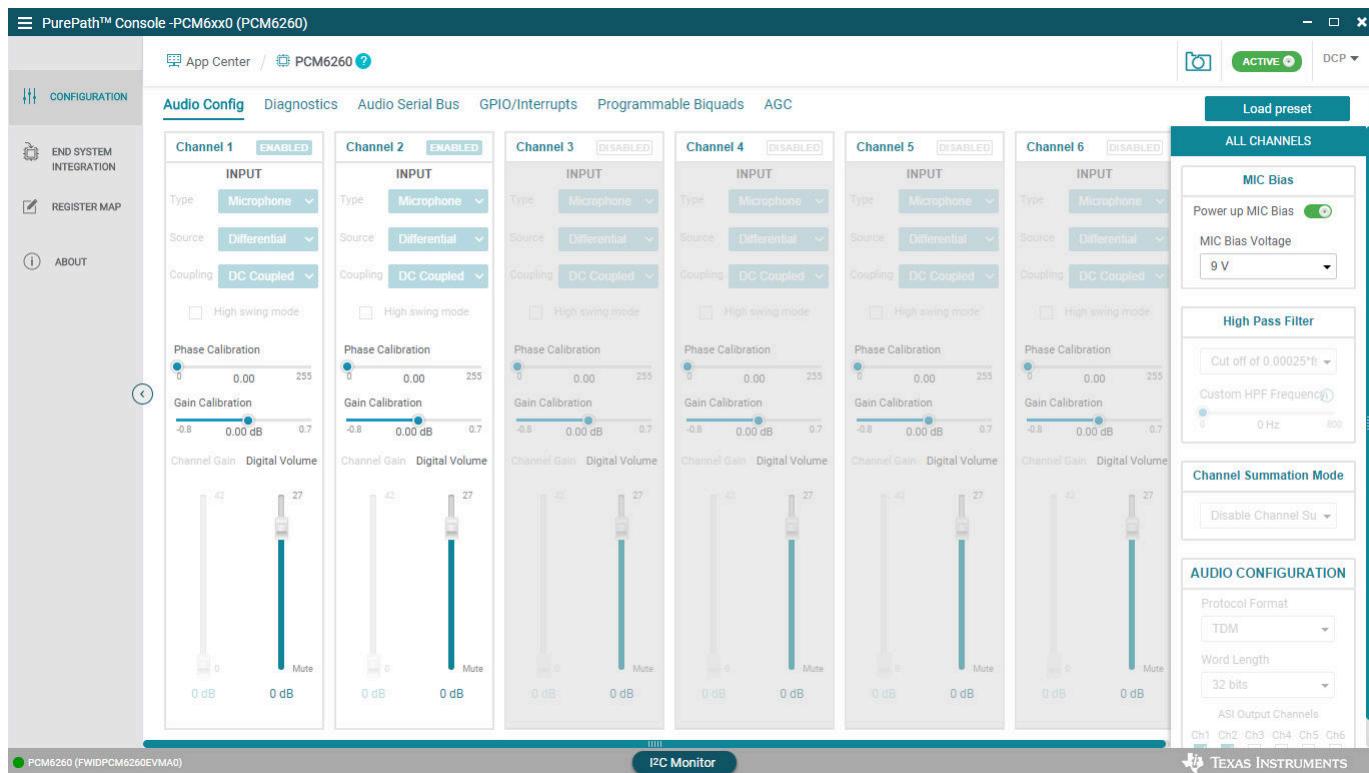
Figure 5-4. Disabled Controls in Active Mode

Audio can now be captured on your PC using the audio program of your choice.

5.1 Saving a Configuration

To save a configuration, as shown in Figure 5-5, click the upper left corner of the PPC3 window and select *Save*. The configuration is saved as a .ppc3 file. To load a saved configuration, click the upper left corner of the PPC3 window and select *Open*. Navigate to the location of the saved .ppc3 file, and click *Open*.
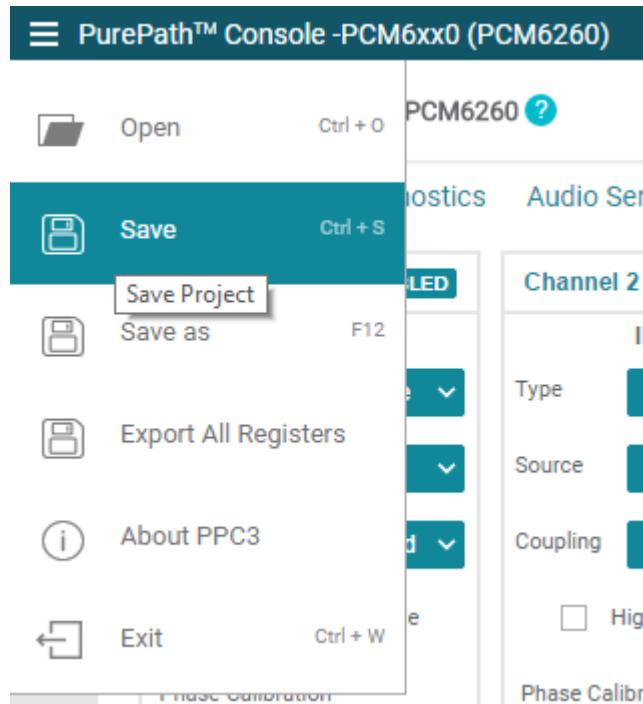
Figure 5-5. Saving a Configuration in PPC3

6 System Overview

Figure 6-1 shows an overview of the system.
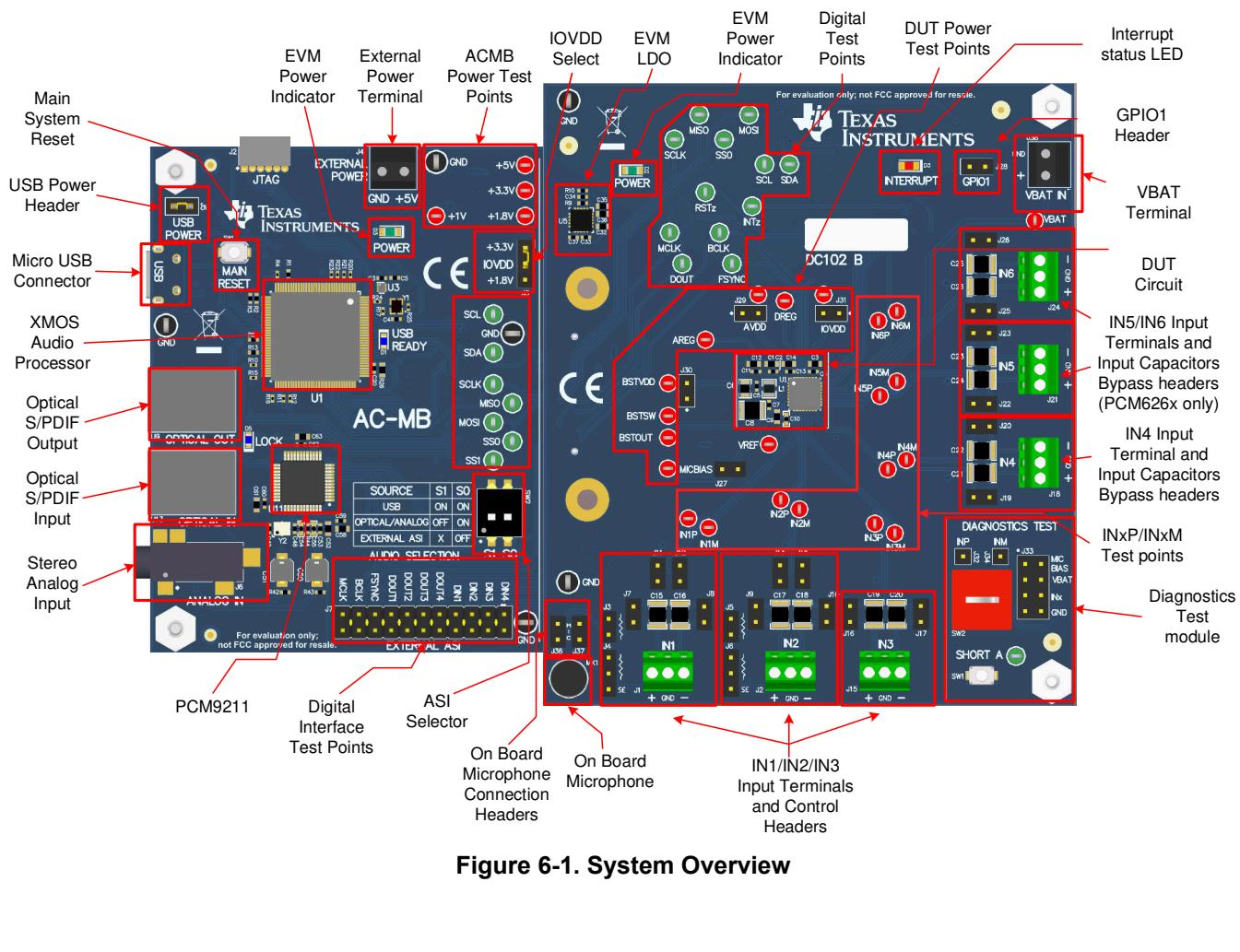
Figure 6-1. System Overview

Copyright © 2022 Texas Instruments Incorporated
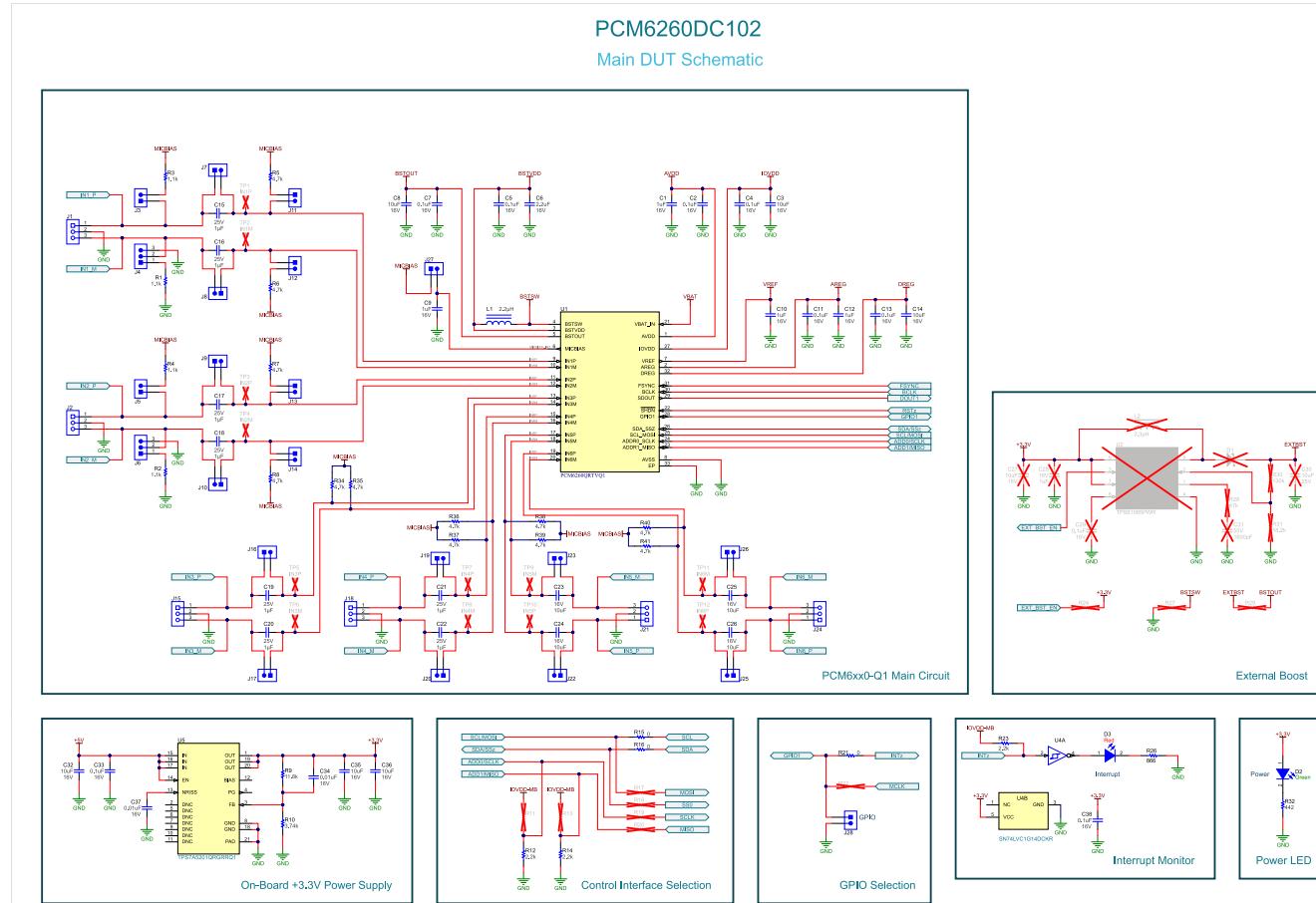
7 Schematic and Bill of Materials

This section provides the schematics and bill of materials (BOM) for each PCM6xx0Q1EVM variant.

7.1 PCM6260Q1EVM Schematic and Bill of Materials

7.1.1 PCM6260Q1EVM Schematic

Figure 7-1 and Figure 7-2 illustrate the schematics for the PCM6240Q1EVM.

Figure 7-1. PCM6260Q1EVM-PDK Main DUT Schematics

PCM6260DC102
Connectors and EEPROM
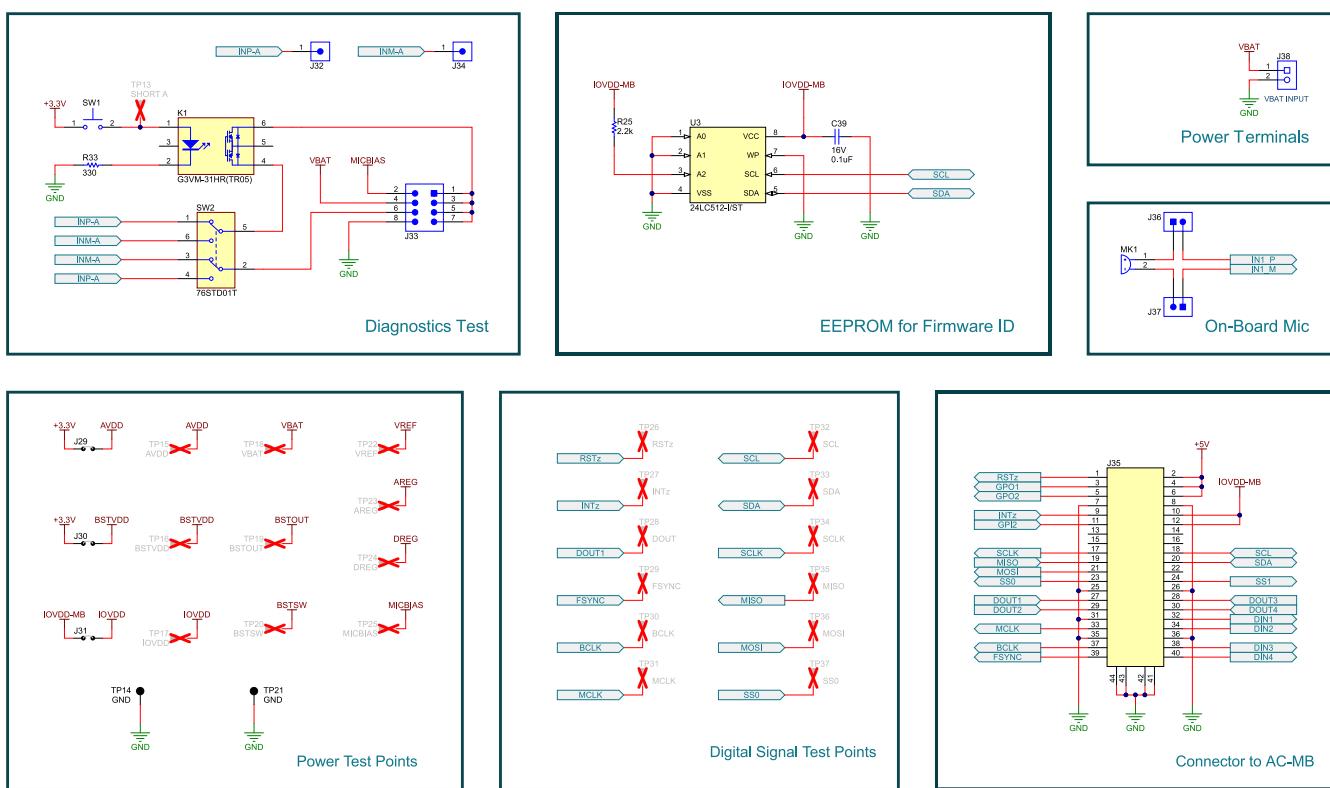
Figure 7-2. PCM6260Q1EVM-PDK Connectors and Test Points Schematics

7.1.2 PCM6260Q1EVM Bill of Materials

Table 7-1 lists the BOM for the PCM6260Q1EVM.

Table 7-1. PCM6260Q1EVM Bill of Materials

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
!PCB1	1		Printed Circuit Board		DC102	Any
!PCB2	1		DC058 - AC-MB Circuit Board, Kitting item 6628863		AC-MB	Texas Instruments
C1, C9, C12	3	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107B7105KA-T	Taiyo Yuden
C2, C4, C5, C7, C11, C13, C33, C38, C39	9	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C3, C14, C32, C35, C36	5	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C6	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0805	0805	GRM21BR71C225KA12L	MuRata
C8	1	10uF	CAP, CERM, 10 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206	GCM31CR71C106KA64L	MuRata
C10	1	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0402	0402	EMK105BJ105KVHF	Taiyo Yuden
C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26	12	22uF	CAP, CERM, 22 uF, 25 V, +/- 20%, X7R, 1210	1210	TMK325B7226MM-TR	Taiyo Yuden
C34, C37	2	0.01uF	CAP, CERM, 0.01 uF, 16 V, +/- 10%, X7R, 0402	0402	520L103KT16T	AT Ceramics
D2	1	Green	LED, Green, SMD	LED_0805	LTST-C170KGKT	Lite-On
D3	1	Red	LED, Red, SMD	Red 0805 LED	LTST-C170KRKT	Lite-On
H1, H2	2		Small nylon hex nut, 0.10 thick with a 0.250 outside diameter and a 4-40 threading	Hex Nut,4-40 Thread, 250" Head Dia	9605	Keystone
H3, H4	2		HEX STANDOFF 4-40 NYLON 3/4"	HEX STANDOFF 4-40 NYLON 3/4"	4804	Keystone
J1, J2, J15, J18, J21, J24	6		CONN TERM BLOCK 2.54MM 3POS PCB	HDR3	OSTVN03A150	On Shore Technology
J3, J5, J7, J8, J9, J10, J11, J12, J13, J14, J16, J17, J19, J20, J22, J23, J25, J26, J27, J28, J29, J30, J31, J36, J37	25		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec

Table 7-1. PCM6260Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
J4, J6	2		Header, 100mil, 3x1, Gold, TH	3x1 Header	TSW-103-07-G-S	Samtec
J32, J34	2		Header, 100mil, 1pos, Gold, TH	Testpoint	TSW-101-07-G-S	Samtec
J33	1		Header, 100mil, 4x2, Gold, TH	4x2 Header	TSW-104-07-G-D	Samtec
J35	1		Connector, Header, High Speed, 20 pairs, SMT	QTE-020-01-X-D-A	QTE-020-01-L-D-A	Samtec
J38	1		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
K1	1		Relay, SPST-NO (1 Form A), 4 A, SMD	6.3x4.4mm	G3VM-31HR(TR05)	Omron Electronic Components
L1	1	2.2uH	Inductor, Shielded, Metal Composite, 2.2 µH, 2.2 A, 0.1 ohm, SMD	2x1.6mm	LPWI201610H2R2T	Littelfuse
LBL1	1		Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	PCB Label 0.650 x 0.200 inch	THT-14-423-10	Brady
MK1	1		Microphone, Condenser, Analog, Omnidirectional, -42DB, TH	6mm DIA	POM-2242P-C33-R	PUI Audio
R1, R2, R3, R4	4	1.1k	RES, 1.1 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K10JNEA	Vishay-Dale
R5, R6, R7, R8, R34, R35, R36, R37, R38, R39, R40, R41	12	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
R9	1	11.8k	RES, 11.8 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040211K8FKED	Vishay-Dale
R10	1	3.74k	RES, 3.74 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04023K74FKED	Vishay-Dale
R12, R14, R23	3	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic
R15, R16, R21	3	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R25	1	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R26	1	866	RES, 866, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603866RFKEA	Vishay-Dale

Table 7-1. PCM6260Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R32	1	442	RES, 442, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603442RFKEA	Vishay-Dale
R33	1	330	RES, 330, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402330RJNED	Vishay-Dale
SH1, SH2, SH3, SH4, SH5, SH6, SH7, SH8, SH9, SH10, SH11, SH12, SH13, SH14, SH15, SH16, SH17, SH18, SH19, SH20, SH21, SH22, SH23, SH24, SH25, SH26	26	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
SW1	1		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
SW2	1		Switch, DPDT, 0.15 A, 30 VDC, TH	9.65x9.65mm	76STD01T	Grayhill
TP14, TP21	2		Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone
U1	1		Automotive, 4-Channel and 6-Channel Audio ADCs with Integrated Microphone Bias and Input Diagnostics, RTV0032T (WQFN-32)	RTV0032T	PCM6260QRTVQ1	Texas Instruments
U3	1		EEPROM, 512KBIT, 400KHZ, 8TSSOP	TSSOP-8	24LC512-I/ST	Microchip
U4	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments
U5	1		Automotive-Grade 2-A, High-Accuracy, Low-Noise, LDO Voltage Regulator, RGR0020A (VQFN-20)	RGR0020A	TPS7A5201QRGRRQ1	Texas Instruments
C27	0	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C28	0	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0402	0402	EMK105BJ105KVHF	Taiyo Yuden
C29	0	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C30	0	10uF	CAP, CERM, 10 uF, 25 V, +/- 20%, X5R, 0603	0603	C1608X5R1E106M080AC	TDK

Table 7-1. PCM6260Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C31	0	1600pF	CAP, CERM, 1600 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H162JA01D	MuRata
D1	0	20V	Diode, Schottky, 20 V, 1 A, SOD-123F	SOD-123F	PMEG2010AEH,115	Nexperia
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
L2	0	3.3uH	Inductor, Shielded Drum Core, Ferrite, 3.3 µH, 1.3 A, 0.145 ohm, SMD	LPS3314	LPS3314-332MRB	Coilcraft
R11, R13	0	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic
R17, R18, R19, R20, R22, R24, R27, R29	0	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R28	0	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale
R30	0	130k	RES, 130 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402130KFKED	Vishay-Dale
R31	0	18.2k	RES, 18.2 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040218K2FKED	Vishay-Dale
R42, R43, R44, R45	0	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP15, TP16, TP17, TP18, TP19, TP20, TP22, TP23, TP24, TP25	0		Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone
TP13, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37	0		Test Point, Miniature, Green, TH	Green Miniature Testpoint	5116	Keystone
U2	0		18.5 V, 2 A, 650 KHz / 1.2 MHz Step-Up DC-DC Converter with Forced PWM Mode, 2.3 to 6 V, -40 to 85 degC, 8-pin SOP (PW8), Green (RoHS & no Sb/Br)	PW0008A	TPS61085PWR	Texas Instruments

7.2 PCM6240Q1EVM Schematic and Bill of Materials (BOM)

7.2.1 PCM6240Q1EVM Schematic
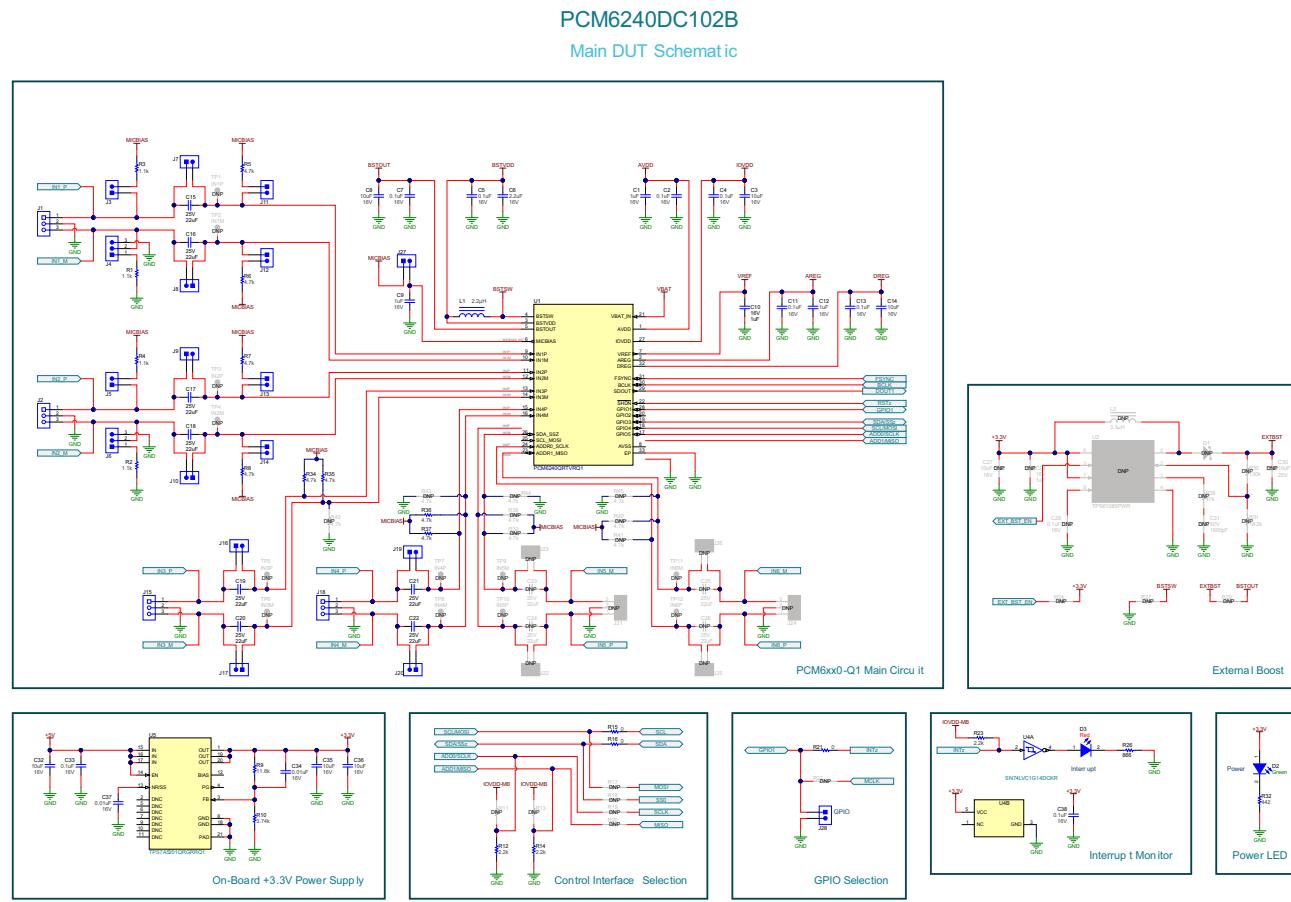
Figure 7-3. PCM6240Q1EVM-PDK Main DUT Schematics

PCM6260-Q1 Evaluation BoardB

Connectors and EEPROM
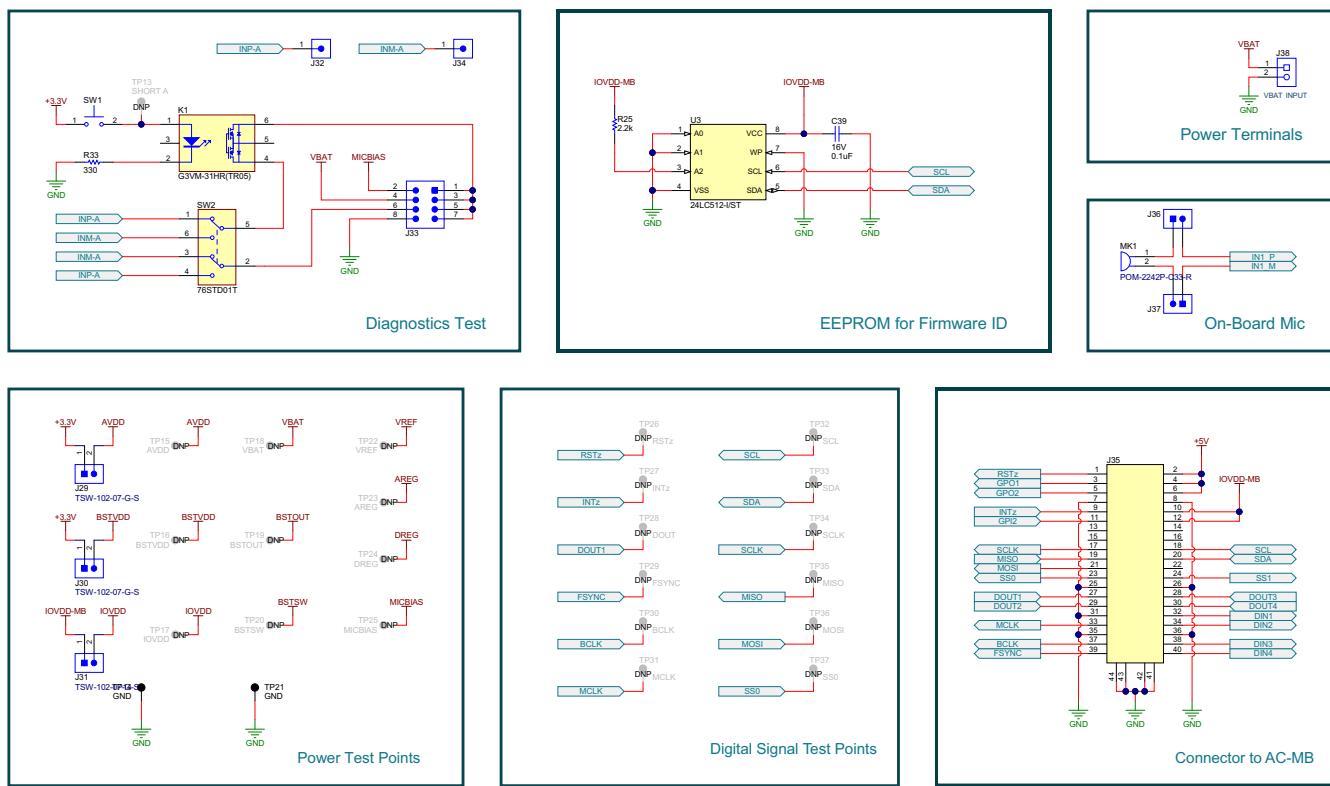
Figure 7-4. PCM6xx0Q1EVM-PDK Connectors and Test Points Schematics

7.2.2 PCM6240Q1EVM Bill of Materials

Table 7-2 lists the BOM for the PCM6240Q1EVM.

Table 7-2. PCM6240Q1EVM Bill of Materials

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
!PCB1	1		Printed Circuit Board		DC102	Any
!PCB2	1		DC058 - AC-MB Circuit Board, Kitting item 6628863		AC-MB	Texas Instruments
C1, C9, C12	3	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107B7105KA-T	Taiyo Yuden
C2, C4, C5, C7, C11, C13, C33, C38, C39	9	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C3, C14, C32, C35, C36	5	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C6	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0805	0805	GRM21BR71C225KA12L	MuRata
C8	1	10uF	CAP, CERM, 10 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206	GCM31CR71C106KA64L	MuRata
C10	1	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0402	0402	EMK105BJ105KVHF	Taiyo Yuden
C15, C16, C17, C18, C19, C20, C21, C22	8	22uF	CAP, CERM, 22 uF, 25 V, +/- 20%, X7R, 1210	1210	TMK325B7226MM-TR	Taiyo Yuden
C34, C37	2	0.01uF	CAP, CERM, 0.01 uF, 16 V, +/- 10%, X7R, 0402	0402	520L103KT16T	AT Ceramics
D2	1	Green	LED, Green, SMD	LED_0805	LTST-C170KGKT	Lite-On
D3	1	Red	LED, Red, SMD	Red 0805 LED	LTST-C170KRKT	Lite-On
H1, H2	2		Small nylon hex nut, 0.10 thick with a 0.250 outside diameter and a 4-40 threading	Hex Nut,4-40 Thread, 250" Head Dia	9605	Keystone
H3, H4	2		HEX STANDOFF 4-40 NYLON 3/4"	HEX STANDOFF 4-40 NYLON 3/4"	4804	Keystone
J1, J2, J15, J18	4		CONN TERM BLOCK 2.54MM 3POS PCB	HDR3	OSTVN03A150	On Shore Technology
J3, J5, J7, J8, J9, J10, J11, J12, J13, J14, J16, J17, J19, J20, J27, J28, J29, J30, J31, J36, J37	21		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec
J4, J6	2		Header, 100mil, 3x1, Gold, TH	3x1 Header	TSW-103-07-G-S	Samtec

Table 7-2. PCM6240Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
J32, J34	2		Header, 100mil, 1pos, Gold, TH	Testpoint	TSW-101-07-G-S	Samtec
J33	1		Header, 100mil, 4x2, Gold, TH	4x2 Header	TSW-104-07-G-D	Samtec
J35	1		Connector, Header, High Speed, 20 pairs, SMT	QTE-020-01-X-D-A	QTE-020-01-L-D-A	Samtec
J38	1		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
K1	1		Relay, SPST-NO (1 Form A), 4 A, SMD	6.3x4.4mm	G3VM-31HR(TR05)	Omron Electronic Components
L1	1	2.2uH	Inductor, Shielded, Metal Composite, 2.2 µH, 2.2 A, 0.1 ohm, SMD	2x1.6mm	LPWI201610H2R2T	Littelfuse
LBL1	1		Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	PCB Label 0.650 x 0.200 inch	THT-14-423-10	Brady
MK1	1		Microphone, Condenser, Analog, Omnidirectional, -42DB, TH	6mm DIA	POM-2242P-C33-R	PUI Audio
R1, R2, R3, R4	4	1.1k	RES, 1.1 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K10JNEA	Vishay-Dale
R5, R6, R7, R8, R34, R35, R36, R37	8	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
R9	1	11.8k	RES, 11.8 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040211K8FKED	Vishay-Dale
R10	1	3.74k	RES, 3.74 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04023K74FKED	Vishay-Dale
R12, R14, R23	3	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic
R15, R16, R21	3	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R25	1	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R26	1	866	RES, 866, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603866RFKEA	Vishay-Dale
R32	1	442	RES, 442, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603442RFKEA	Vishay-Dale

Table 7-2. PCM6240Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R33	1	330	RES, 330, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402330RJNED	Vishay-Dale
SH1, SH2, SH3, SH4, SH5, SH6, SH7, SH8, SH9, SH10, SH11, SH12, SH13, SH14, SH15, SH16, SH17, SH18, SH23, SH24, SH25, SH26	22	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
SW1	1		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
SW2	1		Switch, DPDT, 0.15 A, 30 VDC, TH	9.65x9.65mm	76STD01T	Grayhill
TP14, TP21	2		Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone
U1	1		Automotive, 4-Channel Audio ADCs With Integrated Microphone Bias and Input Diagnostics, RTV0032T (WQFN-32)	RTV0032T	PCM6240QRTVRQ1	Texas Instruments
U3	1		EEPROM, 512KBIT, 400KHZ, 8TSSOP	TSSOP-8	24LC512-I/ST	Microchip
U4	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments
U5	1		Automotive-Grade 2-A, High-Accuracy, Low-Noise, LDO Voltage Regulator, RGR0020A (VQFN-20)	RGR0020A	TPS7A5201QRGRRQ1	Texas Instruments
C23, C24, C25, C26	0	22uF	CAP, CERM, 22 uF, 25 V, +/- 20%, X7R, 1210	1210	TMK325B7226MM-TR	Taiyo Yuden
C27	0	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C28	0	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0402	0402	EMK105BJ105KVHF	Taiyo Yuden
C29	0	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C30	0	10uF	CAP, CERM, 10 uF, 25 V, +/- 20%, X5R, 0603	0603	C1608X5R1E106M080AC	TDK

Table 7-2. PCM6240Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C31	0	1600pF	CAP, CERM, 1600 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H162JA01D	MuRata
D1	0	20V	Diode, Schottky, 20 V, 1 A, SOD-123F	SOD-123F	PMEG2010AEH,115	Nexperia
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
J21, J24	0		CONN TERM BLOCK 2.54MM 3POS PCB	HDR3	OSTVN03A150	On Shore Technology
J22, J23, J25, J26	0		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec
L2	0	3.3uH	Inductor, Shielded Drum Core, Ferrite, 3.3 µH, 1.3 A, 0.145 ohm, SMD	LPS3314	LPS3314-332MRB	Coilcraft
R11, R13	0	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic
R17, R18, R19, R20, R22, R24, R27, R29	0	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R28	0	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale
R30	0	130k	RES, 130 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402130KFKED	Vishay-Dale
R31	0	18.2k	RES, 18.2 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040218K2FKED	Vishay-Dale
R38, R39, R40, R41, R42, R43, R44, R45	0	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
SH19, SH20, SH21, SH22	0	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP15, TP16, TP17, TP18, TP19, TP20, TP22, TP23, TP24, TP25	0		Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone
TP13, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37	0		Test Point, Miniature, Green, TH	Green Miniature Testpoint	5116	Keystone

Table 7-2. PCM6240Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
U2	0		18.5 V, 2 A, 650 KHz / 1.2 MHz Step-Up DC-DC Converter with Forced PWM Mode, 2.3 to 6 V, -40 to 85 degC, 8-pin SOP (PW8), Green (RoHS & no Sb/Br)	PW0008A	TPS61085PWR	Texas Instruments

7.3 PCM6360Q1EVM Schematic and Bill of Materials (BOM)

7.3.1 PCM6360Q1EVM Schematic

Figure 7-5 and Figure 7-6 illustrate the schematics for the PCM6360Q1EVM.

PCM6360DC102B
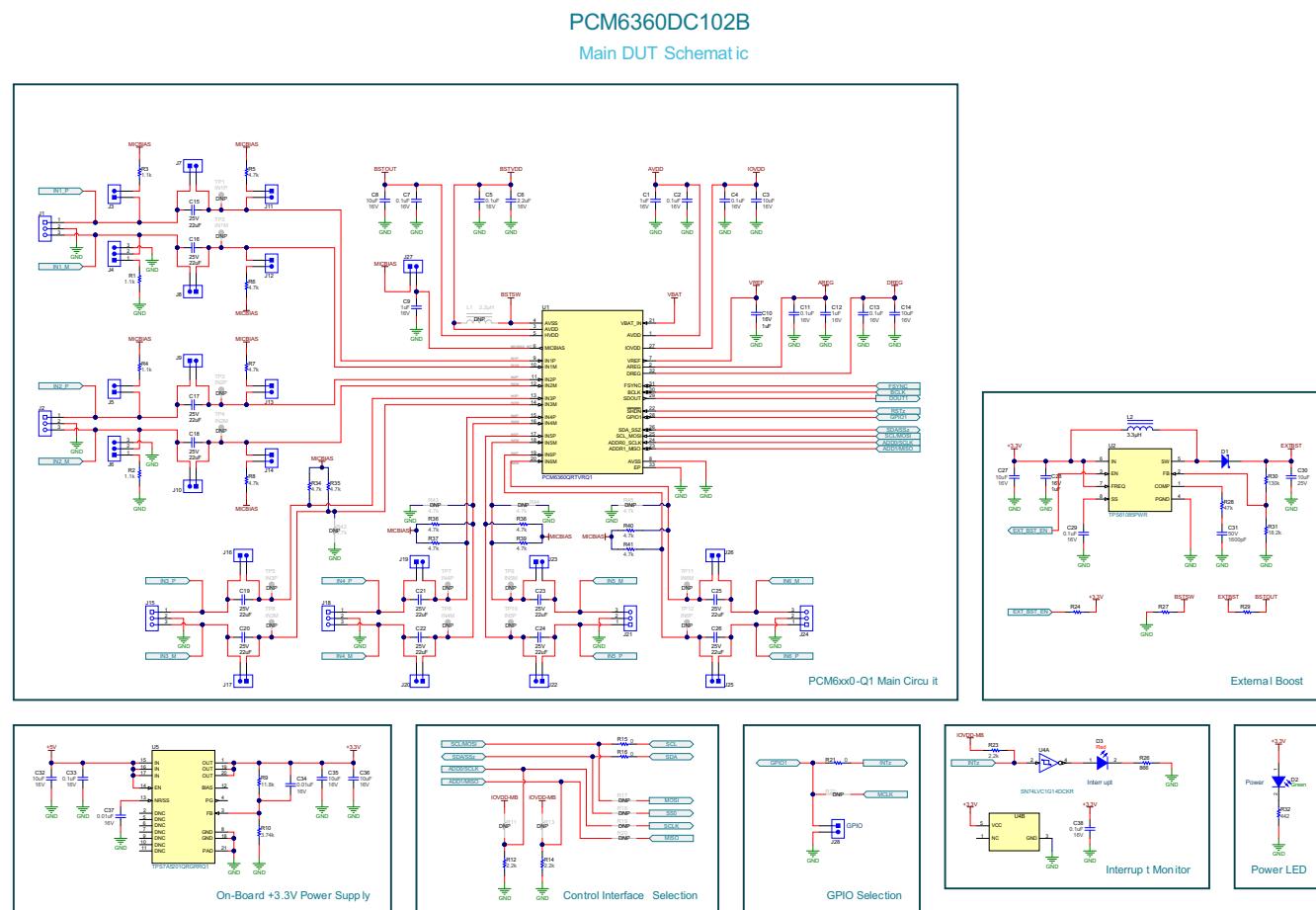
Main DUT Schematic

Figure 7-5. PCM6360Q1EVM-PDK Main DUT Schematics

PCM6260-Q1 Evaluation BoardB

## Connectors and EEPROM
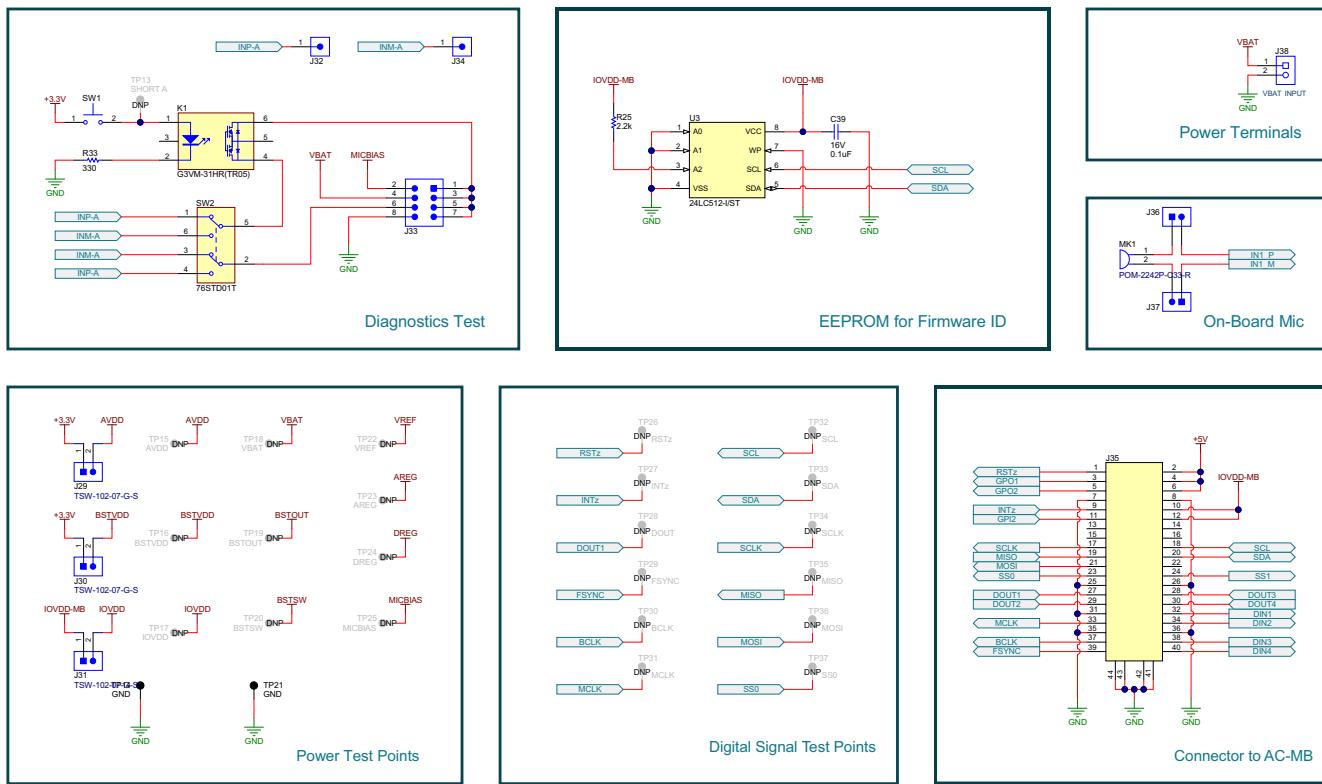
Figure 7-6. PCM6360Q1EVM-PDK Connectors and Test Points Schematics

7.3.2 PCM6360Q1EVM Bill of Materials

Table 7-3 lists the BOM for the PCM6360Q1EVM.

Table 7-3. PCM6360Q1EVM Bill of Materials

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
!PCB1	1		Printed Circuit Board		DC102	Any
!PCB2	1		DC058 - AC-MB Circuit Board, Kitting item 6628863		AC-MB	Texas Instruments
C1, C9, C12	3	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107B7105KA-T	Taiyo Yuden
C2, C4, C5, C7, C11, C13, C29, C33, C38, C39	10	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C3, C14, C27, C32, C35, C36	6	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C6	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0805	0805	GRM21BR71C225KA12L	MuRata
C8	1	10uF	CAP, CERM, 10 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206	GCM31CR71C106KA64L	MuRata
C10, C28	2	1uF	CAP, CERM, 1 uF, 16 V, +/- 10%, X5R, 0402	0402	EMK105BJ105KVHF	Taiyo Yuden
C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26	12	22uF	CAP, CERM, 22 uF, 25 V, +/- 20%, X7R, 1210	1210	TMK325B7226MM-TR	Taiyo Yuden
C30	1	10uF	CAP, CERM, 10 uF, 25 V, +/- 20%, X5R, 0603	0603	C1608X5R1E106M080AC	TDK
C31	1	1600pF	CAP, CERM, 1600 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H162JA01D	MuRata
C34, C37	2	0.01uF	CAP, CERM, 0.01 uF, 16 V, +/- 10%, X7R, 0402	0402	520L103KT16T	AT Ceramics
D1	1	20V	Diode, Schottky, 20 V, 1 A, SOD-123F	SOD-123F	PMEG2010AEH,115	Nexperia
D2	1	Green	LED, Green, SMD	LED_0805	LTST-C170KGKT	Lite-On
D3	1	Red	LED, Red, SMD	Red 0805 LED	LTST-C170KRKT	Lite-On
H1, H2	2		Small nylon hex nut, 0.10 thick with a 0.250 outside diameter and a 4-40 threading	Hex Nut,4-40 Thread, 250" Head Dia	9605	Keystone
H3, H4	2		HEX STANDOFF 4-40 NYLON 3/4"	HEX STANDOFF 4-40 NYLON 3/4"	4804	Keystone

Table 7-3. PCM6360Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
J1, J2, J15, J18, J21, J24	6		CONN TERM BLOCK 2.54MM 3POS PCB	HDR3	OSTVN03A150	On Shore Technology
J3, J5, J7, J8, J9, J10, J11, J12, J13, J14, J16, J17, J19, J20, J22, J23, J25, J26, J27, J28, J29, J30, J31, J36, J37	25		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec
J4, J6	2		Header, 100mil, 3x1, Gold, TH	3x1 Header	TSW-103-07-G-S	Samtec
J32, J34	2		Header, 100mil, 1pos, Gold, TH	Testpoint	TSW-101-07-G-S	Samtec
J33	1		Header, 100mil, 4x2, Gold, TH	4x2 Header	TSW-104-07-G-D	Samtec
J35	1		Connector, Header, High Speed, 20 pairs, SMT	QTE-020-01-X-D-A	QTE-020-01-L-D-A	Samtec
J38	1		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
K1	1		Relay, SPST-NO (1 Form A), 4 A, SMD	6.3x4.4mm	G3VM-31HR(TR05)	Omron Electronic Components
L2	1	3.3uH	Inductor, Shielded Drum Core, Ferrite, 3.3 μH, 1.3 A, 0.145 ohm, SMD	LPS3314	LPS3314-332MRB	Coilcraft
LBL1	1		Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	PCB Label 0.650 x 0.200 inch	THT-14-423-10	Brady
MK1	1		Microphone, Condenser, Analog, Omnidirectional, -42DB, TH	6mm DIA	POM-2242P-C33-R	PUI Audio
R1, R2, R3, R4	4	1.1k	RES, 1.1 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K10JNEA	Vishay-Dale
R5, R6, R7, R8, R34, R35, R36, R37, R38, R39, R40, R41	12	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
R9	1	11.8k	RES, 11.8 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040211K8FKED	Vishay-Dale
R10	1	3.74k	RES, 3.74 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04023K74FKED	Vishay-Dale
R12, R14, R23	3	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic

Table 7-3. PCM6360Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R15, R16, R21, R24, R27, R29	6	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R25	1	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R26	1	866	RES, 866, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603866RFKEA	Vishay-Dale
R28	1	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale
R30	1	130k	RES, 130 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402130KFKED	Vishay-Dale
R31	1	18.2k	RES, 18.2 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040218K2FKED	Vishay-Dale
R32	1	442	RES, 442, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603442RFKEA	Vishay-Dale
R33	1	330	RES, 330, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402330RJNED	Vishay-Dale
SH1, SH2, SH3, SH4, SH5, SH6, SH7, SH8, SH9, SH10, SH11, SH12, SH13, SH14, SH15, SH16, SH17, SH18, SH19, SH20, SH21, SH22, SH23, SH24, SH25, SH26	26	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
SW1	1		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
SW2	1		Switch, DPDT, 0.15 A, 30 VDC, TH	9.65x9.65mm	76STD01T	Grayhill
TP14, TP21	2		Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone
U1	1		Automotive, 4-Channel and 6-Channel Audio ADCs with Integrated Microphone Bias and Input Diagnostics, RTV0032T (WQFN-32)	RTV0032T	PCM6360QRTVRQ1	Texas Instruments

Table 7-3. PCM6360Q1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
U2	1		18.5 V, 2 A, 650 KHz / 1.2 MHz Step-Up DC-DC Converter with Forced PWM Mode, 2.3 to 6 V, -40 to 85 degC, 8-pin SOP (PW8), Green (RoHS & no Sb/Br)	PW0008A	TPS61085PWR	Texas Instruments
U3	1		EEPROM, 512KBIT, 400KHZ, 8TSSOP	TSSOP-8	24LC512-I/ST	Microchip
U4	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments
U5	1		Automotive-Grade 2-A, High-Accuracy, Low-Noise, LDO Voltage Regulator, RGR0020A (VQFN-20)	RGR0020A	TPS7A5201QRGRRQ1	Texas Instruments
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
L1	0	2.2uH	Inductor, Shielded, Metal Composite, 2.2 µH, 2.2 A, 0.1 ohm, SMD	2x1.6mm	LPWI201610H2R2T	Littelfuse
R11, R13	0	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ222V	Panasonic
R17, R18, R19, R20, R22	0	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R42, R43, R44, R45	0	4.7k	RES, 4.7 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEYJ472V	Panasonic
TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP15, TP16, TP17, TP18, TP19, TP20, TP22, TP23, TP24, TP25	0		Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone
TP13, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37	0		Test Point, Miniature, Green, TH	Green Miniature Testpoint	5116	Keystone

7.4 AC-MB Schematic and Bill of Materials

This section provides the schematics and BOM for the AC-MB.

7.4.1 AC-MB Schematic

Figure 7-7 and Figure 7-8 illustrate the schematics for the AC-MB mother board included in the PCM6xx0Q1EVM-PDK.

Audio Converters Motherboard DC058 Rev A
XMOS, USB and Power
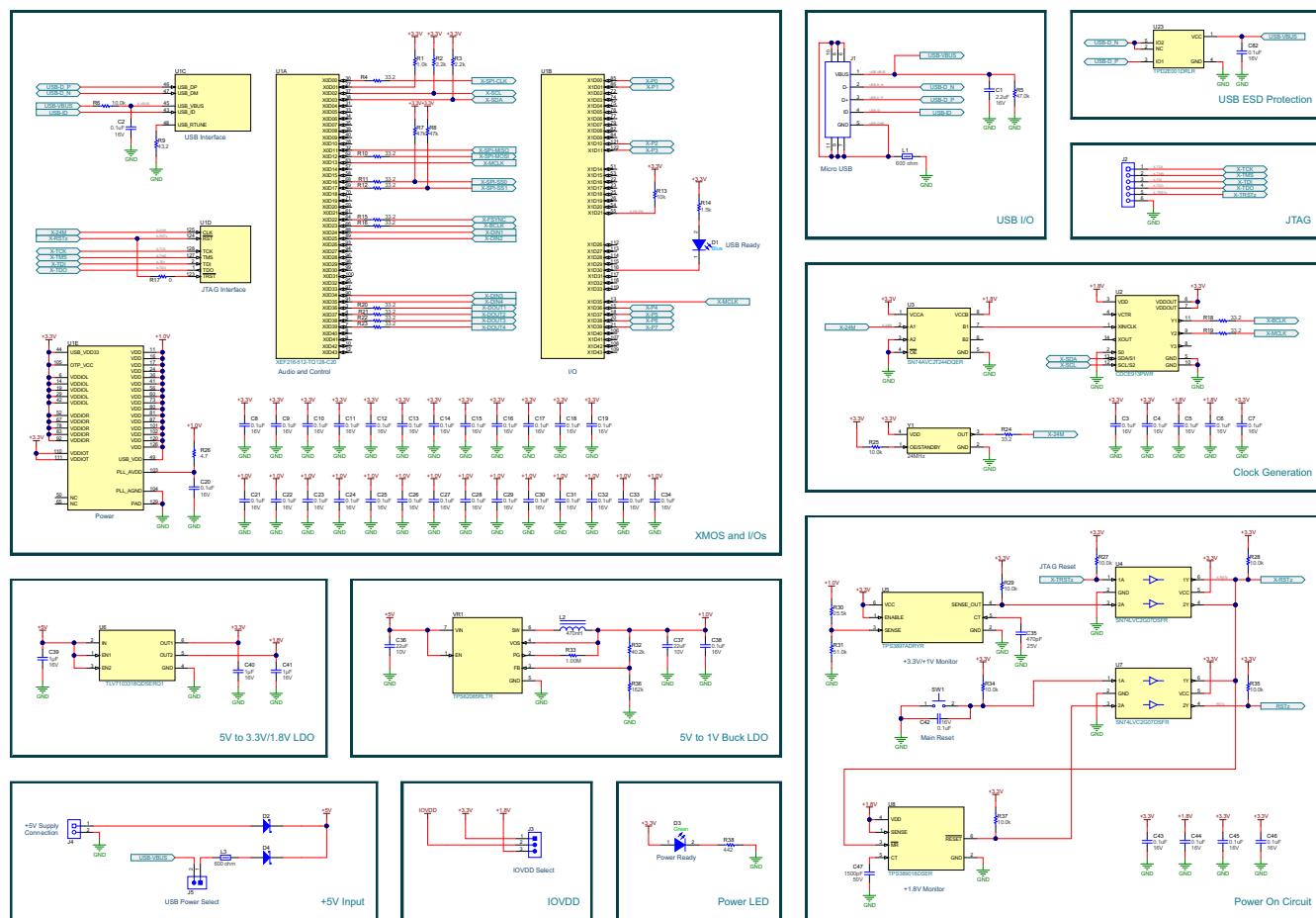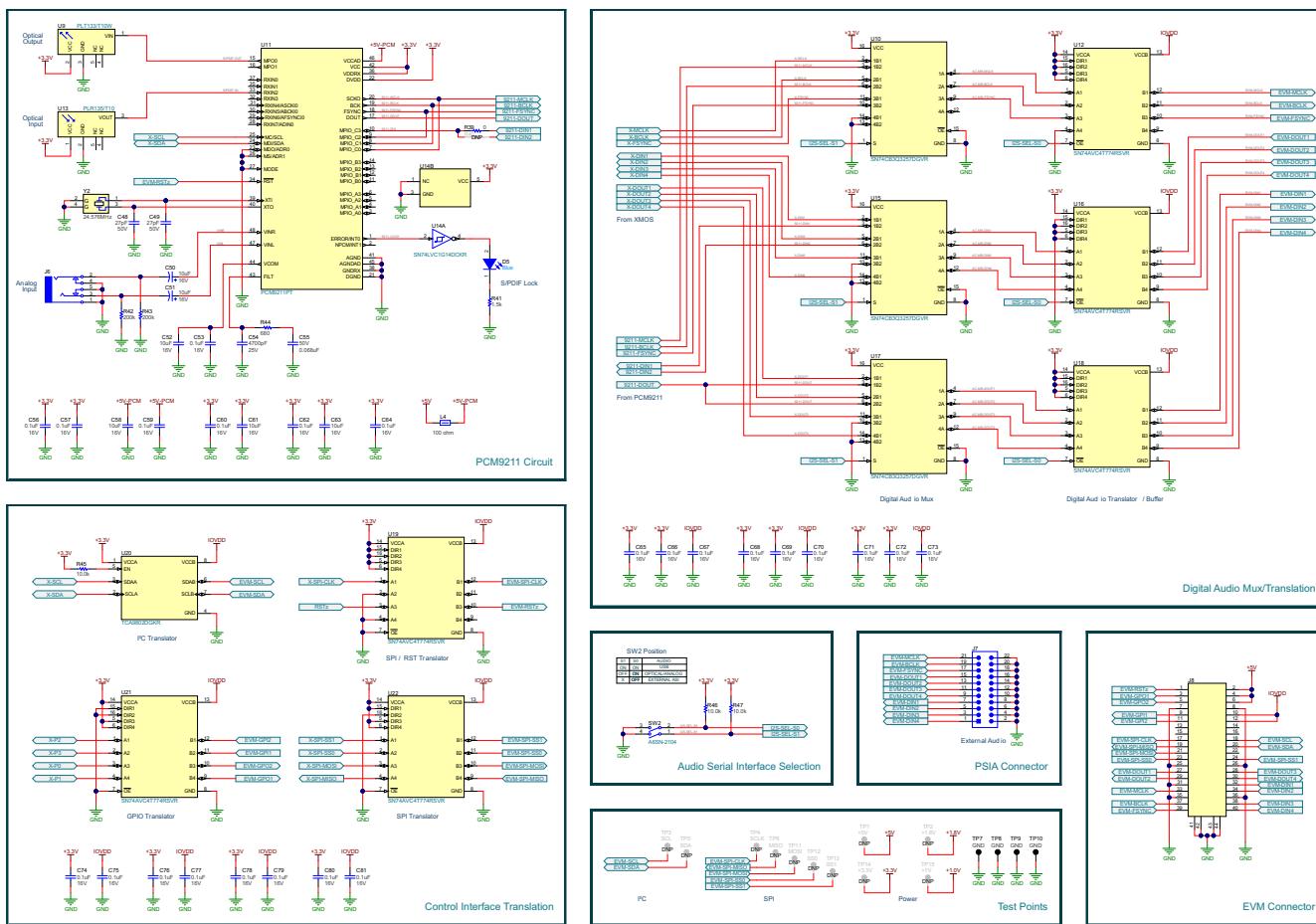
Figure 7-7. AC-MB Schematics Page 1

Audio Converters Motherboard DC058 Rev A
PCM9211, Audio Interface and Test Points

Figure 7-8. AC-MB Schematics Page 2

7.4.2 AC-MB Bill of Materials

Table 7-4 lists the BOM for the AC-MB.

Table 7-4. AC-MB Bill of Materials

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
!PCB1	1		Printed Circuit Board		DC058	Any
C1	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107BB7225KA-T	Taiyo Yuden
C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C38, C42, C43, C44, C45, C46, C53, C56, C57, C59, C60, C62, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82	64	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205037	Wurth Elektronik
C35	1	470pF	CAP, CERM, 470 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	06035A471JAT2A	AVX
C36, C37	2	22uF	CAP, CERM, 22 uF, 10 V, +/- 10%, X7R, 1206	1206	LMK316AB7226KL-TR	Taiyo Yuden
C39, C40, C41	3	1uF	CAP, CERM, 1 µF, 16 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	CGA3E1X7R1C105K080AC	TDK
C47	1	1500pF	CAP, CERM, 1500 pF, 16 V, +/- 10%, X7R, 0603	0603	CGA1A2X7R1C152K030BA	TDK
C48, C49	2	27pF	CAP, CERM, 27 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	GJM1555C1H270JB01	MuRata
C50, C51	2	10uF	CAP, AL, 10 uF, 16 V, +/- 20%, SMD	D3xL5.4mm	UWX1C100MCL2GB	Nichicon
C52, C58, C61, C63	4	10uF	CAP, CERM, 10 uF, 16 V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C54	1	4700pF	CAP, CERM, 4700 pF, 16 V, +/- 10%, X7R, 0402	0402	885012205029	Wurth Elektronik
C55	1	0.068uF	CAP, CERM, 0.068 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H683K050BB	TDK
D1, D5	2	Blue	LED, Blue, SMD	LED_0603	150060BS75000	Wurth Elektronik
D2, D4	2	20V	Diode, Schottky, 20 V, 1 A, SOD-123FL	SOD-123FL	MBR120LSFT1G	ON Semiconductor
D3	1	Green	LED, Green, SMD	LED_0805	LTST-C170KGKT	Lite-On
H1, H2, H3, H4	4		Small nylon hex nut, 0.10 thick with a 0.250 outside diameter and a 4-40 threading	Hex Nut,4-40 Thread, 250" Head Dia	9605	Keystone
H5, H6	2		Thumb Nut, M3 x 0.5 Thread, 8mm Head Dia		96115A420	McMaster Carr
H7, H8, H9, H10	4		Standoff, Hex, Male/Female, 4-40, Nylon, 1/2"	Standoff, Hex, Male/Female, 4-40, Nylon, 1/2"	4802	Keystone
H11, H12	2		Standoff, Male/Male Thread, 5.15 mm, M3 x 0.5	Standoff	SO-0515-02-02-01	Samtec
J1	1		Connector, Receptacle, Micro-USB Type AB, R/A, Bottom Mount SMT	Connector, USB Micro AB	DX4R205JJAR1800	JAE Electronics
J2	1		Receptacle, 50mil, 6x1, Gold, R/A, TH	6x1 Receptacle	LPPB061NGCN-RC	Sullins Connector Solutions
J3	1		Header, 100mil, 3x1, Gold, TH	3x1 Header	TSW-103-07-G-S	Samtec
J4	1		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
J5	1		Header, 2.54 mm, 2x1, Tin, TH	Header, 2.54 mm, 2x1, TH	TSW-102-07-T-S	Samtec

Table 7-4. AC-MB Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
J6	1		Audio Jack, 3.5mm, Stereo, R/A, SMT	Phone Jack, 6x5x17mm	35RASMT4BHNTRX	Switchcraft
J7	1		Header, 2.54 mm, 11x2, Gold, TH	Header, 11x2, 2.54mm, TH	TSW-111-07-G-D	Samtec
J8	1		Connector, SMT, Receptacle, High Speed, 20 pairs	QSE-020-01-X-D-A	QSE-020-01-L-D-A	Samtec
L1, L3	2	600 ohm	Ferrite Bead, 600 ohm @ 100 MHz, 2 A, 0805	0805	MPZ2012S601AT000	TDK
L2	1	470nH	Inductor, Shielded, Ferrite, 470 nH, 2.35 A, 0.0528 ohm, AEC-Q200 Grade 1, SMD	2.0x1.6x1.0mm	SRN2010TA-R47Y	Bourns
L4	1	100 ohm	Ferrite Bead, 100 ohm @ 100 MHz, 1 A, 0603	0603	MPZ1608D101BTD25	TDK
R1	1	1.0k	RES, 1.0 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K00JNED	Vishay-Dale
R2, R3	2	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R4, R10, R11, R12, R15, R16, R18, R19, R20, R21, R22, R23, R24	13	33.2	RES, 33.2, 1%, 0.05 W, 0201	0201	RC0201FR-0733R2L	Yageo America
R5	1	47.0k	RES, 47.0 k, 1%, 0.0625 W, 0402	0402	RC0402FR-0747KL	Yageo America
R6	1	10.0k	RES, 10.0 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF1002X	Panasonic
R7, R8	2	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale
R9	1	43.2	RES, 43.2, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040243R2FKED	Vishay-Dale
R13	1	10k	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0JNED	Vishay-Dale
R14, R41	2	1.5k	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K50JNEA	Vishay-Dale
R17	1	0	RES, 0, 5%, 0.05 W, AEC-Q200 Grade 1, 0201	0201	ERJ-1GE0R00C	Panasonic
R25, R27, R28, R29, R34, R35, R37, R45, R46, R47	10	10.0k	RES, 10.0 k, 1%, 0.05 W, 0201	0201	CRCW020110K0FKED	Vishay-Dale
R26	1	4.7	RES, 4.7, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06034R70JNEA	Vishay-Dale
R30	1	25.5k	RES, 25.5 k, 1%, 0.05 W, 0201	0201	RC0201FR-0725K5L	Yageo America
R31	1	51.0k	RES, 51.0 k, 1%, 0.05 W, 0201	0201	RC0201FR-0751KL	Yageo America
R32	1	40.2k	RES, 40.2 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040240K2FKED	Vishay-Dale
R33	1	1.00Meg	RES, 1.00 M, 1%, 0.125 W, AEC-Q200 Grade 0, 0805	0805	CRCW08051M00FKEA	Vishay-Dale
R36	1	162k	RES, 162 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402162KFKED	Vishay-Dale
R38	1	442	RES, 442, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603442RFKEA	Vishay-Dale
R39	1	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R42, R43	2	200k	RES, 200 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402200KJNED	Vishay-Dale
R44	1	680	RES, 680, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402680RJNED	Vishay-Dale
SH1, SH2	2	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
SW1	1		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
SW2	1		Switch, Slide, 2 SPST, Off-On, 0.025 A, 24 VDC, SMT	7x7.5mm	A6SN-2104	Omron Electronic Components
TP7, TP8, TP9, TP10	4		Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone
U1	1		IC MCU 512KB RAM, 128TQFP	TQFP-128	XEF216-512-TQ128-C20	XMOS semiconductor
U2	1		Programmable 1-PLL VCXO Clock Synthesizer with 2.5-V or 3.3-V LVCMOS Outputs, PW0014A (TSSOP-14)	PW0014A	CDCE913PWR	Texas Instruments

Table 7-4. AC-MB Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
U3	1		Dual-Bit Dual-Supply Bus Transceiver, DQE0008A, LARGE T&R	DQE0008A	SN74AVC2T244DQER	Texas Instruments
U4, U7	2		Enhanced Product Dual Buffer/Driver with Open-Drain Output, DCK0006A (SOT-SC70-6)	DSF0006A	SN74LVC2G07DSFR	Texas Instruments
U5	1		Single-Channel Ultra-Small Adjustable Supervisory Circuit With Active-High Open-Drain Output, DRY0006A (USON-6)	DRY0006A	TPS3897ADRYR	Texas Instruments
U6	1		Automotive Catalog, Dual, 200mA, Low-IQ Low-Dropout Regulator for Portable Devices, DSE0006A (WSON-6)	DSE0006A	TLV7103318QDSERQ1	Texas Instruments
U8	1		Low-Quiescent-Current 1% Accurate Supervisor With Programmable Delay, DSE0006A (WSON-6)	DSE0006A	TPS389018DSER	Texas Instruments
U9	1		Photolink- Fiber Optic Transmitter, TH	13.5x10x9.7mm	PLT133/T10W	Everlight
U10, U15, U17	3		4-Bit One-of-2 FET Multiplexer/Demultiplexer 2.5-V/3.3-V Low-Voltage, High-Bandwidth Bus Switch, DGV0016A (TVSOP-16)	DGV0016A	SN74CB3Q3257DGVR	Texas Instruments
U11	1		216 kHz Digital Audio Interface Transceiver (DIX) with Stereo ADC and Routing, PCM, S / PDIF, ADC, 4.5 - 5.5V for Analog, 2.9 - 3.6V for DIX, -40 to 85 degC, 48-Pin LQFP (PT), Green (RoHS & no Sb/Br)	PT0048A	PCM9211PT	Texas Instruments
U12, U16, U18, U19, U21, U22	6		4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs, RSV0016A (UQFN-16)	RSV0016A	SN74AVC4T774RSVR	Texas Instruments
U13	1		Photolink- Fiber Optic Receiver, TH	13.5x10x9.7mm	PLR135/T10	Everlight
U14	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments
U20	1		Level-Translating I2C Bus Buffer/Repeater, DGK0008A (VSSOP-8)	DGK0008A	TCA9802DGKR	Texas Instruments
U23	1		Low-Capacitance + / - 15 kV ESD-Protection Array for High-Speed Data Interfaces, 2 Channels, -40 to +85 degC, 5-pin SOT (DRL), Green (RoHS & no Sb/Br)	DRL0005A	TPD2E001DRLR	Texas Instruments
VR1	1		3-A Step-Down Converter with DCS-Control and Hiccup Short Circuit Protection in 2x2 HotRod Package, RLT0007A (VSON-HR-7)	RLT0007A	TPS62085RLTR	Texas Instruments
Y1	1		OSC, 24 MHz, 2.25 - 3.63 V, SMD	2x1.6mm	ASTMLPA-24.000MHZ-EJ-E-T	Abracon Corporation
Y2	1		Crystal, 24.576 MHz, 10pF, SMD	2.5x0.5x2.0mm	ABM10-24.576MHZ-E20-T	Abracon Corporation
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
R40	0	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
TP1, TP2, TP14, TP15	0		Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone
TP3, TP4, TP5, TP6, TP11, TP12, TP13	0		Test Point, Miniature, Green, TH	Green Miniature Testpoint	5116	Keystone

8 Matlab Audio Capture Example

The driver for the AC-MB can be controlled with Matlab, allowing for some automated testing. The following code demonstrates capturing audio from the AC-MB with Matlab. This example requires the Audio Toolbox™.

```
        if ismac % macOS driver
 deviceReader = audioDeviceReader( 'Device', 'TI USB Audio 2.0',…
 'SampleRate', 48000, …
 'NumChannels', 8 ,…
'BitDepth', '32-bit float',…
'OutputDataType','double');
 elseif ispc % windows driver
 devoiceReader = audioDeviceReader( 'Driver','ASIO', 'Device', 'Texas Instruments USB Audio ...',…
 'SampleRate', 48000, …
 'NumChannels', 8 ,…
 'BitDepth', '32-bit float',…
 'OutputDataType','double');
end
setup(deviceReader);% Setup the device reader
% Play out a file through PC and capture in the EVM
info = audioinfo( infile_name );% Read audiophile infile_name
fileReader = dsp.AudioFileReader( infile_name );% Create fileReader object
fileInfo   = audioinfo(infile_name);% Copy info from infile_name
fileWriter = dsp.AudioFileWriter( outfile_name, 'SampleRate', deviceReader.SampleRate, 'DataType',
'int32');% Create fileWriter object
audioOut = audioDeviceWriter('SampleRate', fileInfo.SampleRate);% Setup audio playback
setup( audioOut, zeros(deviceReader.SamplesPerFrame, fileInfo.NumChannels) );
while ~isDone(fileReader)% For each block played out, record the block from EVM
audioToPlay = fileReader();% Read a chunk of audio from infile_name
audioOut(audioToPlay);% Play a chance of audio
[audioRead, numOverrun] = deviceReader();% Grab a chunk of audio from EVM
fileWriter(audioRead);% Write the chunk of audio from EVM to a file
end
release(audioOut);% Close all objects
release(fileReader);
release(fileWriter);
release(deviceReader);
```

9 Revision History

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

Changes from Revision B (June 2020) to Revision C (July 2022)   **Page**

• Updated *Input Jumper Configuration* table...7

Changes from Revision A (January 2020) to Revision B (June 2020)   **Page**

Changes from Revision * (January 2020) to Revision A (Janaury 2020)   **Page**

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