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How to Set the TSC/AIC EVM to Record and Playback Audio or Other Sound Through a PC

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ABSTRACT

Record and playback audio, sound, or voice on a TI touch screen controller (TSC) or audio codec (AIC) EVM system by means of the associated software running on a PC system. The PC and EVM are connected using a USB cable. This application report gives an example to demonstrate how to do this through a Windows XP™ PC system. The block diagram and connection are shown in Figure 1.
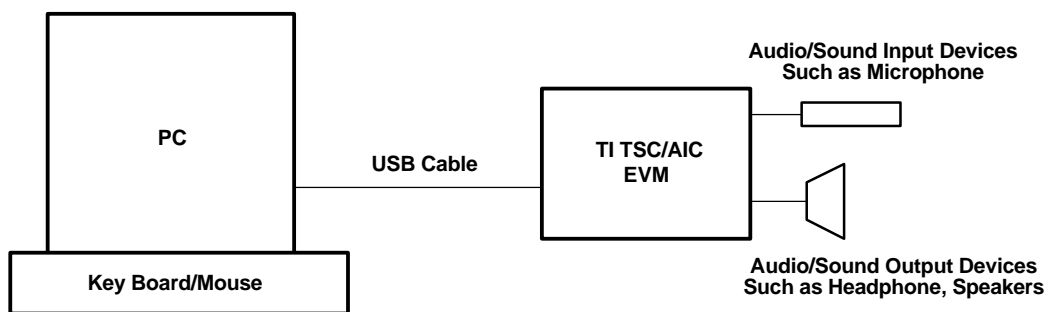

Figure 1. Block Diagram

TI has several evaluation modules (EVMs) that can be connected to a PC system and controlled through the PC software. Such EVMs include the TSC2301EVM, TSC2100EVM, TSC2101EVM, TLV320AIC26EVM, and the TLV320AIC28EVM.

Follow the relevant User's Guide for the specific TSC or AIC device of interest to set up and install the hardware and software. After successful software installation, connect the USB cable between the PC and the TI DSP and check the *Sounds* and *Audio Devices* for the installed EVM from the PC Control Panel. The properties for audio sound recording and playback should be similar that shown in Figure 2.
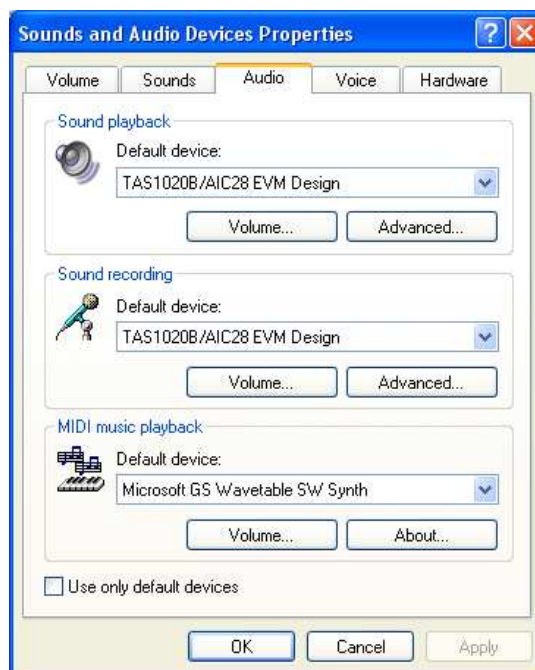
Figure 2. Sounds and Audio Devices Properties

Start the EVM software and view the first tab of the EVM software GUI. For example, start the TLV320AIC28 (or AIC28 for short) EVM software, and the GUI window shown in Figure 3 appears.
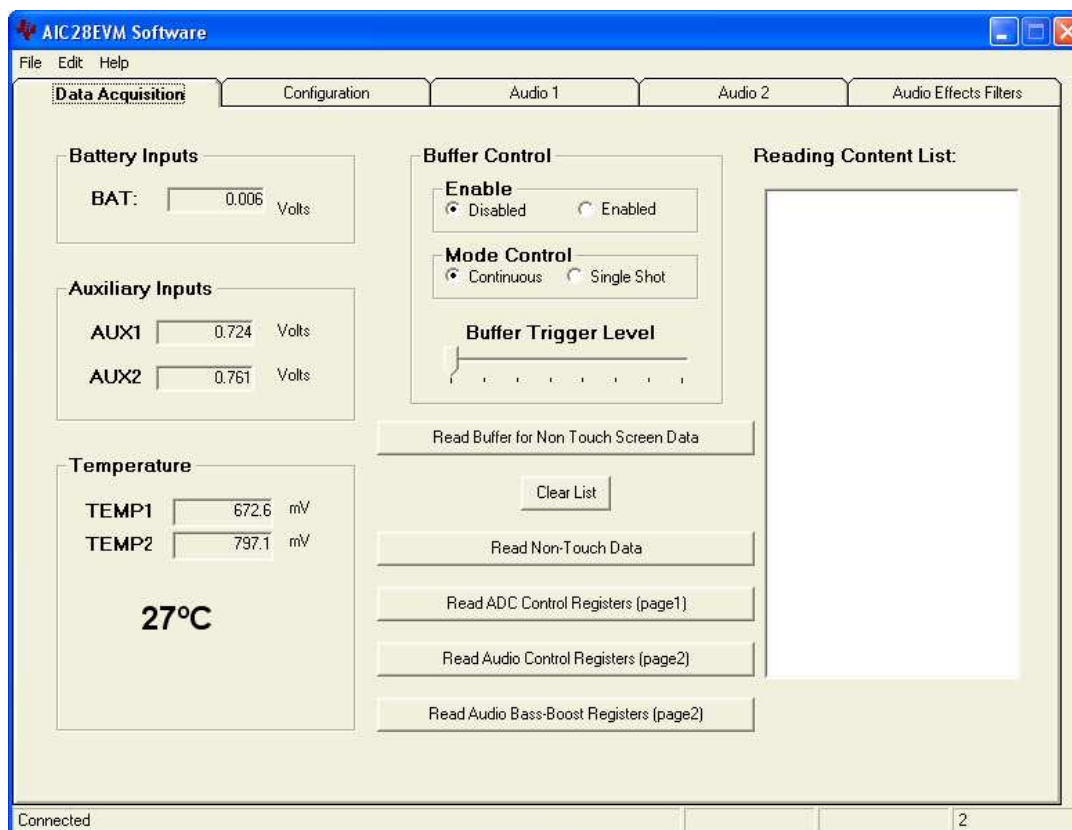

Figure 3. GUI Window: Data Acquisition Tab

On the software GUI window, click on the Audio 1 tab to see the audio control tab options shown in Figure 4.
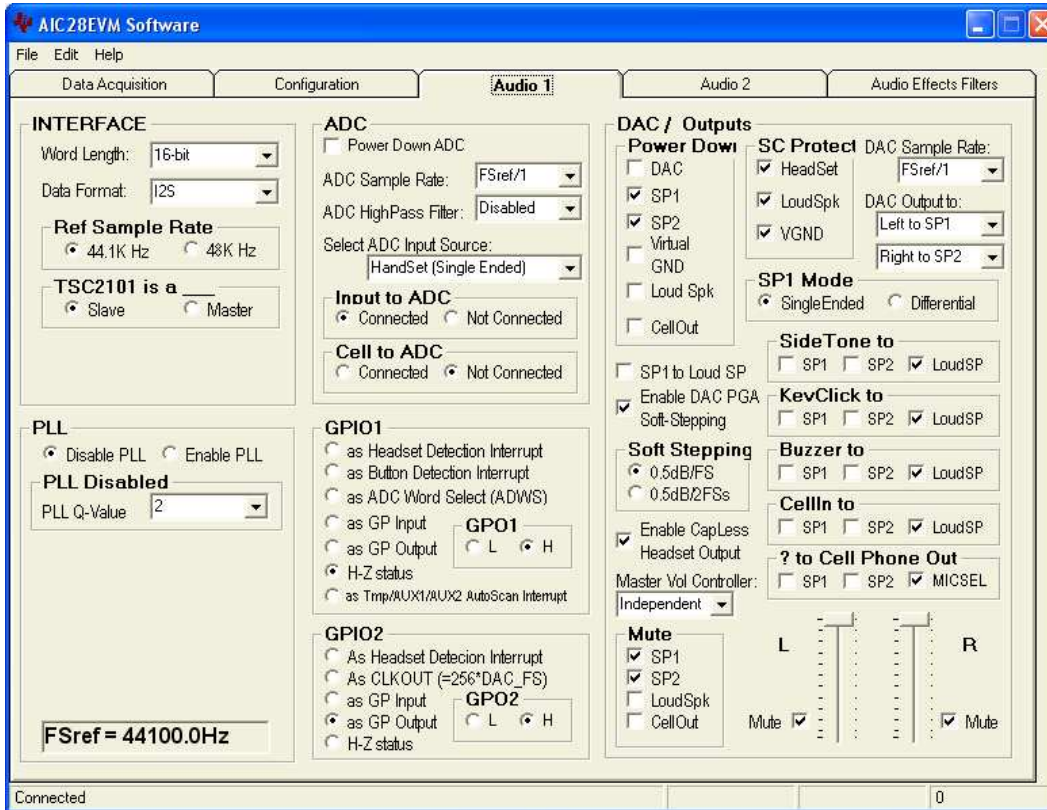

Figure 4. GUI Window: Audio 1 Tab Example

The EVM audio DAC output drives may not be powered up in many of the TSC/AIC EVM systems, giving you the option to evaluate and test different power-up sequences for best performance and pop reduction. To playback any audio on the EVM, it is necessary to power up and unmute the audio outputs. In this AIC28 EVM example, uncheck the SP1 and SP2 check boxes shown under *Power Down*; also unmute SP1, SP2, and the left and right DACs. The Audio 1 control tab should look like Figure 5.
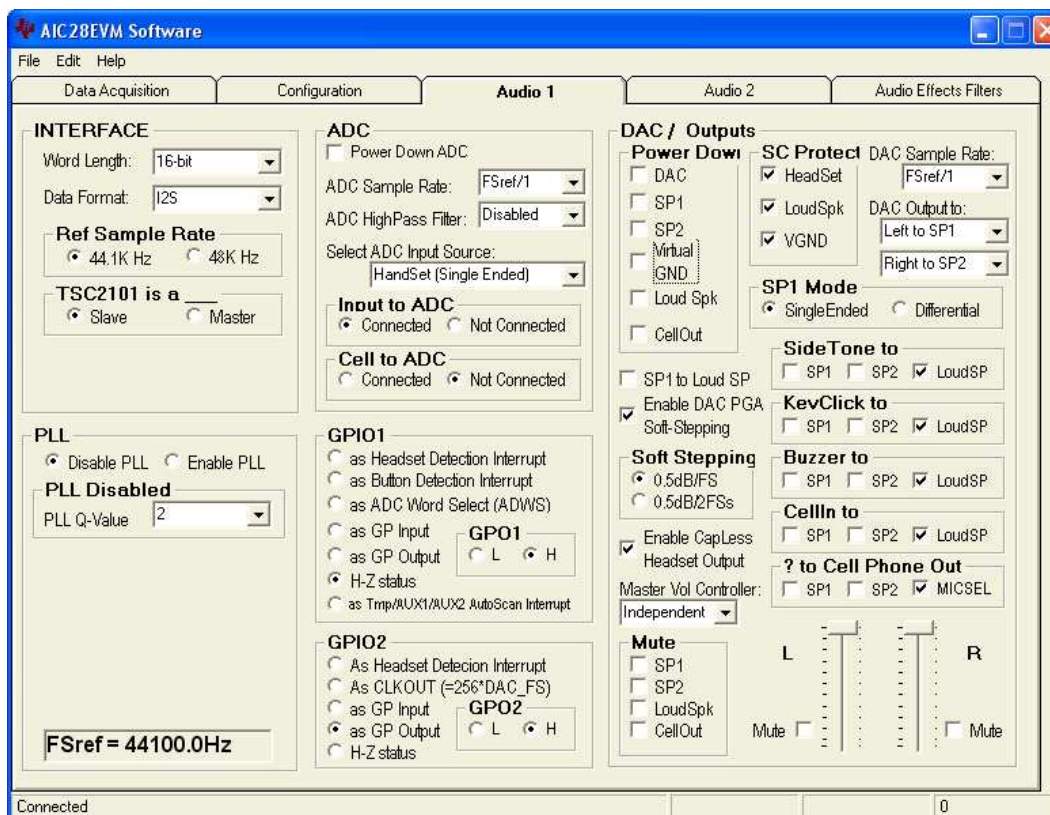
Figure 5. Audio 1 Control Tab: SP1, SP2, and DACs Unmuted

With these settings, you are ready to perform audio record and playback of the EVM using the controls of the PC.

To Record:

(1) Open a sound record utility on the PC, such as *Sound Recorder* from Windows XP as shown in Figure 6.

Figure 6. GUI Window: Sound – Sound Recorder

(2) Using the File/Properties menus, open a window for *Properties for Sound*, as shown in Figure 7.

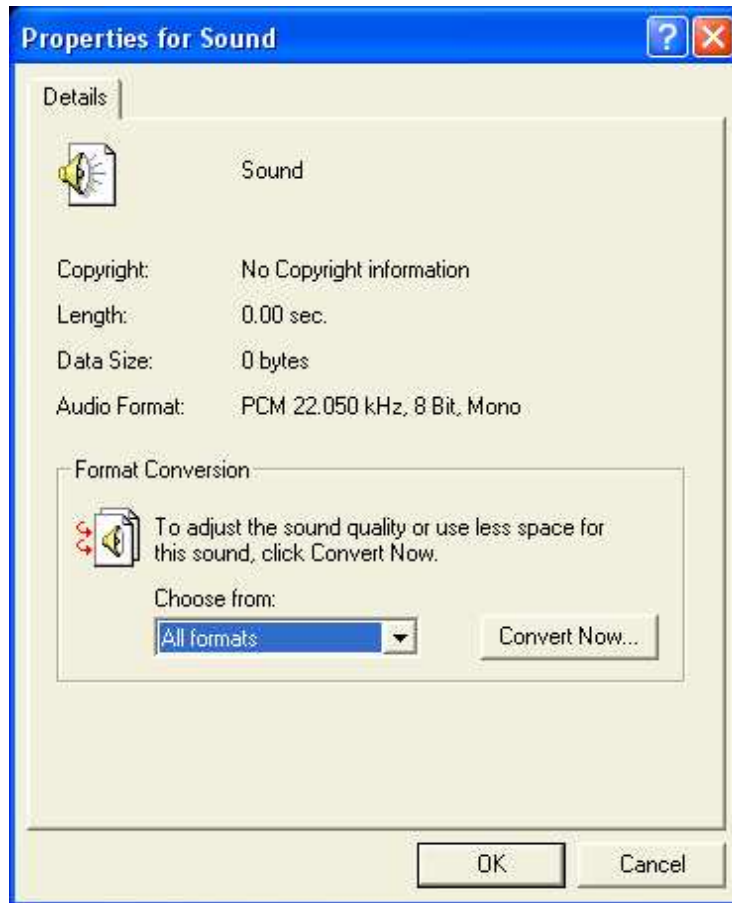**Figure 7. GUI Window: Properties for Sound**

(3) Click on the *Convert Now…* button in the Properties for Sound window, to open another window for *Sound Selection*, as shown in Figure 8.
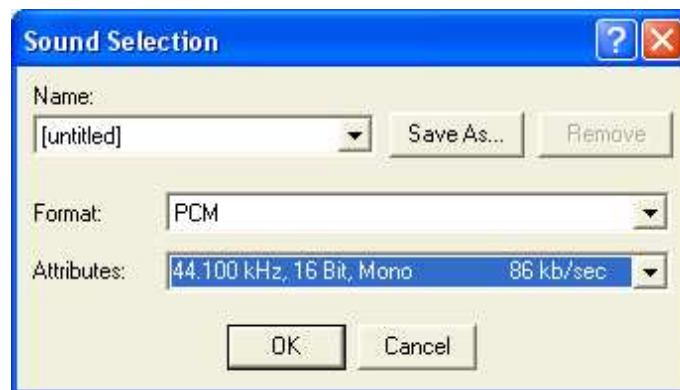

Figure 8. GUI Window: Sound Selection

(4) For mono audio ADC devices, such as TSC2100 or AIC28, set the Attributes to: 44.100 kHz, 16 bit, Mono, as shown in Figure 8. For stereo audio ADC devices, such as TSC2301, set the Attributes to: 44.100 kHz, 16 bit, Stereo.

(5) Click on the OK button to close the Sound Selection window.

(6) Click on the OK button again to close the Properties for Sound window.

(7) Click the Record button (Red dot) [●] on the Sound – Sound Recorder window to start the recording. Speak through the onboard EVM MIC, or external MIC, and verify that the sound recorder starts to record the sound, as shown in Figure 9.

Figure 9. GUI Window: Sound Recorder Session

(8) When done, click the Stop button [■] to stop recording. Figure 10 displays the Sound Recorder after a microphone recording.

Figure 10. GUI Window: Sound Recorder Session Finish

(9) Click on the Play button to play back the recorded sound.

Verify the recorded sound from the headphone (J7) connection on the (AIC28) EVM. You may also save the recorded sound to a *.wav file on the PC by choosing File/Save from the menu of the Sound Recorder. The *.wav file may be played through other software, such as the Microsoft® Windows Media Player, as described in the following section.

Playback of Recordings:

There are several ways to play back recorded audio signals, music on a CD, or other sound and audio signals.

As discussed previously, the recorded sound can be played using the PC sound recorder feature. Also, you can open the Windows Media Player from your PC, as shown in Figure 11:
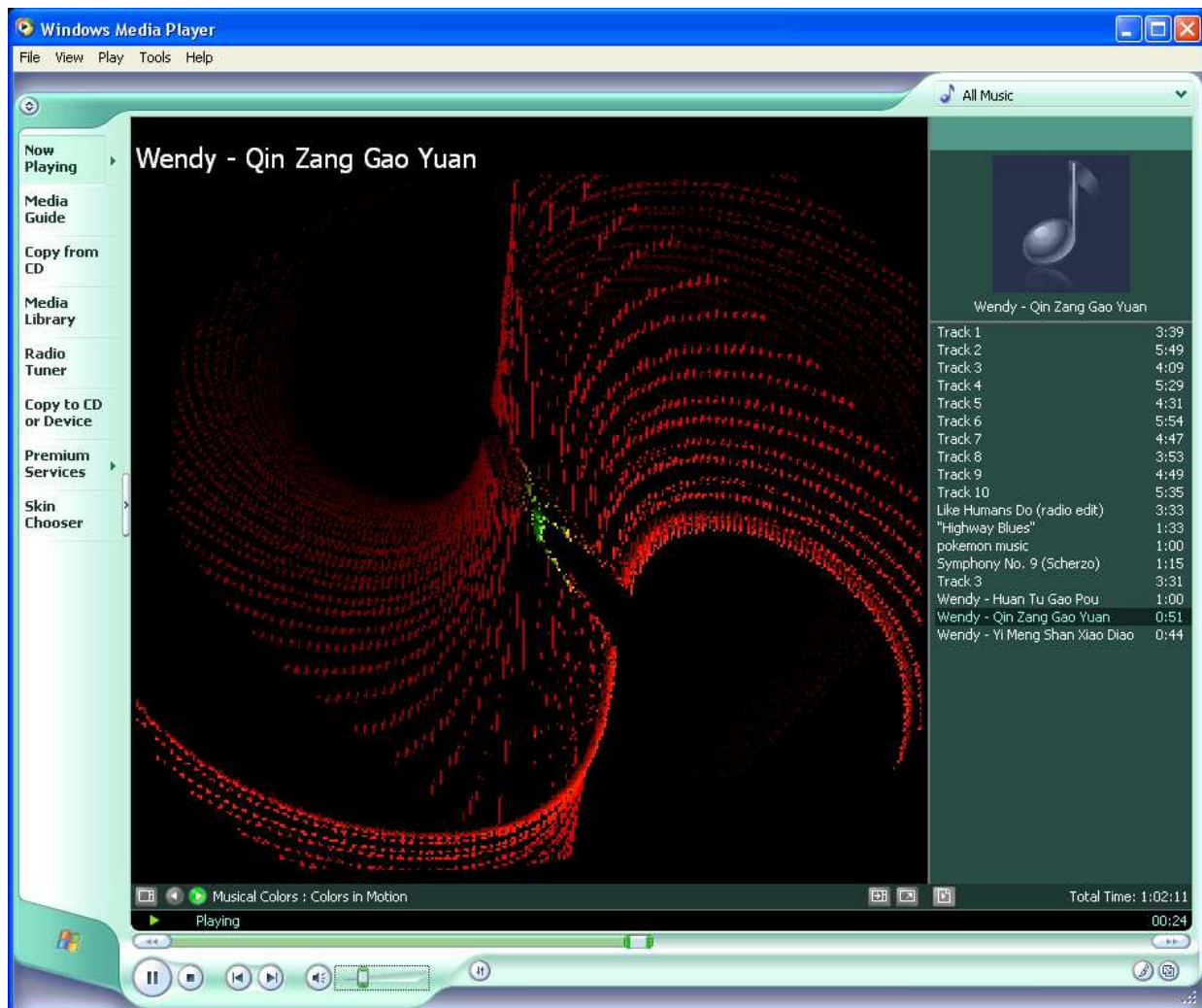

Figure 11. GUI: Windows Media Player

Use the TSC/AIC EVM as a normal audio output device. Launch the Windows Media Player on the PC, and select the saved music/sound/voice files, CDs, and other audio signals from the PC, or from a Web site by clicking on the Media Guide of the menu on the left side of the Windows Media Player window.

Users can also go to the TI EVM's GUI to set up and control the audio input/output features of the corresponding device. Figure 5 shows the user-selectable options on the Audio 1 tab of the AIC28EVM GUI. Other options are available on the Audio 2 tab and the Audio Effects Filters tab. The corresponding TSC/AIC device data sheet also provides the details of these audio features and functions.

Reference Material

Device	Data Sheet Literature Number	Evaluation Module	User's Guide Literature Number
TSC2100	SLAS378	TSC2100EVM	SLAU100
TSC2101	SLAS392	TSC2101EVM	SLAU112
TSC2301	SLAS371	TSC2301EVM	SLAU098
TLV320AIC26	SLAS412	TLV320AIC26EVM	SLAU128
TLV320AIC28	SLAS418	TLV320AIC28EVM	SLAU127

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