Overview

The USB Audio Speaker application is a simple demonstration program based on the MCUXpresso SDK. It is enumerated as a playback device and users can play music using the device.

System Requirement

Hardware requirements

- Mini/micro USB cable
- USB A to micro AB cable
- Specific hardware which has codec presented
- Personal Computer(PC)

Software requirements

- The path for the project files for lite version example is:
  <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_audio_speaker_lite/<rtos>/<toolchain>.
  For non-lite version example, the path is:
  <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_audio_speaker/<rtos>/<toolchain>.

  Note

  The <rtos> is Bare Metal or FreeRTOS OS.

Getting Started

Hardware Settings

- Jumper settings for evkmimxrt685 REV.E is : J7-1 <–> J7-2, J8-1 <–> J8-2.

  Note

  Set the hardware jumpers (Tower system/base module) to default settings.

Prepare the example

1. Download the program to the target board.
2. Connect the target board to the external power source (the example is self-powered).
3. Either press the reset button on the board or launch the debugger in the IDE to start running the demo.
4. Connect a USB cable between the PC host and the USB device port on the board.

For detailed instructions, see the appropriate board User's Guide.

Run the example in Windows (USB AUDIO CLASS 2.0)

1. Plug-in the audio speaker device which is running the Audio Speaker example into the PC.
2. A USB AUDIO DEMO device shows up as enumerated in the Device Manager.
3. Right click on the sound control icon of the Start bar (close to the clock) and select "Playback devices".

Figure 1: Sound control icon

4. In the pop-up window, select the "Playback" device with the description "USB Audio Device" and click on the "Properties" button.

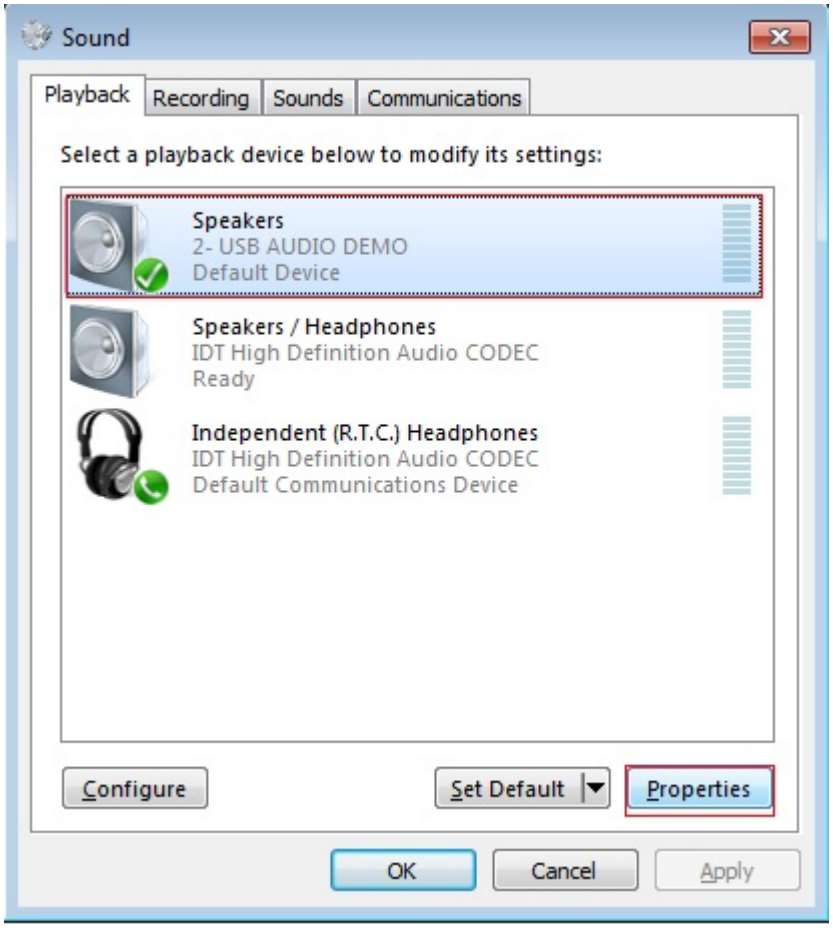

Figure 2: Select properties

5. In the new window, go to "Levels" tab and move the slide until 100%. Click "OK".

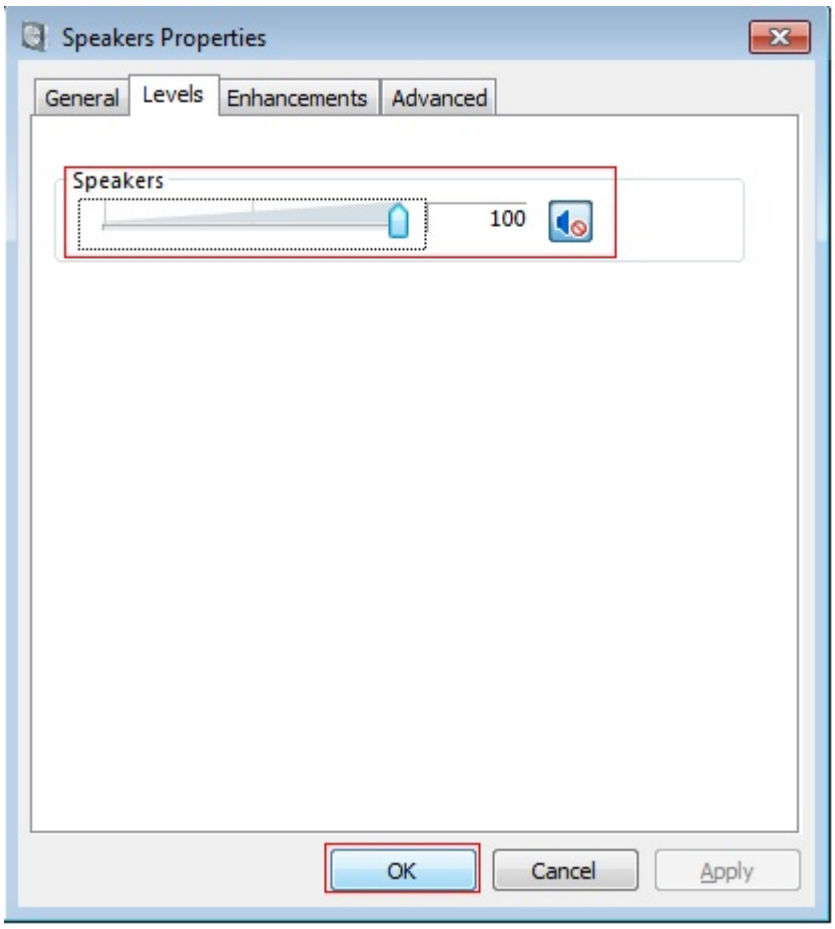

Figure 3: Change level

6. In the previous window, ensure that the "USB Audio Device" is still selected and click on the "Set Default" button. Click on the "OK" button.

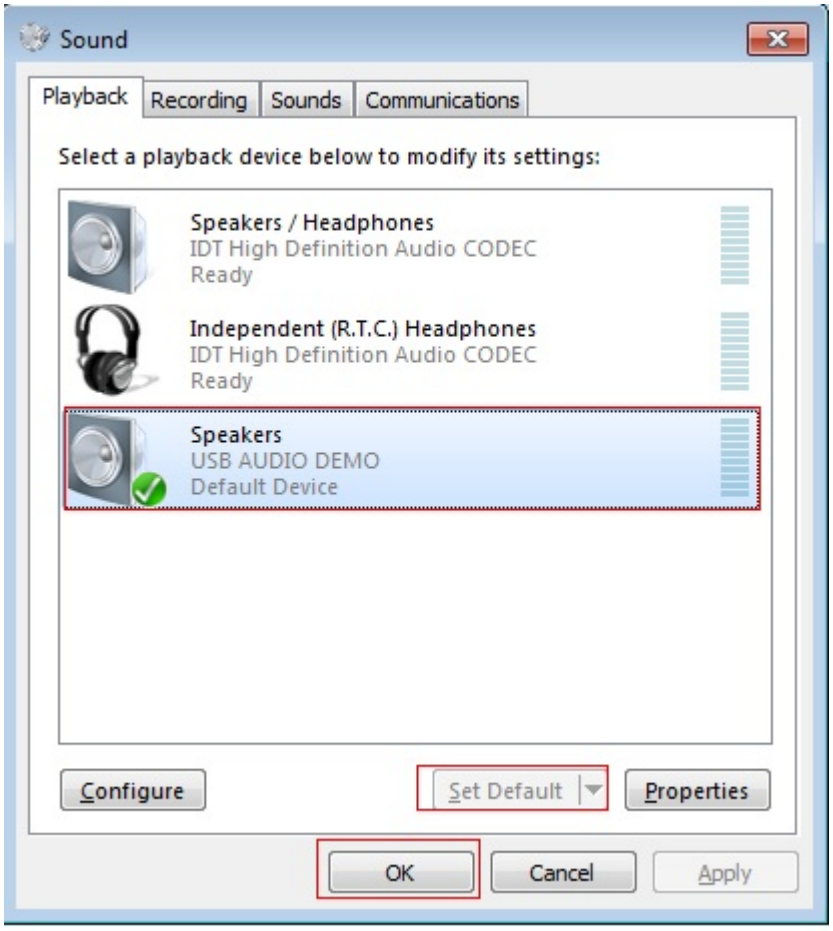

Figure 4: Set default

7. Open the Window Media Player application, select, and play your favorite song.

Run the example on a Mac® (USB AUDIO CLASS 2.0)

1. Plug-in the audio speaker device which is running the Audio Speaker example into the Mac.
2. A USB audio device shows up as enumerated in the sound catalogue under the System Preferences.
3. Select the USB audio speaker device as the default audio device in the sound catalogue under System Preferences.
4. Open the QuickTime application. Select and play your favorite song.

Note

1. If the device audio speaker example uses an ISO IN feedback endpoint, please attach the device to a host like PC which supports feedback function. Otherwise, there might be attachment issue or other problems.
2. USB audio class 2.0 is enabled by default.
3. Based on the USB spec, the feedback endpoint data length should be 3 bytes if the device is full speed. In this case, device can work on Mac OS. However, device can not work on Win 10 and feedback data length must be set 4. There is a workaround to fix this issue, please open the macro USB_DEVICE_WORKAROUND_AUDIO_20_WINDOWS when meets the following conditions:
   - USB device is full speed and USB audio class 2.0 is enabled.
   - USB device uses feedback endpoint.
   - USB host is Windows 10.
4. This example supports UAC 5.1 and UAC 5.1 is disabled by default, this feature can be enabled by set macro USB_AUDIO_UAC5_1 as 1U.
5. When device functionality is changed, such as USB auido class 2.0 or UAC 5.1, please uninstall the previous PC driver to make sure the device with changed functionality can run normally.