Overview

The USB Composite HID and Audio Unified application is a simple demonstration program based on the MCUXpresso SDK. It is enumerated as a playback and recording device. Users can record the sound from this device via the "Sound Recorder" in the Windows Accessories and play music with the device.

System Requirement

Hardware requirements

- Mini/micro USB cable

- USB A to micro AB cable

- Specific hardware which has codec presented

- Personal Computer

Software requirements

- The project files for the lite version example are in:

    <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_composite_hid_audio_unified_lite/<rtos>/<toolchain>.

    The project files for a non-lite version example are in:

    <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_composite_hid_audio_unified/<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.

- The I3C Pin configuration in pin_mux.c is verified for default 1.8V, for 3.3V, need to manually configure slew rate to slow mode for I3C-SC/SDA.

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 your board or launch the debugger in your IDE to begin 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

1. Plug in the device which is running composite example into PC.

2. For the Audio recorder, a USB AUDIO DEMO device is enumerated in the Device Manager.

3. Right click on the sound control icon in the Start bar (near the clock) and select "Recording devices".
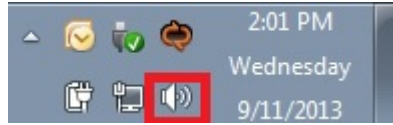

Figure 1: Sound control icon

4. In the opened window, select the "Microphone" device with the description "USB Audio + HID Demo" and click on the "Properties" button.
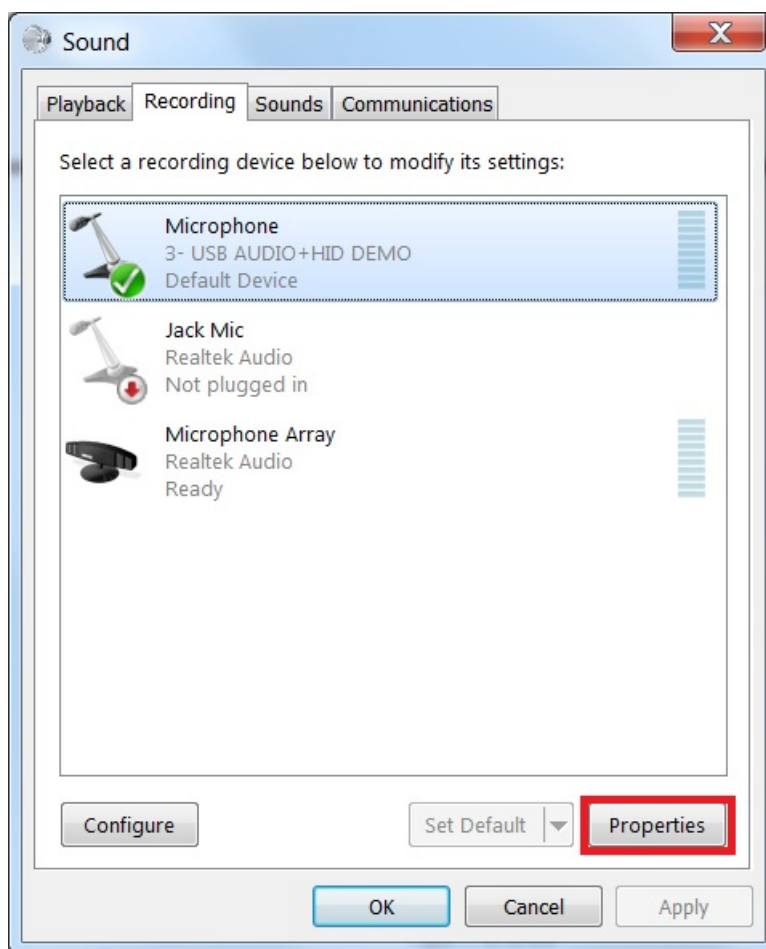

Figure 2: Select properties

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

Figure 3: Change level

6. Ensure that "USB Audio + HID Demo" is still selected in the previous window and click on the "Set Default" button. Finally, click on the "OK" button.

Figure 4: Set default

7. Use the board specific hardware to record. For the boards which have SGTL board, plug in the line cable into slot J9 on SGTL board and connect the other end into PC or mobile phone.

8. Open the "Sound Recorder" application and record audio.

9. After recording, open the recorder file with any media player.

10. In the opened window, select the "Speakers" device with the description "USB Audio + HID Demo" and click on the "Properties" button.

Figure 5: Select properties

11. In the new window, go to "Levels" tab, move the slide until 100%, and click on "OK".

Figure 6: Change level

12. Ensure that "USB Audio + HID Demo" is still selected in the previous window and click on the "Set Default" button. Finally, click on the "OK" button.

Figure 7: Set default

13. Open the Window Media Player application, select, and play the song.

14. Use the mute/unmute button shown in the debug console's print information to mute/unmute speaker, it only control the speaker.

Note

    - On some platforms, the recorder may have noise since the audio clock and USB SOF are not synchronized, this problem only happens on Windows but not on Mac OSX since the latter uses unified engine.
    - This example doesn't support Audio Device Class 2.0.