CP2114 USB Audio to I2S Digital Audio Bridge
Quick-Start Guide

The CP2114 Evaluation Kits are stand-alone evaluation platforms with easy access to all signals on the device. All evaluation kits come with a CP2114 evaluation board, USB cable, and RS-232 cable. Some Evaluation Kits come with a CODEC/DAC daughter card to allow the product to play audio out-of-the-box.

CP2114 Evaluation Kit (CP2114-EK)

- CP2114 evaluation board
- USB cable
- RS-232 cable

CP2114-CS42L55 Evaluation Kit (CP2114-CS42L55EK)

- CP2114 evaluation board
- Daughter card with Cirrus Logic CS42L55 CODEC
- Ear bud headphones
- Audio cable: 3.5 mm male-to-male
- USB cable
- RS-232 cable

CP2114-WM8523 Evaluation Kit (CP2114-WM8523EK)

- CP2114 evaluation board
- Daughter card with Wolfson Microelectronics WM8523 DAC
- Ear bud headphones
- USB cable
- RS-232 cable

CP2114-PCM1774 Evaluation Kit (CP2114-PCM1774EK)

- CP2114 evaluation board
- Daughter card with Texas Instruments PCM1774 DAC
- Ear bud headphones
- USB cable
- RS-232 cable

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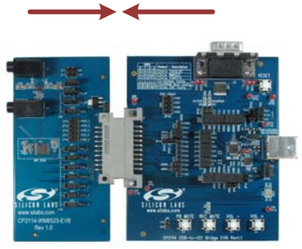
Mailing Address:
400 W. Cesar Chavez
Austin, TX 78701

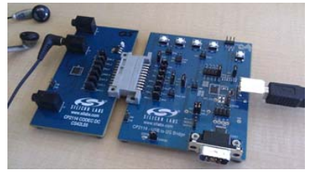
Windows 7—Audio Output

1 Connect the CP2114 evaluation board to the daughter card.



2 Connect headphones and/or powered speakers to the daughtercard connector:

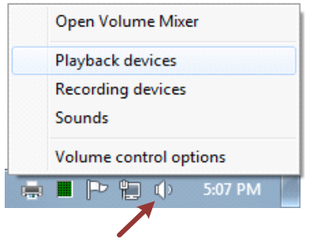
HP OUT: headphone output
LINE OUT: line output (to powered speakers)
HP/LINE OUT: common connector for headphone or line output.



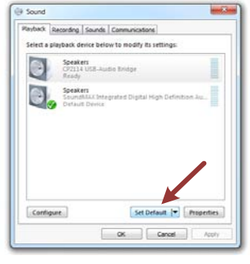
3 Connect the USB cable to the CP2114 evaluation board (J2). Next, connect the other end of the USB cable directly to the PC.

Note: Do not use a USB hub

4 Right-click on the "Speakers" icon in the Windows tray and left-click "Playback devices".

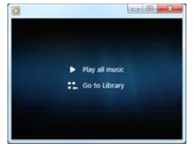


5 Select "CP2114 USB-Audio Bridge", click "Set Default" button. Next, verify the CP2114 is checked as the default playback device.



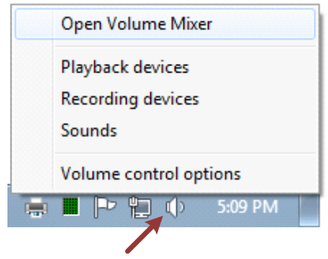
6 Play audio from the PC using any player and verify high-quality audio from the headphones or powered speakers attached to the daughter card.

After initial installation, The CP2114 analog output is muted and the volume is set to a minimum. "Windows 7 – Volume and Mute" discusses how to unmute and adjust the volume



Windows 7—Volume and Mute

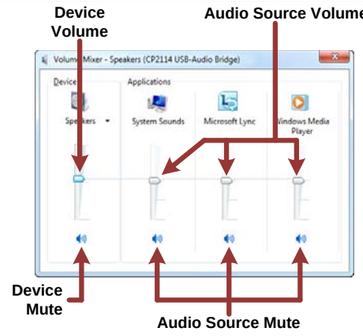
1 Right-click on the "Speakers" icon and left-click "Open Volume Mixer".



2 Set volume and mute. Volume and mute can be controlled in two ways, and both methods are supported by the CP2114:

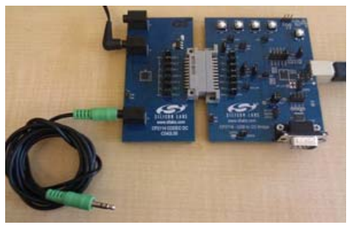
1. Device Volume and Mute: this control sends USB volume and mute control messages to the device. Generally, this will adjust the volume control of the DAC in hardware using I²C writes.

2. Audio Source Volume and Mute: these controls scale the audio signal sent over USB and can be set individually. The CP2114 volume can be set with these controls.



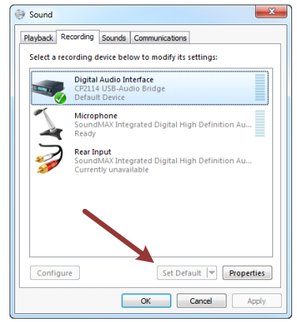
Windows 7—Audio Input

1 Connect a powered microphone or line-level analog audio source to the analog In (AIN) connector (P2).



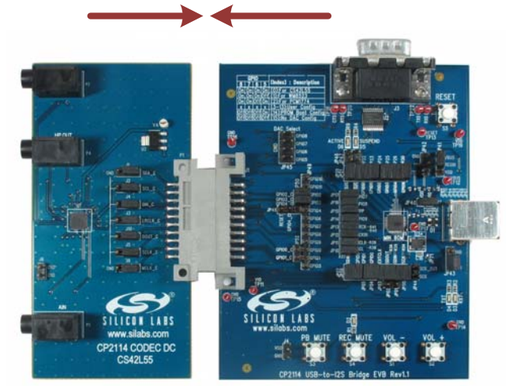
2 Right-click on the 'Speakers' icon and left-click on "Recording devices".

Open a recorder application to record the audio input or listen in real time by selecting "Properties" and checking the "Listen to this device" button. Select the CP2114 from the "Playback through this device" drop-down to select full loop testing.



Mac OS-X—Audio Output and Input

1 Connect the CP2114 evaluation board to the daughter card.

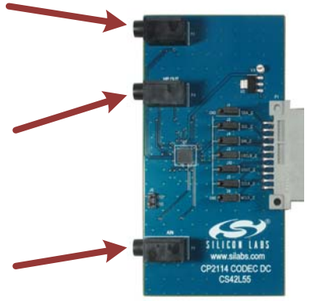


2 Connect the analog out jack (P3) to powered speakers or the headphone output (P4) to headphones. Connect a sound source to the analog input jack (P2).

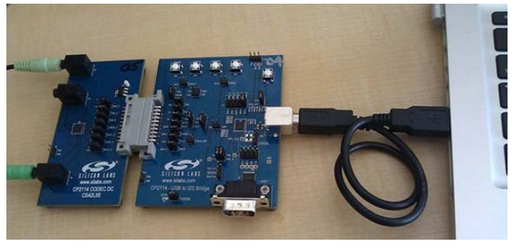
Analog out to powered speakers

Headphone output to headphones

Analog in from sound source (PC, iPod, MP3 player…)



3 Connect one end of the USB cable to the CP2114 evaluation board and the other end to the Mac.



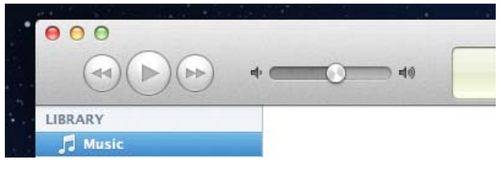
4 Hold Option and click the speaker icon. Select the CP2114 as the sound output and the input device for the Mac.

You can now play (audio out) or record (audio in) through the CP2114.

5 There are two methods to adjust volume:

Mac TaskBar: This sends USB Audio Class "Set" volume messages over USB to the CP2114. The CP2114 forwards these volume adjustments to the DAC via I²C and the DAC adjusts the gain. Currently, volume adjustments are sent to both the DAC headphone output and the line-out output.

iTunes Volume: This causes the Mac to directly scale the audio samples that are sent over USB. It does not send USB Audio class volume messages. This volume affects both headphone and line-out volumes.



iPad (iOS)—Audio Output and Input

1 Connect the CP2114 Motherboard and Daughtercard together.

2 Connect the LINE OUT jack (P3) to powered speakers and/or the HP OUT jack (P4) to headphones.

3 Connect an analog sound source to the AIN jack (P2). The sound source can be an iPod, iPhone, MP3 player, CD player, stereo microphone, etc.

4 Connect a USB cable from the CP2114 EVB to the iPad. It is not necessary to manually select the CP2114 as the playback device; whenever a CP2114 is connected to the iPad, the audio data will be automatically routed to the CP2114.

5 To demonstrate CP2114 audio output, open an iPad application that plays audio files (e.g. iPod, iTunes, etc.) and play an audio file. The audio should be present on the headphone HP OUT (headphone) and LINE OUT jacks.

6 Adjusting the App volume slider sends USB Audio Class "Set" volume messages over USB to the CP2114. The CP2114 forwards these volume adjustments to the DAC via I²C and the DAC adjusts the gain.

7 To demonstrate CP2114 audio input, open an iPad application that records audio files (e.g. GarageBand, QuickVoice, Blue FiRe, etc.). Begin recording, then play audio on the sound source (e.g. iPod, iPhone, etc.).

Camera kit connector

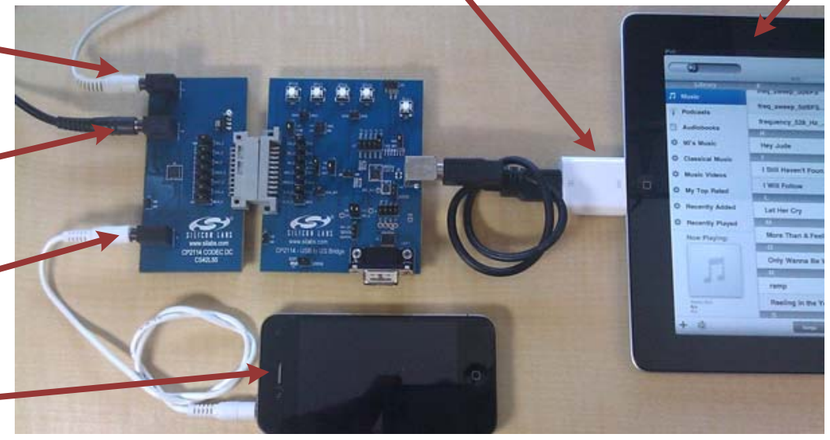
iPad

Line out (P3) to powered speakers

Headphone output (P4) to headphones

Analog input (P2) to sound source

Sound source (iPod, iPhone, etc…)



Additional Documentation

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- **AN721,** *CP210x/CP211x Device Customization Guide:* This application note describes how to use the AN721 software CP21xxSetIDs to configure the USB parameters on the CP21xx devices.
- **AN433,** *CP2110/4 HID to UART API Specification:* This application note describes how to interface to the CP2114 using the Windows Interface DLL and the Mac OS-X dylib.
- **AN434,** *CP2110/4 Interface Specification:* This application note describes the HID reports supported by the CP2110/4 and the configurable parameters.

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