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DS52061A

PIC32 USB Digital Audio Accessory Board Information Sheet

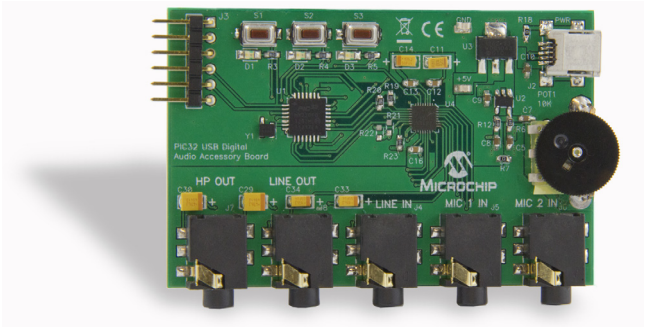
Features

The PIC32 USB Digital Audio Accessory Board showcases a 16/24-bit quality digital stereo audio development platform using the PIC32 microcontroller (MCU). It can be used for 16/24-bit stereo audio playback and recording with a sample rate of up to 48 kHz. This accessory board is powered by the USB Host and can be used with any personal computer (PC), tablet, gaming station, or mobile device that supports the USB Audio Device Class. The digital audio stream is transferred over USB isochronous transfers. The PIC32 USB Digital Audio Accessory Board features the PIC32 MCU, which has a USB module with Host and Device capability, in addition to an SPI peripheral module with Audio Mode that supports I^2S, LJ, RJ, DSP/PCM modes and an accurate, flexible audio reference clock output generation module that can be used as time base for the external codec or Digital-to-Analog Converter (DAC).

Key features of the PIC32 USB Digital Audio Accessory Board:

- PIC32MX250F128B MCU: 40 MIPS, 128 KB of program memory and 32 KB of RAM
- PIC32 I^2S support (LJ, RJ, DSP/PCM modes supported) – all modes can be 16/24-bit
- PIC32 reference clock output for codec master clock
- Audio codec (AK4645A) with up to 48 kHz sampling rate and 16/24-bit resolution
- Supported codec-based audio processing features:
  - 5-band equalizer
  - Analog output mixing
  - Stereo separation emphasis and wind-noise filtering
  - Auto-level control

FIGURE 1: PIC32 USB DIGITAL AUDIO ACCESSORY BOARD



Getting Started

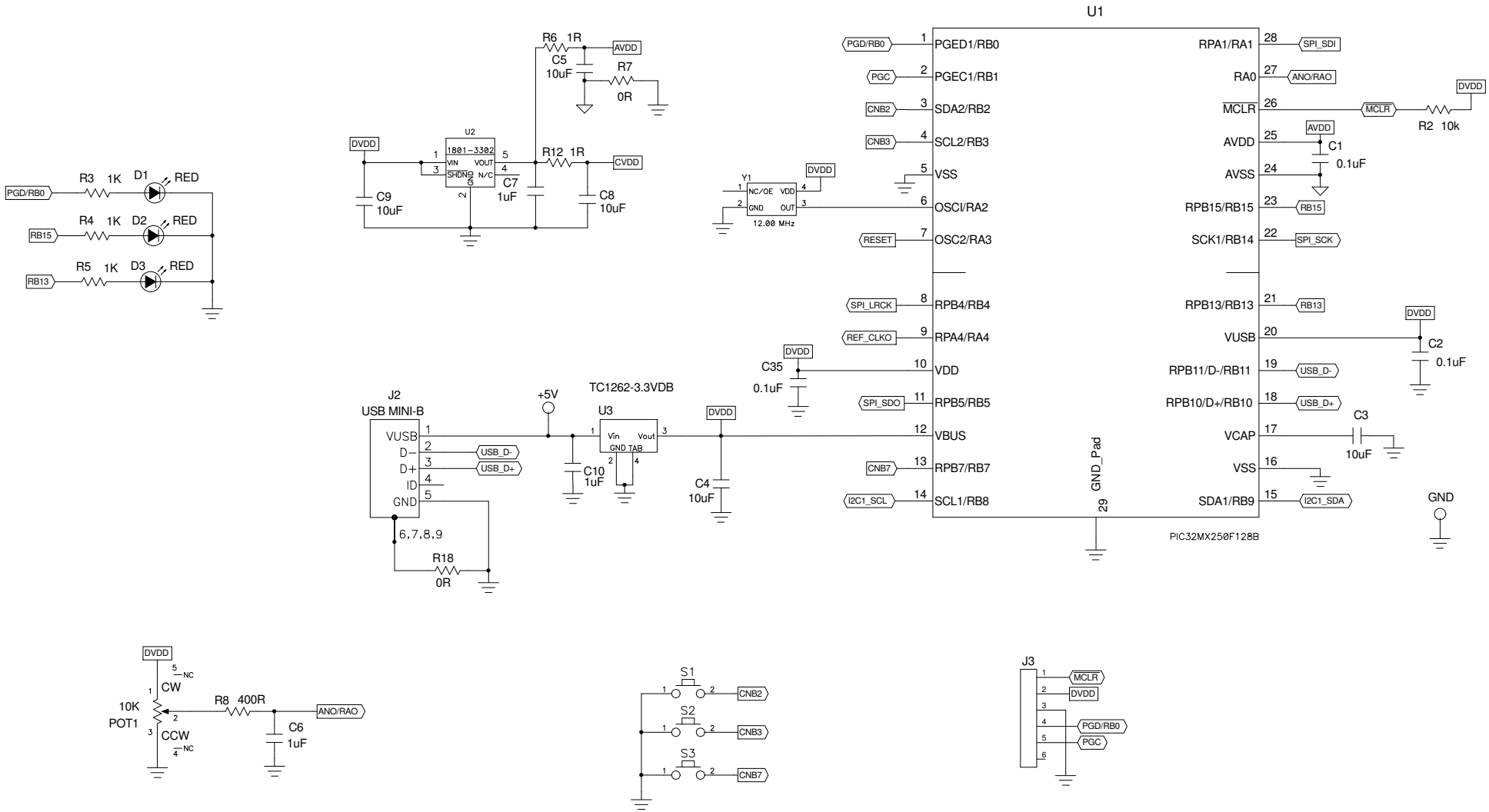
The PIC32 USB Digital Audio Accessory Board is preprogrammed with a USB Audio Headset application, which demonstrates audio playback and record. This demonstration can playback high quality stereo audio through headphones. It can also record audio through a microphone.

To run the demonstration, follow these steps:

1. Using the USB cable provided with the board, insert the mini-B connector end of the cable into the receptacle labeled J1on the PIC32 USB Digital Audio Accessory Board.
2. Connect the other end of the cable to the USB port of the PC.
3. Wait for the USB audio driver to be automatically installed and the PIC32 USB Digital Audio Accessory Board to be enumerated as a digital audio device.
4. Audio Playback:
   a) Plug in a pair of headphones to the connector labeled HP OUT.
   b) Open any music application on the PC and play music.
   c) Listen to the music through a pair of headphones.
5. Audio Recording:
   a) Plug in a microphone to either the MIC1 IN or MIC2 IN connector.
   b) Open any audio record application on the PC and begin recording.
   c) After recording for the desired duration, save and playback the recorded audio.

To get started with development, please visit www.microchip.com/pic32tools, and click the PIC32 USB Digital Audio Accessory Board product link.

Schematics (Sheets 1 of 2)



Schematics (Sheets 2 of 2)