AN02014: Integrating DSP into the XMOS USB reference design (README)

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vendor
XMOS

version
1.0.0

scope
Example

description
USB audio application with generated DSP

category
Audio

keywords
USB, UAC, DSP, Audio

hardware
XK-AUDIO-316-MC

1 Overview

This application note describes firmware that provides a high-speed USB Audio device designed to be compliant to version 2.0 of the USB Audio Class Specification based on the xcore.ai device. Output audio from the host is passed through a DSP pipeline generated with lib_audio_dsp.

2 Key Features

The application is designed to run on the xcore.ai Multichannel Audio Board (MCAB). It uses the XMOS USB Audio framework to implement a USB Audio device with the following key features:

- USB Audio Class 2.0 (High Speed)
- Multi-channel inputs and outputs connecting the host to ADCs and DACs
- DSP that is simple to configure to a specific application
- 48 kHz sample rate

3 Known Issues

- None

4 Required Tools

- XMOS XTC Tools: 15.3.0

5 Required Libraries (Dependencies)

- lib_sw_pll (www.github.com/xmos/lib_sw_pll)
- lib_xua (www.github.com/xmos/lib_xua)
- lib_adat (www.github.com/xmos/lib_adat)
- lib_locks (www.github.com/xmos/lib_locks)
- lib_logging (www.github.com/xmos/lib_logging)
- lib_mic_array (www.github.com/xmos/lib_mic_array)
- lib_xassert (www.github.com/xmos/lib_xassert)
- lib_dsp (www.github.com/xmos/lib_dsp)
- lib_spdif (www.github.com/xmos/lib_spdif)
- lib_xud (www.github.com/xmos/lib_xud)
- lib_i2c (www.github.com/xmos/lib_i2c)
- lib_i2s (www.github.com/xmos/lib_i2s)
- lib_audio_dsp (www.github.com/xmos/lib_audio_dsp)

6 Related Application Notes

- AN02015

7 Support

This package is supported by XMOS Ltd. Issues can be raised against the software at: http://www.xmos.com/support

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