



AN02003: SPDIF/ADAT/I²S Slave Receive to I²S Slave Bridge with ASRC (README)

Publication Date: 2024/9/13

Document Number: XM-015108-AN v1.0.1

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vendor

XMOS

version

1.0.1

scope

Example

description

This note describes building an SPDIF/ADAT/I²S slave to I²S converter using ASRC

category

Audio

keywords

USB, UAC, I2S, SRC, ASRC, S/PDIF, ADAT

hardware

XK-AUDIO-316-MC

1 Overview

This note describes the authoring of a ADAT/SPDIF/I²S to I²S converter/bridge. Asynchronous sample rate conversion (ASRC) is employed in order to bridge the two differing clock domains.

2 Key Features

The documented application is designed to run on the *XK-316-AUDIO-MC* board and has the following key features:

► ASRC input interfaces:

- S/PDIF Receive
- ADAT Receive (including support for S/MUX)
- I²S slave receive



► **ASRC output interfaces:**

- I²S slave transmit
- Additional ADAT/SPDIF transmitters are enabled in ADAT or S/PDIF mode (data derived from input received from the ASRC “output” I²S bus)
- Support for the following sample frequencies: 44.1, 48, 88.2, 96, 176.4, 192 kHz
- Sample latency of between 1.9 and 0.33 milliseconds (Higher sample rates -> lower latency) which can be lowered to between 1.1 and 0.24 milliseconds
- Core power consumption between 126 and 205 mW depending on configuration
- Provides similar functionality to the CS8422 device

3 Known Issues

- None

4 Required Tools

- XMOS XTC Tools: 15.3.0

5 Required Libraries (Dependencies)

- lib_src (www.github.com/xmos/lib_src)
- lib_adat (www.github.com/xmos/lib_adat)
- lib_spdif (www.github.com/xmos/lib_spdif)
- lib_i2c (www.github.com/xmos/lib_i2c)
- lib_i2s (www.github.com/xmos/lib_i2s)
- lib_sw_pll (www.github.com/xmos/lib_sw_pll)
- lib_logging (www.github.com/xmos/lib_logging)
- lib_xassert (www.github.com/xmos/lib_xassert)
- lib_xcore_math (www.github.com/xmos/lib_xcore_math)

6 Related Notes

- AN02000: Asynchronous FIFO with ASRC

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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