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# I2S/TDM Library

A software library that allows you to control an I<sup>2</sup>S or TDM (time division multiplexed) bus via xCORE ports. I<sup>2</sup>S and TDM are digital data streaming interface particularly appropriate for transmission of audio data. The components in the library are controlled via C using the XMOS multicore extensions (xC) and can either act as I<sup>2</sup>S master, TDM master or I<sup>2</sup>S slave.

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## Features

- I<sup>2</sup>S master (sample and frame-based), TDM master and I<sup>2</sup>S slave modes.
- Handles multiple input and output data lines.
- Support for standard I<sup>2</sup>S, left justified or right justified data modes for I<sup>2</sup>S.
- Support for multiple formats of TDM synchronization signal.
- Sample rate support up to 192KHz.
- Up to 32 channels in/32 channels out (depending on sample rate)

## Resource Usage

This following table shows typical resource usage in some different configurations. Exact resource usage will depend on the particular use of the library by the application.

Configuration	Pins	Ports	Clocks	Ram	Logical cores
I2S Master	3 + data lines	3 x (1-bit) + data lines	2	~2.1K	1
I2S Master (frame-based)	3 + data lines	3 x (1-bit) + data lines	2	~1.6K	1
I2S Slave	2 + data lines	2 x (1-bit) + data lines	1	~1.6K	1
TDM Master	2 + data lines	2 x (1-bit) + data lines	1	~1.8K	1

## Software version and dependencies

This document pertains to version 2.3.0 of this library. It is known to work on version 14.2.3 of the xTIMEcomposer tools suite, it may work on other versions.

This library depends on the following other libraries:

- lib\_xassert (>=3.0.0)
- lib\_logging (>=2.1.0)

## Related application notes

The following application notes use this library:

- AN00162 - Using the I<sup>2</sup>S library



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