USB Audio Class 2.0 provides a dramatic improvement over USB Audio Class 1.0 with the addition of 24bit audio, sample frequencies up to 192kHz and the ability to scale to large numbers of input/output channels.

XMOS has developed a USB Audio Class 2.0 software framework design to work on XS1-L devices. The design provides USB 2.0 High Speed device and Audio Class 2.0 device class implementations with configurable digital audio interfaces, peripherals and the ability to integrate audio processing. The framework also provides a USB Audio Class 1.0 implementation.

XMOS USB Audio 2.0 Solution Features	Benefit
XMOS event-driven processor (XS1-L)	Integrate Audio DSP, additional interfaces and control code to your exact specification
USB 2.0 high speed interface	Supports multiple 24 bit, 192kHz channels with extremely low latency (3ms round trip)
Audio Class 2.0 compliant	Plug-and-play with Audio Class 2.0 enabled computers (Native Mac OS X support, Windows drivers available)
Audio Class 1.0 compliant	Native Mac OS X and Windows support
Asynchronous clocking	Complete control of the audio master clock for the lowest jitter, highest quality digital audio
Unified software development flow and software framework source code	Accelerated product development
Choice of two off-the-shelf reference designs	Rapid prototyping of your system

The XMOS Advantage

XMOS programmable chips bring together the capabilities of processors, DSPs, ASICs and FPGAs, but are programmed via a unified design flow in C, XC and C++.
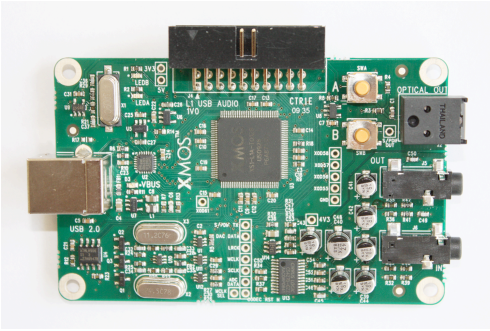
The flexibility of the XMOS USB Audio Class 2.0 solution allows developers to quickly and easily customize the reference designs. In addition to I/O flexibility, processing performance is available for DSP processing such as mixing, level metering and audio enhancement.

The XMOS USB Audio Class 2.0 software framework is available, free of charge, as source code under a royalty free license with the hardware reference designs.

Reference designs

XMOS has developed two reference designs based on the USB Audio Class 2.0 software framework. Each design consists of the hardware platform, source code, demonstration drivers and documentation.

XS1-L1 USB Audio 2.0	XS1-L2 USB Audio 2.0 Multichannel
500 MIPS, 8 threads, XS1-L1 processor	1000 MIPS, 16 threads, XS1-L2 processor
2 Channel analog input 2 Channel analog output	6 Channel analog input 8 Channel analog output
Asynchronous Master Clock for low jitter	Asynchronous Master Clock for low jitter
S/PDIF (TOSLINK) output	S/PDIF output and input via RCA or TOSLINK with high quality local PLL for clock recovery
Flexible sample rates including: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz	Flexible sample rates including: 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
Debug via JTAG (adapter included)	MIDI I/O Musical instrument/MIC compatible input House clock input I/O expansion Debug via JTAG (adapter included)

Driver Support

USB Audio Class 2.0 is natively supported by Apple™ OS X version 10.6.3 and above. Support for Windows is provided via XMOS partners, Thesycon and Centrance. The drivers are configurable and provide support for WDM/Direct X and ASIO 2.1.

The Thesycon Windows driver is available through XMOS as a separate part number which bundles the driver with the XS1-L devices, not requiring any upfront NRE fees, or through Thesycon directly using a customer negotiated payment model. The Centrance Windows driver may be accessed via Centrance directly through a customer negotiated payment model.

Evaluation drivers are supplied with both reference designs.

To find out more about the XMOS USB Audio 2.0 reference designs and software framework, please visit http://www.xmos.com/applications/ or contact your local sales representative.

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