Overview

Audio Video Bridging (IEEE 802.1 AVB and IEEE 1722) provides transport for AV streams across mixed-use networks with a very high quality of service.

With the rapid growth in adoption of AVB for audio transport, audio endpoint solutions must be low cost and production ready.

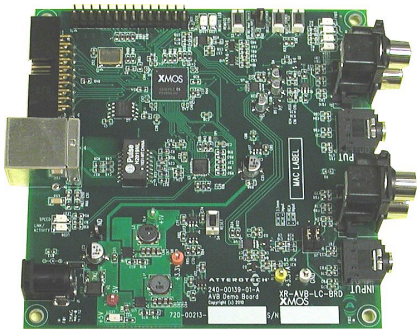
To answer this demand, XMOS and Attero Tech have jointly developed a solution consisting of the flexible XMOS software-only implementation of AVB audio and a low-cost board supporting up to 8 duplex channels of audio.

The low-cost XCore® XS1-L2 dual-core processor is at the heart of the new, commercial-grade reference design and reduces the cost for AVB endpoints by over 50% compared to alternative solutions.

XMOS®

ATTEROTECH®

Low-cost AVB Audio Endpoint Kit



XMOS for AVB Audio Advantage	Detail
Lowest cost AVB endpoint platform	Combines AVB protocols, digital audio interfaces and control software into a single low-cost device
Unmatched flexibility	Addresses uncertainties in the hardware and software specification using simple firmware updates
Fastest time-to-market AVB solution	Highly configurable reference design using rapid software iterations Proven in the field and at AVnu plugfests

The XMOS Advantage

XMOS event-driven processors® bring together the capabilities of processors, DSPs, and FPGAs, yet are programmed via a unified design flow in C, XC and C++.

The deterministic architecture of XMOS devices is a perfect match for the low latency, time synchronized nature of AVB. XMOS devices also provide the ability to integrate digital audio interfacing, control functionality using TCP/IP and DSP processing, often required in AVB endpoints such as speakers.

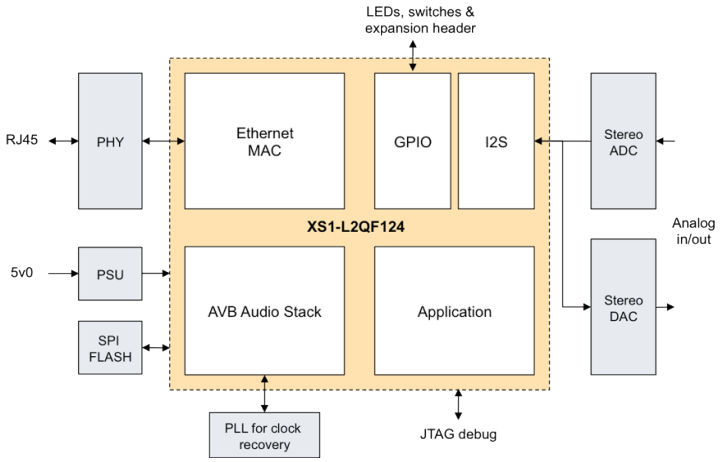
The software framework is free of charge with source code available under a royalty free license from XMOS. Additional design services for AVB and audio systems are available from Attero Tech.

Reference Design Overview

The low-cost AVB Audio Endpoint Reference Design includes all of the necessary hardware and firmware to help get your AVB audio endpoint up and running quickly. In addition, a PC/Windows hosted configuration utility is available to allow stream configuration and setup.

The hardware features include:

- XS1-L2 device for **low cost**
- Stereo analog audio in/out via 3.5mm jack or RCA sockets
- Up to 8 channels via I2S headers
- Simple sample rate conversion to local clock or high quality clock recovery with PLL
- GP-IO for buttons/LEDs
- Expansion header with 12 spare I/O available



AVB Audio Firmware Software Components

802.1as Timing synchronization	**802.1Qav** Flow control	**IEEE 1722.MAAP** MAC address acquisition protocol	**I2S (including TDM)** CODEC interface
802.1Qat Stream reservation protocol	**IEC 61883-6** Audio format for P1722	**TCP/IP** Control protocol	**IIC, GPIO** IC configuration and general purpose IO
IEEE P1722 Encapsulation protocol	**Ethernet MAC** Network interface	**Zeroconf** Discovery protocol	* S/PDIF, ADAT, DSP processing …

*Optional free software components available from XMOS

Ordering details

The AVB Audio Endpoint Kit (part number XK-AVB-LC-SYS) is available as a complete kit consisting of two boards, two Ethernet cables, two power supplies, an XTAG2 debug adapter and a demonstration binary. The Software Reference Design source code and PC/Windows configuration utility are available free of charge to registered users.

To find out more about the XMOS AVB Audio reference designs and software framework, including our USB Audio 2.0 solutions, please visit http://www.xmos.com/applications/avb or contact us at http://www.xmos.com/products/contact.