Application Note: AN00110

MPEG Transport Stream over Ethernet AVB

This application note demonstrates how an MPEG Transport Stream can be streamed over an Ethernet AVB network, with guaranteed Quality of Service and time synchronization, using an AVB endpoint implemented on an XMOS multicore microcontroller.

The firmware associated with this application note is included in an XMOS AVB Reference software release and supports a standard Synchronous Parallel Interface[1] and 61883-4 encapsulation format.

The AVB Audio Endpoint Platform hardware (XR-AVB-LC-BRD) has been adapted to support a Synchronous Parallel Interface operating at TTL levels.

Required tools and libraries

- xTIMEcomposer Tools - Version 13.2
- XMOS AVB Endpoint reference software - Version 6.1.1
- Alitronika DVSStation3 application (Microsoft Windows only)

Required hardware

This application note is designed to run on an XMOS xCORE-L series device.

The example firmware provided in the reference design has been implemented and tested on the existing AVB Audio Endpoint Platform hardware (XR-AVB-LC-BRD). Third-party Transport Stream source/sink hardware from Alitronika (AT40XR2USB) was connected via an LVDS to TTL interposer PCB using a standard 25 contact type D subminiature connector.

There is no dependency on this hardware and the firmware can be modified to run on any xCORE-L series device interfaced to compliant MPEG-TS SPI hardware. LVDS to TTL buffers may be required.

Prerequisites

- This document assumes familiarity with the XMOS xCORE architecture, the IEEE AVB/TSN standards, the XMOS tool chain and the xC language. Documentation related to these aspects which are not specific to this application note are linked to in the references appendix.
- For descriptions of XMOS related terms found in this document please see the *XMOS glossary*[2].
- For the full API listing of the XMOS AVB Audio Endpoint reference software please see the the *AVB Endpoint Design Guide*[3].

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[1]https://www.dvb.org/resources/public/standards/En50083-9.2002.pdf
[2]http://www.xmos.com/published/glossary
[3]https://www.xmos.com/published/avb-design-guide