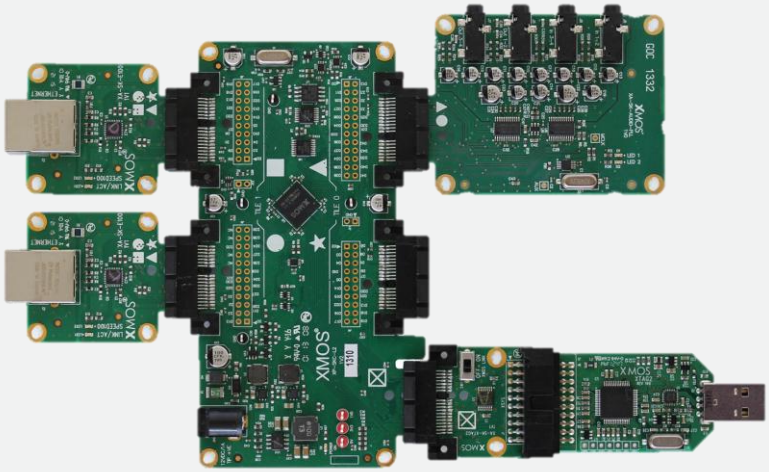
AVB DAISY-CHAIN REFERENCE DESIGN

Daisy-Chain Ethernet AVB audio platform



FEATURES

- **Complete hardware and software AVB audio reference design**
  - Dual 100Mbit Ethernet ports
  - Simultaneous talker & listener
  - 4 channel analog input and output
- **AVB standards compliant**
  - Time synchronisation: 802.1AS
  - Traffic shaping: 802.1Qav
  - Bandwidth reservation: 802.1Qat
  - Media transport: IEEE 1722
  - Discovery and management: 1722.1
- **Bit perfect AVB audio transfer**
  - 4 channels in & out at 48kHz, 24bits
  - 2 channels in & out at 96kHz, 24bits
  - PLL recovery of AVB media clock
- **Network topologies**
  - Star or daisy-chain
  - Up to 7 nodes in a chain
- **Royalty free software stack**
  - Provided as source code
  - Freely available development tools

The XMOS AVB-DC platform builds on our standard endpoint AVB solution by adding support for daisy-chain network topologies. Incorporating dual Ethernet ports, AVB-DC endpoints may be connected together in a line, reducing installation effort and infrastructure cost, whilst still maintaining the high QoS provided by the AVB standards.

Powered by xCORE™ flexible multicore microcontrollers, the AVB-DC software stack is configurable. This allows you to choose the number of streams and audio channels, sample rate and interfaces to external devices. It is even possible to integrate DSP processing and housekeeping functions using spare logical processing cores, providing a compact yet complete solution for a wide range of audio applications.

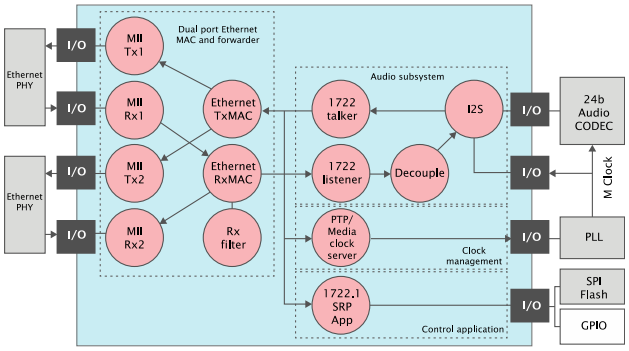
Thanks to the maturity and wide-spread adoption of the XMOS AVB solution and active participation in AVnu plugfests, our AVB-DC endpoint delivers the compromise-free audio networking promised by AVB.

Backed up by our flexible hardware platform called sliceKIT, xSOFTip soft IP blocks, comprehensive documentation and examples, the AVB-DC solution offers the easiest way to implement your AVB enabled audio product.

ARCHITECTURE

The AVB-DC design consists of a dual Ethernet MAC with packet forwarder, audio subsystem, network & media clock management and system control.

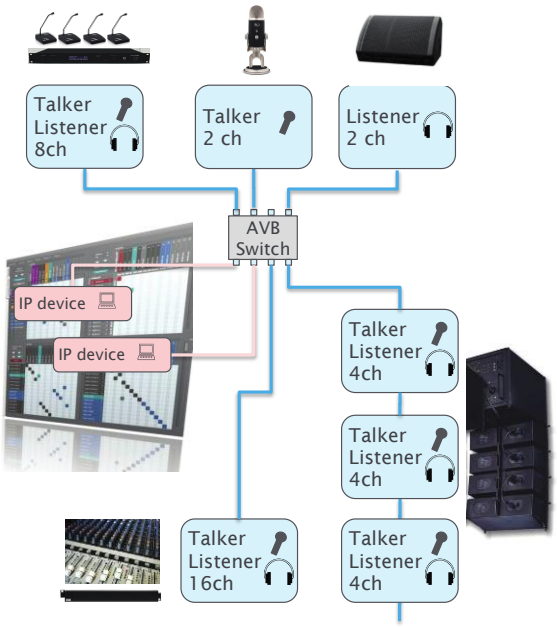
All functions, including the network, clocking and audio interfaces, are implemented as software IP running on logical cores inside the xCORE device; allowing for system customisation using C.



APPLICATIONS

XMOS AVB audio endpoint solutions allow flexible star and/or chain network topologies and are ideal for many applications, such as:

- Line array speakers
- Conference microphones
- Wireless base stations



	Feature	Benefit
AVB	AVB standard compliant endpoint	Plug-and-play operation AVnu plugfest proven interoperability with other vendors
	Multi-channel audio input and output Digital and analogue audio formats	Ideally suited for networked audio applications, such as: professional audio, conferencing or automotive
	Powered by xCORE multicore microcontroller	Flexible, deterministic and responsive processing power Single device multicore microcontroller – low system BoM
	Flexible hardware & software platform	Predefined feature set reference design Easily customisable to meet specific product requirements
xTIMEcomposer	Source code reference software Integrated development tools suite	Rapid development and code reuse Royalty-free deployment. Fast time to market

ORDERING INFORMATION

For a list of XMOS distributors, please visit www.xmos.com/support/distributors.

Part number	Contents
XK-SK-AVB-DC	An AVB-DC kit contains two complete AVB-DC units, together with power supplies and cables 2x XP-SKC-L2 L16 sliceKIT core-board 2x XA-SK-AUDIO-PLL Analog 4in/4out multi-channel audio slice card with PLL 4x XA-SK-E100 100Mbit Ethernet PHY slice card 2x XA-XTAG2 xTAG2 debugger 2x 12V PSUs, 2x USB cables, 2x Ethernet cables