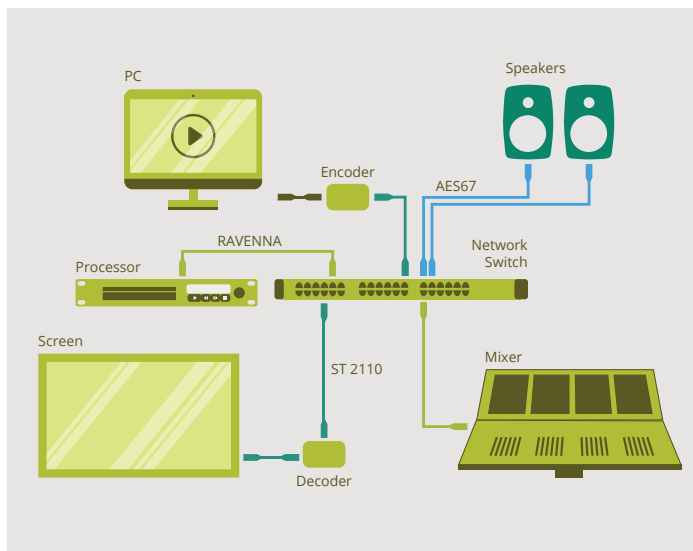


Real-time Audio Video Networking

Based on open standards, RAVENNA is the most advanced audio networking protocol available. Widely used by broadcasters, it offers features that AV professionals can rely on.

The RAVENNA team helped develop AES67, a standard which serves High-Performance Audio over IP (AoIP) interoperability. It includes a set of rules for existing and future protocols to follow.

An experienced community of manufacturers, developers and more form a constantly growing user base. RAVENNA's roots lie in broadcast, but with the addition of protocols supporting video transport, all kinds of new projects have spawned.



To adopt RAVENNA, you can install OEM hardware from our trusted vendors or integrate it in the development of your own solution. RAVENNA is open, and freely available – you can implement it yourself and simply license the rights to use the RAVENNA logo from ALC NetworX.

Whilst OEM solutions support RAVENNA and AES67, some also offer options for control, data tunnelling and USB bridging. There are also free and paid-for software options for virtual soundcards under Windows and macOS.

RAVENNA opens your products up to AES67 and SMPTE ST 2110 compliance with a variety of ways of implementing solutions, so you are never dependant on one solution vendor.

RAVENNA Key Features

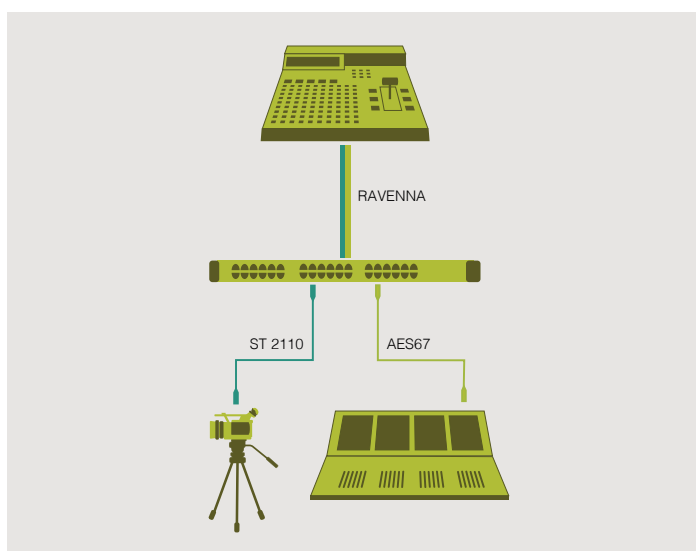
Open technology based on industry standards	Can run on existing smaller or larger (corporate) networks and co-exist with other traffic
Choice of hardware and software solutions	Existing ecosystem of manufacturers providing RAVENNA/AES67 enabled products
Solutions available from multiple vendors	OEM software / hardware available from various RAVENNA partners
Native compatibility with AES67 and SMPTE ST 2110	RAVENNA builds on the same protocols and principles as AES67 and SMPTE ST 2110
Discovery and redundancy as standard	Includes standards-based device and service discovery beyond AES67 & SMPTE ST 2110
Low latency and full bit transparency	Sub-millisecond latency, AES3 support (SMPTE ST 2110-31, i.e. for Dolby-E and other non-PCM formats) & sample-accurate play-out
Wide choice of media formats	Transport almost any audio – supports any professional data format (16/24/32 bits) and sample rates (44.1 to 384 kHz)
Multiple timing options	From independent local clocking in smaller installations up to world-wide traceable clocking via GPS for remote production
Used worldwide for broadcast major sports events	RAVENNA has been the transport backbone for almost all major world-class sport events since shortly after its inception in 2010

Hardware Solutions

Producer	Name	Channels	AES67 ST 2110	Notes
Digigram	LX-IP	128 x 128	Yes	High-performance PCIe card for Windows & Linux
Ross Video	BACH openModule	512 x 512	Yes	High-performance, ultra-high channel count
Ross Video	BACH Minuet	16 x 16	Yes	High-performance, low-channel count system-on-chip
Ross Video	BACH Liberty	64 x 64	Yes	High-performance, Brooklyn II pin-compatible
Merging	ZMAN	Up to 256 x 256	Yes	High-performance, high-channel count, Brooklyn II pin-compatible
DirectOut	RAV2	128 x 128	Yes	High-performance, compact Mini-PCI form factor

Software Solutions

Producer	Name	Channels	AES67 ST 2110	Platform	Notes
ALC NetworX	RAVENNA Virtual Sound Card	8 x 16	Yes	Windows 7, 8 & 10	Free Software
H7R	Streamer++	192 x 192	Yes	Windows 10, 11 & Linux	NMOS control module available
Lawo	R3LAY VRX8	8 x 8	Yes	Windows 7, 8 & 10	Virtual Mixer
Lawo	R3LAY Virtual Patch Bay	64 x 64	Yes	Windows 7, 8 & 10	Application
Lawo	R3LAY Virtual Sound Card	64 x 64	Yes	Windows 7, 8 & 10	Driver/ application
Lawo	R3LAY AoIP Stream Monitor	16	Yes	Windows 7, 8 & 10	Application
Merging	VAD Standard	64	Yes	Windows & macOS	Stereo version, free
Merging	VAD Premium	128	Yes	Windows & macOS	Multichannel version, free with hardware
Merging	Linux driver	Up to 16	Yes	ADI ADSP-SC573	Supports NMOS & integration with SHARC DSP



AES67 & VIDEO Audio for AV Products

SMPTTE ST 2110 is a fundamental standard for audio and video transport over IP. Transport of audio signals follows the AES67 standard, making it fully compatible with RAVENNA.

Thus, SMPTTE ST 2110 opens up the video world for all AES67-enabled audio products, ensuring video AND audio products connect perfectly together.

“All RAVENNA devices can process any audio stream compliant with SMPTTE ST 2110”