



AM3D is a Danish company developing advanced audio software based on 3D-audio (binaural technology) and psycho-acoustic principles. AM3D's software can be used to greatly enhance stereo as well as multi-channel music, it makes mobile gaming come alive in three dimensions, it drastically improves the sound of movies and it provides exciting new features for automotive audio.

Our software is especially applicable to be implemented in Mobile Phones, other portable devices such as Portable Media Players, MP3-players, TVs etc., home cinemas and car entertainment systems. The software runs on many different platforms and can be tailored for different applications. The table shows a number of current products and which customizable elements they contain.

	Mobile Phones and Portable Devices		In-car Entertainment	Home Entertainment	AM3D 3D Audio Engine
	ZIRENE® Audio Enhancement	DIESEL POWER MOBILE™ 3D Gaming Audio*	CAR-FI™ Automotive Audio	AMBIO™ Multi-channel Audio	Fully Configurable
Mono Widening	●			●	○
Stereo Widening	●			●	○
Power Bass	●	●	●	●	○
Reverb	●	●	●	●	○
Virtual 5.1/7.1 Surround	●		●	●	○
Music Equalization	●				○
Transducer Equalization	●	●		●	○
Cross-talk Cancellation	●	●		●	○
Sweet-spot Optimization	●		●	●	○
Level Alignment	●		●	●	○
Level Max	●	●		●	○
Treble Enhancement	●		●	●	○
Surround Up-mix			●	●	○
Cabin Equalization			●		○
Room Equalization				●	○
3D Positioning		●		●	○
Multiple Sound Sources		●		●	○
Moving Sound Sources		●			○
Moving Listener		●			○
Graphic Equalizer		●			○
Chorus		●			○
Pitch		●			○
Doppler		●			○
Directivity Cone		●			○
Obstruction		●			○
Occlusion		●			○
Multi-channel Output			●	●	○
Dynamic Scene Control		●			○
Multiple Sample Rates	●	●	●	●	○

*Supports the audio features of the Java Specification Request JSR-234: Advanced Multimedia Supplements (AMMS), and Vodafone VFX®

Products

ZIRENE®

Audio Enhancement

Dramatically improves the listening experience when listening to stereo music, videos, radio or TV. Especially tailored for use with headphones or micro-speakers as found in mobile phones. Furthermore, the signal can be optimized for car audio systems.

DIESEL POWER MOBILE™

3D Gaming Audio

Advanced 3D audio gaming engine for managing multiple moving sound sources and creating 3D sound on portable devices. Fully compliant with the Java standard JSR-234 and Vodafone VFX®.

CAR-FI™

Automotive Audio

Improves the sound of stereo and surround material when played back through a car's loudspeaker system. Furthermore, it improves the sound of music and films when passengers listen with headphones.

AMBIO™

Multi-channel Audio

Advanced software for managing and enhancing multi-channel audio. Supports virtual sound, up-mixing and down-mixing as used in home cinema and home entertainment systems.

Elements

Mono Widening

When listening through headphones the sound is moved from inside the head to a broader image outside the head.

Stereo Widening

Widening the stereo sound stage when listening through headphones or closely-spaced loudspeakers.

Power Bass

Maximizing the perception of bass by means of non-linear processing.

Reverb

Sophisticated room simulation for creating many different listening environments.

Virtual 5.1/7.1 Surround

Down-mixing of 5.1/7.1 multi-channel surround sound for headphones or closely-spaced loudspeakers.

Music Equalization

Standard frequency equalization to suit different types of music such as rock, jazz, classic etc.

Transducer Equalization

Frequency equalization for headphones and loudspeakers for obtaining a more natural sound.

Cross-talk Cancellation

Cancellation network needed when producing 3D sound through narrowly-spaced loudspeakers.

Sweet-spot Optimization

Optimization of the sound played through multiple loudspeakers for a non-optimal listener placement.

Level Alignment

Minimizes the difference in perceived sound level for input signals with different signal energy.

Level Max

Boost of signal level using non-linear methods with minimum impact on audio quality.

Treble Enhancement

Amplification of high frequency audio content by means of non-linear processing and thereby obtaining extended high frequency bandwidth.

Surround Up-mix

Advanced algorithm for up-mixing stereo and multi-channel material for playback through loudspeakers.

Cabin Equalization

Frequency equalization of the interior of a car for each loudspeaker in the sound system individually.

Room Equalization

Frequency equalization of a room response for each loudspeaker in the setup individually.

3D Positioning

Placement of virtual sound sources around a listener by means of Head-Related Transfer Functions (HRTFs).

Multiple Sound Sources

Ability to simulate a large number (depending only on processing resources) of virtual sound sources.

Moving Sound Sources

Ability of virtual sound sources to move freely in 3D-space around the listener.

Moving Listener

Ability of the listener to move freely between sound sources in 3D-space.

Graphic Equalizer

10 band graphic equalizer with attack frequencies from 31 Hz to 16 kHz with one octave of separation.

Chorus

Effect imitating the phenomenon that occurs when several voices in a choir attempt to sing in unison.

Pitch

Perceived fundamental frequency of a sound – can be changed in real time.

Doppler

Change in pitch due to the movement of a sound source with respect to the listener.

Directivity Cone

Radiation pattern of a sound source causing the sound level from the source to be directionally dependent.

Obstruction

Amount by which sound is muffled due to an object between the sound source and the listener.

Occlusion

Amount by which sound is muffled due to the sound being outside the room where the listener is located.

Multi-channel Output

Support for playback of more than two audio channels through loudspeakers.

Dynamic Scene Control

Software tool for creating listening scenarios with moving sound sources and preset effects.

Multiple Sample Rates

Changing the input sampling rate of a digital signal for sampling frequencies between 8 kHz and 48 kHz.

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