A3D 3.0 Software Development Kit

Feature-rich. Royalty-free. License-free. Completely Free. *…Very sexy.*

The A3D 3.0 SDK is free to qualified software developers and includes:

- *Aureal Vortex 2 (AU8830) Sound Card*
- *Complete A3D API Reference Manuals*
- *A3D Tutorials, Demos and Buildable Source Code*
- *Aureal Wavetracing™ Geometry Viewer*
- *Shippable, royalty-free A3D 3.0 Sound Engine (compatible with any sound card)*
- *A3D Drivers and Logos*
- *Free Technical Support*

A3D SDK Introduction

Aureal's A3D audio technology has taken the PC audio community by storm. A3D does for your ears what the best 3D graphics have done for your eyes, immersing you with real-world sounds that come from all directions and move interactively in all three dimensions. A3D uses the polygons you send to your graphics engine to create an aural experience that puts you in the middle of a realistically rendered, interactive environment. The success of A3D is based on the fact that it is a robust technology originally developed for NASA, that it performs its magic via hardware acceleration to keep applications moving fast, and that it works incredibly well on just about any audio playback device: headphones, standard stereo speakers, or multi-speaker setups. A3D-enabled PC audio products are available from over 40 sound card, motherboard, and PC manufacturers, including Aureal, Asus, Compaq, Dell, HP, IBM, Micron, Sony, and Turtle Beach; an installed base in excess of 15 million units is expected in 2000.

A3D 3.0 is a complete audio engine. The SDK contains everything needed to build software applications that harness the full power of A3D. In addition to drivers, tools, and documentation, Aureal offers free technical support to developers and QA departments to ensure a quick development path and great results.
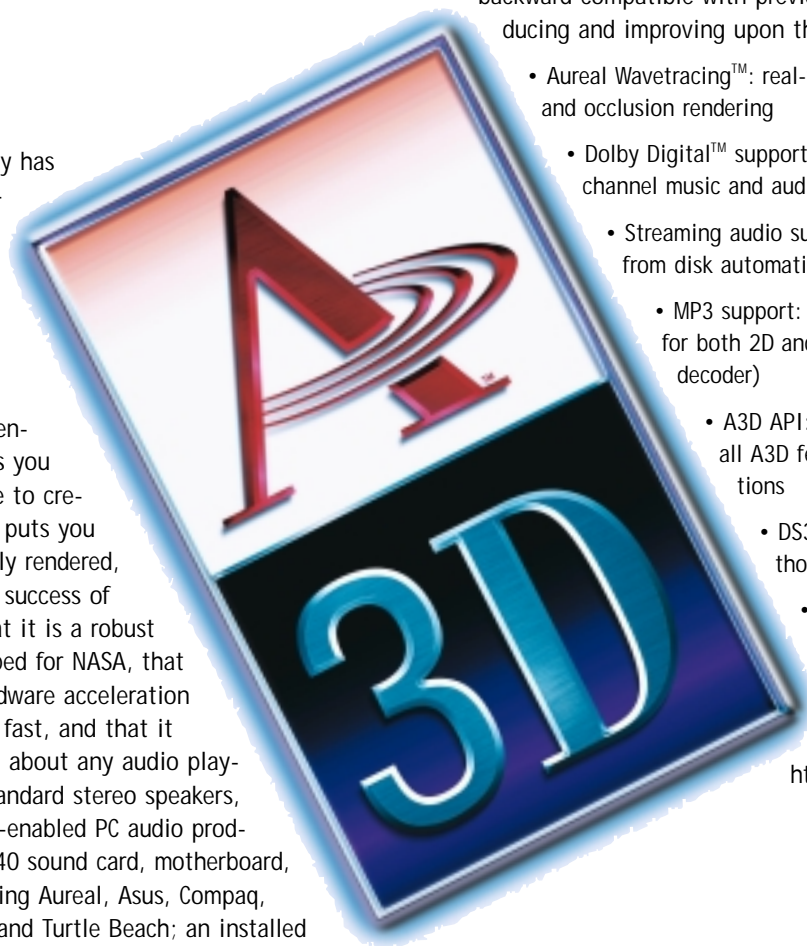
A3D 3.0 Overview

A3D 3.0 is truly the only audio engine of its kind. Building on the success of the popular A3D 2.0, Aureal is introducing A3D 3.0 as the next generation of its positional 3D audio standard. Designed to take full advantage of the latest generation audio hardware (including Aureal's award-winning Vortex 2 chipset), A3D 3.0 is backward compatible with previous versions of A3D while introducing and improving upon the following features:

- Aureal Wavetracing™: real-time acoustic reflection, reverb and occlusion rendering
- Dolby Digital™ support: integrate pre-rendered multi-channel music and audio
- Streaming audio support: stream audio files direct from disk automatically with no overhead
- MP3 support: License-free usage of MP3 audio for both 2D and 3D playback (includes software decoder)
- A3D API: all-in-one interface to support all A3D features, including fallback solutions
- DS3D, EAX™, and I3DL2 support (for those cards that support them)
- Advanced resource management features

To receive an A3D 3.0 SDK please visit:

http://developer.aureal.com

Aureal Wavetracing™ Technology

Developed over many years in conjunction with clients such as NASA, Matsushita and Disney, this new technology is enhanced further in A3D 3.0. Aureal Wavetracing parses the 3D geometry description of a space to trace sound waves in real-time as they are reflected and occluded by acoustic objects in the 3D environment. This means that sounds can be heard as emanating from a sound source in 3D space (as in A3D), but also as they reflect off of walls, leak through doors from the next room, get occluded as they disappear around a corner, or suddenly appear overhead as you step into the open from inside a room. Room acoustics are rendered as individually-imaged early reflections and then automatically generated as late reflections (reverb). The result is yet another quantum leap in audio rendering realism!

A3D 1.0
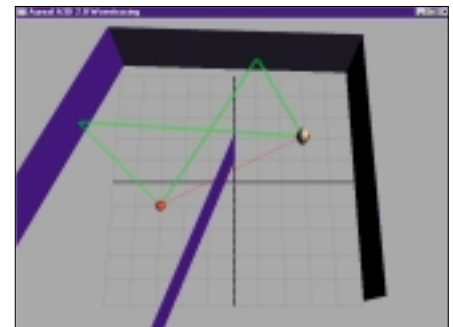Direct Path Sound Waves (Red)

Dolby Digital Support

For the first time, developers can easily and seamlessly harness the power of Dolby's studio quality AC-3 standard, bringing multi-channel audio to the PC environment. Finally, games can have breathtaking musical scores that match or surpass those of Hollywood's finest films.

A3D 3.0
Direct Path Sound Waves Partially Occluded by Wall (Red) and Reflected by Walls (Green).

Geometric reverb is then generated to round out the aural experience.

A2D = A3D Support for Every Sound Card

Applications written to the A3D API will automatically use Aureal Vortex or generic DirectSound3D hardware resources (including EAX and I3DL2) if available, to avoid using host processing whenever possible. In the absence of hardware resources, A2D, based on a heavily speed-optimized, feature-reduced version of A3D, will run stand-alone on any host CPU to emulate A3D in a software only environment. As a result, A2D allows A3D 3.0 applications to run on any PC platform, including systems without A3D hardware support. A2D extends A3D 3.0 to offer developers a true all-in-one audio solution and a single API to code to. Written in tightly optimized x86 assembly code, A2D offers great speed and great audio quality. The combination of native Vortex chipset support, DS3D support, EAX and I3DL2 support, and A2D guarantees that the A3D 3.0 engine delivers the best, and most complete, audio experience for all your users.

A3D Software Title → A3D API → A2D Emulation, DS3D, Extensions

Aureal Vortex 1 or Vortex 2 — Generic ISA Legacy Device — Generic DS3D Accelerator