

Havok™ Animation

Scale and Perform!



Havok Animation is a fast and flexible animation SDK and tool chain that provide optimized playback and real-time blending on all major platforms. Create characters that move fluidly, taking advantage of comprehensive animation compression techniques inverse kinematics, and integration with Havok Physics to enable a new range of game-play possibilities. Havok Animation also provides artists with an integrated filtering, preview, and export tool that operates seamlessly with your studio's choice of commercial modeling and animation tools.

Comprehensive SDK Support

- Highly efficient animation compression/decompression
- Motion blending and mixing
- Animation controls for speed, direction, looping, weight control
- Integrated inverse kinematic systems
- Retargeting of animations between characters
- Tools and run-time for ragdoll-to-animation-rig bone-mapping
- Per-bone/per-track weighting
- Mirroring
- Animation ease curve support
- Motion extraction and re-composition for run-time control of character velocity
- Attachments

Compression of Animation Assets

Havok Animation's optimized compression technology allows for the storage of high-quality animation assets in a significantly reduced memory footprint. The Havok Content Tools provide an intuitive interface for adjusting the trade off between accuracy and storage size. The platform-optimized run-time decompression library ensures the most efficient performance on all

gaming systems. Selective per-bone compression ensures that those character features which visually contribute the least may be appropriately compressed the most.

Ragdoll Integration

Havok Animation provides out-of-the box integration with Havok Physics for ragdoll driving and blending. Havok's ragdoll technology allows physical interactions to modify a character pose, including realistic collisions and damage effects. Motion controller technology is provided to blend animated motion into the character pose for sophisticated ragdoll effects. High to low detail skeleton mappers can be set up in the Havok Content Tools to allow physical ragdoll representations to be simulated at run-time. Pose-matching utilities facilitate 'get-up' scenarios. (cont.)



BioShock 2
Image courtesy of 2K Games

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Ragdoll Integration (Cont.)

Penetration detection utilities allow smooth recovery from physically inconsistent user requests.

Animation Retargeting

Havok Animation’s new Animation Retargeting feature allows motion originally created for one character to be transferred to another character in-game at low cost. Existing animation assets can easily be re-used to animate new characters with differences in bone lengths and bone structure. Artistic control and setup of the retargeting mapping between characters may be done either using the GUI provided by the Havok Content Tools, or programmatically using the SDK.

Inverse Kinematics

Havok Animation provides a library of inverse kinematics algorithms for run-time modification of character poses including head-tracking, foot

placement and arbitrary reaching. Full integration with Havok Physics ensures that characters interact realistically with game worlds, detecting collisions and walking over uneven terrain. Exposed controller parameters and joint angle limits ensure that the IK solvers may be tuned to give the best possible results for characters of all shapes and sizes.

Run-Time Mirroring of Animations

Havok Animation’s run-time mirroring feature allows paired directional animations to be authored for only a single direction and automatically reflected at run-time to create its paired animations. By effectively synthesizing a “turn right” animation from a “turn left” example, this feature reduces memory requirements for Animation sets that consist of large numbers of symmetric animation pairs. By eliminating the need to create extra reflected assets, the artist content creation time is greatly reduced and simplifies the artist’s asset management.



Animation Retargeting
Left most character courtesy of Flagship Studios

Professional Services

Havok offers dedicated on-site professional services that provide focused assistance to help studios meet the ever-evolving demands of their development cycles.

For More Information

www.havok.com

FEATURES	BENEFITS
Full support for industry’s leading game platforms	Compelling content creation for games designed to run on Nintendo® Wii™, Xbox 360®, Sony® PSP™ and PLAYSTATION®3, PC and Mac
Out-of-the-box integration with Havok Physics	Intuitive access to proven Havok technology
Direct support for Autodesk® 3ds Max®, Maya®, and SOFTIMAGE® XSI® content preparation and export	Seamless integration of serialized animation and character assets generated in these modelers when using Havok Content Tools
Fully threaded for optimum scalability on multi-core architectures	Allows developers to make full use of the available hardware on all supported platforms
Industry Leading Support	Dedicated account managers from our world-renowned Developer Relations group will work with your team to ensure you get the most from your Havok products.

Havok Animation is industry-tested and approved with over 75 titles released or in development.

