

XPU Guide

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Welcome to RenderMan XPU™

Version 25 delivers significant new milestones for Pixar's next-generation technology, XPU, to increase its role in production VFX pipelines, while it continues to evolve to become a full production renderer.

With support for volumes and points, XPU can now be used for look development beyond hard surfaces. With XPU's added support for LPEs and arbitrary AOVs compositing workflows are now enabled, which are essential for feature animation and VFX.

Finally, many additional enhancements signal a giant leap forward in Pixar's GPU-accelerated renderer.

Highlights:

Volumes — The introduction of volume aggregates in XPU is a major achievement, allowing for faster iteration times during the look development phase, as well as quicker final renders. Now render pyrotechnics and more with XPU!

LPEs & AOVs — Full support for LPEs and arbitrary AOVs in XPU empowers artists with the flexibility and control they need to produce high-quality output for compositing and a variety of production scenarios.

Look Development Improvements — The advancements in Look Development in XPU, including support for thin glass and trace subsets, provide better control for artists and help achieve even greater consistency between XPU renders and RIS.

Deformation Motion Blur — XPU now supports full deformation motion blur, enabling studios to use XPU to generate fast quality control renders to give artists the opportunity to validate whether their animation cache was created correctly.

Complete Camera Controls — XPU now supports many controls of pxrCamera. These controls include additional features such as depth of field and chromatic aberration, which can be quickly adjusted during interactive rendering.

Interactivity — Interactivity is a key feature of XPU in RenderMan 25, which prioritizes interactive performance by improving the responsiveness of XPU to camera movements and shader parameter changes, through features such as Progressive Pixels, allowing artists to make quicker and more informed decisions, while providing faster image feedback for refining their choices.

Rendering Controls — The rendering controls in XPU provide a more granular level of control over the rendering process, allowing artists to set trace depths for both diffuse and specular rays on a per-object basis. These controls help to achieve faster convergence speeds and produce renders that more closely match those produced by RenderMan's previous version, RIS.

Improved Low-Memory GPU Support — The texture cache has been improved to perform better on GPUs that are memory constrained. You will get faster renders from the GPU if the texture cache needs to do out-of-core texture lookups.

- [XPU Highlights](#)
- [XPU Features and Limitations](#)
- [Validating XPU Renders with RIS](#)
- [XPU Technical Specifications](#)