X-TENDED Reality™

CATI X-TENDED Reality® is the perfect merging of real and virtual worlds to produce new environments and visualizations, where physical world and virtual world co-exist and interact in real time. CATI X-IG® High Fidelity Image Generator display technologies are used to facility the interaction between the user and the extended reality application.

For over twenty-five years, CATI X-IG® has been providing unparalleled rendering performance through advanced software algorithms and optimizations. Now CATI X-TENDED Reality® brings this high-performance image generator technology to a Head Mounted Display (HMD) providing a fully immersive training environment.

CATI's X-IG® image generator is a Commercial Off-the-Shelf (COTS) product for PC-based visual simulations. X-IG® is specifically designed around industry standard OpenGL, a high performance graphics Application Programming Interface (API), and OpenFlight, the 3D standard format for the visual simulation industry.

X-IG® is designed to render real-time Out-the-Window (OTW) and sensor scenes for training and simulation, creating real-world high resolution photorealistic visual and sensor scenes. X-IG® additionally includes special effects which complement the image generator enhancing scenes.

Currently in use with various military, civilian, and commercial customers, X-IG® provides high-fidelity visualization for flight simulators and a variety of other training systems. Advanced data compression, optimization, and paging algorithms allow X-IG® to render high-density, geo-specific databases of unlimited coverage.

X-TENDED Reality™ Performance

- Renderings of 500,000 fully-textured, shaded and anti-aliased polygons per channel, peak performance of over 4 million polygons at 90 Hz
- Renderings of 200,000 light points in day/night/dusk at 90 Hz
- Database paging and texture compression for uninterrupted training through high resolution geo-specific databases
- Anisotropic texture filtering increasing texture resolution
- Multiple light sources (ambient light, spotlights, steerable search lights, landing lights, etc.)
- Dynamic scene management
- Real-time texture animation
- Unlimited levels of occulting

Supported Devices

- Headsets
    - Varjo XR3 & Varjo XR4 Series
    - Oculus Rift
    - HTC Vive
    - Vison Products VR/MR - SA-62, SA-83, SA-92 & SA-147

- Headtrackers
    - HTC SteamVR Trackers
    - Intersense Professional Tracking Systems
    - Polhemus Motion Trackers
    - Ascension laserBIRD

Application Programming Interface

- API portable source available
- After Action Review (AAR) record/replay capability
- Asynchronous mission functions – LOS, HOT, etc.
- Configurable scripting for automating simulation API tasks

Databases

- Extensive libraries of world-wide, geo-specific, high resolution databases
- Rapid placement of database features using the Environmental Modeling Editor (EME$^{®}$) for fast turnaround and reduced cost
- Stenciling of airfields
- OpenFlight, CDB, SECore compliant

Export Control

- X-TENDED Reality™ & X-IG® are approved for export Civilian and Commercial X-IG® sales are subject to the jurisdiction of the U.S. Department of Commerce in accordance with the Export Administration Regulations as EAR-99.