X-IG® 5.0
Image Generator System

CATI image generator systems are the ideal choice for the visualization of simulation training systems. For over twenty years, CATI has been providing unparalleled rendering performance through advanced software algorithms and optimizations.

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-IG 5.0

A Dedicated Team
Committed to your Training Needs...

Real Time Rendering Engine

- Renderings of 500,000 fully textured, shaded, and anti-aliased polygons per channel, peak performance of over 4 million polygons at 60 Hz
- Renderings of 200,000 light points in day/night/dusk at 60 Hz
- Multi-channel (viewport) single PC configurations
- Synchronized multi-channel capability using hardware Genlock solutions
- Auto-alignment and channel edge blending for continuous multi-window applications without performance penalty
- Database paging and texture compression for uninterrupted training through high-resolution geo-specific databases
- Multiple light sources (ambient light, spotlights, steerable search lights, landing lights, etc.)
- Dynamic scene management and FOV based dynamic LOD control
- Baked emissive cultural references
- Highly configurable and extensive channel configuration capable
- User available plug-in callback capabilities for customizable applications, data collection, HUD, etc.
- Integrated MAK Technologies' DI-Guy real-time human simulation

Application Programming Interface

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

Sensor Modeling

- IR, LLTV, & Sensor-fusion payload sensor views
- ROC-V modeling with controllable IR hotspots
- Multiple electronic/digital zoom and focus
- Tunable device specific IR effects: noise, brightness, gain, AC coupling, polarity, auto/manual gain, and level focus
- NVG simulation night imagery viewable with the unaided eye
- Configurable NVG stimulation sensor including independent IR channel control
- Contrast-based Image Auto-Tracker (IAT)

Atmospheric and Weather Effects

- Comprehensive weather and atmospheric effects
- Multiple lighting and volumetric thunderstorm models
- Directional and dynamic snow/rain models
- Volumetric clouds, fog, and haze layer models
- Continuous and static time of day
- Ephemeris models

Mission Functions

- Tactical terrain server processes over 100,000 concurrent requests per second
- Surface material code feedback to host for ice, snow, rain, etc.

Special Effects

- Highly realistic tactical and cultural effects with animation
- Emissive and reflective surfaces
- Dynamic shadow rendering of scene entities
- GUI-based special effects composer
- Advanced dust model for Degraded Visual Environment Training

Databases

- Extensive libraries of world-wide, geo-specific, high-resolution databases
- Use of graphics stencil buffer for pixel perfect ocean shoreline interface.
- Rapid placement of database features using the Environmental Modeling Editor (EME$^{®}$) for fast turnaround and reduced cost
- Stenciling of airfields and bomb craters
- OpenFlight$^{®}$, CDB, SE Core compliant

Standard Interfaces

- Distributed Interactive Simulation (DIS)
- Common Image Generator Interface (CIGI)

SAF

- Multiple SAF supported with fully correlated visual and SAF databases

Export Control

- X-IG$^{®}$ is 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

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