EP®-8100 IMAGE GENERATION SYSTEM

DIRECT MORE TRAINING TASKS TO THE SIMULATOR

Designed to lower costs over its life cycle

Three factors are critical in selecting an image generator for immersive military and commercial aviation training environments: preservation of prior synthetic environment investments; extending hardware life cycle in a commercial off-the-shelf environment; and quickly updating software for cockpit concurrency.

In a market where all other image generators are based on video-game graphics cards, the EP®-8100 image generation system is driven by real-time, simulation-specific graphics cards and software designed for your real mission. It provides unmatched procurement cycles of five to eight years and life-cycle support in excess of 15 years.

While leveraging game-like concepts, the real-time software is specifically designed for simulation and training applications by using special effects and features such as regional and global weather.

Our Database Generation System (DBGS) includes conversion software to allow existing Collins Aerospace synthetic environments as well as military and industry standard synthetic environments to run on the EP-8100.

Converted environments can be executed in their original form or enhanced to take advantage of the unique capabilities of the EP-8100. Converted environments can be exported into original formats for continued customer environment preservation.

The EP-8100 Scene Processor 2 (SP2) graphics boards are based on field programmable gate array (FPGA) technologies, which are widely in use.

Updates of the software for program-specific requirements or vehicle capability concurrency require no hardware changes and can be performed in the field.

The SP2 is available in a single- and dual-node configuration in a 2U rack footprint. It includes embedded sensor capability, eliminating sensor rendering hardware.

KEY FEATURES AND BENEFITS

- WholeEarth™ synthetic environment, allowing large-area training with small inset development

- Fully backward compatible with EP®-8000 image generator, protecting prior investments

- Automatic generation of secondary airfields capable of supporting many training tasks

  - Render all DAFIF runways, including location, length, heading, width and material

  - Insert geo-typical taxiways, cleanly connecting all airfield runways

  - Insert geo-typical control tower and terminal buildings

  - Insert geo-typical ground traffic and clutter on the airfield

  - Smoothly blend entire airfield into background earth with no offending transitions

- Single or dual SP2 provides industry-leading speed and memory capability

  - 37 GB of total on-board memory, compared with the 4 GB available on most gaming cards

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KEY FEATURES AND BENEFITS (CONTINUED)

- Industry's largest available texture memory enables sub-meter, out-the-window and sensor imagery over very large areas

  – 16 GB of memory solely dedicated to texture rendering

- Diverse display options to support legacy projector solutions as well as current 4K solutions

- More than twice the rendering power in the same physical footprint as the EP-8000

- System support, including edge blend, image warping, symbology overlay and auto alignment native to the EP-8100 with no additional third-party hardware or software required

- Rendering of integrated, out-the-window and laser designator effects with one graphics card

- High-fidelity sensor simulation, addressing IR, NVG, EO and LLTV requirements

- Depth-of-field focus and blur for monochrome and color rendering for day TV and sensors

- Per-primitive blur for more realistic smoke, dust or heat haze

- High-fidelity snow and rain effects with a full depth image rendering

- Regional weather, allowing up to eight simultaneous, unique weather patterns with smooth and continuous transition from one to another

- Adaptive architecture, providing efficient volumetric rendering (patent pending) for more realistic clouds, smoke and dust

- Industry-leading anti-aliasing algorithms, yielding superior moving image quality

- Highest available volume of Phong light sources and "calligraphic-like" cultural lighting

- Real-world lighting with advanced, physics-based atmospheric light scattering and particle effects

- Long-range, narrow-field-of-view sensor viewports with variable range focus

- Largest catalog of high-resolution airport models available; regular updates are also available

SYSTEM SPECIFICATIONS

With a straightforward design and only three line-replaceable units, the EP-8100 provides compact system configuration as well as increased reliability for easy support and maintenance.

Hardware components

- Real-time computer – 5.25-inch high rack mount (3U)

- Scene Processor 2 (SP2) – 3.5-inch high rack mount (2U)

- Power distribution unit – 30-amp U.S./ international switchable

Display options

- Display port 1.2 – 2 ports

- Analog (RGBHV) – 2 ports

- Digital video interface – 2 ports

- Serial digital interface – 2 ports

Software components

- EP2™ run-time software and firmware, including sensor and mission function options

- WholeEarth synthetic environment, including commercial and military inset options

- Standard CIGI v3.2 and Collins Aerospace opcode, such as ESIG host interfaces

Specifications subject to change without notice.

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