



SKYLIFER IG

AVIATION | MARINE | LAND-BASED

NEW AGE OF FIDELITY FOR SIMULATION

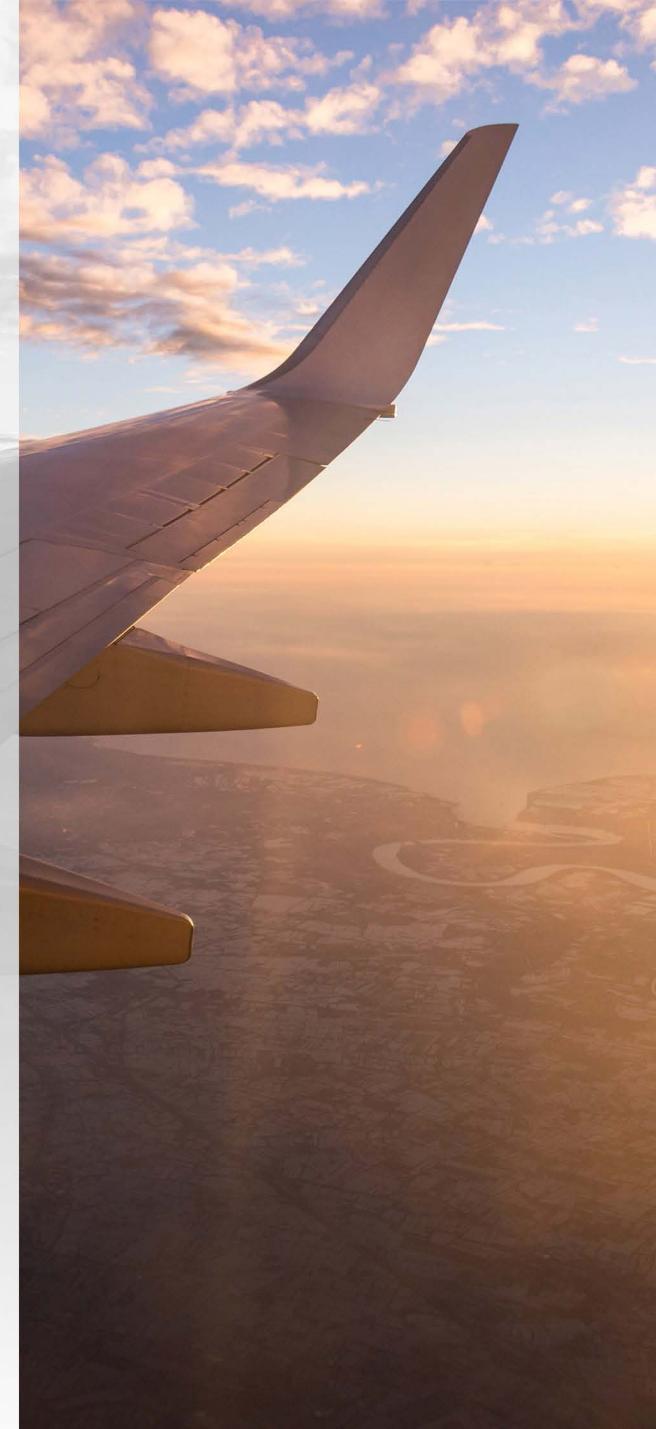
CORE GRAPHIC S PERFORMANCE OF SKYLIFER IG:

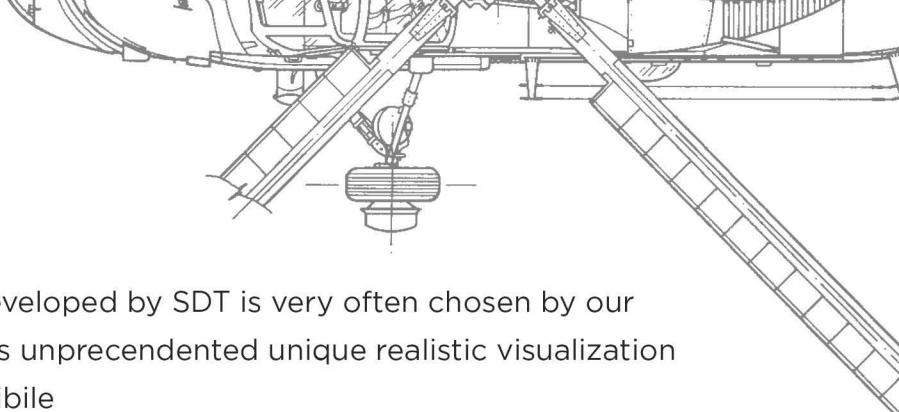
- 192GTexels per second fill rate per channel, fully textured, anti-aliased, and lit;
- Up to 4.1 million pixels per channel output at 60Hz update - able to drive WQXGA (2560 X 1536) projectors;
- Simultaneous rendering of more than 14 000,000 anti-aliased, multi-textured polygons, and over 750,000 light points per channel;
- All projected polygon edges and light points are anti-aliased, using up to 32x coverage sample anti-aliasing (CSAA) for improved pilot cues and object recognition;
- 32-bit color resolution for all polygons and light points;
- Hardware acceleration and compression/decompression of all textures, with real-time 60Hz asynchronous texture paging, and single level of detail to eliminate distracting artifacts or changing silhouettes;
- System support for 8k x 8k fully mip-mapped textures;
- Multiple-resolution texture blending, and support for multiple texture layers;
- Bump map texturing for greater perceived surface relief, and better near-ground rate cues;
- Anisotropic texture filtering up to 16 levels for supporting texture clarity at varying distances;
- Sophisticated texture management and paging scheme takes full advantage of available texture;
- Memory (12Gb graphics texture memory);
- Up to 256 levels of transparency, and 256 levels of fade level of detail for enhanced weather effects and blending of scene elements;
- 24-bit Z buffer resolution;
- Fixed order (fixed-listing) and/or Z buffer scene object prioritization;
- Sub-facing (decals) for fix listed object priority without parallax error;
- Volumetric texture rendering for clouds, fog, precipitation, and special effects. Enhanced motion cueing;
- SkyLifer IG uses multiple volumetric rendering techniques to give the most realistic 3D clouds at the best performance;
- All polygons are HAT, HOT and collision detection capable.



OUR COMPETENCES AND EXPERTISE MAINLY FOCUSED IN SIMULATION AND TRAINING AREAS AND COULD BE DESCRIBED AS:

- design and equipment of training centers (civil aviation training centers and pilot schools, marine training centers);
- design and development of SkyLifer image generation system for training and simulation needs for aviation, marine and land simulation applications;
- design and development of visual system for external environment simulation for flight and marine simulation application;
- design and manufacture of Full-Flight Simulators (FFS), Flight Training Devices (FTD), Flight and Navigation Procedure Trainier (FNPT) for rotary and fixed wing aircrafts;
- development and manufacture of marine simulators and trainiers; development and integration of industrial simulators (cranes, large-scale machineries, complex utilities);
- also SDT provides maintenance, repair and service and technical support including upgrade and modernization of simulators and training devices.





We are proud to state that SKYLIFER IG developed by SDT is very often chosen by our customers for simulation upgrade due to its unprecedented unique realistic visualization of external environment, reliability and flexible architecture. All simulators developed by SDT are based on SKYLIFER IG family and enhance efficiency of specialists' simulation training due to realistic visualization of environment it provides. All our solutions are very flexible and could be applied in wide range of simulators both for military and civil use, air, marine and land applications. R&D department, technical support and maintenance service creates for our customers comfort condition for their projects development and ensures technical assistance during all operational life cycle (3 -10 years technical and mainatnance support). Our competence could be confirmed by implemented projects for Enterprise Antonov, Naval Academy P. Nahimov, training simulation centre of UkrAeroRuch Company and many others. Our experts develop complex simulators for six years and familiar with world leading companies from simulation industry.

SDT is ready to apply its expertise and skills for developing most challenging projects for virtual reality systems, modeling and simulation.

Innovation, high quality and capability to astonish – are key benefits and advantages of SDT.



SDT's simulators deliver to our customers best training tools and guaranty:

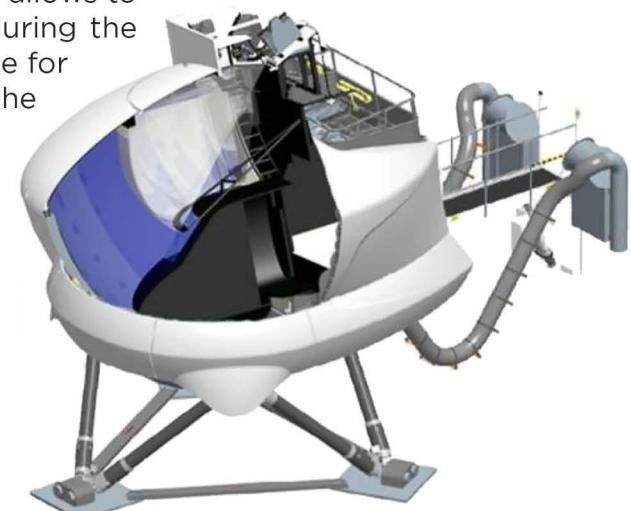
- possibility to carry out all types of pilots (crews) flight training;
- high fidelity simulation of real flight conditions and operation controls modes, onboard systems and equipment.
- accurate simulation of in cockpit equipment and aircraft controls and systems;
- high fidelity synthetic environment with big database of airfields and objects;
- realistic simulation of different flight conditions including bad weather and emergency;
- high reliability and low cost of ownership;
- after-sales technical support is guaranteed.

Information

Flight simulator pilot training is one of the most important elements of safe operation management of an aircraft. As simulation minimizes an effect of human factor and allows minimizing crews' misoperation. The relevance of pilot simulator training becomes even more evident as human factor remains the main reason of flight accidents. Besides, level of modern FFS allows to provide even more enhanced training than training during the real flight. As in real flight crew is to spend a lot of time for routing operations that are outside the framework of the training course and specific goals of the drilling.

At the same time FFS software allows to control and immediately change from Instructor Station working place different flight conditions, such as:

- weather;
- geographical position;
- visibility;
- day or night;
- traffic;
- emergency situations;



For Emergency situation here one should highlight that flight simulator allows organization of the crew's emergency in-flight training without any limitations, which is normally dangerous or prohibited for real aircraft by regulations. Also, FFS pilot training approach is much more cost-effective.

The advantages of Full Flight Simulation training are quite evident:

Flight Simulation training is not affected by real weather condition and can be used without any time limitations. Also, different scenarios and conditions could be chosen.

Cadets can repeat and practice as much as they need.

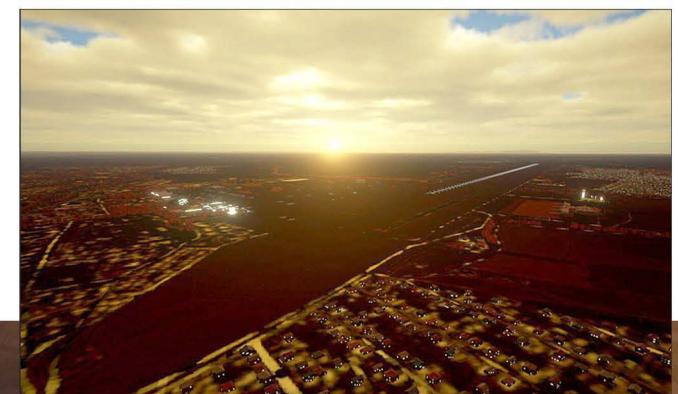
Flight Simulation training enables intensive training, to spot and highlight individual needs of every cadet on every level of training.

Time saving. Flight Simulation training enable to shorten flight preparation course twice.

Utilization of Flight Simulators eliminates all risks during emergency training.

Cost-saving. Flight Simulation training significantly reduces all expenses: fuel, operational impact for an aircraft which is normally required for getting skilled well trained pilot during training course.

Green technology. Flight Simulation training saves energy and environment by its ZERO emission and low noise level in comparison to real aircraft.





SKYLIFER IG - is the latest commercial-off-the-shelf (COTS) PC technology based version of image generator developed by SDT and deliver a new core for simulator visual system utilized for training applications, combining groundbreaking realism and performance that meets the most challenging training needs both for civil and military customers.

SKYLIFER IG hardware is 100% non-proprietary and true COTS. This enables the power and reliability of continually advancing technology, and the low cost and ready availability of internet sourcing, to be fully exploited.

SKYLIFER IG software development adheres to flexible-architecture principles. To enable customers to maximize reuse of existing or newly-generated databases, and of commercial model availability, the SKYLIFER® software supports FBX or another model import (e.i. OpenFlight).

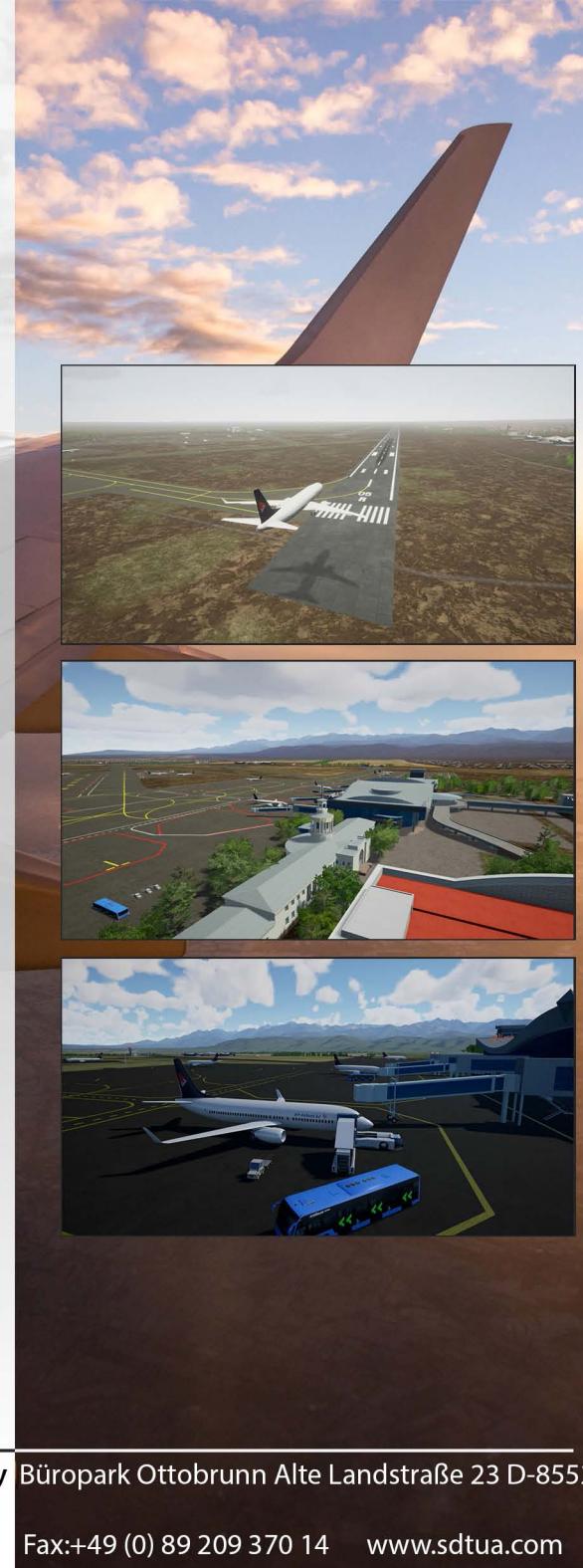
SKYLIFER IG features:

- Open architecture hardware 100%;
- Requirements for "Level D" FMS visual systems;
- Fully scalable and supported on the site;
- Geometry distortion correction and image blending software included;
- Compatible with all types of projectors and screens;
- Real-Time Physics Controlled - Particle Based Environmental Effects;
- Different configurations are available: FTD, FMS and others.

This unique image generator delivers to the customer the highest image quality and the power and capabilities of the latest COTS workstation graphics.

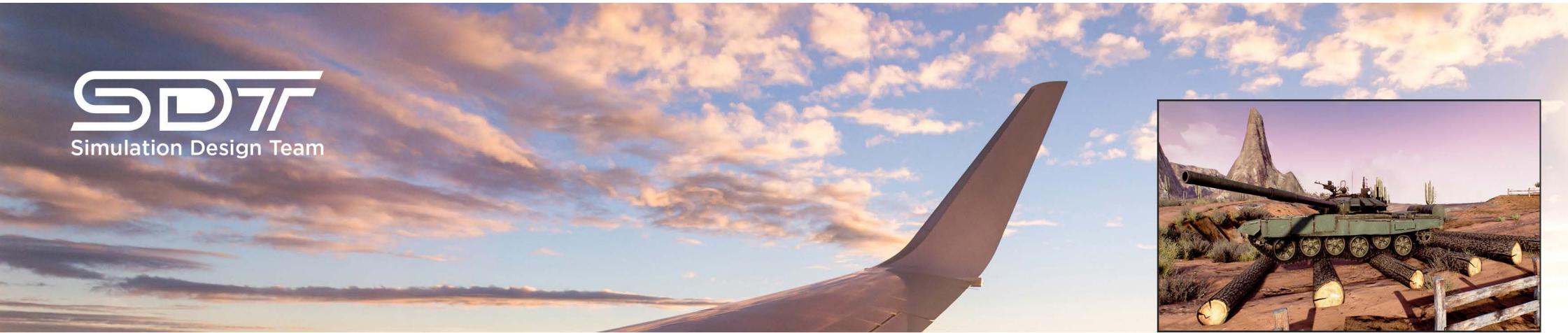
Runtime core graphics performance is important to the ability to generate extensive and realistic visual effects.

The SKYLIFER® IG runtime provides the following core capabilities and features



"7" 7"

WHOLE RANGE OF EMERGENCY SITUATIONS



SDT offers to its customers complete range of services and products in the area of flight simulation: starting from developing different types of simulators both fixed wings and rotary wings aircrafts and simulators' components.

Company also provides maintenance and technical support during all simulator life-cycle as well as modernization of previously delivered solutions.

SDT's simulators delivers efficient tool for air crew training on the ground in piloting technique, navigation, engine units running, aircraft and helicopter systems and equipment operation on the ground and in the air, due to the Flight Operations Manual of corresponding aircraft or helicopter types.

The simulator allows pilots or crews to practice the whole range of emergency situations on the ground and in the air, including situations that are not possible to practice in real flight.

Simulators cockpits are replicas of the customer's aircraft-in-service cockpit. Visualization system represents a multi-channel projection system with computer image generation of Outside World (OTW) situation on cylindrical, spherical or hemispherical screen. It provides continuous OTW situation display in the field of pilot view with visual field angle from 220° to 270° horizontally and from 60° to 110° vertically.

Most of our solutions are using modular architecture and COTS base approach in order to deliver best balance of cost vs price.

The simulators designed and manufactured by SDT meets ICAO 9625 certification requirements and create a solid base for teaching and training of the crew actions in the scope of their functional duties of piloting an aircraft, air navigation, operation of onboard systems and equipment, including actions in abnormal and emergency situations in accordance with the «Flight Crew Operating Manual» and make possible all types of simulator training



SKYLIFER VER. 1.0

Multiple visual channel support (max. Qty. of visual channels in current version)	Yes (not less than 8) running test for 16 channels
Graphical API	Direct X
Particle based effects support (explosion, smoke, destruction etc.)	Yes
Available plug-ins (shaders, physx, speed tree etc.)	Yes
Animation of 3D human characters and AI plug-in	Yes
Light point capacity	700,000 lightpoints / system at 60Hz
Polygons	20,000,000 visible polygons/systems at 60Hz