



GenesisIG running the PLW Modelworks San Francisco dataset of over 87,000 Open Flight models with new water that was incorporated due to SBIR work. DVC is the only IG that has been able to incorporate NVIDIA's gaming WaveWorks water into its standard GenesisRTX suite of products.

DIAMOND VISIONICS

When Diamond Visionics (DVC) came on the scene, pilot simulation training really was limited to pre-defined database areas. Trainees could select an airport, load in the files, and do their basic maneuvers such as takeoff and landing around that static scene. Diamond Visionics felt they could take the trainee from feeling like they were in a simulator, to feeling like they were actually flying the globe.

PHASE III SUCCESS

\$30 million from its GenesisRTX product line (GenesisIG, GenesisRDR, GenesisSN, and GenesisSDK), which began as an SBIR project funded by the U.S. Navy; Genesis is used by the Navy, Army, Air Force, Marines, foreign governments and several large prime contractors.

AGENCIES

DOD

SNAPSHOT

Diamond Visionics is a leader in high performance Image Generation software that is used for military and commercial pilot training, mission rehearsal training, and full motion-based simulation.

DIAMOND VISIONICS

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"We wanted to know, what happens when you fly in between these airports? No one had really thought about that," explains Dan Peters, Sales Manager at Diamond Visionics. "So we said, let's utilize the Round Earth technology to be able to fly from destination to destination around the world."

The company used funding from the Navy's Small Business Innovation Research (SBIR) program to turn this vision into a reality. The technology, which eventually evolved into GenesisRTX, has realized substantial success in both military and commercial markets, with revenues of \$30 million to date.

The advantage to Genesis is its real-time rendering, which allows the user to rapidly change data sets with continuity so all that is required is a refresh. This eliminates the need to create an offline database, which was commonplace before this technology. Users can optimize performance by holding a 60-hertz refresh rate, and display the maximum amount of content in the scene.

While past flight simulators would jump from city to city without any continuity, the graphics within Genesis allow for a continuous flight representation to and from anywhere in the world. If airfields are of particular interest, the software can create an exact replica of the airfield, including signs, navigation aids, runway lengths, markings of taxiways and exact lighting patterns.



DVC's Genesis is used on the Boeing U.S. Army's AH-64 Apache Research and Development Simulator platform, to capture realism and speed and provide the very best in flight simulation training.

IMAGE COURTESY | U.S. ARMY

After a successful Phase I and Phase II of the most recent SBIR, Genesis soon was selected for use on the Boeing AH-64 Apache simulator and most recently on contracts from the U.S. Navy such as KC-130T and DMRT.

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DAN PETERS
SALES MANAGER

GenesisIG (Image Generator), which is a best-selling product on the Genesis product line, is currently being used by customers around the globe. DVC has Enterprise Site License Agreements with FRASA International, which uses GenesisSDK as the engine for all of its systems deployed around the world. Boeing Company employs its Enterprise Agreement with GenesisIG and GenesisSN on its systems including F-15, F-16 and F-22 simulators, and BAE UK uses its Enterprise Agreement to utilize GenesisIG for its F-35 Program and Typhoon, as well as multiple UAV programs for its maritime simulations in the United Kingdom.

Commercially, DVC also works with several helicopter customers like Airbus, Agusta, Westland, and ESG in the European marketplace. Just this year the company announced that Mitsubishi Heavy Industries (MHI) chose GenesisIG to upgrade their existing F-2 Instructor Desktop Training Devices, which simplifies training for employees.

“Genesis was birthed from the SBIR program, and we’ve been able to utilize several SBIRs though our 20 years of existence, and we’ve gotten to the point of having such mature products where they are used extensively around the world,” says Peters. “We still

review the SBIR solicitations every time they come out; our company has benefited greatly and continues to benefit from the program.”

When looking at new solicitations, DVC likes to focus on providing a solution for an existing need within the government, as a means to further evolve its own technology.

“We look at the SBIRs and say - what does the Navy need?” explains Peters. “What can we focus on and possibly provide? We try to match those to our capabilities and see where we can grow from it.”

A recent SBIR seeded the development of another new product in the line – GenesisQE (Query Engine), which provides rapid correlated high-performance mission functions for the user. These functions are all based on the same dataset (imagery, elevations, normal and materials) and algorithms used for rendering with GenesisRTX/IG.

The new technology is capable of performing tens of thousands of queries per second and supports the parallel processing of mission functions. Each GenesisQE application is unique because customers have different use cases and interface requirements. Benefits to users of GenesisQE include the offloading of mission function calculations from the visualization channels, increased performance, guaranteed correlation, and reduced CIGI traffic.

With prestigious awards coming in every year and demand for its technology at an all-time high, Diamond Visionics is continuing to explore opportunities, and is looking to the future to corner even more markets that could benefit from its futuristic technology.