DSix

Flight Simulation Development and Deployment Software
One Product, Many Applications

As the aerospace industry has evolved from long-term development cycles to rapid prototyping and spiral development, the need to rapidly build, analyze, validate and deploy simulations to support all phases of vehicle operations has become paramount. Rather than building from legacy simulation paradigms, BAR has developed a reconfigurable simulation environment designed to support diverse simulation applications as requirements expand. With the flexibility afforded through object-oriented design, standard plug-in interfaces, computational resources, and supporting tools and interfaces, DSix provides the development environment for the most demanding flight simulation applications – including desktop development and analysis, full Operational Flight Trainer (OFT) flight model host, hardware-in-the-loop simulation, and high-performance networked multi-vehicle applications.

Collaborative Environment

To maximize the benefit of simulation in an organization or program, the use of the tool cannot be restricted to a single individual or department. DSix facilitates collaborative simulation use with its novel design that treats simulation objects as a project — effectively a container for all project-dependant components such as code, data and any other services needed for the specific simulation. The project also contains interfaces to common project-dependant functions that include Equations of Motion, environment, table look-up, program graphic interfaces, etc. This highly flexible architecture allows the user to tailor simulation projects to their needs and transfer the project to other users for collaborative simulation development, analysis and application. The developer simply passes the project file to other users, with user-controlled access to the project code and data. The use of the standardized model-dependant software allows the recipients to immediately utilize the simulation in their application, while the reconfigurable hardware interface allows individual users to quickly configure their simulation to their specific hardware application for immediate productivity.

Supports All Aircraft Types and Data Sources

Whether modeling a fixed-wing aircraft, rotary-wing aircraft, V/STOL aircraft, or UAV, DSix provides the same simulation infrastructure for all aircraft types and configurations. With DSix, there is no structure required beyond the block diagram to support you with total control over your flight model definition. Whether the model structure consists of a simple linear model or a complex flight model with separate components for each system and sub-system (e.g., auto, primary flight controls, automatic flight controls, propulsion, weight and balance, gear, fuel, stores, hydraulics, etc.), DSix provides the simulation tools and graphic interfaces that enable efficient model development and deployment. DSix also enables the integration of legacy flight models, even in situations that may require mixed programming languages and formats. To assist with the import and export of tabular databases (a key but often problematic element of simulation development) DSix provides AeroPart — a configurable simulation database porting tool that can import and export more than a dozen native tabular database formats quickly and accurately.
**DSix Flight Simulation Software**

**Component-Based Project Structure**
- Component-based flight model project structure breaks code into aircraft components (e.g., propulsion, flight controls, aero, etc.) and provides more flexible flight model development, collaboration, testing.
- Project exports an interface that can be accessed from non-DSix simulation environment and external tools.

**Code Architecture**
- Code base designed with a modular architecture
- Provides enhanced flexibility and extensibility of DSix

**Runtime Edition**

**Graphical Module Manager**
- Quickly view available modules and their purpose
- Enable and disable individual modules with a mouse click

**Plot Engine**
- Powers the DSix plot utility and data editor
- Many features, more intuitive interface, less clutter

**Interactive Output Display**
- Hyperlinks for recently used actions (e.g., opening a project)
- Displays output from script, simulation models or any module
- Multiple tabbed output windows
- Significantly improved messaging allows greater status communication without interrupting simulation operations.

**Extensible Interface Manager**
- All DSix components expose interfaces directly through the interface manager
- Module and simulation model development greatly simplified by direct access to internal functionality
- Interface functions and function parameters integrate with Visual Studio’s IntelliSense

**DSix V1.x Project Support**
- DSix 1.x project format loads and saves to new text-based format
- Compiled DSix 1.x project code fully compatible

**SimStack Add-On Module**
- Provides DSix interface to SimStack hardware modules
- Enables users to interface simulation to OEM aircraft hardware
- Provides mapping of DSix variables to hardware
- More info at simulatorsolutions.com.au

**GLStudio Instruments Support**
- DSix module enables loading of GLStudio instrument RSOs
- Enhanced interface for easier integration

**Image Generator Support**
- Interface to Lockheed Martin Prepar3D for geo-specific terrain
- Now supports Prepar3D Version 4

**Atmospheric Model**
- Atmospheric effects model directly incorporated into DSix
- MIL-SPEC Dryden Turbulence model
- Modeling of wind shear, microbursts, gusts
- Multi-level steady winds

**Support for Latest Microsoft Environments**
- Visual Studio 2008 through 2017
- Windows Windows 7, 8 and 10

**Scripting Support**
- VBScript, JScript, and others
- Direct access to DSix data
- DSix components provide direct script access
- DSix V1.95 scripts fully supported

**DSix Graphical User Interface (GUI)**
- Support for 4K monitors
- Improved menu structure
- More consistent windows and dialogs

**Variable Display Windows**
- Improved performance & configurable update rates
- Drag and drop variable lists between windows
- Copy and paste text file lists

**InfoFile**
- DSix tool for managing table look-up data
- Supports 2D and multi-dimensional tables

**Overdrive**
- Overdrive manager allows overdriving select groups of simulation parameters
- Optional aero coefficient extraction

**Sample Aircraft Model**
- BARJet light jet sample model with gear
- Features new component-based project structure
- Source code provided

**Default Instrument Panel**
- "Glass cockpit" display
- Features airspeed and altitude ribbon gauges

**Updated Wizards**
- Project wizard
- Module wizard

**Portable Simulation Model Files**
- All data saved in easy-to-read text format
- All project data stored in one folder for project portability
- Models easily configured for desktop and cockpit interfaces