CGI Studio
2D/3D HMI/GUI Software Development Platform

Description
CGI Studio is a software development platform for the creation of 2D and 3D graphical interfaces (HMI/GUI) for a variety of embedded applications including automotive instrument clusters and infotainment systems, industrial control systems, and medical devices. This powerful, Microsoft Windows®-based solution enables designers to shorten development time and costs for advanced embedded and automotive applications.

CGI Studio provides a seamless process flow within a single development tool chain. The application suite enables system designers to proceed from early conception to design, prototyping, testing, and deployment. Initial designs from the graphics artist can be imported into CGI Studio from a variety of popular graphics software applications.

The system designer can then develop and enhance the design in the CGI Studio software environment. 2D and 3D content can be mixed in one design. Artifacts can be imported; screen and scenes easily composed; and animations created and configured.

Code and user interface data remain strictly separate, so 3D data can be changed without changes to the source code.

The performance and visual impression can be evaluated early in the process (and regularly during it), reducing development time and costs. Before deployment, the final functionality and appearance of the design can be verified in a simulated rendering of the target application within CGI Studio. The design can be continuously and painlessly integrated into the target device.

Features
- Rapid HMI prototyping results
- 2D/3D user interface development on Microsoft Windows
- Platform-independent abstraction
- Support for the OpenGL ES 2.0 standard
- Strict separation of code and user interface data
- Support for hardware layers and multiple displays
- Optimized for Fujitsu GPUs (MB86R0x “Jade,” MB86R1x “Emerald,” MB86R24 “Triton,” and future products)

Applications
CSI Studio facilitates the design, prototyping and development of embedded applications that feature small to medium-sized color LCD screens, including:

- Automotive clusters and infotainment systems
- Medical devices, and
- Industrial control systems

This software-development platform is optimized for Fujitsu graphics products including the latest 2D/3D SoCs. The CGI Studio tool can also be used with non-Fujitsu graphics chips, providing a higher level of software retention and reuse.
Candera Graphics Engines

CGI Studio is based on the 3D and 2D "Candera" engines. The application allows platform-independent abstraction and fully supports the OpenGL 2.0 ES standard to give system designers the greatest possible flexibility.

Candera 2D Engine Feature Set

- Retained mode API (scene graph)
- 2D animations (rotation, scaling, and translation of bitmaps)
- Support for hardware layers and multiple displays
- Support for alpha blending
- Support for 2D widgets
- Text-rendering capability
- Render to texture
- Post-process 3D images
- 2D/3D scene combinations
- Dynamic scene graph with customizable effects (shadows, etc.)

Candera 3D Engine Feature Set

- OpenGL 2.0 ES support
- OS and application independent
- Hardware independent
- Robust screen- and scene-management features
- Advanced 3D object handling and processing capabilities
- Powerful animation framework
- Asset-management features
- Platform and renderer abstraction

Components

Besides the Candera 2D and 3D engines, CGI provides a continuous tool chain—Scene Composer, Player, Courier, Analyzer and Translator—for the development of hybrid 2D and 3D graphical interfaces.

CGI Studio Scene Composer enables the creation, composition, verification and testing of 2D/3D scenes and screens. Artifacts can be imported and dropped into the scenes. Objects, lights, transitions and animation can be created and configured, and assets exported for the host target system.

CGI Studio Player helps in application development and verification, and in the design and verification of widgets.

CGI Studio Courier is an “interaction framework” that supports data binding and message handling. CGI Studio Courier facilitates rapid application prototyping, easy simulation, changes, and porting to any customer platform.

CGI Studio Analyzer measures and analyzes the Candera graphics application performance, efficiently detecting bottlenecks.

CGI Studio Translator does content-based translations of HMI text online and checks those translations against defined constraints. This single, central translation repository supports a highly parallel, iterative process.

CGI Studio Process Flow Graphic