mercury systems™
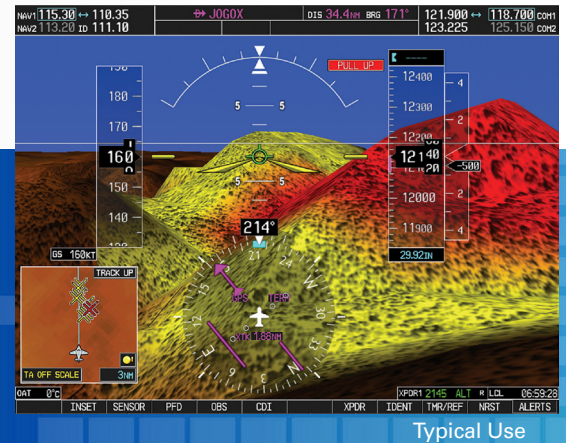
*Built*SAFE™ GS OpenGL Libraries

- **Portable - Across many GPU, CPU, SoC and RTOS combinations**
- **Powerful - Highly optimized 3D performance**
- **Certifiable - DO-178C, IEC-61508, ISO-26262 and IEC-62304**
- **Open Standard - Supports multiple graphics APIs, developed in alignment with the FACE™ technical standard**
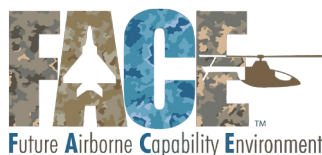- **Customizable - Easily add custom APIs and features**

Typical Use

Mercury's BuiltSAFE™ GS OpenGL libraries set the standard in quality, performance and flexibility for embedded graphics applications. They enable hardware accelerated graphics rendering for popular GPU and SoC from AMD, ARM and Intel devices. Mercury BuiltSAFE graphics solutions have been trusted by leading aerospace, defense and automotive companies across the globe to implement mission and safety-critical user interfaces that vehicle operators can depend on under the most demanding conditions.

Our flexible, high-performance and safety certifiable libraries are used for diverse applications ranging from avionics, to automotive displays. The technology is easily reconfigured to support a variety of popular processor and Operating Systems (OS) architectures. All data items required to achieve the highest levels of safety certification are readily available.

For 2D and 3D rendering in situations where performance and ease of integration are paramount, BulitSAFE GS OpenGL libraries have no equal in performance and ease of integration.

Future **A**irborne **C**apability **E**nvironment

Application Domains

- Cockpit display systems
- Tactical displays
- Infotainment/Driver information
- Enhanced/Synthetic vision systems
- Industrial control systems
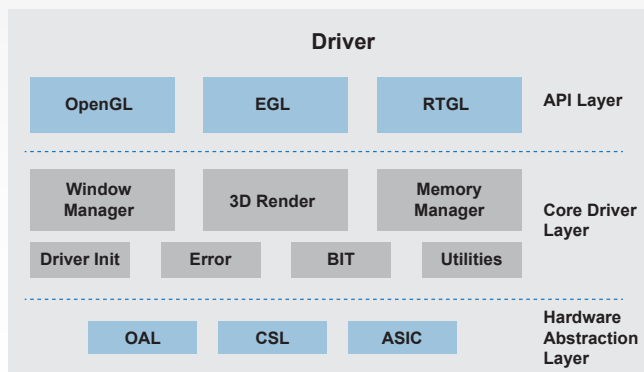- Video and imaging processing
- Telematics

Mercury Mission Systems

- Safety-critical and high-integrity systems and software for the aerospace, defense, automotive, and industrial control industries
- World-class technology allowing graphics content to be seamlessly deployed across different platforms
- Leading supplier of advanced 3D graphics and OpenGL enabling solutions for embedded systems
- DO-178C, DO-254, IEC-61508, ISO-26262 and IEC-62304 domain expertise with comprehensive development, verification and certification client services

Mercury Systems is a leading commercial provider of secure sensor and mission processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.

ACQUIRE DIGITIZE PROCESS STORAGE EXPLOIT DISSEMINATE

Key Features

- Photorealistic rendering
- Deterministic memory management
- Broad API support: OpenGL ES1.1, SC1.01, ES2.0, SC2.0
- Comprehensive BIT to monitor GPU integrity
- Flexible and configurable multi-core support
- Sophisticated client-server model for efficient partition management, hypervisor and guest OS support
- Advanced, platform independent, window manager
- High-performance, low-latency, video input and overlay
- Customizable power management and video modes

Driver

OpenGL	EGL	RTGL	API Layer
Window Manager	3D Render	Memory Manager	Core Driver Layer
Driver Init	Error	BIT	Utilities	
OAL	CSL	ASIC	Hardware Abstraction Layer

GS OpenGL library hardware functional block diagram

Customization

Mercury provides customization services to accommodate various system configurations and to add functionality to our drivers. Our experience and industry alliances have made us experts with most major real-time OS, graphics APIs, bus architectures and processors. We provide custom business, mission and safety critical graphics solutions, including drivers, application level and middleware solutions. If you are looking for advanced graphics support for a device not currently supported, please inquire. We are constantly evolving our product offerings.

Mercury Mission Systems Advantage

Mercury Mission Systems specializes in the production of safety-critical and high-integrity display systems for the aerospace, defense and automotive industries. In addition to offering our own portfolio of low-power, high-performance avionics computers and OpenGL graphics drivers; we also provide outsourced safety, systems, software and hardware engineering services to meet client specific project requirements. We are expert in the ARP 4754A, ARP 4761, DO-178C, DO-254, IEC-61508, ISO-26262 and IEC-62304 standards and offer comprehensive development, verification and certification services to our clients required to meet these standards.

All Mercury development and certification activities are carried out by our in-house experts.

All Mercury products are free of code restricting the use of the drivers to GPU sourced from a particular supplier, eliminating predatory supply practices.

Mercury Mission Systems is an AS9100-C and ISO 9001:2008 certified company.

BuiltSAFE GS OpenGL Libraries Configurations and Options

Available for:

- AMD E6760, E8860, G Series SoC
- Intel IRIS and IRIS Pro GEN 9 graphics
- Xilinx Zync Ultrascale+ (ARM Mali-400)

BuiltSAFE GS OpenGL Libraries Extensions

Video Capture Library - Low-latency live video overlay module. Supports H.264 and MPEG2 decode. Video rendered as OpenGL textures for advanced shader-based processing in graphics pipeline.

Advanced Window Manager and Hybrid Renderer - Dynamically move, resize, and/or composite windows from a combination of BuiltSAFE hardware accelerated or BuiltSAFE GS Multi-Core Renderer applications.

Image Integrity Monitor - Real-time monitor of graphics fidelity preventing display of hazardously misleading information to pilot.

BuiltSAFE GS OpenGL Libraries Certification Kits

Complete evidence available for DO-178C, IEC-61508 and ISO-26262 certification.

mercury systems™

INNOVATION THAT MATTERS ™

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