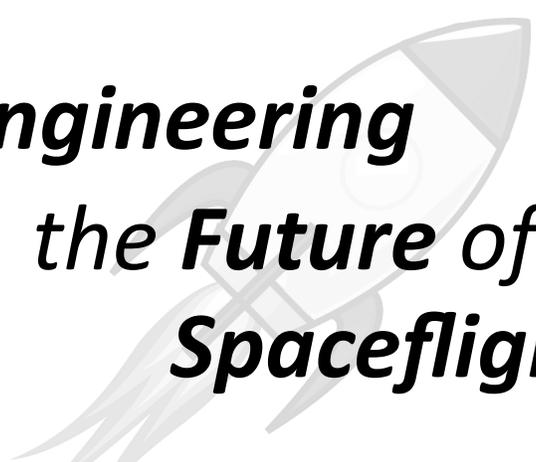




ODYSSEY SPACE RESEARCH



Engineering the Future of Spaceflight

Our award-winning team works with you to create innovative products and solutions.



Services

Guidance, Navigation & Control

Algorithm and flight software development, system design, analysis, integration, test and independent evaluation of GNC systems for a variety of spacecraft and missions and all flight phases; extensive experience in FDIR for human-rated systems.

Spaceflight Simulation & Analysis

Simulations and analyses supporting key functions such as flight dynamics, ground operations, flight control training, astronaut cockpit development, trajectory optimization, and mission design.

Flight Software

Flight software and flight software architecture design, development, integration, and testing for human and robotic spacecraft; independent verification and validation of flight software design and implementation.

Avionics Integration & Test

Architecture and implementation solutions that integrate avionics hardware and ground systems with flight software and computer simulations for integrated analysis, testing, and verification of spacecraft systems and missions. ESD labs on-site.

Human Spaceflight Operations

24/7 flight control operations support in NASA's Mission Control Center and development of mission planning and analysis tools for the International Space Station (ISS) and for human exploration of the solar system.

Products

ENCORE™

ENCORE™ is Odyssey's "Commercial Class A" flight software framework for accelerating flight software solutions. It provides features such as deterministic scheduling and intrinsic, low-level FDIR support. ENCORE™ is scalable and configurable to meet the needs of simple satellites to more complex safety-critical missions. The companion STAGE™ ecosystem ensures robustness of ENCORE™-based solutions.

STAGE™ Ecosystem

The STAGE™ ecosystem provides a nearly turnkey CI test infrastructure and toolset to rapidly stand up and execute a test campaign. It is designed to seamlessly work with our ENCORE™ framework but is flexible enough to work with other flight software systems such as cFS. The STAGE™ ecosystem is verified, validated, and documented to NASA Class C standards, required for safety critical software systems.

Core Flight Software

Core Flight Software (cFS) is NASA's open-source flight software framework. Besides having extensive experience developing all levels of cFS, Odyssey has developed, tested, and flown multiple cFS instantiations, and offers licensable applications that can move your project forward faster.

GNC & Simulation

Odyssey's configurable GNC simulation and flight solutions for Earth orbits, rendezvous and proximity operations, lunar trajectories, and beyond are designed to meet the demands of commercial and government programs with determinism, safety, and reliability.

How can we help you?

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www.linkedin.com/company/odyssey-space-research-llc

1120 E NASA Parkway, Suite 505, Houston, TX 77058 | 5480 Valmont Road, Suite 325, Boulder, CO 80301 | 281-488-7953

ENCORE™

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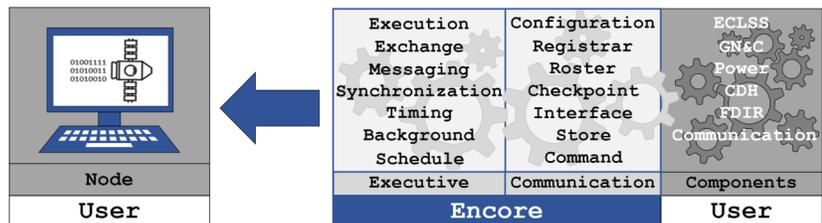
ENCORE™ is Odyssey's *new*, modular, and modern flight software framework to enable rapid development of solutions for various software architectures and avionics configurations. ENCORE™ was developed using Odyssey's "Commercial Class A" software processes with modern techniques and reduced overhead. The approach incorporates the **reliability** and **determinism** needed for highly complex, real-time, safety-critical embedded systems, while being **flexible**, **configurable**, and **scalable**. ENCORE™ is designed to effectively and confidently kickstart your project to lower lifecycle cost, technical risk, and development schedule.

ENCORE™ orchestrates scheduling, timing, synchronization, communication, and other functions necessary for higher level functionality (such as GNC, ECLSS, etc.). ENCORE™ provides many configurable functions, utilities, and applications, as well as a flexible approach to system interfaces. ENCORE™ is designed to work with a range of avionics from single processor systems to multi-core, multi-computer, fault-tolerant implementations typical of human-rated missions.

Differentiators	Encore™
Designed for human-rated systems	●
Written in modern C++	●
Supports deterministic, multi-threaded, multi-core processing	●
Designed for a distributed computing environment	●
Supports reusability across platforms and missions	●
Supports unit testing on target hardware	●
Includes extensive FDIR, safety, and reliability features	●
Flight-ready commanding, telemetry, time management, and other common utils are provided with the framework	●
Full development and test ecosystem	●

ENCORE™ is built from the ground up to address rigorous real-time and safety-critical needs while maintaining scalability (upwards or downwards) and flexibility to meet mission objectives for projects big and small.

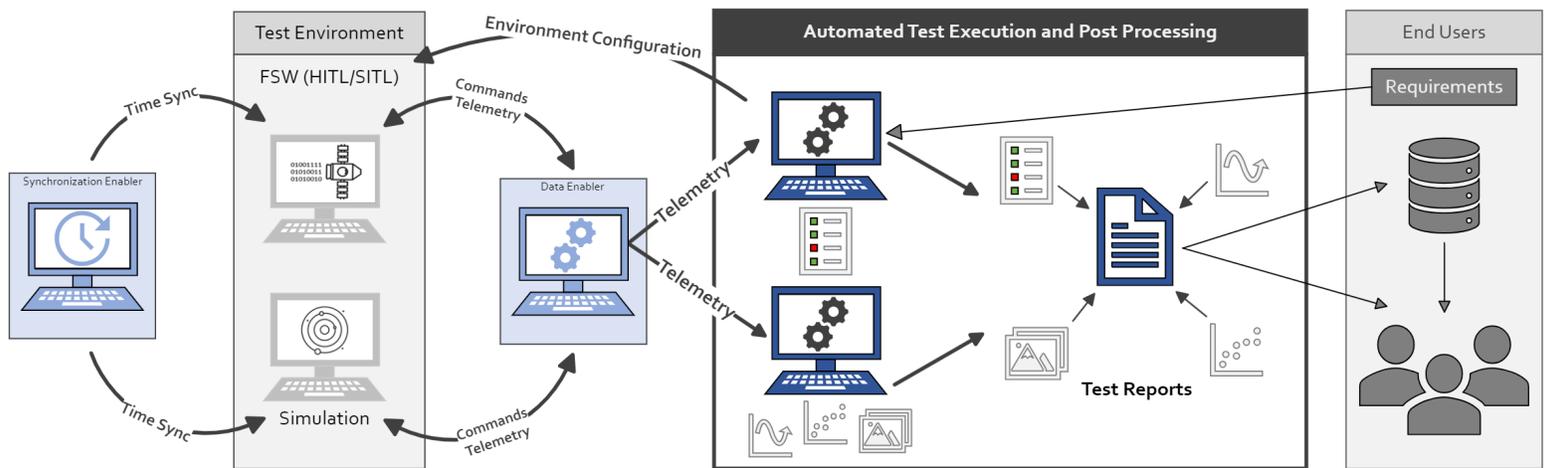
ENCORE™ is fully integrated with our STAGE™ ecosystem, supporting end-to-end flight software development and test.



STAGE™



The STAGE™ ecosystem is a modular set of tools, simulations, and infrastructure that enables automated, repeatable, and reliable integrated flight software development and testing across software and hardware environments. The STAGE™ ecosystem works seamlessly with our ENCORE™ framework but can be tailored to work with nearly any flight software framework, including cFS, Simulink, or custom solutions to lower lifecycle cost, technical risk, and development schedule. (Yes, same as ENCORE™.)



STAGE™ Ecosystem Key Features Include:

- Time and Message Synchronization handling
- Display Command and Telemetry routing
- Configurable Connections to External Components
- Configurable Automated Test Environments
- Scripted Test Sequence execution
- Configurable Pass/Fail Criteria definition and evaluation
- Requirements Tracing
- Automatically Generated Test Reports