AEROSPACE

XLAB: ACCELERATING INNOVATION THROUGH PROTOTYPING

The Aerospace Corporation's xLab is a critical link between ideas and implementation. As our in-house prototyping capability, xLab provides rapid, mission-focused development of hardware and software that informs system design, supports government customers, and increasingly enables transition to commercial partners.

From initial concepts to flight demonstrations, xLab helps reduce risk and improve performance through early demonstrations and experimentation. This capability is central to Aerospace's role as an FFRDC—advancing national security space objectives while working alongside industry to ensure emerging technologies can mature, scale, and succeed.

What We Deliver

xLab provides a range of tailored prototyping capabilities, including:

- MISSION INTEGRATION
- MECHANICAL DESIGN & FAB
- EMBEDDED SYSTEMS
- PROJECT EXECUTION
- SPACE SYSTEMS
- SYSTEM APPLICATION DEVELOPMENT

- Aligns hardware and software development with mission needs to ensure system-level performance and readiness.
- Delivers custom structures, housings, and mechanical systems through rapid design, machining, and additive manufacturing.
- Develops low-level firmware, real-time processors, and tightly integrated electronics for mission-critical functions.
- Provides end-to-end program management, schedule tracking, and resource coordination to drive rapid delivery.
- Builds and tests flight-like systems and payloads for use in small satellites, hosted platforms, and responsive missions.
- Creates mission applications, user interfaces, and software tools that support data flow, processing, and operations.

Facility Overview

› 16,000 square feet of lab, fabrication, and integration space

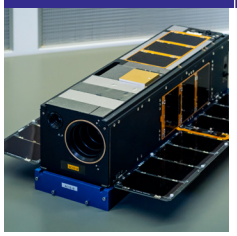
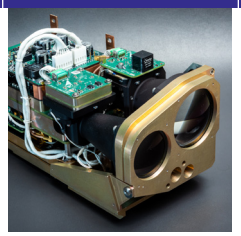
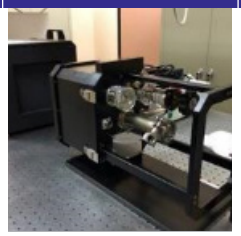
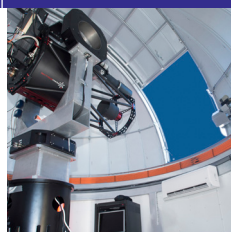
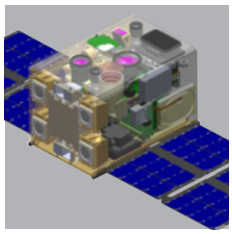
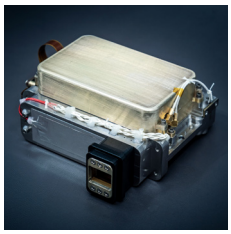
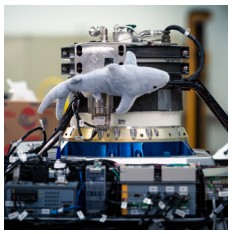
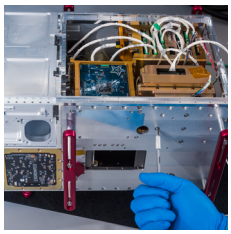
› Six specialized lab areas, including electronics, embedded systems, and mechanical prototyping

› A fully equipped machine shop and cleanroom capabilities

› A team of more than 90 engineers, technologists, and fabricators supporting rapid development

Prototype Areas of Focus

xLab delivers solutions across a wide range of mission domains:

CubeSats and SmallSat Platforms	Optical Communication and Data Links	Space Weather Payloads and Radiation Sensors	Hyperspectral and Remote Sensing Instruments	Ground-Based Systems for Testing and Calibration	Integrated Testbeds for Multi-Domain Experimentation
					
					

Enabling Broader Use and Adoption

xLab is uniquely positioned to:

- Demonstrate new capabilities that inform acquisition, policy, and future architectures.
- Develop prototypes that provide early validation for emerging mission needs.
- Support technology transition to commercial providers and mission partners.
- Deliver rapid-turn experiments that inform system design and integration choices.

A key goal of xLab efforts is to inform and accelerate mission-ready solutions, which often includes transitioning technologies and architectures to commercial industry for further development, fielding, or integration into operational systems.

Strengthening the Space Ecosystem

By proving out new ideas in hardware and software, xLab plays a key role in maturing technologies that can transition into national programs, commercial offerings, or hybrid models. These efforts support:

- Increased resilience through diversified space architectures.
- Faster technology adoption cycles.
- Lower risk for future acquisitions and investments.
- Improved collaboration across government, industry, and academia.

Through this work, xLab supports a more agile and adaptive space enterprise—helping ensure that promising innovations don't stay on the shelf, but instead evolve into capabilities that serve both national and commercial interests.

The Aerospace Corporation

The Aerospace Corporation is a leading architect for the nation's space programs, advancing capabilities that outpace threats to the country's national security while nurturing innovative technologies to further a new era of space commercialization and exploration. Aerospace's national workforce of more than 4,600 employees provides objective technical expertise and thought leadership to solve the hardest problems in space and assure mission success for space systems and space vehicles. For more information, visit www.aerospace.org.

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