



X-65 Active Flow Control Demonstrator

TRANSFORMING THE FUTURE OF AIRCRAFT DESIGN

Aurora Flight Sciences is designing and building the X-65 aircraft for DARPA's Control of Revolutionary Aircraft with Novel Effectors (CRANE) program. The program aims to demonstrate the benefits of active flow control at tactically relevant scale and flight conditions.

Transformative Technology

Active flow control could change the future of aircraft design by replacing jointed surfaces, like flaps and rudders, and delivering benefits in aerodynamics, weight, and mechanical complexity.

Purpose Designed

X-65 is designed for testing and demonstrating AFC. The triangular wing enables testing across multiple wing sweeps; replaceable outboard wings and swappable AFC effectors to allow for future testing of additional AFC designs.

A New Control Method

The X-65's AFC system supplies pressurized air to nozzle arrays embedded in all flying surfaces. These jets of air shape the flow of air over the aircraft surface to control the plane's roll, pitch, and yaw.

Building to Flight

The X-65 fuselage was completed in West Virginia in January 2026 and transferred to Aurora's Virginia headquarters for system integration and ground testing. The aircraft is expected to be ready for flight testing in 2027.

Specifications

To minimize risk and maximize learnings, X-65 has both traditional actuators and active flow control. During testing, moving surfaces can be selectively locked down, using AFC effectors instead.

- Four wings of varying sweep angles
- Fourteen AFC effectors
- Fourteen conventional control surfaces
- 30 ft wingspan
- 7200 lb. gross weight
- Uncrewed

About CRANE

CRANE is DARPA program that aims to design, build, and flight test a novel X-plane that incorporates active flow control as a primary design consideration, helping to open the design trade space for future military and commercial applications.

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