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Case Study

Image Credit: United Launch Alliance

Analysis, Test, and Software Support for Repeatable Launch Vehicle Performance

OVERVIEW

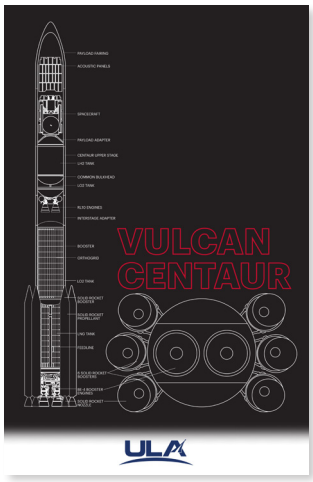
United Launch Alliance (ULA) is a leading launch service provider that designs, builds, and operates rockets capable of launching satellites into orbit around Earth and to other bodies in the solar system. ULA's new rocket Vulcan, which leverages new technologies, innovative features, and flight-proven designs, ensures accurate launch services for the future.

For two decades, ULA has served as the custodian of America's national security space mission. In 2024, the first launches of Vulcan, Cert-1 and Cert-2, certified the rocket for national security launches of U.S. Government payloads. Vulcan is expected to continue ULA's industry-setting standards for delivering the most accurate payload insertions in the world for decades to come. In support of this launch success, ATA Engineering (ATA) has provided continuous assistance to the Vulcan engineering team, delivering engineering expertise to develop, test, model, and analyze multiple systems on the rocket.

TASKS PERFORMED & KEY OUTCOMES

- Performed detailed analysis of stress, fatigue and fracture, fluids and propulsion, structural dynamics, thermal and aerophysics, and software and methods development (coding support) and provided software and methods training for ULA engineers.
- Supported various components of Vulcan, including the booster, upperstage, payload adapter, and ground support equipment.
- Delivered continuous support to ULA since 2021, with the equivalent of over forty full-time engineering years of expertise.
- Provided a team of engineers, ranging from junior engineers to subject-matter experts, who assisted with resolving the complex rocket challenges, ensuring optimal efficiency and maximum value to ULA.
- Minimized the overhead/management burden on ULA with regard to the ATA support team by providing leadership from a single senior project manager, who was responsible for the management of all ATA engineers, with more than fifteen working in parallel at peak.

The ULA Vulcan rocket lifts off October 4, 2024, from Space Launch Complex-41 at Cape Canaveral on the Cert-2 flight test. Image Credit: United Launch Alliance



Vulcan line art poster Image Credit: United Launch Alliance