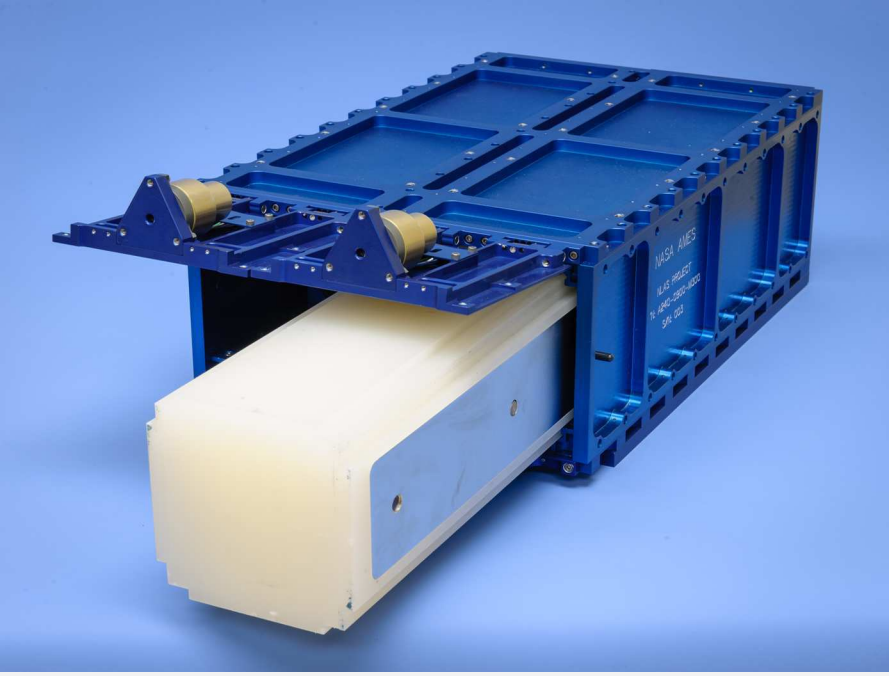


National Aeronautics and Space Administration

Aeronautics

Nanosatellite Launch Adapter System

Maximizing efficiency of satellite launch while simplifying integration process

NASA has developed a technology called Nanosatellite Launch Adapter System (NLAS) that maximizes the efficiency of satellite launch opportunities. NLAS increases access to space while simplifying the integration process of miniature satellites, called nanosats or cubesats, onto launch vehicles. Each complete NLAS consists of an adapter, four dispensers, and a sequencer. The adapter is mounted to the upper surface of the launch vehicle and the lower deck of the primary spacecraft. The dispensers are mounted inside the adapter and house a variety of cubesats in fully enclosed bays. NLAS is stackable, allowing for the expansion of spacecraft deployments. An NLAS sequencer can initiate a secondary sequencer, allowing for the expansion of actuator and deployment capability. NLAS provides an integrated system which meets the needs of nearly any mission. NLAS flight demonstration has shown the potential value of multiple, nanosatellites as tools for a wide array of scientific, commercial, and academic space research.

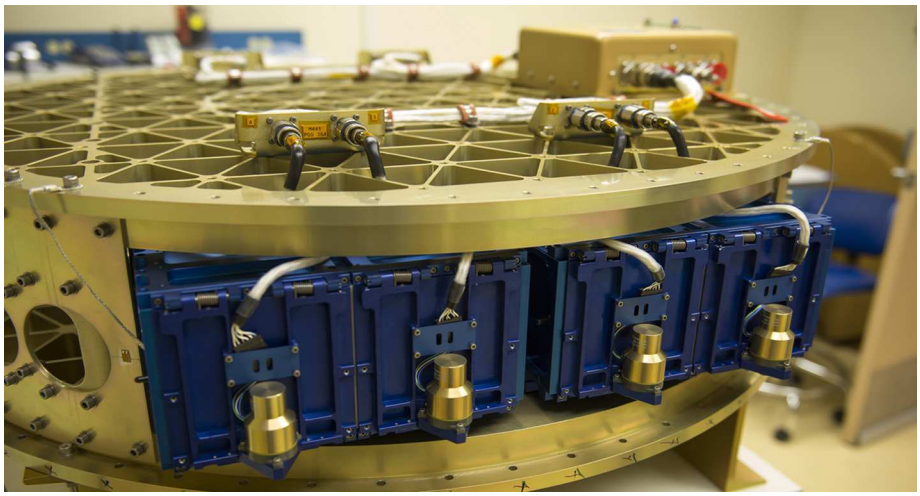
BENEFITS

- Utilizes unused launch vehicle mass and fairing volume
- User configurable deployment ejection timing sequences
- Up to 54kg/24U capacity
- Compatible with standard launch vehicle interfaces
- Internally powered
- P-POD compatible
- Reduced integration time and cost

technology solution

THE TECHNOLOGY

NLAS consists of three configurable subsystems to meet the needs of a multi-spacecraft launch. The Adapter is the primary structure that provides volume for secondary payloads between the rocket and the primary spacecraft. The Adapter takes advantage of the frequently unused volume within the rocket fairing. It fits up to 4 NLAS Dispenser units, or 8 eight Poly-PicoSatellite Orbital Deployers (P-PODs), or any combination thereof. The NLAS Dispenser is reconfigurable to support either two 3U bays or a single 6U bay and is compatible with 1U, 1.5U, 2U, 3U, and 6U satellites. The Dispenser system is the first 6U deployment system backwards compatible to 3U spacecraft. Finally, the NLAS deployment Sequencer is an internally powered subsystem which accepts an initiation signal from the launch vehicle and manages the actuations for each deployment device per a user programmable time sequence. It is programmed using ground support equipment (GSE) and a simple graphical user interface (GUI) on a computer.



NLAS Combined System

APPLICATIONS

The technology has several potential applications:

- Cubesats
- Launch vehicles
- Secondary payloads
- P-PODs
- Nanosatellites
- Actuator Management
- Sequencing
- Multi-spacecraft missions
- Constellation spacecraft
- Deployers

PUBLICATIONS

Patent Pending

More Information

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NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

ARC-16732-1