

PUMPKINTM

SPACE SYSTEMS

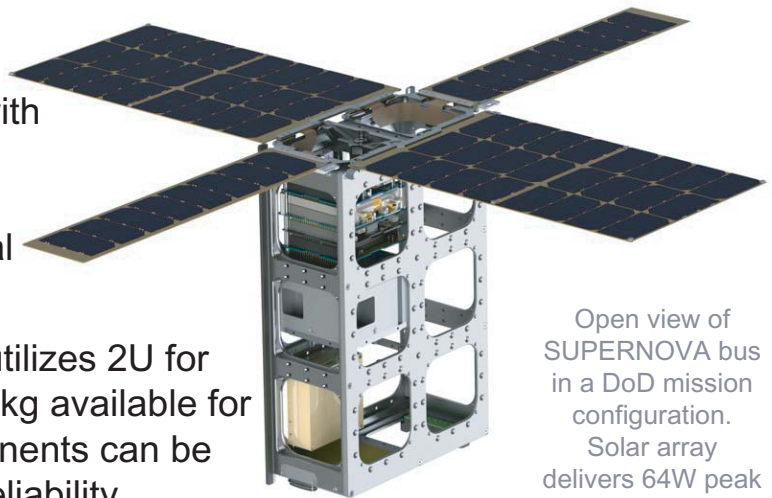
Update Q2 2015

SUPERNOVATM

- Pumpkin has delivered the first SUPERNOVATM block III structures. Developed and tested in partnership with the Air Force Institute of Technology (AFIT), the block III design has a supersymmetric design with six internal unit cells of 100 x 100 x 100mm each.

A typical SUPERNOVA configuration utilizes 2U for the bus components, leaving 4U and 8kg available for the payload. Any CubeSat-size components can be accommodated inside. A single high-reliability resettable pin puller is used to release all deployables.

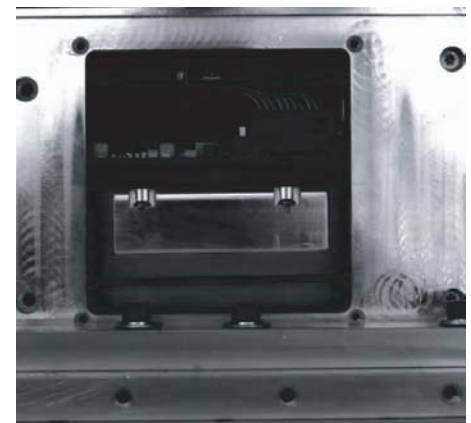
SUPERNOVATM is compatible with Planetary Systems Corporation's flight-proven Canisterized Satellite Dispenser (CSD). Testing at AFIT has confirmed the exceptional stiffness that derives from the SUPERNOVA design and how internal components are mounted. First flight is scheduled for Q4 2015.



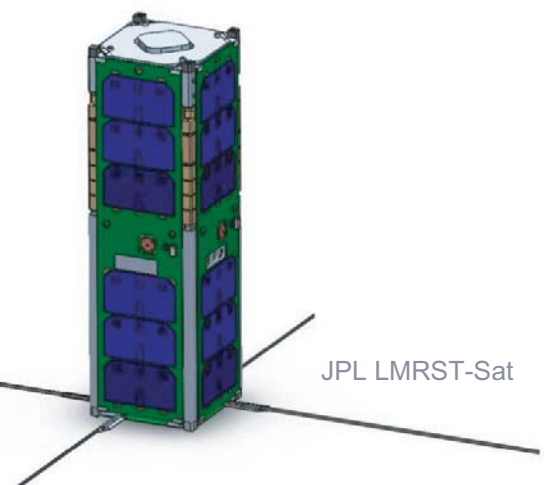
Open view of SUPERNOVA bus in a DoD mission configuration. Solar array delivers 64W peak

NASA
CubeSats

- PUMPKIN delivered its first CubeSat-compatible High-performance Processing Engine (HiPPiETM) to NASA Ames Research Center in February. This 1.5U-size unit is suitable for use in static installations, ROVs, UAVs, aircraft and nanosatellites.
- JPL recently completed environmental testing of its 3U-size LMRST-Sat CubeSat. Stanford's Space & Systems Design Lab (SSDL) designed the bus, and created the flight software, ground station software, bus-to-payload interface, an SGP4 orbit propagator and other subsystems. Pumpkin supplied the CubeSat Kit Pro chassis, five PMDSAS solar panels, the C&DH module and a GPSRM 1 GPS receiver module with dual orbit propagators (Vinti7 & SGP4). LMRST-Sat is on the August 27, 2015 NRO Atlas V launch.



High-speed image of SUPERNOVA undergoing -12dB, -6dB & 0dB random sine vibration testing

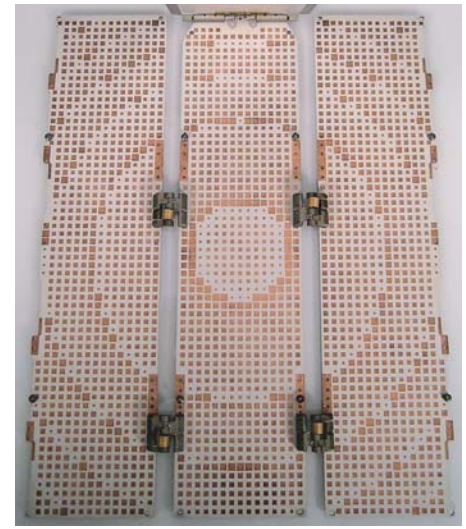


JPL LMRST-Sat

Reflectarray

- Pumpkin recently completed the first set of custom PMDSAS solar panels for JPL's ISARA project. This three-panel depoloyable reflectarray array for a 3U CubeSat has dual purposes -- a 24W solar array on top, and a beam-forming Ka-band reflectarray underneath.

Working with JPL's Spacecraft Antennas Group, Pumpkin has co-developed a manufacturing process that can combine RF radiators or antennas of arbitrary shape and complexity on the underside of a solar panel with solar cells on the top side. This process remains compatible with Pumpkin's extensive deployable array hinge offerings, while maintaining adequate flatness.



Reflectarray side of three-panel depoloyable PMDSAS array

Custom

- Standardization and mass production are hallmarks of Pumpkin's approach to product development. Yet each nanosatellite mission has unique requirements. Our specialty is integrating CubeSat systems to increase functionality within a constrained form factor. Whether your requirements are for a particular processor, or a choice of radios, antennas, or other systems, no one can integrate nanosatellite systems like Pumpkin Space Systems. Our proven track record in space, modular architecture, rapid engineering services, supplier relationships and broad assortment of standard components allow us to rapidly reconfigure each spacecraft to suit your particular mission, at attractive prices.

Partners

- Pumpkin Space Systems is seeking complimentary technologies to incorporate into its product lineup. Our goal is to qualify a second source for each major system, and to offer customers multiple configurations based on mission requirements. Advanced solar cells, radios, antenna systems, micropropulsion, and deorbit devices are among the systems we seek to incorporate or upgrade. Certification as a *Pumpkin Space Partner* gives your company access to the highest volume nanosatellite spacecraft market. Contact us if your company currently builds or plans to build high-quality components for small satellites and would like to be included as optional equipment in Pumpkin's expanding MISC family of nanosatellites.

Pumpkin Space Systems serves demanding government, commercial and educational customers with P-POD compatible nanosatellite spacecraft and buses. Our integrated designs are based on our own flight-proven CubeSat Kit™ components and have completed flight qualification.



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