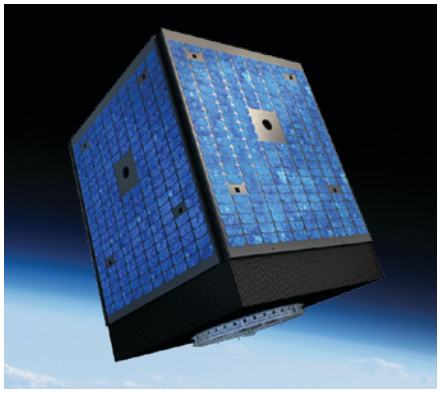
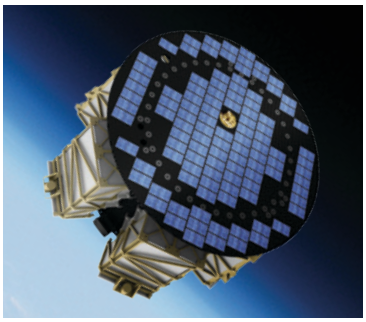
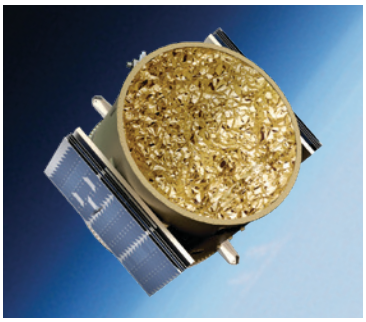
ASTEROID

ESPA GRANDE CLASS SMALL SPACECRAFT BUS



ASTEROID is an ESPA Grande Class Small Spacecraft Bus product family used for a variety of missions in LEO (<600 km). ASTEROID is ideal for telescope-based missions leveraging its Ø36" x 54" hollow internal volume. ASTEROID leverages the same core avionics from Moog's Space Vehicle family that have been demonstrated in missions from LEO to the Moon. Agile platform with no deployables reduces any jitter. The simple and robust all aluminum structure provides stiffness, radiation shielding, and stable thermal environment.





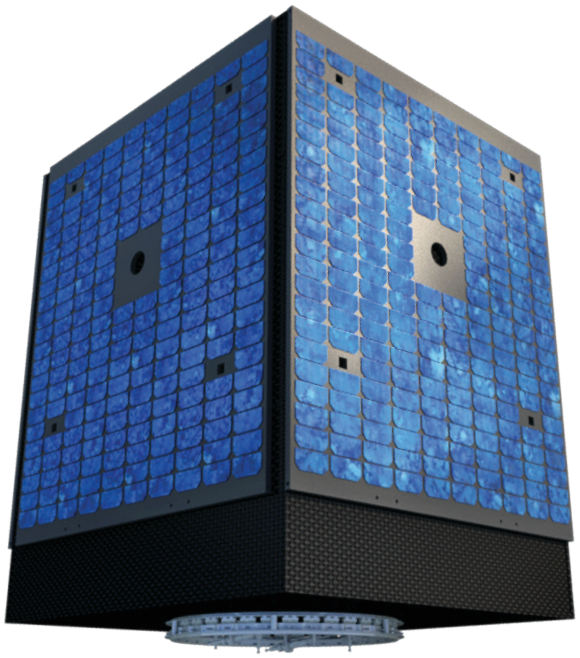
KEY FEATURES

- Avionics leveraging Moog's BRE440™ Rad-Hard CPU
- LEO up to 600 km with 3-5 year life
- Flexible flight software is payload and mission configurable
- 3-Axis stabilized platform with reaction wheels and torque rods
- Single string but layered GNC sensor suite provides resiliency
- Ideal for ESPA Grande rideshare launches

MOOG

ASTEROID ESPA GRANDE CLASS SMALL SPACECRAFT BUS

SPECIFICATIONS	
Characteristic	**Performance / interfaces**
Orbit	Up to 600 km
Mission Life	3-5 years
Radiation	25.5 kRad total dose with 0.200" Al shielding
Radiation Effects	Availability due to SEU of >99% over 1 year
Example Payload Power (Orbit and Mission Dependent)	~25 W OAP Payload Power
Bus Mass	150 kg Bus Dry Mass
Bus Volume	42" x 46" x 56" height (or radial direction if on ESPA)
Orbital Position Knowledge	<5 m
Attitude Knowledge Telemetry Accuracy	<10 arc-sec (1 sigma)
Pointing Accuracy	<10 arc-sec (1 sigma)
Attitude (Pointing) Stability/Jitter	Jitter < 1 arc-sec
Velocity Accuracy	0.1 m/s
Maximum Slew Rate	>1 deg/sec
Delta-V	None – No Propulsion
Payload Interfaces (Data)	2 x SpaceWire, 4xDiscretes, 1 x GPS 1PPS (via LVDS)
Payload Interfaces (Power)	28 [25/33] VDC Unregulated Bus Voltage (multiple 1.2 A switches)
Payload Interfaces (Mechanical)	Ø36" x 54" internally mounted to Bus
Payload Mass	100-150 kg



MOOG
SPACE AND DEFENSE GROUP

For More Information
5025 N Robb St., Suite 500, Arvada, CO 80033
spacevehicles@moog.com

Moog Space and Defense @MoogSDG @MoogSDG @MoogSDG @MoogInc