

## METEORITE

### ESPA CLASS SMALL SPACECRAFT BUS

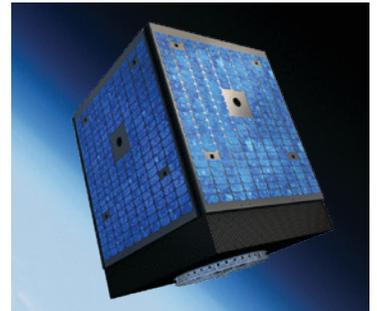


METEORITE is an ESPA Class Small Spacecraft Bus product family used for a variety of missions in LEO including High LEO (1000 to 1200 km). METEORITE is ideal for pathfinder constellation missions or other disaggregated mission types. METEORITE leverages the same core avionics from Moog's Space Vehicle family that have been demonstrated in missions from LEO to the Moon. The green propulsion system is ideal for rideshare or

dedicated small launch vehicle missions and provides enough capability for deorbit from High LEO. The relatively high thrust can be used for collision avoidance or other rapid orbit changes. The simple and robust all aluminum structure provides radiation shielding and can support a range of payload configurations.

#### KEY FEATURES

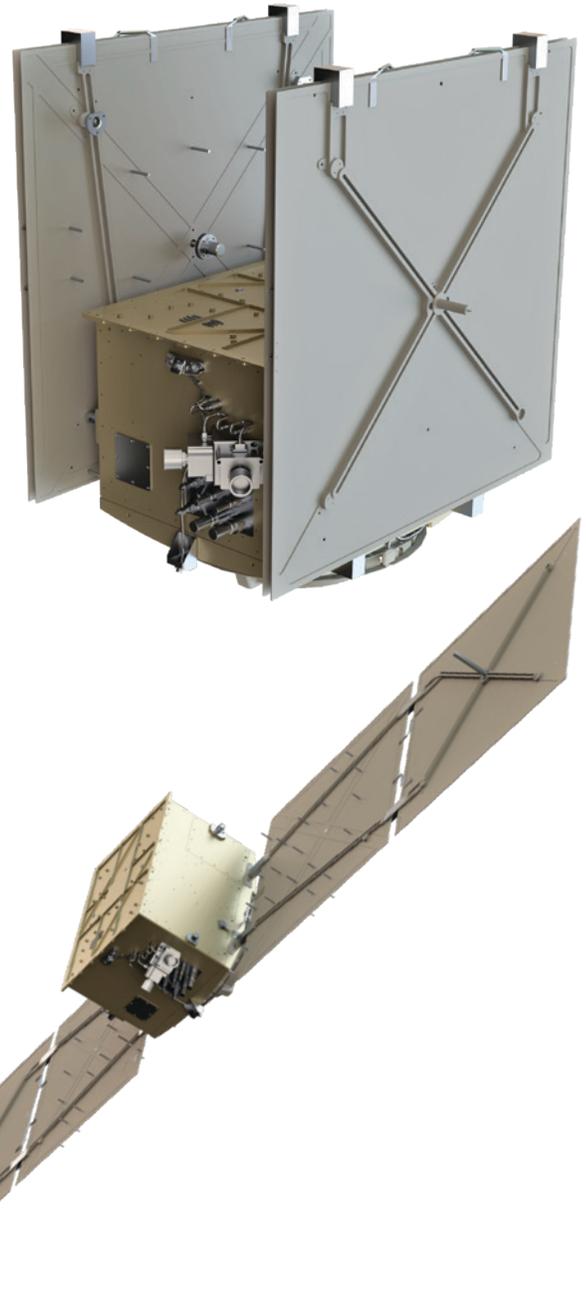
- Avionics leveraging Moog's BRE440™ Rad-Hard CPU
- LEO up to 1200 km with 2-5 year life
- Flexible flight software is payload and mission configurable
- Green propulsion system for ease of launch
- 3-Axis stabilized platform with reaction wheels and torque rods
- Single string but layered GNC sensor suite provides resiliency
- Modular power system can be expanded as needed
- ESPA or dedicated small launch compatible



# METEORITE ESPA CLASS SMALL SPACECRAFT BUS

## SPECIFICATIONS

Characteristic	Performance / interfaces
Orbit	500 to 1200 km
Mission Life	2-5 years (depends on orbit)
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)	~150 W OAP Payload Power ~300 W Peak Payload Power for 50% of orbit
Bus Mass	120 kg Bus Dry Mass
Bus Volume	22" x 28" x 23.65" height (or radial direction if on ESPA)
Orbital Position Knowledge	<4 m
Attitude Knowledge Telemetry Accuracy	<40 arc-sec (1 sigma)
Pointing Accuracy	<60 arc-sec (1 sigma)
Attitude (Pointing) Stability/Jitter	Jitter < 10 arc-sec
Velocity Accuracy	0.1 m/s
Maximum Slew Rate	2.5 deg/sec
Maximum Slew Acceleration	0.3 deg/sec <sup>2</sup> (point-to-point)
Delta-V	>175 m/s (with 200 kg dry mass)
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)	22 in x 28 in "flat deck" and can be up to 30 in height for ESPA launch or greater for dedicated small launch vehicle
Payload Mass	100 kg – Can be greater but Spacecraft will exceed 220 kg ESPA Class



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