BCP-SMALL

Ball Configurable Platform-Small

Ball Aerospace's BCP-Small bus is developed on a configurable, proven spacecraft design. It is a capable and affordable small satellite solution that comes in two mission classes: Operational and Demonstration. Our BCP-Small spacecraft is designed to operate over a wide range of orbits and is compatible with a variety of launch vehicles and optimized for ESPA, while optimized for ESPA class ride-share potential, providing additional cost savings.

Images (Left): Need hardware name;
(Top): Need hardware name

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BCP-Small Operational missions are typically optimized to supplement or augment national, civil or corporate on-orbit assets where higher reliability and/or longer life are required. BCP-Small Demonstration missions are optimized for scientific, technology development and risk reduction payloads. Both classes uses a common spacecraft bus with standard payload interfaces intended to reduce mission cost, streamline payload accommodation and minimize delivery time.

Payload Accommodation Capability

Total for all payloads

PARAMETER	DEMONSTRATION CLASS	OPERATIONAL CLASS
Payload Mass	Up to 100 kg	ESPA-G: 80 kg ESPA-Hvy: 130 kg
Payload Orbit Average Power (OAP)	Up to 500 W, orbit and pointing mode dependent	ESPA-G, Hvy: 330 W
Payload Volume	Variable, depending on launch option	Variable, depending on launch option
Payload Field of Regard	Unobstructed hemispherical FOV	Unobstructed hemispherical FOV
Number of Payloads	1 baseline, more optional	1 main, more optional
Payload Mission Data Handling	Up to 100 Mbps from payload to bus	Up to 200 Mbps from payload to bus
Payload Digital Command/Data Interface	RS-422, Spacewire Other options available	RS-422, Spacewire Other options available
Payload Thermal Control	4 bus-controlled survival heaters available to payload	4 bus-controlled heater switches available to payload
Payload Analog Data Interface	8 analog channels per payload for health and status	13 analog signals available for payload health and status
Payload Heat Rejection	N/A	External primary payload interface well defined providing thermal isolation. Bus provides 50 W heat rejection for internally mounted payload electronics
Operating Interface Temperature	-20 °C to +50 °C	-20 °C to +50 °C

Spacecraft Capability

Total for all payloads

PARAMETER	DEMONSTRATION CLASS	OPERATIONAL CLASS
Orbit	400 to 850 km, all inclinations (options for MEO and GEO)	500 to 1200 km, options for MEO and GEO, all inclinations
Launch Mass	≤180 kg for ESPA compatibility (increased mass available for other launches)	ESPA-Heavy: <450 kg ESPA-G: <700 kg ESPA: <257 kg
Space Vehicle Volume	60.9 × 71.1 × 96.5 cm for ESPA compatibility (increase volume for other launches)	N/A
Launch Vehicle Compatibility	Electron and LauncherOne	Atlas V, Vulcan Centaur, Falcon 9, Falcon Heavy, Minotaur I, Minotaur IV, New Glenn
Space Vehicle Lifetime	On the order of 2 years	More than 3 years
Stabilization Method	3-axis	3-axis
Attitude Knowledge	0.03 deg, 3 σ	0.03 deg 3 σ
Attitude Control	0.04 deg, 3 σ	0.03 deg 3 σ
Bus Voltage	28 V ± 6 Vdc, typical	28 V ± 6 Vdc, typical
Command/Telemetry Rate	2 Kbps uplink/32 Kbps downlink	2 Kbps and 256 Kbps uplink/32 Kbps downlink
Mission Data Rate	2 Mbps downlink, 150 Mbps option	200 Mbps
On-Board Data Storage	>32 Gbytes, with options to expand	>40 Gbytes
Propulsion (Option)	Electric propulsion (traditional hydrazine, green options)	Traditional hydrazine, electric propulsion, green options

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