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Access to Space for Small Satellite Missions (5)

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ESPASTAR – ENABLING SPACE MISSIONS WITH RIDESHARE USING AN INNOVATIVE
PROPULSIVE ESPA FREE FLYING PLATFORM

Abstract

Traditionally, space missions go through a lengthy and customized systems engineering design process to optimize the mission objective with a spacecraft platform and a launch vehicle. With the need for low cost, rapid access to space for small satellites, this lengthy process is problematic. This problem is addressed with ESPAS_tar; a space platform that provides a modular, cost-effective, and highly capable infrastructure resource for hosting technology development and operational payloads. The ESPAS_tar Platform uses a customized EELV Secondary Payload Adapter (ESPA) ring as part of its structure and is capable of being launched aboard any launch vehicle that meets the Evolved Expendable Launch Vehicle (EELV) standard interface specification. The ESPAS_tar Platform's 6 payload ports are capable of accommodating any combination of up to 6 hosted and 12 separable (fly-away) payloads. The payload interface at each port has been standardized, allowing for hosted and separable Payload interchangeability, late Payload integration, and manifest changes. The ESPAS_tar Platform leverages the available mass margin from any EELV launch to provide an affordable path to space for payloads.