Space Stations (9)
Space Stations (1) (1)

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CONCEPTS FOR JOINT INTERNATIONAL EXPLORATION MODULES

Abstract

Space agencies and companies around the world are examining concepts for human exploration beyond Low Earth Orbit. Human presence in cislunar space for both exploration of the moon and staging for exploration of Mars continues to be a primary goal of space agencies and companies around the world. International collaboration has been critical to the success and safe operation of the International Space Station, at both the agency and contractor levels. International cooperation will be similarly critical to future human space exploration though leveraging the strengths and capabilities of the partners and creating opportunities for cost sharing. The Boeing Company and RSC Energia have jointly studied cislunar stations and vehicles to consider joint designs and operations. We have leveraged our vast integration experience on ISS to identify promising hardware and architectures that use current and emerging technologies to enable efficient exploration in cislunar space. This paper describes the strengths and benefits of international cooperation in exploration mission architectures. The paper presents a joint Service Module concept for the cislunar Gateway with internal crew volume and integral propulsion and power generation capabilities. The paper also discusses the feasible results and benefits of international cooperation and the use of the Service Module for lunar vehicles of all international partners.