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SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems Verification and In-Flight Experimentation (6)

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COTS ETHERNET BASED TELEMETRY SUBSYSTEM FOR THE INTERMEDIATE EXPERIMENTAL VEHICLE (IXV)

Abstract

This paper discusses the use of a COTS ethernet based network in the data handling subsystem of the ESA Intermediate Experimental Vehicle (IXV). The space community is increasingly using rugged COTS equipment from the aerospace flight test industry for implementing telemetry subsystems in experimental vehicles and orbiting platforms. Ethernet is a mature technology and offers numerous benefits to the designers of space vehicle avionics such as design flexibility, scalability, technological standardization and greater vendor interoperability. Moreover, the use of Ethernet based COTS equipment provides cost-effective solution and allows shorter design cycles. The aim of this paper was to describe the use of COTS network technologies in the design of data acquisition system for the European Space Agency IXV space re-entry vehicle. It is shown that with a good understanding of ECSS standard requirements and the behaviour of individual COTS network components in the application environment, including radiation, an elegant networked system that meets the challenging requirements of a space mission can be successfully implemented.