SPACEFIBRE

Session: Standardisation

Long Paper

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ABSTRACT

SpaceFibre is a very high-speed serial communications link being designed for use on spacecraft. It connects high data-rate payloads into the onboard data-handling system. SpaceFibre is designed to operate at speeds of 2 Gbits/s or higher depending on the specific driver/receiver technology used. It is also designed to operate seamlessly with a SpaceWire network with a single SpaceFibre link being able to carry data from many SpaceWire links.

The lower levels of SpaceFibre have been specified by the University of Dundee and a prototype SpaceFibre interface developed and tested. NASA have also developed a prototype SpaceFibre system to this specification and tested it on the MAX Launch Abort System (MLAS) test vehicle. SpaceFibre is now being explored for use in several onboard applications including mass memory devices and DSP processors. SpaceFibre fills a growing gap in onboard communications links for spacecraft, which is being widened by the high data-rate demands of new instruments.

This paper provides a brief introduction to SpaceFibre and the results of the SpaceFibre prototypes. It then considers how QoS will be implemented in SpaceFibre. The application of SpaceFibre in instruments, mass memory and processing systems is then described. The paper concludes with an overview of the current state of the SpaceFibre specification.