MIXED SPACEWIRE - SPACEFIBRE NETWORKS

Session: SpaceWire Standardisation

Long Paper

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ABSTRACT

SpaceFibre is aiming to complement SpaceWire and to overcome some of its limitations. While the data rate is improved by a factor more than 10 and the cable length can span up to 100m, the cable mass is significantly reduced. In addition SpaceFibre links can provide galvanic isolation. An important requirement from the beginning was to allow for mixed SpaceWire – SpaceFibre networks and to maintain compliance with the protocols and the routing mechanisms as defined in the SpaceWire standard. This compatibility is important to maintain the value and to take full benefit of the investments made into SpaceWire developments.

The paper will make a comparison between SpaceWire and SpaceFibre at the different levels. It will explain the mechanisms for data segmentation and virtual channels used in SpaceFibre and show how traffic from standard SpaceWire links can be connected into and be transmitted via a SpaceFibre network. It will further look at the requirements for mixed SpaceWire - SpaceFibre routers and point out the intrinsic features of SpaceFibre which can be used to provide the different levels of quality of service.