

SPACEWIRE RMAP IP CORE

Session: SpaceWire Components

Long Paper

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ABSTRACT

The SpaceWire Working Group has defined the Remote Memory Access Protocol (RMAP) which is now being prepared for ECSS standardisation as ECCS-E50-11. The RMAP standard was prepared by the University of Dundee (UoD) with support from members of the SpaceWire Working Group. RMAP was used in the configuration interface in the ESA SpaceWire Router ASIC designed by University of Dundee and is widely used in current and upcoming SpaceWire capable devices.

The RMAP IP core is being developed under ESA contract and aims to extend the UoD/ESA SpaceWire interface VHDL code to include the RMAP protocol implemented in hardware. This will result in a SpaceWire interface VHDL core that includes the RMAP protocol extension to SpaceWire, which will enable users to readily implement the RMAP protocols in FPGAs or ASICs.

The IP core will have the following functions and can be configured to be both simultaneously:

- Act as an RMAP target which receives commands, executes the command and sends out a reply packet if requested. Referred to as the target RMAP interface.
- Act as an RMAP command initiator which encodes RMAP commands and checks the reply packets. Referred to as the initiator RMAP interface.

The full paper will describe the main features of the IP core, its architecture, interfaces and operation. The IP core test procedure will also be presented.