ITAR-FREE FPGA TARGETED CHARACTERISATION

OF THE SPACEWIRE CEA IP

Session: SpaceWire missions and application

Short Paper

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ABSTRACT

The X- and gamma ray telescope ECLAIRs onboard the future mission for gamma ray burst studies SVOM (Space-based multi-band astronomical Variable Objects Monitor) is foreseen to operate in orbit from 2013 on. ECLAIRs will provide fast and accurate GRB triggers to other onboard telescopes, as well as to the whole GRB community, in particular ground-based follow-up telescopes. The ECLAIRs X- and gamma-ray imaging camera (CXG), used for GRB detection and localisation, is combined with a micro-channel X-ray telescope (MXT) for afterglow observations and position refinement. Sub-systems of both instruments interface with the French payload control unit (so called FCU - under CNES responsibility) by mean of SpaceWire links for PUS and CCSDS compliant message exchanges.

The SVOM mission being a collaboration between the Chinese and French space agencies specific exportation rules must be fulfilled. In particularly these rules (ITAR, ...) restrict drastically components availability. This is especially critical for microprocessors and FPGAs since most of the manufacturers are in US. In this paper we discuss the implementation of the SpaceWire IP core from CEA on various ITAR-free target candidates. We present a comparison of the performances and the implementation specificities for the RTSX family from ACTEL and the ATF280 from ATMEL.