

INTEGRATED DEVELOPMENT TOOLS SUITE FOR THE SPACEWIRE RTC ASIC

Session: SpaceWire Test and Verification

Short Paper

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ABSTRACT

In the frame of the SpaceWire Remote Terminal Controller (RTC) Development Suite project¹, a flexible test tool targeted for the new ATMEL SpW RTC device is going to be produced. It will also support more general tests of any SpaceWire and CAN bus equipments.

The SpaceWire RTC Development Suite is composed of two HW modules in addition to an agile SW library. The two HW modules will play the complementary and independent roles of RTC Test Bed and SpaceWire/CAN stimuli source.

The SpW/CAN module is a FPGA based PCI peripheral board that offers the advantages to house both SpW and CAN protocols in a single compact and not expansive board. Both RTL implementations can be easily modified and/or enhanced to follow any new protocol updates; a custom programming scheme allows the users to update the FPGA image without need of any vendor specific SW/HW tool or licence.

The utilisation of a large and fast FPGA leaves the chance to expand the board functionalities according to new requirements. Moreover, a single API is provided for both SpW and CAN communication protocols. All these features make the SpW/CAN board a very compact solution to be used even as a stand-alone flexible test tool.

The Test Bed module is a stand-alone unit which accommodates the RTC with the necessary peripheral units to make it completely self-contained. In addition sample FIFO and ADC/DAC devices are available, which can be replaced by insertion of a custom piggyback board.

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