

OVERVIEW OF THE INTA μ SAT'S DATA ARCHITECTURE BASED ON SPACEWIRE

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Short Paper

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ABSTRACT

This paper presents the INTA μ SAT programme initiative and its data bus architecture, which will be based on SpaceWire for high data rate transfers. With a mass ranging from 80 to 150 Kg and compatible with the Ariane-5 ASAP, the first INTA μ SAT-1 will be a very agile Earth observation mission using CMGs, with a launch tentative date by the beginning of 2010. This enlarged μ SAT class is a further step after the NANOSAT programme success (Ref.1) with a launch onboard Ariane-5 V-165 in Dec. 04 (Nanosat-01 still working OK in orbit), and the next Nanosat-1B planned to be launched most probably in a DNEPR by the middle of 2008.

Inside the INTA μ SAT-1 spacecraft, two types of data buses are foreseen. The OBDH data bus will be based on the CAN standard, and it will be a low data rate bus mainly used for TM/TC. Every unit inside the spacecraft will be connected to the OBDH through CANBus.

In the other hand, it is foreseen a Payload Processor Unit (PPU) with SpaceWire interface for high data rate information exchange, with the cameras and the Mass Memory Unit. The PPU will handle all the information collected from the payload and it will also provide a SpW router. The INTA μ SAT-1's X-Band modem and the S-Band modem will be nodes inside the SpaceWire network, so the post-processed scientific information will directly flow to the modems for its transmission to ground.