DAHLIA: Deep sub-micron microprocessor for spAce rad-Hard appLIcation Asic

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To meet future processing and competition needs, STMicroelectronics, Thales Alenia Space, Airbus Defence and Space, Integrated Systems Development and NanoXplore are developing a novel Very High Performance microprocessor System on Chip (SoC) based on STM European 28nm FDSOI technology with multi-core ARM processors for real-time applications, eFPGA for flexibility and key European IPs, enabling faster and cost-efficient development of products for multiple space application domains, and enabling high integration capability through the functional merging of multiple companion FPGAs & ASICs within a single SoC..

The performance is expected to be 20 to 40 times the performance of the existing SoC for space and more than 2 times the performance of the future quad core LEON4 chip. This performance level, combined with a large set of integrated peripherals including dedicated on-chip functions for GNSS, TM and TC support, will enable key space applications to be executed within the same microprocessor significantly reducing cost and mass and boosting competitiveness of future European space equipment.

With the highest cumulative number of European satellites and electronics equipment successfully operating in orbit, Airbus Defence and Space and Thales Alenia Space have joined efforts to ensure the maximum relevance of the DAHLIA SoC for its future use by the whole European Space community.

This ADCSS 2017 presentation will provide an overview of the features of DAHLIA.

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