Next Generation multipurpose Processor: Status, Use Cases and Benchmarks

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The presentation will describe the current status of the Next Generation Microprocessor (NGMP) development. The NGMP is a quad-processor LEON4FT system-on-chip that is part of the ESA roadmap for standard microprocessor components. The architectural design phase for the NGMP was completed earlier in 2011 and ASIC development is expected to start during 2012. Meanwhile a functional prototype of the NGMP is being developed with validation boards scheduled to be available in Q2 2012.

After an overview of the architecture, the presentation will focus on the multiprocessing capabilities of the NGMP and how support for symmetric and asymmetric multiprocessing has been implemented. The new architecture has several features not present in current European space processors in order to support separation of asymmetric multiprocessing configurations. This description will also include examples of how to take advantage of the multi-core system using currently available operating systems and how to achieve space separation using processor and IO memory management units.

Benchmark results, from measurements on FPGA prototypes, will also be presented.