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# NoGAP a Micro Architecture Construction Framework

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**Abstract**

Flexible Application Specific Instruction set Processors (ASIP) are starting to replace monolithic ASICs in a vide variety of fields. However the design of an ASIP is today a substantial design effort. This paper discusses NoGAP (Novel Generator for ASIP) a tool for ASIP designs utilizing hardware multiplexed data paths. One of the main advantages of NoGAP compared to other ADL tools is that it does not impose limits on the architecture and thus design freedom. To reach this flexibility NoGAP makes heavy use of the compositional design principle and is therefore divided into three parts Mage, Mase, and Castle. This paper presents the central concepts of NoGAP to show that it is possible to reach this advertised flexibility and still be able to generate HDL code and tools such as simulators and assemblers.