Formal engineering support for field-programmable gate arrays

Initiative: Momentum - Förderung für Erstberufene

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Laufzeit: 4 Jahre

In this Momentum concept the applicant is moving his professorships towards sustainable computing. Based on the professorships background in formal methods in embedded systems, the aim of this project is to bring together the concept of reactive synthesis and field-programmable gate arrays (FPGA) as target domain. FPGA as one of the most efficient computation technologies is currently hard to develop. The goal is to allow for an easier development of FPGAs by synthesizing orchestrators that describe the data processing task parts on an FPGA instead of handling the data directly. This would make developing FPGAs more developer-friendly and allow for more energy-efficient and ultimately sustainable computing. A substantial part of the work will be to lay the scientific foundations and the development of usable prototypes of FPGA implementation reactive synthesis approaches. These will be needed to showcase to the two research communities (formal methods and FPGA-based computer engineering) that the combination will be of use in practice and to prepare future collaborations.

Projektbeteiligte

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