Calling Software Functions from Hardware Functions in High-Level Synthesizer CCAP

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We are developing a high-level synthesizer named CCAP (C Compatible Architecture Prototyper), which synthesizes functions in C programs into hardware modules that are callable from the other software functions. In this paper, we propose a novel framework where the synthesized hardware functions can call software functions. We give both multi-thread and single-thread implementation schemes. We verified the correctness of the proposed method (single-thread version) through register transfer level simulation.