Abstract

Functional HDLs can appear as an advantageous choice for formal verification and high-level descriptions. We use high-level description concepts like higher-order functions, polymorphism, parametrization, and partial evaluation to describe run-time reconfigurable systems in Haskell.

Motivation

Hardware World

- Reconfigurable Hardware
  - Static Part
    - Embedded Processor
  - Dynamic Part
    - Non-Run-Time Reconfigurable Region
    - Run-Time Reconfigurable Region
  - runTimeReconfigurableRegion

Software World

- Reconfiguration Candidates
  - runTimeReconfigurableRegion
- Polymorphic Objects
  - FR function
  - IIR function

Motivation

Future Work and References

- Include Timing in Models
- Include Formal Verification of Our Models
- Use More Haskell High-Level Structures Like Arrows

References