

Secondment report

TIRAMISU DC2.2

Fellow: Gustavo Vilar de Farias
Research project title: "Reliability estimation techniques for AI accelerators"
From: PDT
To: CDNS
Secondment period: 08.06.2026 – 04.07.2026

Activities during the secondment

Scope and objectives

- Collaborate with DC2.3 and DC2.4 for a joint publication.
- Conduct research work with DC2.3 on software-based testing mechanisms for RISC-V vector processors.

Activities

- Followed some Cadence courses (Functional Verification, Jaspergold, etc.).
- Learned how to use Cadence tools to perform reliability analysis.
- Conducted Design-for-Testability analysis on a RISC-V vector processor for the joint work with DC2.3 and DC2.4.
- Started developing Software Test Libraries (STLs) resorting to RISC-V Vector instructions for a vector accelerator used by DC2.3, assessed its fault detection capabilities for permanent (stuck-at) faults.

Main results achieved

- Joint paper accepted at conference VLSI-SOC 2026 at Cyprus.
- Acquired a strong background with the Cadence environment and tools.
- Start a work on STLs for a RISC-V vector processor with DC2.2.

Next steps

- Finish and publish the results about a method to generate STLs for a RISC-V vector processor.

Self-evaluation

Overall score

I consider this secondment successful, with regard to the research objectives achieved, skills developed, supervision quality and diversity of the resources. (Agree = 5 ... Disagree = 1)

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Optional comments

None

Date of the report approval by the supervisor: 08.09.2026

