LICFI

Clereco
Cross-Layer Early Reliability Evaluation for the Computing cOntinuum

FP7-CLERECO
Grant Agreement FP7-611404

SEVENTH FRAMEWORK PROGRAMME

A Full features C-Based Fault Injector

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Product Overview

LICFI (LIrmm C-Based Fault Injector) randomly inject faults in both data and instructions of a program written in C language. Injections are randomly and dynamically performed while the program is currently running.

*"The only feasible way to prove your C program is **reliable** is **testing** it, **quickly**"*

- LIRMM (CRNS)

Supported Architectures

The tool supports **all** C language programs.

Extensions & Tools

- Hardware independent.
- Instrumented at the original source code, which offers an efficient observability of the software components.
- Execute on the final executable file.
- Easy fault injection mechanism.
- Multi-Thread implementation.

Target Components

- Any data (variables, vectors, etc.)
- Any **standard** C instruction.

Supported Fault Models

CLERECO developed Software Fault Models (SFM):

- ✓ **Wrong Data**
- ✓ **Instruction Replacement**

Measurements

- **Masking probability**
- **Fault Silent Violation (FSV)**
- **Crashed**
- **Detected Faults**

Key Concepts

Instrumentation of the original code allows a selective analysis of the code.

System Requirements:

- **OS:** Linux
- **Tools:** clang/llvm
- **Libraries:** pthread
- **RAM:** 4GB

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LIRMM

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