BaITA

Clereco
Cross-Layer Early Reliability Evaluation for the Computing cOntinuum

FP7-CLERECO
Grant Agreement FP7-611404
SEVENTH FRAMEWORK PROGRAMME

Bayesian Instruction Trace Analyzer for x86 Software

March 2016

Product Overview

BaITA is a reliability instruction trace analyzer for softwares based on bayesian network. It provides a very fast analysis of each x86 Instruction Set Architecture (ISA) based software exploring real executable traces of the software without the need of the original sources.

*"The **only** way to prove your running software is really **reliable**"*

- Testgroup (Polito)

Supported Architectures

The tool is able to parse:

- ✓ x86 standard instructions
- ✓ **AMD** extensions
- ✓ **SSE1** & 2 extensions
- ✓ **MMX** instructions

Extensions & Tools

- Fully automated analysis
  - Data propagation
  - Control flow generation
- Internal parser fully customizable
- Multi-thread analysis capability
- Reliability model for further investigation provided as output

Target Components

- System Registers
  - ES, SS, DS, CS, …
  - EIP, EDI, …
  - …
- General Purpose Registers
  - EAX, EBX, …
  - r1x, r2x, …
- Floating Point Registers
- MMX registers
- **All** addressable Memory Locations

Supported Fault Models

- ✓ **Transient**
- ✓ **Intermittent**
- ✓ **Permanent**

Measurements

- AVF/FIT
- Single target error probability

Extra Features

- Cross-Platform Implementation
- Easy compilation using CMake
- Fully customizable parser
- Extendible Target component description
- **Compatible with CLERICO MaFIN and GeFIN tools**

System Requirements

- **OS:** Linux, OS X 10.8 or later
- **Libraries:** SMILE
- **RAM:** 4GB
- **Tools:** CMake, Bison, Flex

POLITECNICO DI TORINO

Contact Us
Politecnico of Turin, Department of Controls and Computer Engineering
Corso Duca degli Abruzzi 24, 10129, Torino, Italy

Stefano Di Carlo
Phone: +39 011 0907080 Fax: +39 011 0907099
Email: stefano.dicarlo@polito.it