

Optical Module Fault Injection



Overview

Induced current caused by light, laser beam, heavy ion irradiation, etc. can disrupt proper functioning of the device. Thus, performing optical injection can help the adversary to retrieve and/or modify the sensitive data stored in the attacked chip. Though the techniques have existed for some time, in recent years, fault injection (FI) has emerged as an increasingly more common and accessible method of exploitation. Typically requiring physical access, an attacker can momentarily tamper with a processor's electrical inputs (e., voltage or. Practical Optical Fault Injection on Secure Microcontrollers In this paper, we detail the latest developments regarding optical fault injection on secure microcontrollers. Such attacks are practical; they do not even require expensive laser equipment. Nowadays many manufactures apply countermeasures against fault attacks, but adversaries invent and introduce new sophisticated approaches every year to bypass these countermeasures.



Article Content

Practical Optical Fault Injection on Secure Microcontrollers

In this paper we detail the latest developments regarding optical fault injection on secure micro controllers. On these targets, a

An Introduction to Fault Injection (Part 1/3) | Fox IT

With electromagnetic and laser-based optical fault injection, a high degree of spatial and temporal precision is achieved

Single laser fault injection

The S-LMS laser fault injection platform features precision optics engineered by our team to deliver the smallest possible beam

(PDF) Optical Fault Injection Attacks against Radiation-Hard Shift ...

PDF | On Sep 1, 2021, Dmytro Petryk and others published Optical Fault Injection Attacks against Radiation-Hard Shift Registers |

Practical optical fault injection on secure microcontrollers

4 Optical fault injection on modern secure microcontrollers Given the range of countermeasures implemented, the bar for modern

Low-cost Setup for Localized Semi-invasive Optical Fault Injection

Motivation Fault Injection in practice: Are local optical attacks feasible using low cost equipment (What kind of faults can be

(PDF) Optical Fault Injections: a Setup Comparison

This paper presents the essentials of optical injection attacks with a short description of experiments carried out. Most

Optical Fault Induction Attacks

We are commissioning such equipment and plan to use it to explore the potential for fault induction through the rear of the chip using

(PDF) Optical fault injection attacks in smart card chips and an ...

AI Optical fault injection attacks can compromise smart card security, necessitating robust countermeasures. Phototransistors

Optical Fault Induction Attacks

Unless suitable countermeasures are taken, optical probing may also be used to induce errors in cryptographic computations or

Practical optical fault injection on secure microcontrollers

Practical optical fault injection on secure microcontrollers Jasper G. J. van Woudenberg Marc F. Witteman Federico Menarini

Fault Injection | Keysight

Enables voltage, clock, electromagnetic, and laser-based fault techniques to simulate a wide range of real-world attack scenarios.

Fault injection

MODIFI (MODEL-Implemented Fault Injection) is a fault injection tool for robustness evaluation of Simulink behavior models. It

Practical Optical Fault Injection on Secure Microcontrollers

This paper details the latest developments in optical fault injection on secure microcontrollers, including tools and methods.

Optical Fault Injection Attacks against Radiation-Hard Registers

It can be expected that radiation-hard designs, specially crafted for space applications, are more robust not only against high-energy

DS1101A Fault Injection Laser System | Keysight

The special set of lasers with dedicated optics and ultra-fast and flexible control create the ultimate fault injection test solution. Its

Sensitivity of Standard Library Cells to Optical Fault Injection ...

One of them are optical Fault Injection attacks. We performed successful optical Fault Injections into different type of

Optical Fault Injections: a Setup Comparison

Optical Fault Injections: a Setup Comparison Dmytro Petryk, Zoya Dyka and Peter Langendoerfer IHP – Leibniz-Institut für innovative

Fault injection

In computer science, fault injection is a testing technique for understanding how computing systems behave when stressed in

Paper Title (use style: paper title)

This paper presents a state-of-the-art of optical fault injection attacks, mainly focusing on the literature published in the last 3 years.

Multi-spot Laser Fault Injection Setup: New Possibilities for Fault ...

After a description of the optical system, we highlight its new capabilities against the limitations of existing single-spot laser fault

Practical optical fault injection on secure microcontrollers

In this section we discuss the fault injection setup we designed to overcome these shortcomings and adhere to the specifications

Fault Injection | Keysight

Accelerate security testing with precision fault injection The Keysight Inspector FJ2 Fault Injection System strengthens device

Remote fault injection attack against cryptographic modules via ...

Fault injection attacks on cryptographic modules pose significant threats. However, conventional fault injection methods

Single laser fault injection microscope

The S-LMS microscope station for laser fault injection is a high-precision platform for security evaluation of integrated circuits. It

Fault injection

Software implemented fault injection SWIFI techniques can be categorized into two types: compile-time injection and runtime

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://yachtchartercapetown.co.za>

Email: info@yachtchartercapetown.co.za

Phone: +27 21 863 4927

Address: 1st Floor, The Towers, 1 St George's Mall, Cape Town, 8001, South Africa

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