Welcome to Novasom's

Fault Injection Validation HIL Systems ®

Headquarter
Bucharest Romania

R&D OFFICE
Turin – Rome – Bologna – Italy

Specifically tailored Validation HIL

Our unique In-circuit Fault Injection Validation systems are dedicated to the validation and testing of **safety critical electronics** products , tailored to fulfill the specific needs of Functional safety analysis, and to **make it real**.

Unlike other systems on the market, our tool will allow you to really and properly **inject** (and not only simulate) internal and external HW faults of your products , from both external and internal hardware fault injection point of view and it can be easy used by any SIL environmental you are using now

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Time-precision fault injection for advanced HW and SW testing

All will be done with time determinism **and up to microseconds of time precision in the injection, possible on hundreds of points simultaneously to allow you to perform the fault scenario you need , and with a** high impedance **connection systems**

Things that are impossible with high level graphical proprietary programming language highly diffused till now, often passing FPGA board, really impossible to control totally .

Our new holistic approach that will join system level and products level fault injection, will give you the possibility to test and report any HW fault behaviour as any SW diagnostics or process there related, and how it works as never before.

Our HIL systems are standard products, but they could be adapted by our engineers to any of your specific needs with its own specific nails bed fixture, to perform electrical IO fault injections, addressing as example the requirements of ISO 26262, as EN50155, and MIL461E test rules and providing you with real replicable reports.

Read more [here]

A real-world full testing capability, HW and SW level

In today's advanced electronic products, which often contain thousands of micro components and multiple CPUs within micro BGA-level packages, there are countless potential HW and SW fault scenarios. Managing and testing all of these fault cases is a complex challenge.

So, how can you truly validate the reliability of such systems?

The answer lies in our Fault Injection HIL systems, supported by our expert engineering team. We offer real-world, full testing capabilities, which go beyond the theoretical fault models often found in academic methodologies. While models like MTBF or LAMBDA often fail to represent real-world scenarios.

Our HIL systems make it possible to inject HW faults at low level, disturbing for example a low voltage oscillator as a step down power converter, or detect- disturb things like current , in real conditions and see how your system reacts at both HW and SW level.

Really, not in theory

Any test will be possible now, with our unique holistic approach that no one else has, in order to allow you to test the real global functioning of your system disturbed in any way the FMDEA analysis (really minded now!) will suggest. With our help, for sure. Using those systems, you will enjoy our engineering skills, included into the package. Just contact us

Through custom extension boards supporting CAN, Ethernet, I2C, and SPI, our systems will provide comprehensive, flexible testing. Many clients already benefit from the speed and depth our systems deliver in functional safety analysis.

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Seems bold, but we did it

And have been doing it for our clients for over 20 years.

To give absolute reliability to our fault injection system we've developed an architecture based on a backplane, a main CPU board that reads commands from a high-level C/C++ system, that shall drive the FMDEA minded test, along with pure embedded I/O boards that are fully expandable and durable. This setup integrates seamlessly into a rugged mechanically defined nail bed for specific hardware-in-the-loop (HIL) testing needs.

Our custom HIL systems are complex and robustly built, but they're invaluable.

A fan-less, embedded architecture that will never fail a measure and will never need a reboot also working 24/7. And it has a lifetime warranty, call us and discover how.

You'll save time, effort, and cost by detecting and resolving hidden issues early, testing everything in every real condition at the HW and SW level.

How our testing HIL system works

Imagine that your company has a special room with a controlled entrance and temperature, where some metal racks are mounted.

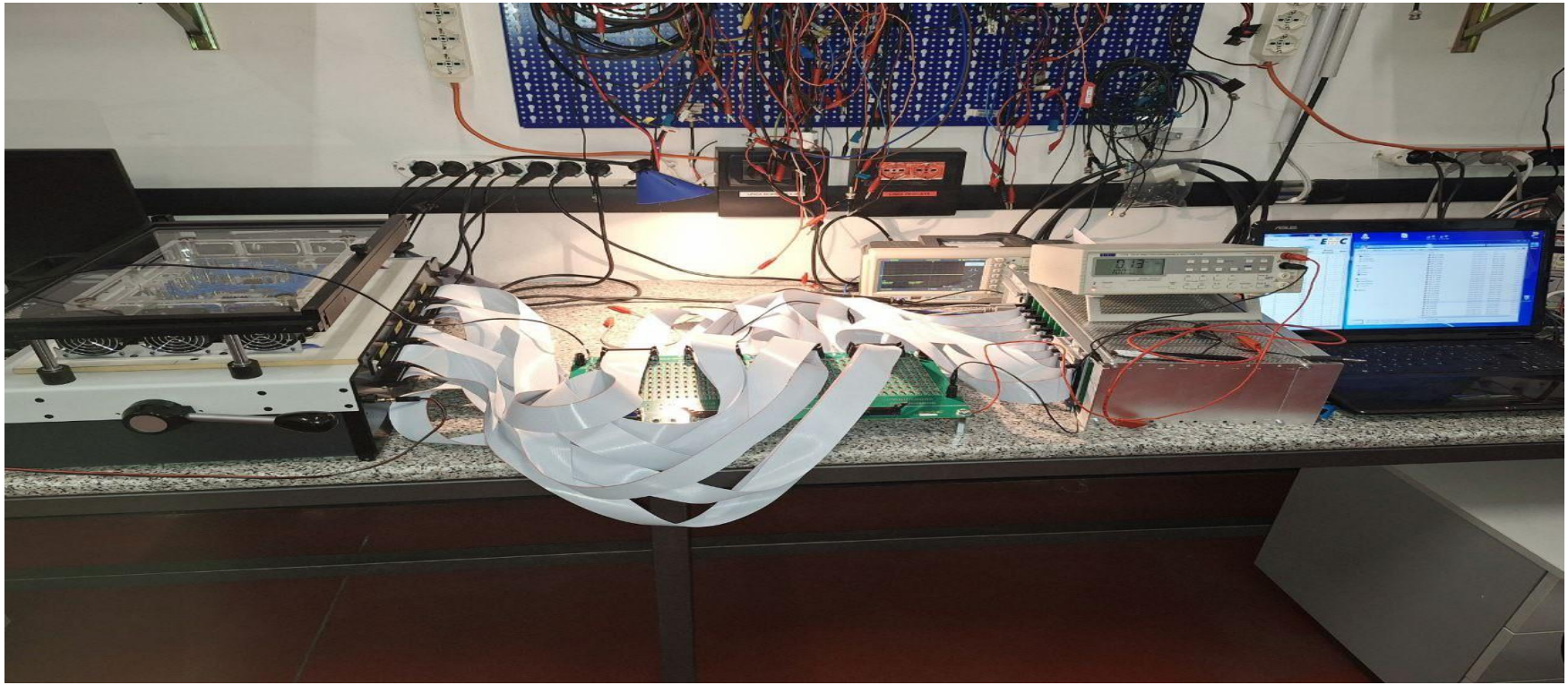
Inside these racks, are let's say, computers responsible for the black box testing of the ECU (from outside)., the classic Software in the loop you us to simulate all you want at that level

The ECU is placed inside our Nail Bed and connected to our HIL, ready to inject real fault.

Your SW engineers team programs a testing cycle from their external computer, and simulates one scenario of normal work. After that they will use our Fault Injection HIL and start creating problems to the ECU from inside, and record how it reacts.

All is reported from the Fault injection HIL and more and more SW engineers can test in queue OS. They set up a working condition and we perturbate the injection fault to see how it reacts.

What it looked like in our lab at first



Our unique holistic approach

Internal PCBA faults are as important as external, so let's start from a good hazard analysis, make a DFT, then FMEDA and test every scenario with low-mid-high LAMBDA, also if there are thousands of them done with your SIL system we will integrate with . It's a complete validation tools too!

- **Use a real stimulus to check each and every pattern e.g. drifts of signals, moreover short or open or digital info. while constantly check your diag.**
- **Check every scenario the safety assessment will consider also only potentially dangerous, no limits.**
- **Leave test engineers free to inject custom specific faults.**
- **Collect real data (HW and SW) on how the system reacts.**
- **Improve its response.**

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