Development of a test environment for a High Performance Computing (HPC) CPU
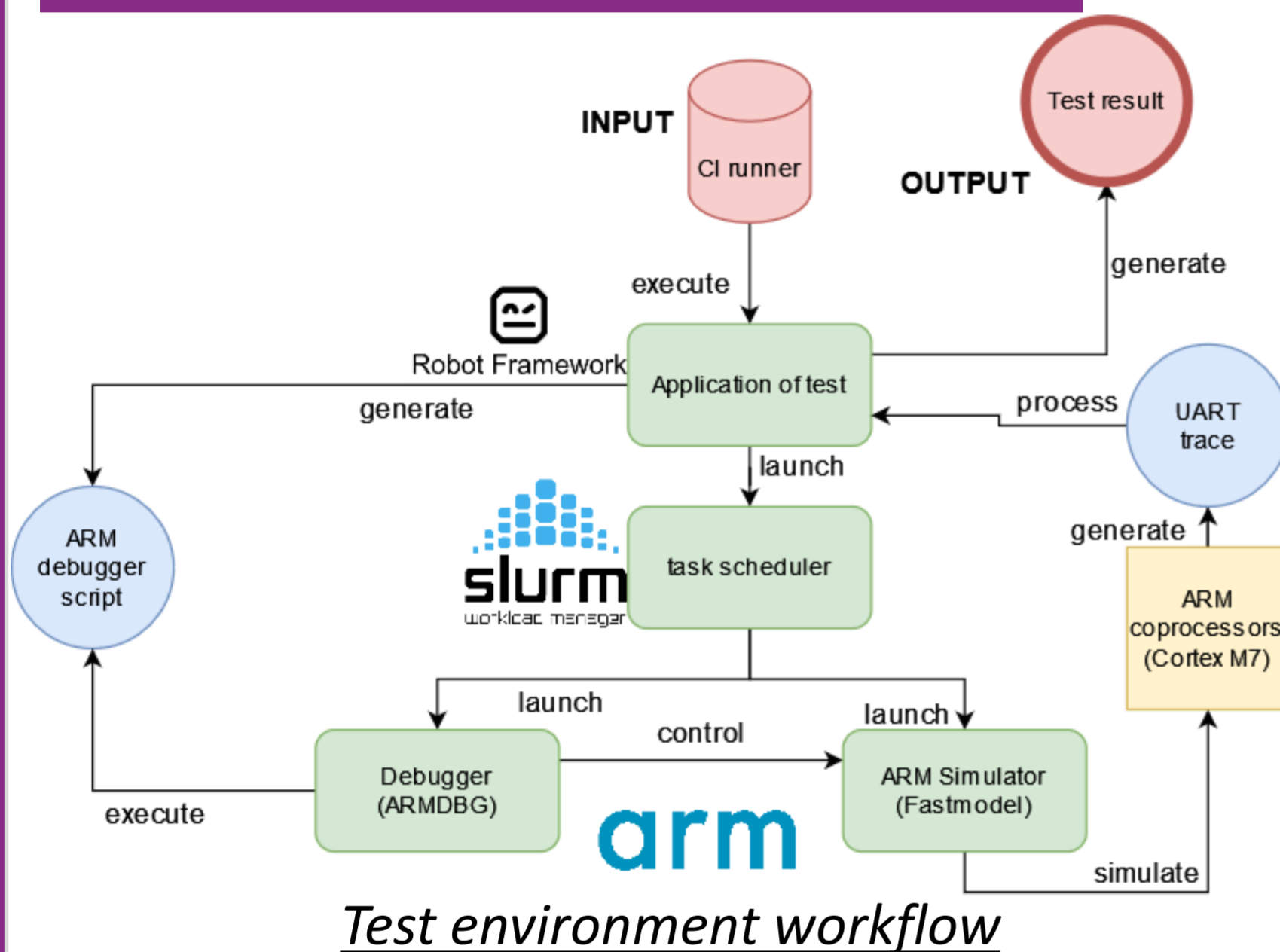
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⊕ CONTEXT & OBJECTIVE

- SIPEARL company was born from the **European Processor Initiative** (EPI).
- EPI: design, develop and produce a new family of **European low-power processors** for **HPC**, allowing **Europe technological sovereignty**.
- Objective: setup an automatic **test environment** to execute and verify **unitary tests** and **non-regression** on **ARM Cortex M7** target on a HPC CPU, and integrate it on **Gitlab CI.**

⚙ METHOD & DEVELOPMENT

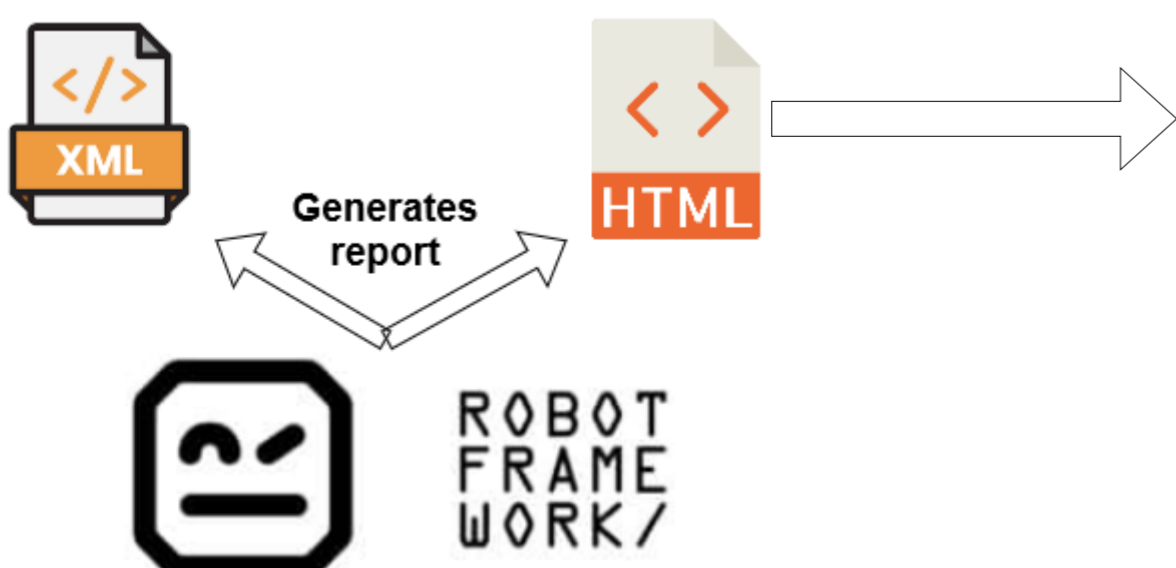*Test environment workflow*

Our toolchain:

- Automatically launches test scripts at specific moments
- Integration into **Gitlab CI** tool
- A framework to automate tests: **Robot Framework**.

Main components:

- A coprocessor simulator for ARM Cortex M7: **Fastmodel**
- A list of tests to run automatically: **Robot test suite**
- A specific debugger that connects to the coprocessor simulator and loads the **unitary test** script generated by Robot Framework: **ARM Debugger**

⬚ RESULTS & CONCLUSION

- Results: - **HTML report**
  - **XML report** for Gitlab CI

| No Regression Test Log | | | | | | Generated 20220602 14:16:13 UTC+02:00 4 minutes 23 seconds ago |

Test Statistics

Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	2	2	0	0	00:01:09	

Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						

Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Regression Test	2	2	0	0	00:06:41	

Test Execution Log

SUITE No Regression Test
Full Name: No Regression Test
Source: /home_spl/hugo.dougy-esisar/sw_tests/robot/TestSuite/no_regression_test.robot
Start / End / Elapsed: 20220602 14:09:33.294 / 20220602 14:16:13.954 / 00:06:40.660
Status: 2 tests total, 2 passed, 0 failed, 0 skipped

SETUP HandleSimulation.Prepare Simulation
TEARDOWN HandleSimulation.Clean Simulation
TEST MCP Launch Test

KEYWORDS : Gitlab CI, Unitary test, HPC, Debugger, ARM Cortex M7, Robot Framework, Slurm