



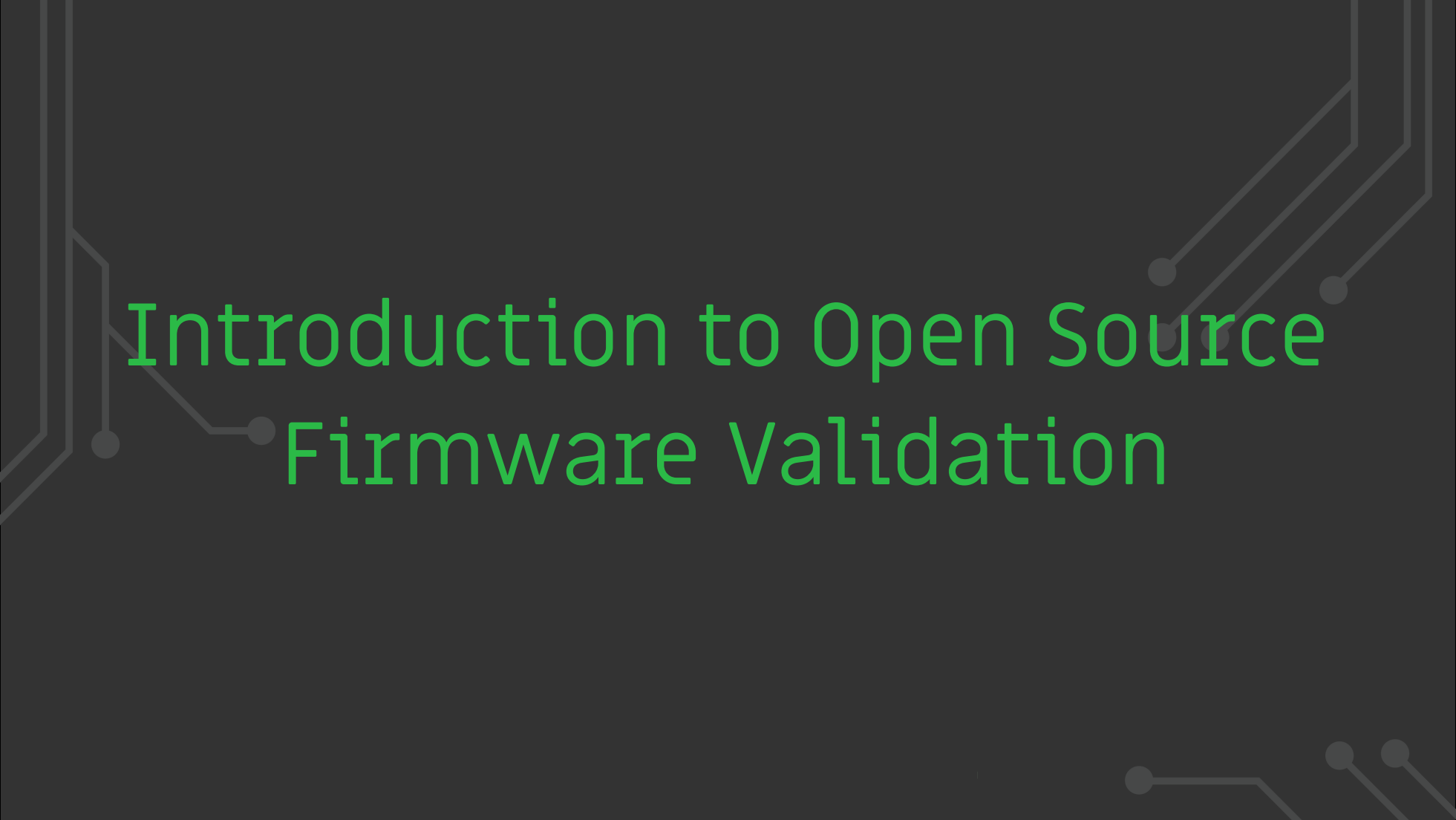
Dasharo User Group #11 🎉 and Developers vPub 0x10 🍺

Dasharo Open Source Firmware Validation Status



Agenda

- Short introduction to OSFV
- Stats
- Improvements
- Work in progress & future plans
- Q&A

The background features a dark gray field with light gray circuit-like lines. These lines are composed of straight segments and right-angle turns, some ending in small circular nodes. The lines are primarily located along the left and right edges of the frame, with a few segments extending towards the center.

Introduction to Open Source Firmware Validation

Introduction to Open Source Firmware Validation

- Open Source Validation of Open Source Firmware
- Based on Robot Framework
- Used to detect regression in next dasharo release via series of automated test cases

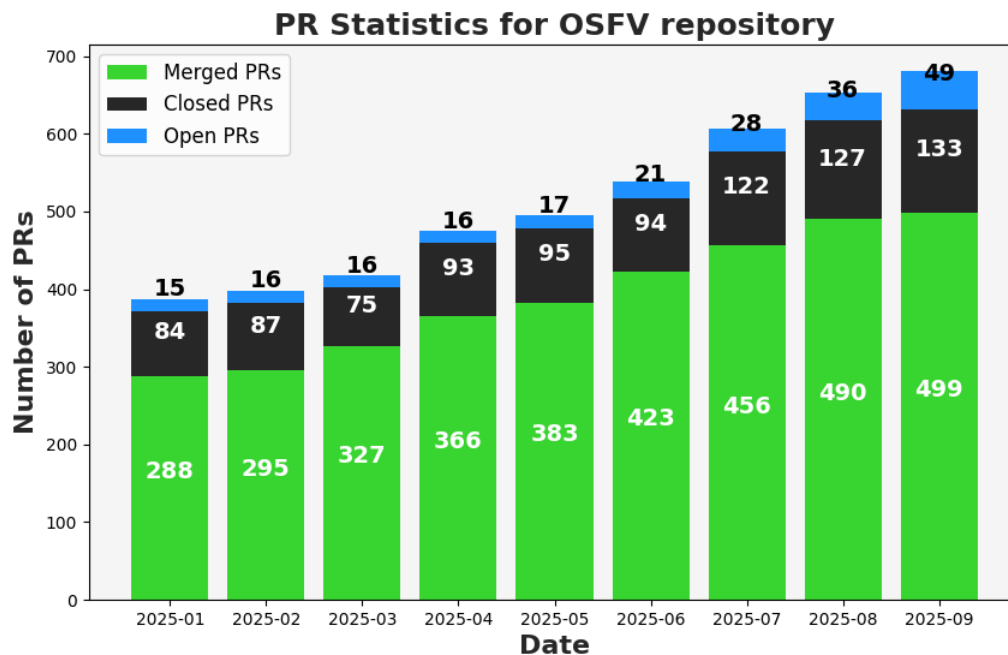
The background is a dark gray with decorative circuit-like lines in the corners. These lines are light gray and form various geometric shapes, including rectangles and triangles, with small circles at the ends, resembling a stylized circuit board or network diagram.

OSFV Stats

PR stats

open-source-firmware-validation

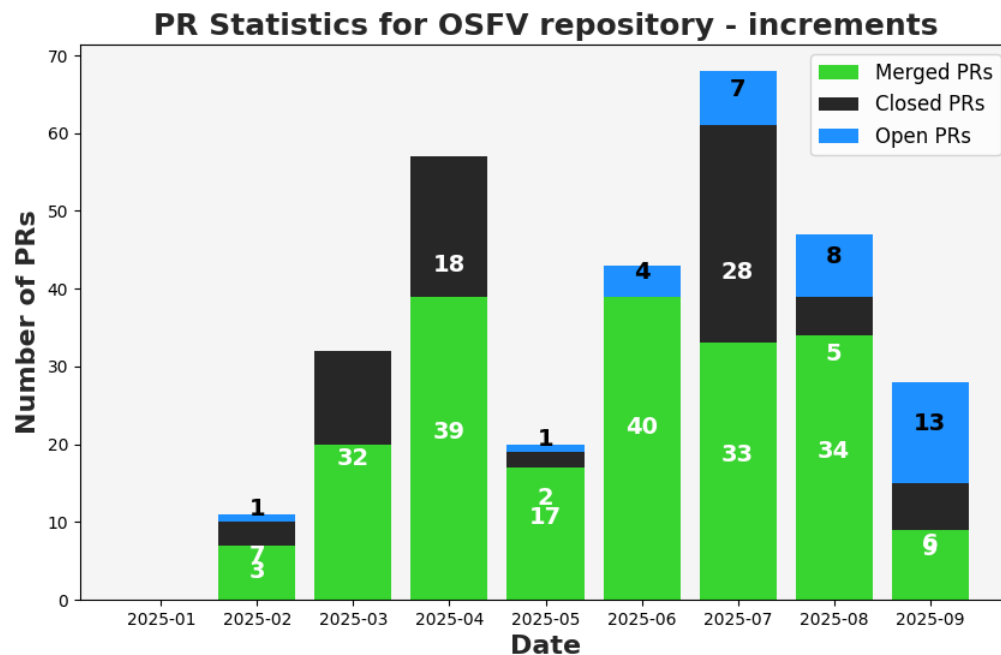
Total



PR stats

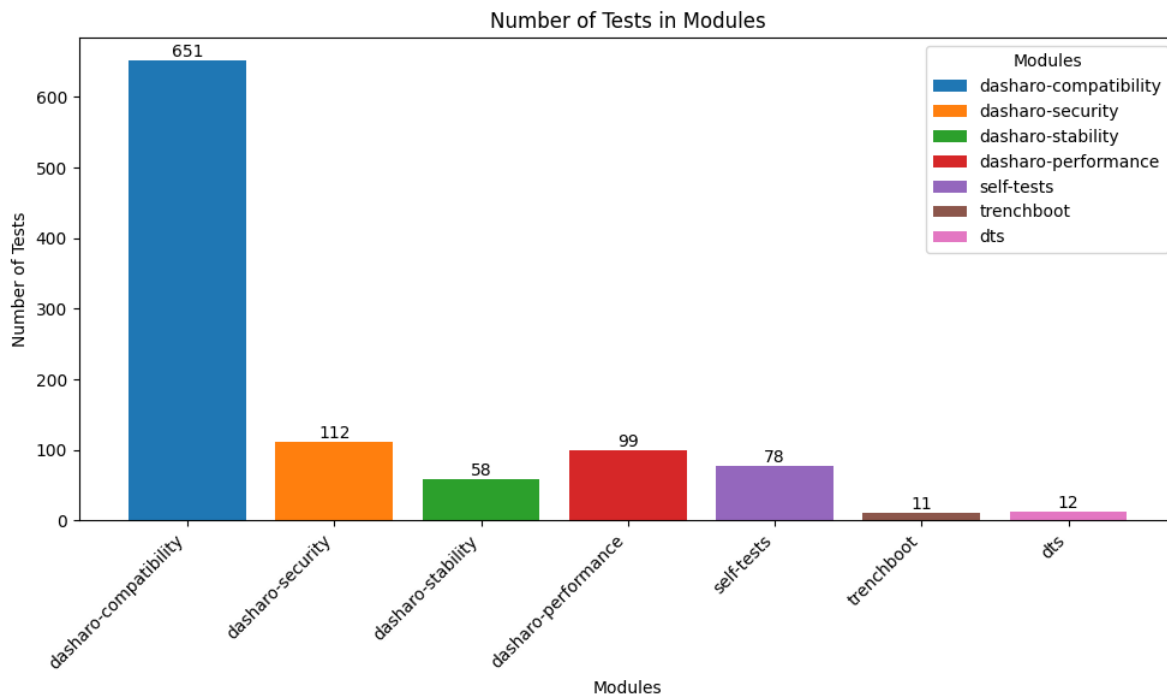
open-source-firmware-validation

Difference



Test modules stats

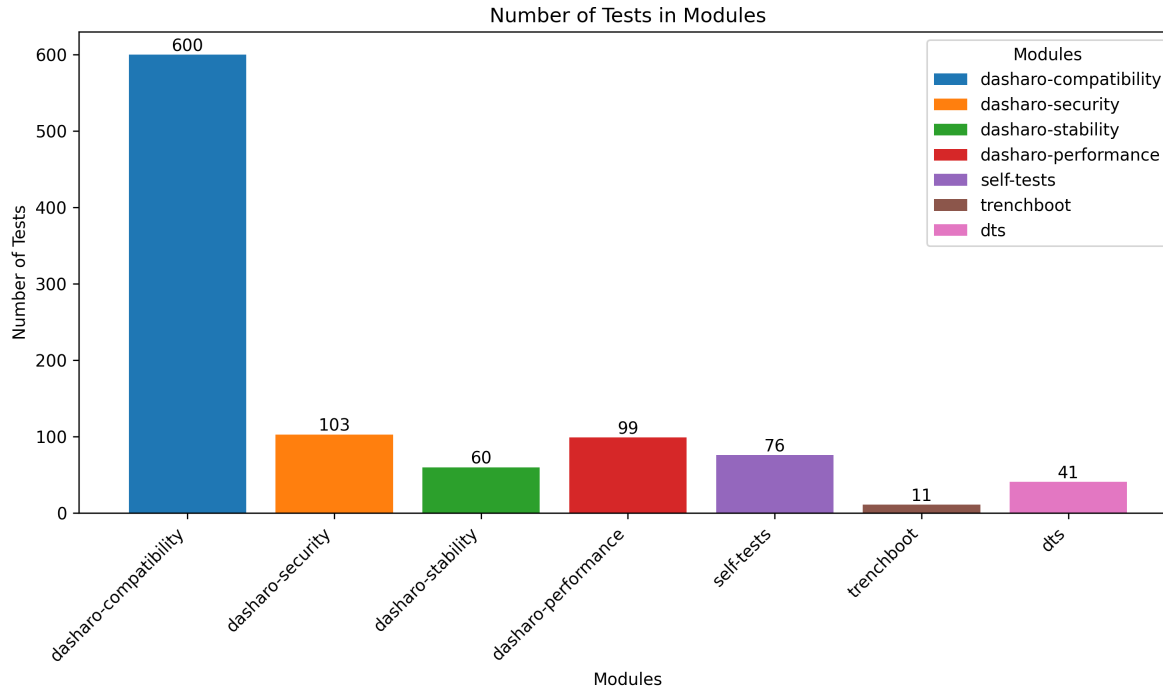
Total test cases



1038 total test cases!

Test modules stats

Difference



Total count increased by 48 since DUG #10

Moving to Robot Framework 7

Benefits:

- Updated syntax & deprecations cleaned up
- Better type support & annotations
- More powerful keywords & resource handling
- Most notable is the introduction of VAR syntax for variable creation

We jumped on the new VAR syntax right away because it makes variable creation cleaner That clarity has been so useful that in just a short time we've already used VAR 534 times across 94 files- a clear sign of how much it improves readability and maintainability in our test suites

New test cases

- Added ACPI suite - installation and use of dasharo ACPI driver
- Added CBNT suite - Converged Boot Guard and TXT tests
- Added FWUPD suite - Testing firmware update via cabinet files
- Expanded MBO suite - This test suite verifies measured boot integrity by checking that TPM PCR values and event logs are consistent across boots, that specific firmware/secure boot or Dasharo configuration changes affect only the intended PCRs, and that identical system states always result in identical PCR measurements.
- Added XCP-NG variants to some existing test cases
- test ID overhaul that affected many tests

New platforms

- Odroid ULTRA
- ASRock SPC741D8-2L2T/BCM
- Novacustom NUC Box

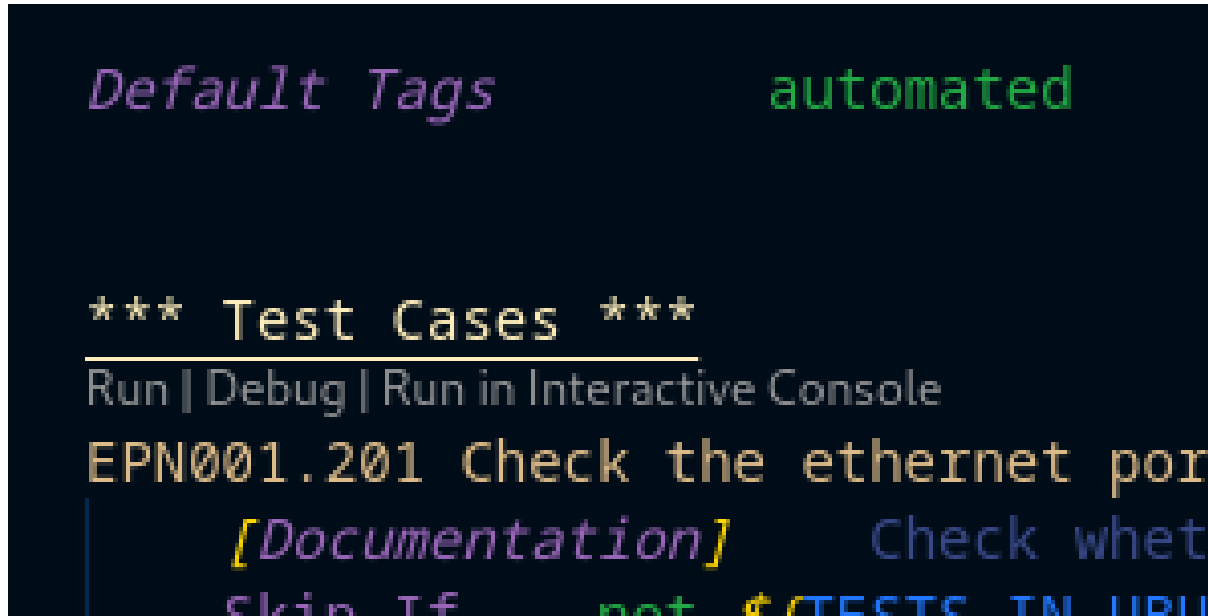


The background is a dark gray with abstract, light gray lines in the corners that resemble circuit traces or a stylized grid. These lines are composed of straight segments and right-angle turns, with some ending in small circular nodes. They are located in the top-left, top-right, and bottom-right corners, framing the central text.

Key changes

Tags

- Manual testing became overwhelming as project scale increased
- Run of seemingly all auto tests was often interrupted by semi-auto test that awaited for
- Introduced Tags to clearly distinguish between: manual tests and automated tests



```
Default Tags      automated

*** Test Cases ***
Run | Debug | Run in Interactive Console
EPN001.201 Check the ethernet port
  [Documentation] Check whether the port is up
  Skip If not $/TESTS IN LIBRARY
```

Tags

Test tags synergize well with ID overhaul giving a possibility to target a specific group of tests in one go

Example

```
--include {automated/semiauto} -t "*{OS_ID}*"
```

Without tags:

Automatic OS Flash

- Added support for flashing full disk images in automated tests
- Supported scenarios:
 - Windows + Ubuntu + Fedora triple-boot
 - Windows + Ubuntu dual-boot
- Orchestrated through Clonezilla + Robot Framework

ENV variables:

```
SOURCE_IMAGE=windows_ubuntu  
TARGET_DISK=nvme0n1  
-- -t "Restore*"
```

```
Restore Disk Clonezilla | PASS |  
Flashing finished.  
-----  
Restore-Disk-Auto | PASS |  
1 test, 1 passed, 0 failed  
=====
```

Automatic OS Flash

Progress bar display on DUT

Serial output over USB

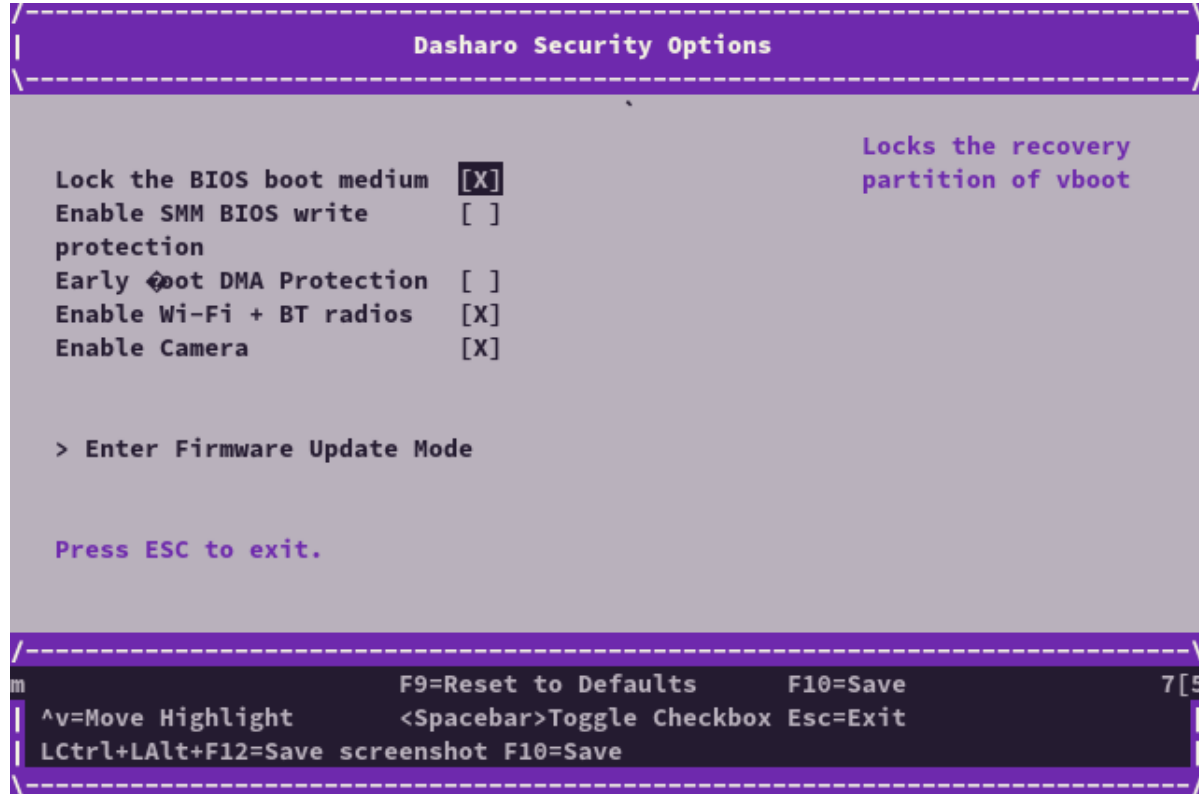
- Integrated laptops into the default test workflow
- Achieved through Serial FTDI USB converters
- Benefits:
 - Broader hardware coverage
 - Ability to test setup menu features on laptops
 - Standardized workflow regardless of device type

Serial output over USB

Serial output over USB



Serial output over USB



Fuzzy Search

- USB FTDI connections introduced signal distortions
- Needed a tolerant search approach instead of strict matching
- Implemented fuzzy search to handle noisy or incomplete data

Fuzzy Search

```
Traditional Serial .. PASS
```

```
FAIL
```

```
FAIL
```

```
PASS
```

```
FAIL
```

```
PASS
```

```
PASS
```

```
FAIL
```

```
PASS
```

```
PASS
```

```
Traditional Serial | FAIL |
```

```
'$failed' should not be true.
```

```
Fuzzy Serial .. PASS
```

```
PASS
```

```
PASS
```

```
PASS
```

```
PASS
```

```
PASS
```

```
PASS
```

```
PASS
```

```
FAIL
```

```
PASS
```

```
Fuzzy Serial | FAIL |
```

Adding HW tests to OSFV CI

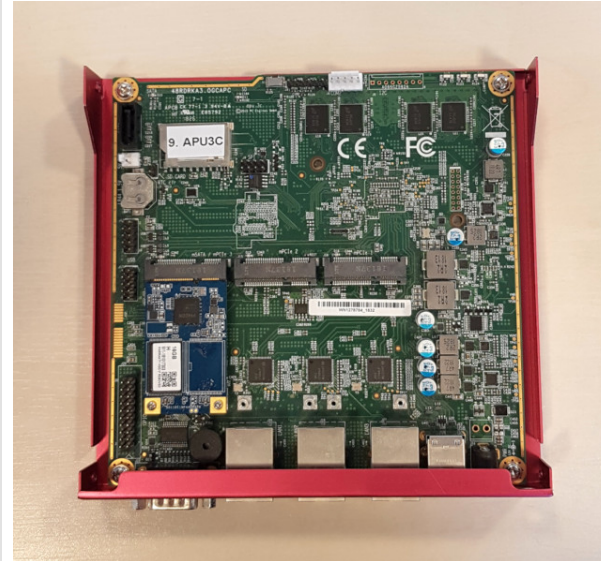
Performing CI tests on real hardware will greatly improve the reliability of OSFV

- The work is in progress
- Two representatives prepared as a start

MSI Z690 DDR4 i5 14600k



PC Engines APU3C AMD GX-412TC



Adding HW tests to OSFV CI

Github Action Runner **Scoped Regression**

The screenshot displays the GitHub Actions interface. On the left, the 'Actions' sidebar is visible with a list of workflows. The 'Scoped regression on PRs' workflow is selected and highlighted. The main panel shows the details of this workflow, including its name, file path, and a list of recent runs. The workflow is titled 'Scoped regression on PRs' and is located at 'develop-pr-regression.yml'. It has 534 workflow runs. The list of runs shows four entries: 'Odroid h4 ultra tests' (successful), 'V560tne 1.0.0 rc6' (failed), 'V560tne 1.0.0 rc6' (failed), and 'add ASRock' (successful). Each entry includes a status icon (yellow circle for success, red X for failure, green checkmark for success), the workflow name, a brief description of the run, and a link to the pull request.

Actions New workflow

All workflows

- Auto Docs
- Delete Branch on PR Close (Not Merg...
- Keywords self-tests for Dasharo (core...
- Keywords self-tests with QEMU
- Keywords stress-tests with QEMU
- pages-build-deployment
- Pre-commit checks
- Scoped regression on PRs**
- Smoke tests on selected platforms
- Test IDs check

Scoped regression on PRs
develop-pr-regression.yml

534 workflow runs

- Odroid h4 ultra tests**
Scoped regression on PRs #539: Pull request #881 synchronize by miczyg1
- V560tne 1.0.0 rc6**
Scoped regression on PRs #538: Pull request #1105 synchronize by matmacieje
- V560tne 1.0.0 rc6**
Scoped regression on PRs #537: Pull request #1105 opened by matmacieje
- add ASRock**
Scoped regression on PRs #536: Pull request #1086 synchronize by philipanda

Priorities for the future

- CI tests on real hardware on every PR
 - Improving current workflow to prevent unexpected breaks on changes
- Full SeaBIOS support is still on the roadmap

The image features a dark gray background with stylized, light gray circuit-like lines in the corners. These lines consist of straight segments and right-angle turns, ending in small solid gray circles, resembling a printed circuit board (PCB) layout. The lines are positioned in the top-left, top-right, and bottom-right corners, framing the central text.

Thank you!