



KernelCI: Upgrading Linux development and integration workflows

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FOSDEM^{'25}

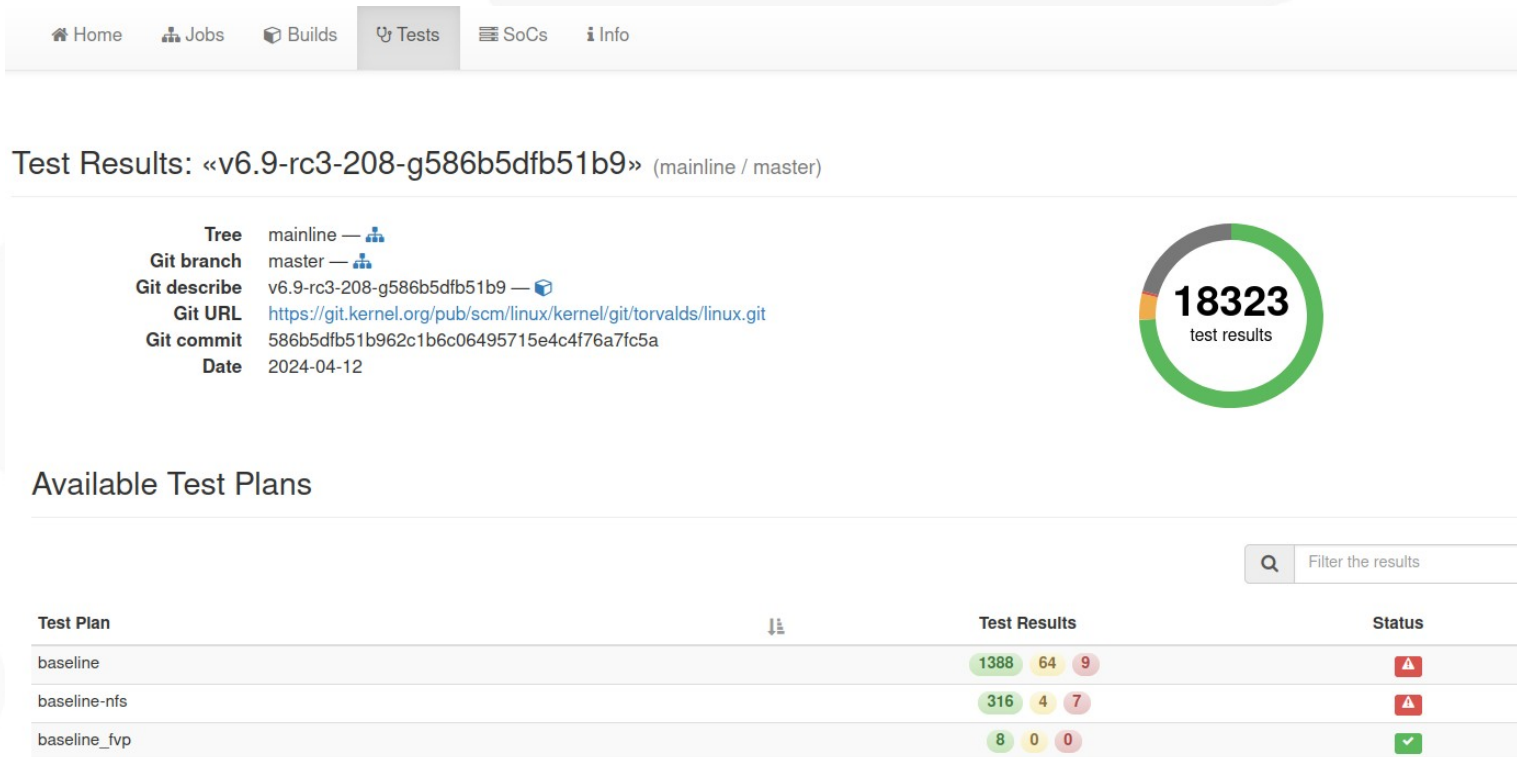
COLLABORA

Agenda

- What is KernelCI?
- Current status
- Next steps
- Trying it out
- Final thoughts

What is KernelCI?

Classic (legacy) dashboard



Growing requirements

 Home

 Jobs

 Builds

 Tests

 SoCs

 Info

Error while loading data from the server (error code: 0). Please contact the website administrator

Ecosystem

- Tests quality efforts: “Towards common mainline device testing”

<https://lpc.events/event/18/contributions/1794/>

- GitLab pipeline definitions for kernel development

<https://lore.kernel.org/lkml/20250123135342.1468787-1-vignesh.raman@collabora.com/>

- Database of CI reports from testing kernel

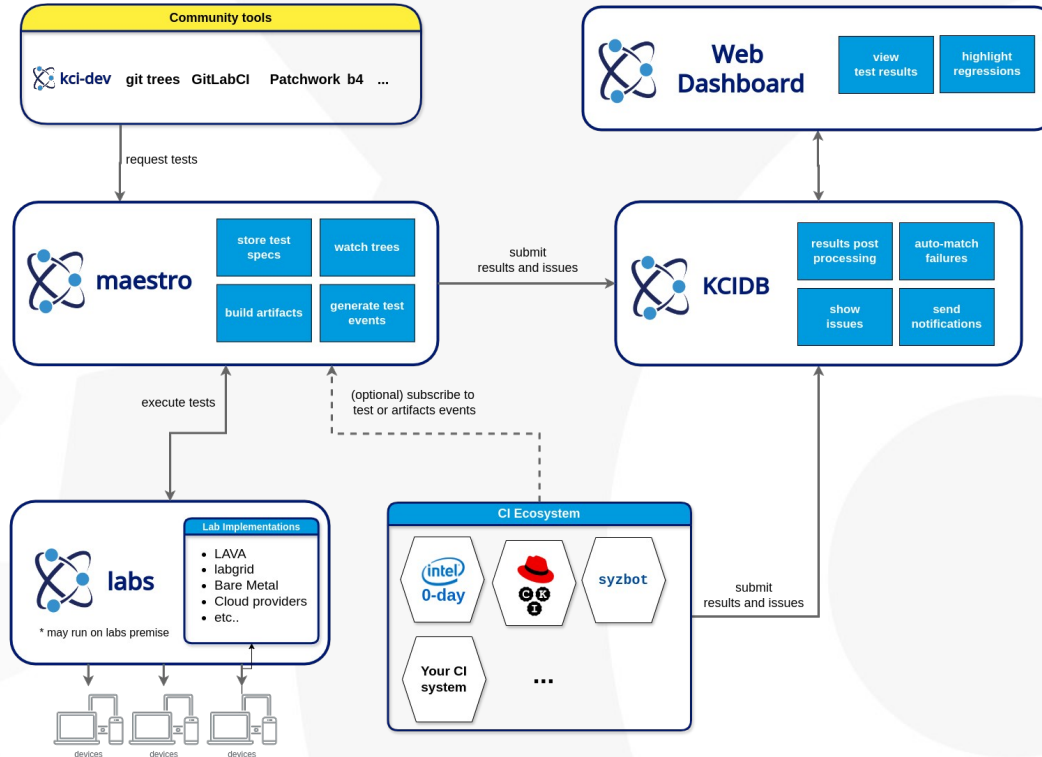
<https://kcidb.kernelci.org>

Takeaways

- KernelCI (project) expanded and evolved into an umbrella for various efforts
- Service and system are components of the whole project
- Service scaling/maintenance issues led to redesigning the system

Current status

Testing landscape



Web Dashboard



Trees

Hardware

Documentation

Send us Feedback

Trees

Origin

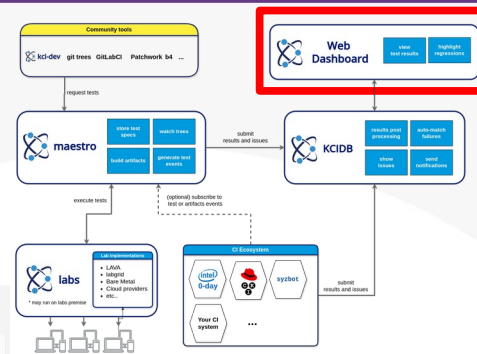
maestro

stable

This is an ongoing project.
Please report bugs and suggestions to kernelci-webdashboard@groups.io.

Last 7 Days Showing: 1 - 10 of 10 Trees Items per page: 10

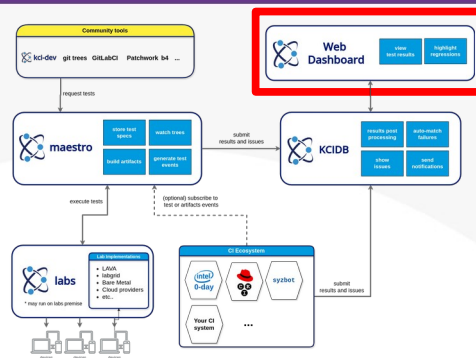
Tree	Branch	Commit/Tag	Date	Build Status	Boot Status	Test Status
stable	linux-6.6.y	v6.6.74	1/23/2025	22 0 0	171 18 19	385 207 182
stable-rc	linux-5.10.y	1659f4d4b85352fb8da1f9ea86034bed1ef885f1	1/21/2025	29 1 0	521 26 38	2456 485 240
stable-rc	linux-5.15.y	a38aec37d68a477d59deca3dad2b2108c482c033	1/22/2025	28 1 0	469 71 34	3869 754 225
stable-rc	linux-5.4.y	78d73ae31c4fcb1657d8608848a83e4cd996709	1/21/2025	25 4 0	452 4 50	173 303 200
stable-rc	linux-6.1.y	c5148ca733b386401ef46ed4ec93a2f4a078e187	1/22/2025	28 0 0	197 17 38	3501 430 161
stable-rc	linux-6.12.y	0bde21f273434bad90411f296c22f02c62c07b2e	1/22/2025	30 0 0	713 49 17	7476 6209 708
stable-rc	linux-6.6.y	429148729681ff93db022c19a17ce00dff9c04f9	1/21/2025	31 0 0	610 39 27	6976 4581 423
stable-rt	v5.10-rt	v5.10.233-rt125	1/23/2025	17 1 0	91 24 27	1349 6 250
stable-rt	v5.15-rt	v5.15.177-rt83	1/24/2025	19 0 0	101 30 24	1666 7 261
stable-rt	v6.6-rt	v6.6.74-rt48	1/27/2025	19 0 0	161 24 19	2589 74 438



Regression tracker

kernelci / staging-stable / staging-stable-20240412.2

- ✓ kbuild-clang-17-x86
- ✓ (shell) kver
- ✓ (docker) kunit
- ✓ kbuild-gcc-10-arm64
- ✓ kbuild-gcc-10-armel
 - ✗ (bcm2836-rpi-2-b) baseline-armel
 - ✗ (bcm2836-rpi-2-b) login
 - ✗ (bcm2836-rpi-2-b) kernelmsg
 - ✓ (imx6q-sabrelite) baseline-armel
 - ✓ (odroid-xu3) baseline-armel
 - ✓ (rk3288-rock2-square) baseline-armel
 - ✓ (rk3288-veyron-jag) baseline-armel
 - 📁 (sun7i-a20-cubieboard2) baseline-armel-baylibre



KCIDB



Home ▾

Database

production ▾

Origin

All ▾

Build architecture

All ▾

Build configuration

All ▾

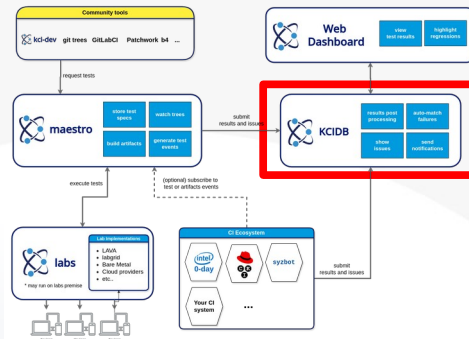
Welcome ▾

Welcome to Linux Kernel CI report database (KCIDB) dashboard. Here you can find testing reports aggregated from multiple CI systems ("origins"), sent in the past six months. This is a work in progress, and we welcome contributions and participation. See the source code for [the collection system](#), and for [this dashboard](#). Write to kernelci@lists.linux.dev if you want to start submitting results from your CI system, or if you want to receive customized notifications of arriving results.

Repositories

URL	Branches	Checkouts
https://gitlab.com/redhat/centos-stream/src/kernel/centos-stream-9.git	backport-RHEL-32497-centos-stream-9-main , main , main-automotive	466
https://gitlab.com/cki-project/kernel-ark.git	ark-latest , cki-gating , os-build	372
https://git.kernel.org/pub/scm/linux/kernel/git/broonie/sound.git	for-next , for-linus , for-6.9 (+1)	265
https://gitlab.com/Linaro/lkft/mirrors/stable/linux-stable-rc-queues		199
https://git.kernel.org/pub/scm/linux/kernel/git/stable/linux-stable-rc.git	queue/6.8 , queue/6.6 , queue/6.1 (+11)	118
https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	master	64

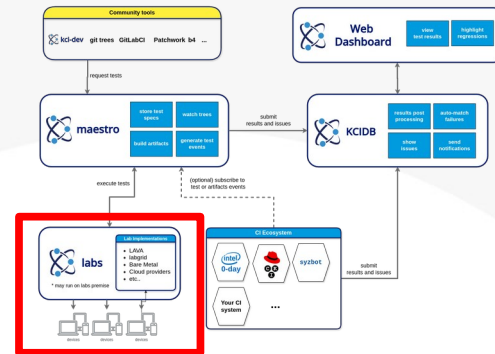
1 2 3 4 5 6 7 8 9



Connecting labs

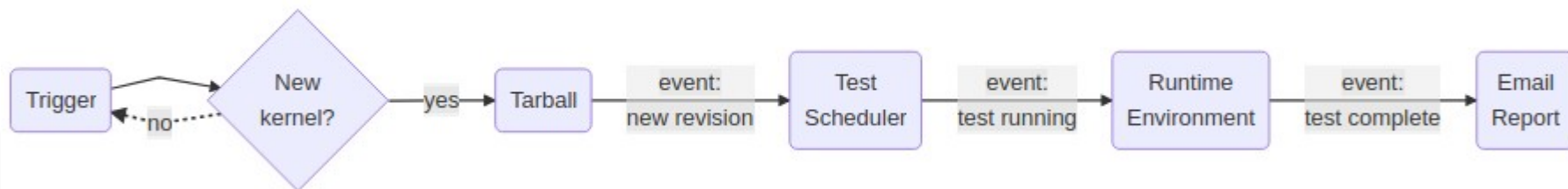
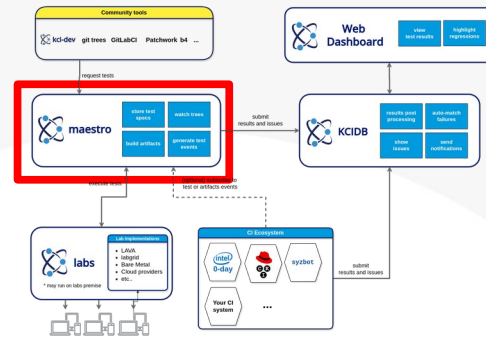


- Physical/virtual
- Build farms (e.g. Kubernetes)
- LAVA:
 - Baylibre
 - Broonie
 - CIP
 - Collabora
 - Qualcomm
- Yours?



Maestro

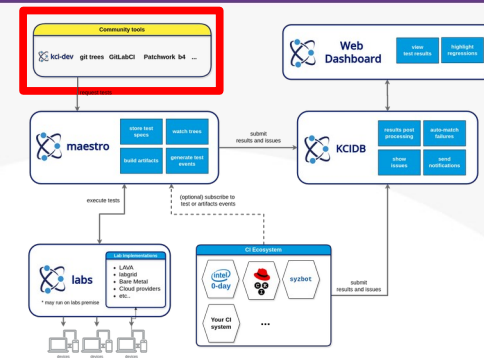
- Tree monitoring
- Event processing
- Task scheduling
- Results submission



<https://docs.kernelci.org/maestro/api/design/>

kci-dev tool

- Stand alone tool to interact with KernelCI
- Custom submissions (test arbitrary commits)
- Results retrieval
- Requesting automated bisection
- <https://kci.dev>



Takeaways

- Extensibility
- Improved system scaling
- Support for new lab types (not only LAVA)

Next steps

Not only managed instances

- Managed
 - <https://kernelci-api.westus3.cloudapp.azure.com>
 - <https://staging.kernelci.org:9000>
- Local – guided
 - <https://docs.kernelci.org/maestro/api/local-instance>
- Local – semiautomatic
 - <https://github.com/kernelci/kernelci-deploy>

Feedback

- What is missing?
- What might have been duplicated?
- What new hardware could be tested?

Getting in touch

- Send an email to kernelci@lists.linux.dev
- IRC: #kernelci on libera.chat
- Matrix: #kci-general:matrix.org
- Discord: <https://discord.gg/3rPE9rNj>

Summary

Final thoughts

- The new system is steadily going through a stabilization phase
- Focus on reliable tests results and relevant reports
- It's all about engaging the community in testing

Thank you!

We are hiring - col.la/careers