How does the Mesa3D CI manage to balance fast-paced development and quality of the code?

By the Gfx CI team
@ Collabora
Hello!

We're the Mesa3D CI team!

Our team:
Helen, Daniel, Vignesh, Guilherme, Sergi, and David

fdo: @helen.fornazier, @daniels, @vigneshraman, @gallo, @sergi, @dh
Today topics:

- What we work with
- Challenges when running the CI
- Tooling and procedures
- Monitoring the CI
- Open questions / Discussion
What we work with

- GitLab CI: pipelines and jobs
- Multiple solutions:
  - Barebone (custom set of scripts connecting various machines)
  - LAVA (Collabora and Lima farm)
  - Tron CI (originally Valve specific runners using containerized env.)
- Different architectures, devices and test suites.
- Kernel from our repository
  - mainline kernel + few custom patches + adjusted defconfig.
Challenges when running the CI

• Scalability & complexity
  - Sharding, parallel, fraction, and the magic of nightly runs

• Infrastructure limitations
  - Finite resources
  - Huge network loads

• Flakiness and timeouts
  - At different levels: GitLab, Infra, DUT, and test level

• Reliability of pipeline with about ~250 jobs...
  and Marge requires all jobs to pass.
Tooling and procedures

- Marge-bot workflow (pre-merge tests), nightly runs and post-merge
- Jobs dependency tree
  - Rules complexity
- Local testing: docker vs rootfs.
  - ci_run_n_monitor + --stress; marge_queue
  - ci-uprev
  - Ci-collate
    - Job, pipeline, patch
Monitoring the CI

- Mesa-performance-tracking
  - ETL model
- Visualization: Grafana
  - Mesa CI Drivers’ Performance
    - ci-kdl
  - Mesa CI Quality
Open questions / Discussion

- Increased usage of CI, can we handle it?
- We need more devices. Join us with your home farm!

- Testing different kernels and challenges (missing patches, not mainlined devices yet, differences in fails/flakes)
  - we bundle modules into rootfs & containers... should we split them?
- Booting from NFS and what about the default defconfig? Will our pipeline work with it?

- Testing OpenCL and LLM models?
- Better VA-API testing?

- Better integrate LAVA and Tron CI? Share as much as possible where it’s possible (unification/modules/firmware...)

Open First

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