Recent and future developments in EIRENE Continuous Integration

Huw Leggate
Dublin City University/Garching ACH

EIRENE CI status

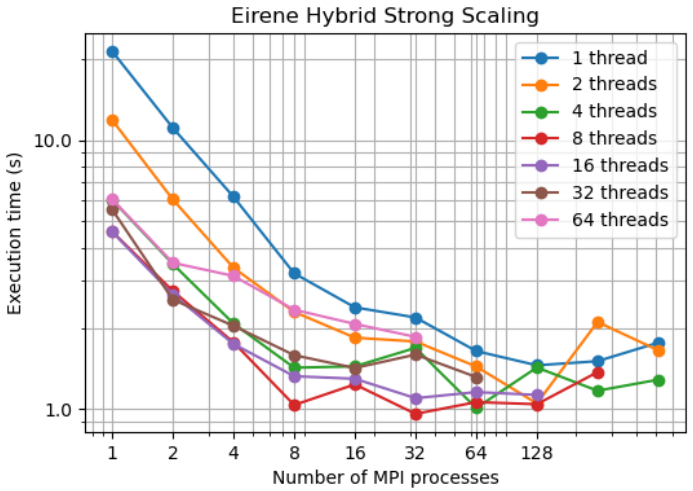
- Current CI takes ~85mins – 5 stages
- Uses Debian 10 Buster (2019) in docker env
- Builds 18 standalone executables, 1 EMC3 coupled
- Runs 18 standalone test cases, 4 EMC3 cases, 6 MPI cases
- Runs separate MPI tests
- Coverage report ~%50, failed on last instance
- OpenMP not yet included in develop

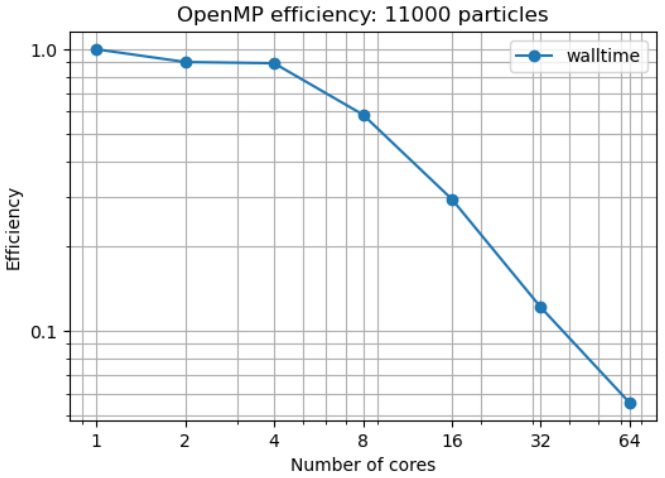
EIRENE CI status

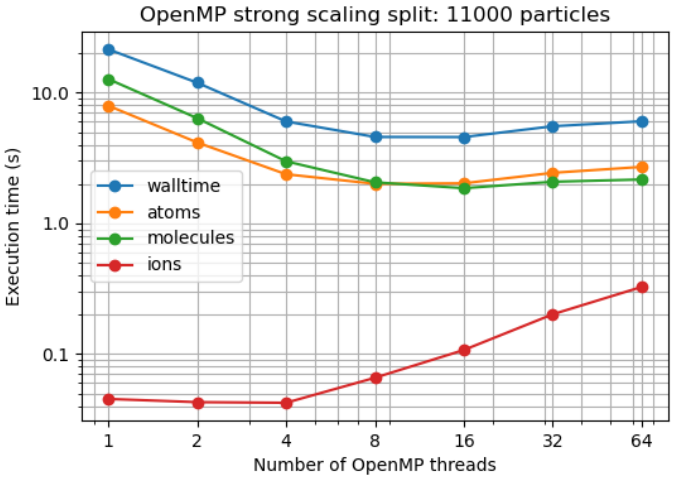
- WIP_eirene_unified
  - New CI – Debian Bullseye
    - For Buster and Stretch compilation crashes
  - Also includes OpenMP tests – duplicates existing
  - Includes flags for turning off stages
    - INCLUDE_SERIAL
    - INCLUDE_OPENMP
    - INCLUDE_MPI
    - INCLUDE EMC3

EIRENE automated profiling

- Branch automated_profiling_unified (from WIP_eirene_unified)
  - Allows the automatic generation of scaling plots
  - Based on shell scripts written by Oskar Lappi
  - Only strong scaling at present







EIRENE automated profiling

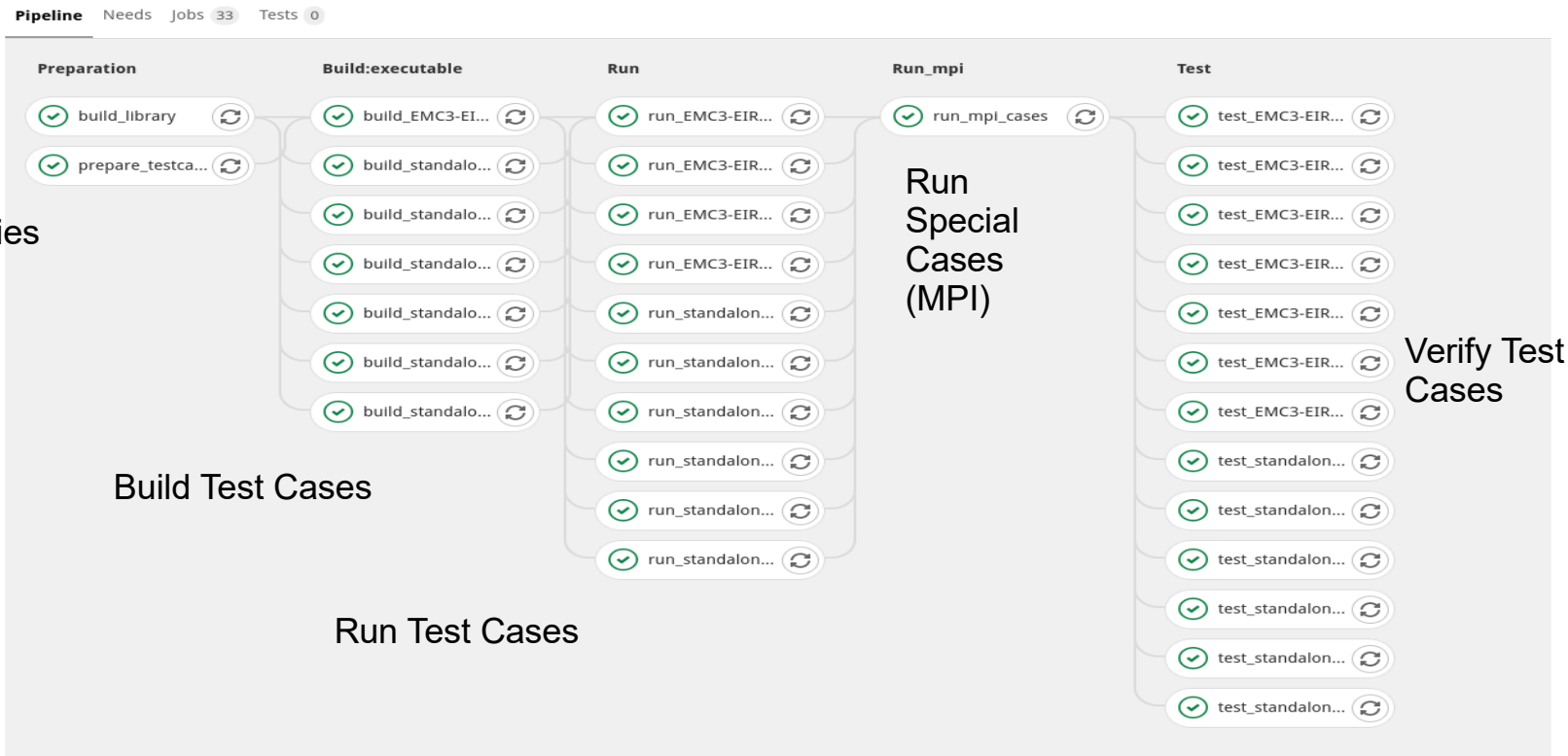
- 5+1 Scripts – requires python jq
  - setup_profiling_run.sh
  - launch_jobs.sh
  - collect_profile_data.sh
  - plot_scaling.py
  - automation_script_header.sh
  - run_profiling.sh – runs all the scripts to produce scaling plots (30 mins)
- Some variables need to be set in the header

EIRENE CI status

- How can it be improved?
  - Speed
    - Hierarchical structure (some already exists)
  - Improved MPI testing
  - Proper assessment of requirements
    - Core team
    - Users of coupled codes
    - ITER

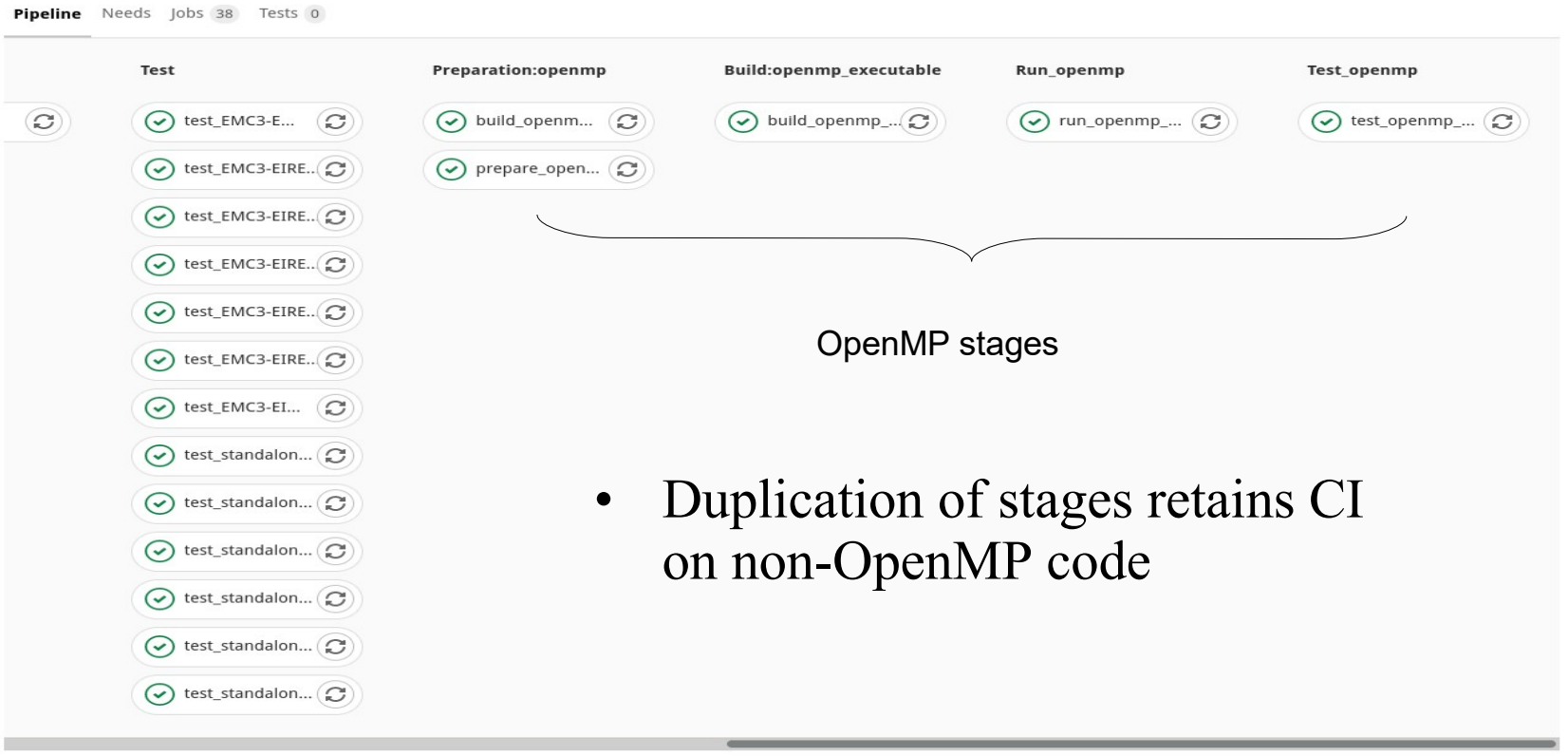
O-EIRENE – Continuous Integration

- EIRENE uses a Continuous Integration Pipeline on Gitlab (YAML)



O-EIRENE – Continuous Integration

- Stage for OpenMP being developed – additional stages



- Duplication of stages retains CI on non-OpenMP code

EIRENE Testing and CI

- Gitlab CI
  - Regression tests – compare output using diff
  - How can this be improved?
  - What is actually needed?
- No other test environment
  - What would be useful?