

Recent and future developments in EIRENE Continuous Integration

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EIRENE CI status

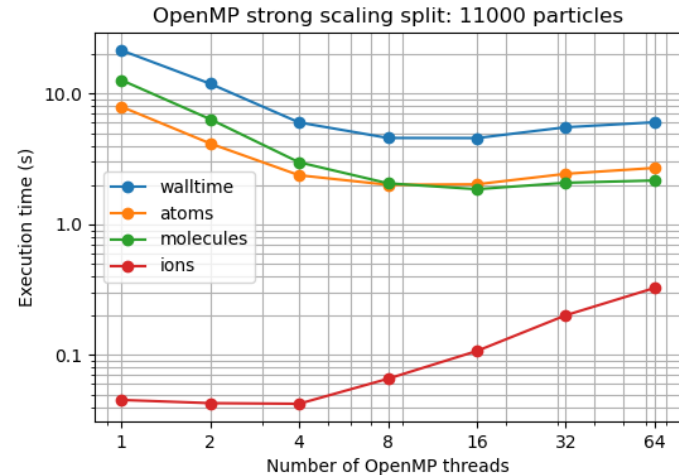
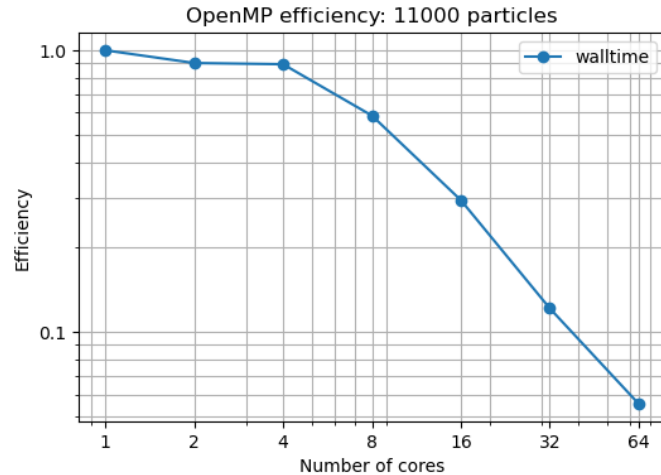
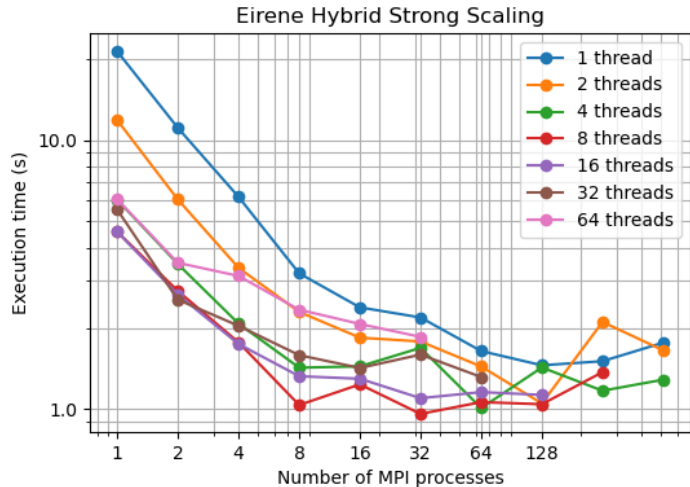
- Current CI takes ~85mins – 5 stages
- Uses Debian 10 Buster (2019) in docker env
- Builds 18 standalone executables, 1 EMC3 coupled
- Runs 18 standalone test cases, 4 EMC3 cases, 6 MPI cases
- Runs separate MPI tests
- Coverage report ~%50, failed on last instance
- OpenMP not yet included in develop

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

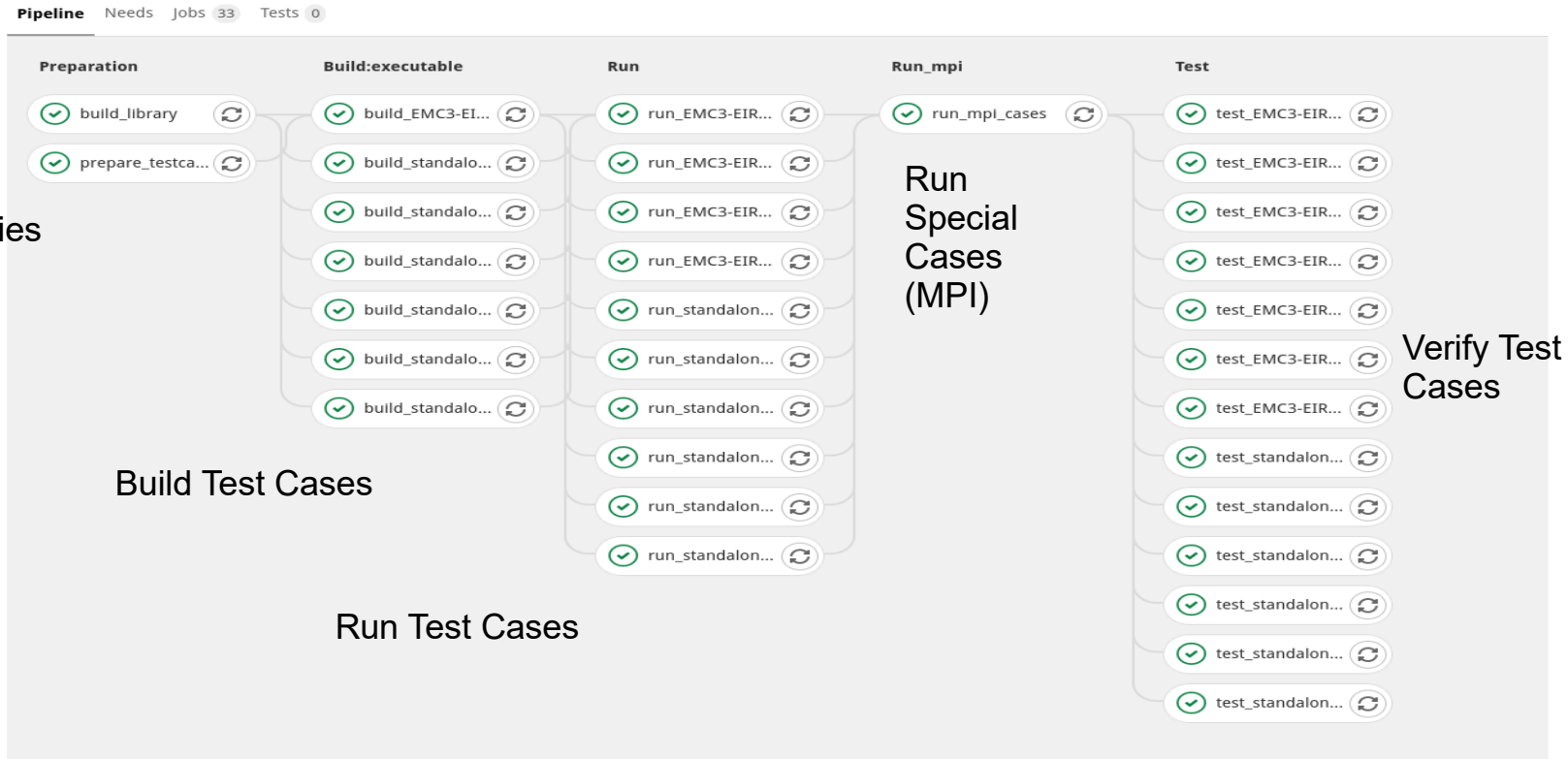
EIRENE CI status

- 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

Pipeline Needs Jobs 38 Tests 0

The screenshot shows a CI pipeline with the following stages and jobs:

- Test**: 13 jobs (test_EMC3-E..., test_EMC3-EIRE..., test_EMC3-EIRE..., test_EMC3-EIRE..., test_EMC3-EIRE..., test_EMC3-EIRE..., test_EMC3-EI..., test_standalon..., test_standalon..., test_standalon..., test_standalon..., test_standalon..., test_standalon...)
- Preparation:openmp**: 2 jobs (build_openen..., prepare_open...)
- Build:openmp_executable**: 1 job (build_openmp_...)
- Run_openmp**: 1 job (run_openmp_...)
- Test_openmp**: 1 job (test_openmp_...)

A bracket groups the jobs in the Preparation, Build, Run, and Test stages, labeled "OpenMP 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?