l'Observatoire de Paris — LESIA
Laboratoire d'Études Spatiales et d'Instrumentation en Astrophysique

Durham University

MICROGATE

PLDA

Green Flash

High performance computing for real-time science

Contribution from Observatoire de Paris on WP7
Final Design Review, April 6th 2018

European Commission

Project #671662 funded by European Commission under program H2020-EU.1.2.2 coordinated in H2020-FETHPC-2014

Contribution to WP 7: SW stack

OdP team responsible for SW stack development

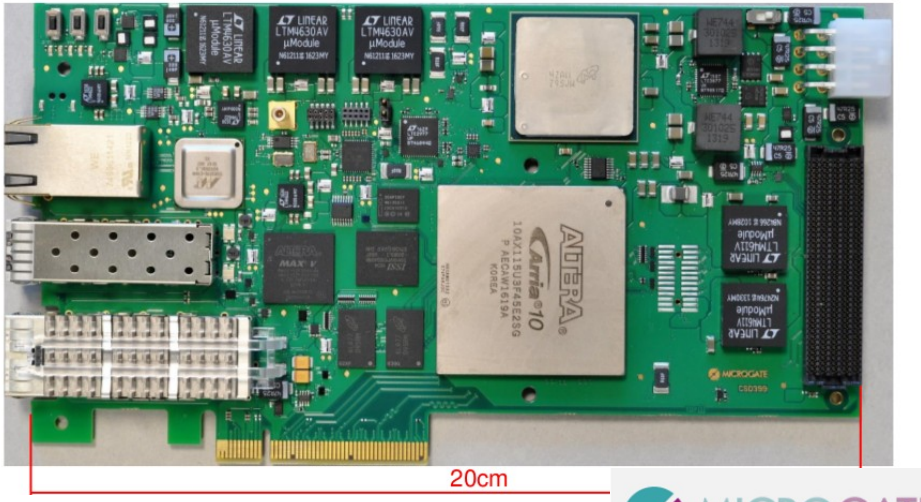
- Covers HRTC, SRTC and simulator
- Based on standard, free and as much as possible open source SW
- Rely on external collaborations (KAUST, Subaru)

Main contributions

- Consistent stack architecture across subsystems
- Identify and use optimized libraries in dedicated pipelines
- Optimized SW blocks for HRTC and SRTC

Green Flash SW stack

HW landscape



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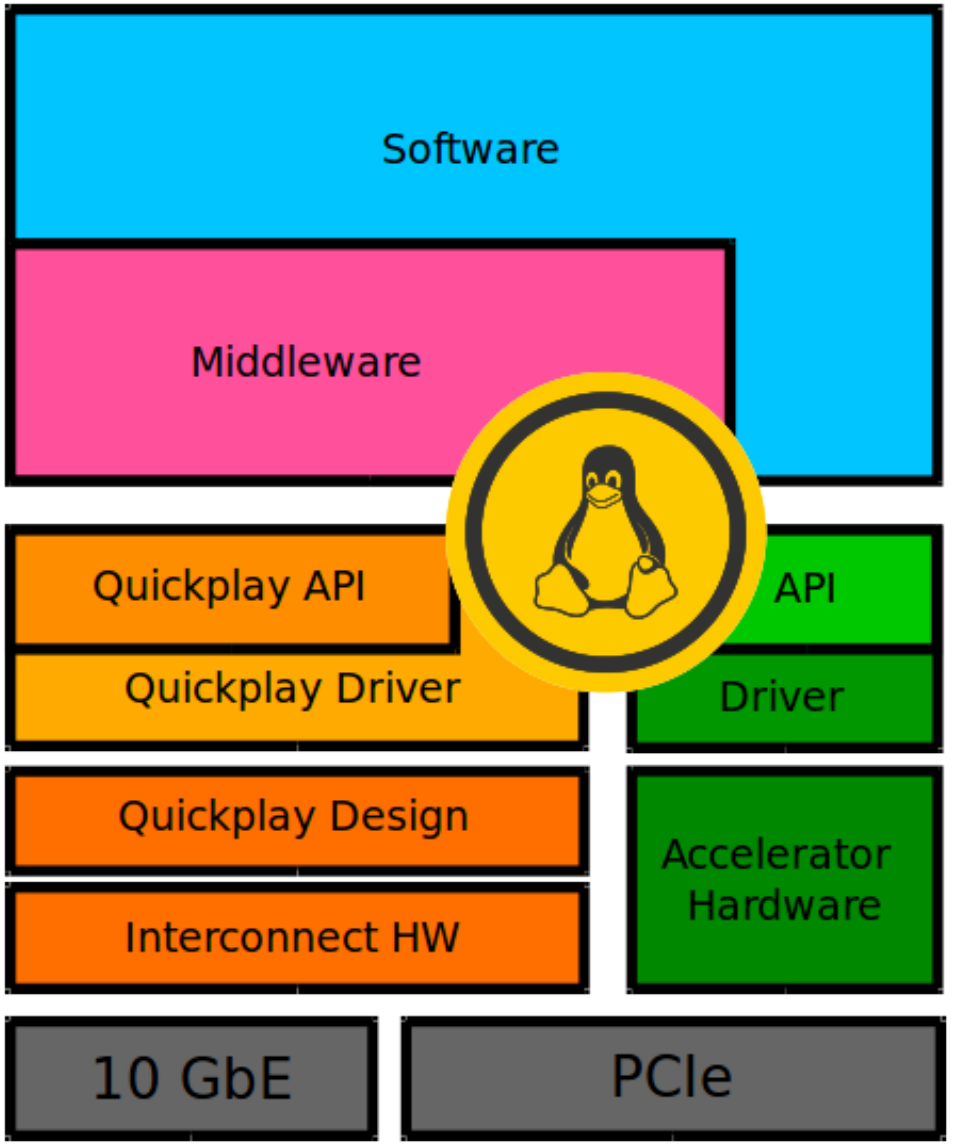

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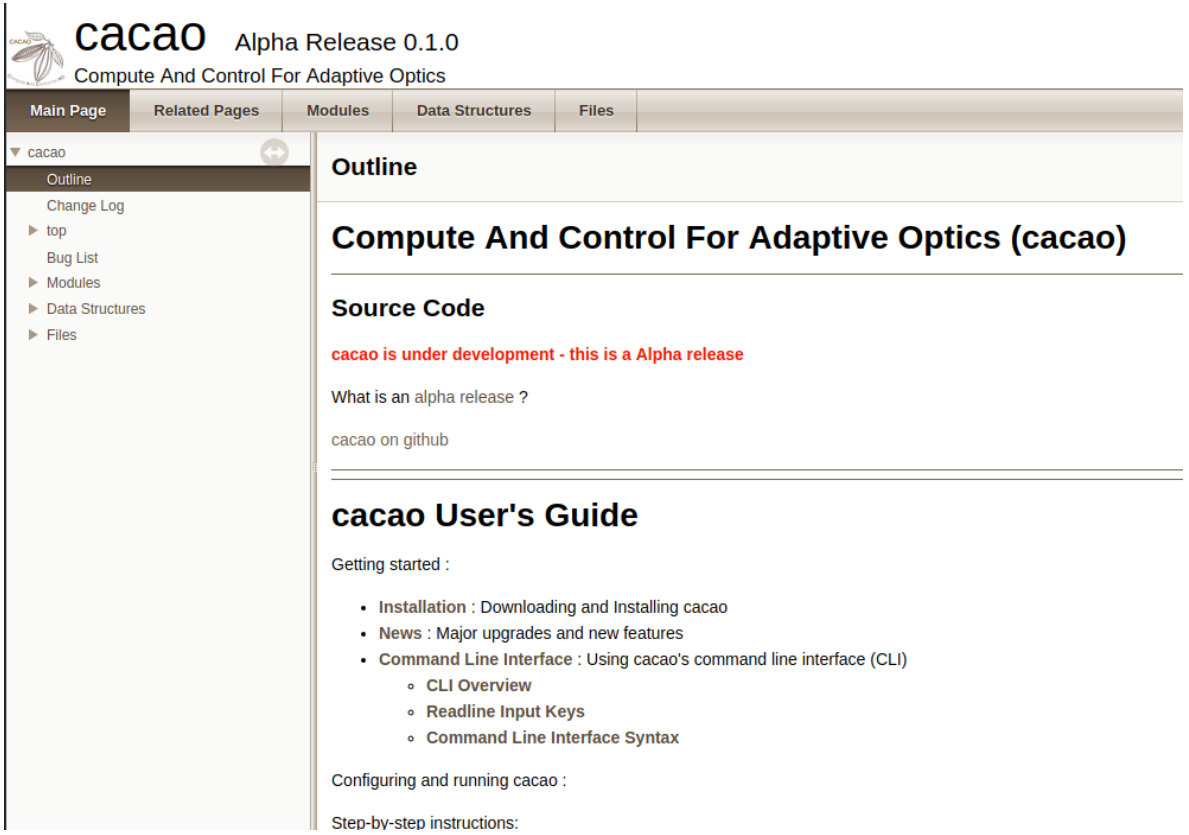
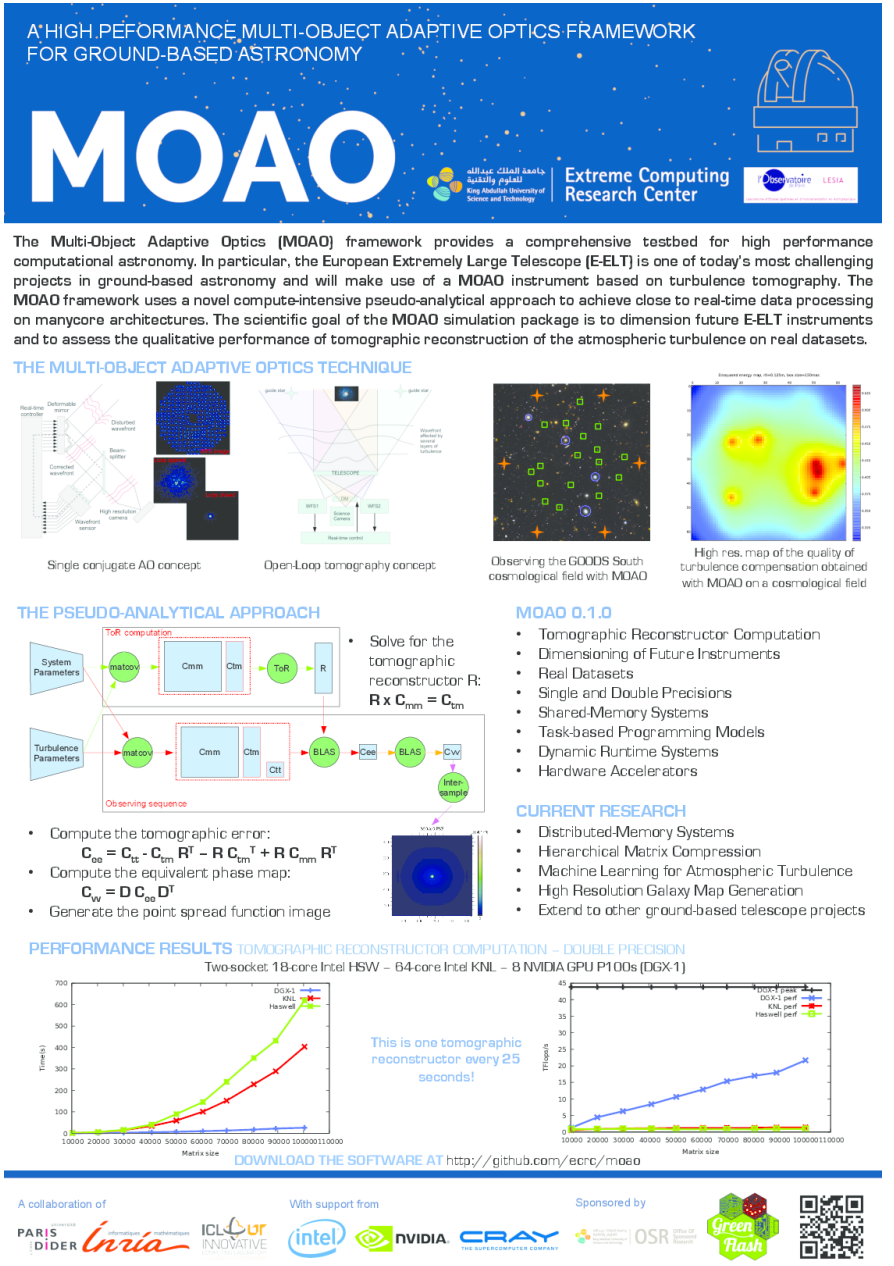
Building blocks

- CACAO: https://github.com/cacao-org/cacao
- Open source
- Multi-platform
  CPU or CPU+GPU
- Used on SCExAO
- Relying on
  shared memory
  and tmux for
  processes sync and
  management



Building blocks

- MOAO:
- https://github.com/ecrc/moao
- Open source
- Multi-platform
  CPU or CPU+GPU
  or CPU+Xeon Phi
- Relying on
  standard
  numerical libraries
- Used for supervisor



Building blocks

- COMPASS: https://github.com/ANR-COMPASS
- Open source
- GPU only
- Versatile
- Supporting various system scales and concepts