

COSMOS - WP 4-6X2: HW/SW infrastructure for future CMB experiments

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WP CI – plan

- Target of this WP is to provide to the *Cosmos community* software / hardware infrastructure where deploy and develop algorithms needed for simulation and data analysis.
- This WP should be intended as *transversal* to the entire project as it will interface with most of WPs.
- The *Planck* data, about 100 TB, will be maintained online to cross check simulation and results with respect Observation.

WP CI – Plan

- Two software environment will be made available as they have different requirement on libraries and amount of core to be used :
 - the simulation environment (principally based on Planck Levels and PlanckSkyModel) used to deploy and run massive simulation.
 - Installation is ONGOING should be ready in one month.
 - the data analysis environment (principally based on Planck standard libraries) aimed at development / running of algorithms necessary to exploit the data analysis.
 - In late respect plan due to postpone of Planck delivery. Should be available in autumn.

WP CI – How

- To create a Software infrastructure able to satisfy the simulation requirements (roughly estimated in 10^{20} Flop) INAF-Oats will be made partially available the following hardware:
 - HotCat → 400 Cores HP DL560 G9, Infiniband 40 Gbps, RAM 16 GB/core as main computation queue
 - Planck Cluster → 240 cores (Xeon SixCore E5645 2,40Ghz), Infiniband 40 Gbps, RAM 6 GB/core for test and development.
 - Both Cluster will share a 200 TB scratch storage + 100 TB of Planck Data.

WP CI – inputs

- To start creating the environment we will need SRD (Software Requirement Document) or , to quickly start, a list of tools and packages that the community plan to use.
 - Draft documents where those request should be listed is in preparation.

- Remember that the computational cost of the data reduction is dominated by the processing of simulations, and its impact is comparable to the cost required to generate synthetic data. In *Planck* the core used in running on real data were minimal compared with the once used in simulations.

People Involved

WP 4-6X2 "HW/SW infrastructure for future CMB experiments"

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- Michele Maris → maris@oats.inaf.it
- GianMarco Maggio --> maggio@oats.inaf.it
- TD (to be hired) (Code development/ integration)
 - Profile definition is ongoing. Should be in place in September.