

Contribution ID: 64

Type: Poster

ETIC Technology Tracking CTlab at INFN Torino Computing Center

The Preparation Phase of the third generation Gravitational Wave (GW) interferometer, the Einstein Telescope, is in full swing and Italy is actively involved in all the aspects of this effort: first of all with the candidacy as host site of the experimental setup, but also in all areas of investigations, from physics to engineering. Among the ongoing studies, the requirement in terms of computing power and choice of technologies is one of the key points to be defined in the next few years, to be ready for the requests of the future experiment. ET will be able to observe GW at low frequency, down to around 3 Hz, and this will result in an observational capability of a volume of the Universe around 1000 larger compared to the current interferometers. This will reflect on a larger data acquisition rate. The signal candidates will need to be promptly analyzed in the so-called low latency pipelines to produce alerts for multi messenger astronomy. More accurate analyses will be then run offline and will need state-of-the-art computing technology. In this contribution, the laboratory CTlab for Technology Tracking under construction at INFN Torino Computing Center will be presented. A cluster composed of heterogeneous technologies, from different GPU flavors, to CPUs equipped with large RAM will be installed and made available to the collaboration for performance testing of the simulation computations and mock data challenges. The final goal is to assess the computing needs and define a suitable computing model. The cluster of machines is being built in the framework of the ETIC PNRR project and in synergy with other ones: it will be interoperable and connected with the Torino HPC bubble funded by the TeRABIT project and is planned to be partially integrated to the INFN Datacloud network.

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Session Classification: Poster session

Track Classification: Esperimenti e Calcolo Teorico