Referee’s report on the project

"The JINR Multifunctional Information and Computing Complex (MICC), continuation"

This Project is part of JINR’s Seven-Year (2017-20123) development plan focused on Networking, Computing and Computational Technologies within JINR’s Multifunctional Information and Computing Complex (MICC) project.

Generally speaking, JINR’s research strategy is two-fold: on the one hand, it is focused on large-scale international collaborations at the LHC (CMS, ALICE, ATLAS) and elsewhere (BESIII, NOvA, Daya Baya Bay, JUNO etc). On the other hand, JINR is successful in developing its own big (mega) projects such as NICA.

The interaction between JINR’s laboratories involved in high-energy physics research may be compared with the human body: DLNP and VBLHEP being its muscles, BLTP its brain and LIT with its infrastructure is the nervous system.

The JINR computer infrastructure consists of various computing components and IT-technologies intended to realize JINR tasks such as NICA (BM@N, MPD, SPD), supporting experiments at the LHC and other large-scale experiments, integrated cloud environments of the JINR Member States supporting JINR users. The HybriLIT platform with the GOVORUN supercomputer is a major resource for high-performance hybrid computing. Commissioned in 2018 it succeeded the Hybrid, IT heterogeneous cluster. Originally, it was not planned but LIT showed flexibility in its planning by responding to the challenges of the scientific community.

MICC is planning further modernization of its facilities by: developing and improving the JINR telecommunication and network infrastructure; expanding the performance and capacity of storage systems of Tier1 data processing center for the CMS experiment; modernizing the resources of the Tier-2/CICC integral component that provides support for the experiments using the grid environment and cooperating with physical groups in JINR as well as for non-grid JINR users; extending the cloud component in order to enlarge a range of services provided to users as well as to create an integrated cloud environment for the experiments of JINR (NICA, ALICE, BESIII, NOvA, Daya Bay, JUNO, etc.) and its Member States using the containerization technology. Furthermore, LIT is planning to extend the HybriLIT heterogeneous platform by the GOVORUN supercomputer. Big data processing is among the future plans.

Part of the work, mainly experimentation at the LHC, is carried out in framework of the WLCG (Worldwide LHC Computing Grid) project. JINR computing resources and storage systems are integrated in the grid environment and provide processing, storage and analysis of data from the LHC experiments. A full-scale WLCG Tier1 site for the CMS experiment at the LHC plays a special role in this infrastructure.

JINR LIT has sufficient technical and human resources to realize the project within the indicated period of time. The requested financial resources are adequate to the planned work and correspond to the tendency of financing the work on IT-infrastructure at the first stage of the MICC implementation.

The realization of the Project is granted by the existence of a balanced team composed by young researchers and known experts support and continuation until 2023 with first priority.



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