Jiangmen Underground Neutrino Observatory computing requirements and infrastructure

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Summary

The Jiangmen Underground Neutrino Observatory (JUNO) is an underground 20 kton liquid scintillator detector being built in the south of China and expected to start data taking in late 2021. The JUNO physics program is focused on exploring neutrino properties, by means of electron anti-neutrinos emitted from two nuclear power complexes at a baseline of about 53km. Targeting an unprecedented relative energy resolution of 3% at 1 MeV, JUNO will be able to study neutrino oscillation phenomena and determine neutrino mass ordering with a statistical significance of 3-4 sigma within six years running time. These physics challenges are addressed by a large Collaboration localized in three continents. Different groups of the Collaboration, as simulation and offline groups, have started the evaluation of the requirements of the experiment for computing and the related resources. In this context, key to the success of JUNO will be the realization of a distributed computing infrastructure, which will satisfy its predicted computing needs. Upon its establishment, it is expected to deliver not less than 2 PB of data per year, to be stored in at least four data centers in China and Europe. Data analysis activities will be distributed in a joint effort. This contribution is meant to report how the JUNO computing infrastructure is going to be designed and which will be its main characteristics.

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