

# HPC resource integration into CMS Computing via HEPCloud

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The higher energy and luminosity from the LHC in Run2 has put increased pressure on CMS computing resources. Extrapolating to even higher luminosities (and thus higher event complexities and trigger rates) beyond Run3, it becomes clear that simply scaling up the the current model of CMS computing alone will become economically unfeasible. High Performance Computing (HPC) facilities, widely used in scientific computing outside of HEP, have the potential to help fill the gap. Here we describe the USCMS efforts to integrate US HPC resources into CMS Computing via the HEPCloud project at Fermilab. We present advancements in our ability to use NERSC resources at scale and efforts to integrate other HPC sites as well. We present experiences in the elastic use of HPC resources, quickly scaling up use when so required by CMS workflows. We also present performance studies of the CMS multi-threaded framework on both Haswell and KNL HPC resources.

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