**Accelerated Computing with GenASiS**

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**Abstract**

Accelerated-node computing is here to stay as a path to exascale computing. The Summit supercomputer, the number one in Top500 list, along with two other in the top 5 of the list are GPU-based accelerated-node supercomputers. In this poster we describe the infrastructure to facilitate the use of GPUs for offloading computational kernels in GenASiS, a code framework to facilitate simulation of astrophysical phenomena on leading capability supercomputers. This infrastructure provides simplified access to GPU programming via OpenMP directives, requiring only minimal changes to previously written computational kernels. We demonstrate speedups of over 12X on a fluid dynamic problem with reasonable weak scaling up to 8000 GPUs.