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Performance of the AMS Offline Software at National Energy Research Scientific Computing Centre and Argonne Leadership Computing Facility

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The Alpha Magnetic Spectrometer (AMS) is a high energy physics experiment installed and operating on board of the International Space Station (ISS) from May 2011 and expected to last through Year 2024 and beyond. More than 50 million of CPU hours has been delivered for AMS Monte Carlo simulations using NERSC and ALCF facilities in 2017. The details of porting of the AMS software to the 2nd Generation Intel Xeon Phi Knights Landing architecture are discussed, including the MPI emulation module to allow the AMS offline software to be run as multiple-node batch jobs. The performance of the AMS simulation software at NERSC Cori (KNL 7250) , ALCF Theta (KNL 7230). and Mira (IBM BG/Q) farms is also discussed.

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