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Performance of VPIC on Trinity[1] W. D. NYSTROM, B. BERGEN, R. F. BIRD, Los Alamos National Laboratory, K. J. BOWERS, HPC Consultant, W. S. DAUGHTON, F. GUO, H. LI, H. A. NAM, X. PANG, W. N. RUST III, J. WOHLBIER, L. YIN, B. J. ALBRIGHT, Los Alamos National Laboratory — Trinity is a new major DOE computing resource which is going through final acceptance testing at Los Alamos National Laboratory. Trinity has several new and unique architectural features including two compute partitions, one with dual socket Intel Haswell Xeon compute nodes and one with Intel Knights Landing (KNL) Xeon Phi compute nodes. Additional unique features include use of on package high bandwidth memory (HBM) for the KNL nodes, the ability to configure the KNL nodes with respect to HBM model and on die network topology in a variety of operational modes at run time, and use of solid state storage via burst buffer technology to reduce time required to perform I/O. An effort is in progress to port and optimize VPIC to Trinity and evaluate its performance. Because VPIC was recently released as Open Source, it is being used as part of acceptance testing for Trinity and is participating in the Trinity Open Science Program which has resulted in excellent collaboration activities with both Cray and Intel. Results of this work will be presented on performance of VPIC on both Haswell and KNL partitions for both single node runs and runs at scale.

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