

WTPS 1998 Abstract

Performance of ALE3D on the ASCI machines

ALE3D is one of the ASCI program's major application codes, solving problems, for example, that undergo gross deformation, such as in metal forming processes like casting, forging and extrusion. This three dimensional code system uses the arbitrary Lagrange/Eulerian (ALE) technique to solve hydrodynamics equations coupled to thermal and chemical transport. As an ASCI application code, it runs on the various ASCI machines in parallel, using several parallel paradyns.

We will first discuss the types of applications solved by ALE3D, along with the motivation for needing to run large, massively parallel problems on these ASCI machines. Finally, we will present information on the performance of ALE3D running in parallel on the ASCI Blue Pacific, Blue Mountain and Red machines.

Keywords: application code, ASCI, parallel

Bio sketch:

Evi Dube is the Computer Science Project lead on the ALE3D code system. She started at LLNL in 1984, and through the years, has enhanced her professional background in scientific computing, with emphasis working on supercomputers and currently parallel, distributed memory machines. Besides working at the Lab, she completed her Ph.D. (1996) in Applied Science/Computational Science from UC Davis. Her thesis work has been applied to the ALE3D project.

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