Performance of Spherical Harmonic Transform on Modern Architectures

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The spherical harmonic transform is a critical computational kernel of the dynamics portion of spectral atmospheric weather and climate codes.

We consider the implementation of parallel and serial spherical harmonic transform for high resolution on modern architectures such as the IBM p690 power 4, SGI Altix Itanium-2 and Cray X1.

Our results suggest performance of parallel transpose, matrix multiply and FFT heavily influence overall efficiency.

The submitted manuscript has been authored by a contractor of the U.S. Government under Contract No. DE-AC05-00OR22725. Accordingly, the U.S. Government retains a non-exclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

This research was sponsored by the Laboratory Directed Research and Development Program of Oak Ridge National Laboratory (ORNL) and used resources of the Center for Computational Sciences at ORNL, which is supported by the Office of Science of the U.S. Department of Energy under Contract No. DE-AC05-00OR22725.