Radiative Magnetohydrodynamic Simulations of Solar Atmosphere

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Abstract

We evaluated the parallel scaling of the numerical code for the simulation of the solar surface convection, called CO-RAMENS (Convection-Oriented RAdiative Magnetohydrodynamics Extensive Numerical Solver).

Reasons for using of JSS2

As a preparation of the large-scale simulation, we intended to evaluate the parallel efficiency of the numerical code.

Achievements of the Year

We are planning to carry out a large-scale simulation of the solar surface convection using CO-RAMENS. In this fiscal year, we evaluate the weak scaling of the code. The parallel efficiency is 87.1% in the weak scaling from 2592 cores to 5184 cores.

Publications

N/A

Usage of JSS2

Computational Information

Parallelization Methods	MPI
Thread Parallelization Methods	N/A
Number of Processes	2592
Elapsed Time per Case	4.00 seconds

Resources Used

Fraction of Usage in Total Resources*1 (%): 0.00

Details

Computing Resources		
System Name	Amount of Core Time (core x hours)	Fraction of Usage*2 (%)
SORA-MA	205.33	0.00
SORA-PP	0.00	0.00
SORA-LM	0.00	0.00
SORA-TPP	0.00	0.00

File System Resources		
File System Name	Storage assigned(GiB)	Fraction of Usage*2 (%)
/home	009.54	0.01
/data	095.37	0.00
/ltmp	1,953.13	0.15

Archiver Resources		
Archiver System Name	Storage used(TiB)	Fraction of Usage*2 (%)
J-SPACE	0.00	0.00

*1 Fraction of Usage in Total Resources: Weighted average of three resource types (computing, file system, and archiver)

*2 Fraction of Usage: Percentage of usage relative to each resource used in one year