Om Sri Sai Ram

Here are the Details about the SuperComputer :"*Pleiades"*

1.*Rank : 11th (According Nov 2012)*

2.Scientific problem being solved:
"Create simulations of how our own **Milky Way Galaxy** was formed and what forces might have caused it to form in its signature disk-shape."

3.Did the application achieve its scientific/engineering objective?
Yes it did achieve.

4.Are simulation results compared to physical results:
Simulation confirms the results for the formation of disk-shaped dwarf galaxies and demonstrates that the model – unlike all previous approaches – can recreate both small and extremely large galaxies realistically. Moreover,from the simulation it can also be deduced that protogalaxies with a large disk made of gases and stars at the center already formed a billion years after the Big Bang, and therefore long before our present galaxies.

5.Coming to the Architecture,it has

- 182 racks (11,776 nodes)
- 1.75 Pflop/s peak cluster
- 1.24 Pflop/s LINPACK rating
- 2 racks (64 nodes total) enhanced with NVIDIA graphics processing unit (GPU): 43 teraflops total
- Total processors: 23,552
- Total cores: 126,720 (32,768 additional GPU cores)
- Total memory: 233 TB

Interconnects

Internode: InfiniBand®, with all nodes connected in a partial 11D hypercube topology

Operating Environment

- Operating system: SUSE® Linux®
- Job scheduler: PBS®
- Compilers: Intel and GNU C, C++ and Fortran
- MPI: SGI MPT, MVAPICH2, Intel MPI

6.Yes, the problem does scale to large number of processors. This can be seen as this uses 11776 nodes to solve the problem stated above.

References:

1. http://en.wikipedia.org/wiki/Pleiades_%28supercomputer%29
2. http://www.nas.nasa.gov/hecc/resources/pleiades.html

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