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## Applications of supercomputer Tianhe-II in BESIII

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High energy physics experiments are pushing forward the precision measurements and searching for new physics beyond standard model. It is urgent to simulate and generate mass data to meet requirements from physics. It is one of the most popular areas to make good use of existing power of supercomputers for high energy physics computing. Taking the BESIII experiment as an illustration, we deploy the offline software BOSS into the top-tier supercomputer “Tianhe-II” with the help of Singularity. With very limited internet connection bandwidth and without root privilege, we synchronize and maintain the simulation software up to date through CVMFS successfully, and an acceleration rate in a comparison of HPC and HTC is realized for the same large-scale task. There are two creative ideas to be shared in the community: on one hand, common users constantly meet problems in the real-time internet connection and the conflict of loading locker. We solve these two problems by deployment a squid server and using fuse in memory in each computing node. On the other hand, we provide a MPI python interface for high throughput parallel computation in TianheII. Meanwhile, the program to deal with data output is also specially aligned so that there is no queue issue in the I/O task. The acceleration rate in simulation reaches 80% so far, as we have done the simulation tests up to 15 K processes in parallel.

### Experiment context, if any

### References

### Significance

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