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Visualization of Large Cosmological Data on HPC Systems

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Abstract

The abstract may be up to 3 inches (7.62 cm) long....

Categories and Subject Descriptors (according to ACM CCS): D.1.3 [Programming Techniques]: Concurrent Programming—Parallel programming I.3.7 [Computer Graphics]: Three-Dimensional Graphics and Realism—Animation I.6.3 [Simulation and Modeling]: Applications—J.2 [Physical Sciences and Engineering]: Astronomy—

1. Introduction

2. Splotch: a visualisation tool for astrophysical data

[DRGI08]

2.1. Algorithm overview

2.2. MPI+CUDA implementation

[JKR*10] [RGD*14]

3. Splotch Previewer

4. Movie preparation

Dataset generation: Simulation of large scale structures of the Universe

Reader?

Investigation of the data through the Previewer to prepare camera path and parameter file: booster to sample data

Visualisation of snapshots by Splotch on CSCS system

5. Performance Tests

6. Conclusions

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References

[DRGI08] DOLAG K., REINECKE M., GHELLER C., IMBODEN S.: Splotch: visualising cosmological simulations. *New Journal of Physics 10*, 12 (2008), 125006. doi:10.1088/1367-2630/10/12/125006. 1

[JKR*10] JIN Z., KROKOS M., RIVI M., GHELLER C., DOLAG K., REINECKE M.: High-performance astrophysical visualisation using Splotch. *Procedia Computer Science 1*, 3 (2010), 1775–1784. (Proc. International Conference on Computational Science 2010). 1

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