Portable Parallel Ray Tracing Algorithms

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Abstract

For a variety of reasons, realistic computer rendering is an important technology; it creates a wide range of new possibilities for effectively communicating information. The crucial goal is to provide realistic images in a short period of time. Ray tracing is a powerful technique for rendering. It is conceptually simple, and can produce effects beyond the capability of some other more traditional methods. Unfortunately, ray tracing is rather expensive by comparison. This project is aimed at producing a reasonably fast and efficient ray tracer based on parallel ray tracing algorithms. The code is written in NESL, a data-parallel language developed by Guy Blelloch. It is supported on Cray YMP, Connection Machine CM-2, and serial workstation platforms.

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