

Interactive Volume Rendering of Large Datasets using the Silicon Graphics Onyx4 Visualization System

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Abstract

Many recent approaches to interactive volume rendering have focused on leveraging the power of commodity graphics hardware. Though currently limited to relatively small datasets, these approaches have been overwhelmingly successful. As the size of volumetric datasets continues to grow at a rapid pace, the need for scalable systems capable of interactively visualizing large datasets has emerged. In an attempt to address this need, SGI, Inc. has introduced the *Silicon Graphics Onyx4* family of visualization systems. We present the results of our preliminary investigation into the utility of an 8-pipe *Onyx4* system for interactive volume rendering of large datasets. By rendering the image in parallel using an application called Rhesus, we find that the *Onyx4* provides reasonable interactivity for datasets that consume as much as 512 MB of texture memory.