Subject: Re: survey: accelerated 3D volumetric rendering
Posted by Richard Tyc on Wed, 28 Feb 2001 15:31:38 GMT
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David Fanning <davidf@dfanning.com> wrote in message
news:MPG.1505e00a9af63e39989d6e@news.frii.com...
> Rick Towler (rtowler@u.washington.edu) writes:
>
>> What are peoples experiences with accelerated 3d volumetric rendering.
I am
>> sure very high end unix viz workstations have the ability to accelerate
>> volumetric rendering but what about lower end hardware. Is this the
domain
>> of high end video adapters only?
>>
>> In my case we have a Sun Ultra60 with the Creator3d framebuffer and PC's
>> running consumer versions of nvidia's Geforce line. The Creator3d is
>> painfully slow rendering anything. The Geforce cards are quite fast
with
>> your standard polygon rendering but volumetric rendering isn't supported
in
>> hardware.
>>
>> Does anyone have any experience with this using nvidia's Quadro line or
with
>> 3dLabs cards? What about other platforms?
>>
>> fwiw, Sun just released the Expert3d lite which does support accelerated
>> volumetric rendering and when bundled runs for $2000. I guess that is
low
>> end....
>
> My experience with volume rendering with several different
> "inexpensive" graphics cards for PCs is that software
> rending is *always* faster than hardware rendering. (Not
> to mention prone to far fewer rendering errors.)
>

It is my understanding that for volume rendering (using IDLgrVolume) you have no choice but software rendering (its a software based ray tracing scheme) regardless of the hardware/software rendering switch. IDL does not yet include OpenGL support for volume rendering so advanced graphics cards would not help anyway. Multiple CPU's will help since you can set the HINTS property to use multiple CPU's. Until a standard OpenGL volume rendering scheme becomes available on all platforms IDL supports, they may not jump into it. I hope they do.
I got into this a while back when I was looking at a new PC workstation for our lab. I was considering buying the high end Wildcat 4110 card which is

blistering fast, especially on our CAD/CAM machines. I opted for a dual Pentium Dell workstation with a G400 dual head card to speed up real time viewing/rendering of our volume objects.

One interesting thing to note: on our dual Pentium III 733Mhz Dell, the real time rendering of volume objects is not that much faster than my single CPU office PC (only a Pentium II 350). I would have thought it was at least 2x faster running the same app, but not so with my simple subjective test. My crude measurement is based on spinning a 3D object in our medical app (using Trackball) and visually observing how fast the image is rendered. The worst thing is , my Dell has 512Mb RAM (Win NT4), office PC has 64Mb RAM (Win 98) !!

Rich
