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Subject: iTools hardware rendering  
Posted by [sjwelch](#) on Mon, 25 Feb 2008 23:43:56 GMT  
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Greetings all,

I'm having a string of problems relating to hardware rendering in IDL  
itools:

Before I start, system specs are as follows:

Hardware: Dual-core P4 @ 3Ghz, 2GB, 256MB ATI Radeon X600

Software: IDL 6.3 on Windows XP Pro, ATI Catalyst Driver 08.2 (and an earlier version..)

I noticed that my CPU usage was maxed out (at least in one core) when using interactive itools, this wasn't a problem as the software rendering was still fast enough to use interactively. This was for an iplot 3D scatterplot of around 50,000 points (lidar point clouds if anyone's curious :). Now I needed to visualise around 1-2 million points. Software rendering was not going to cut it.

Just for comparison a colleague, using an identical machine, working in R (which uses OpenGL for its 3D stuff) under Win XP can smoothly pan and rotate a visualisation of around 2 million points.

I read: [http://www.dfanning.com/ographics\\_tips/slowrendering.html](http://www.dfanning.com/ographics_tips/slowrendering.html) and made corresponding changes in the IDL preferences window. This didn't change anything.

I then upgraded my video drivers to the latest version. No help there, same speed and CPU usage as in software. In fact that made things worse. Now I repeatedly get the following error when I mouse over the plot:

Program caused arithmetic error: Floating illegal operand

Everything works fine, but slow when I force software mode.

So, conclusions I'm drawing from all this:

IDL is managing to pass the rendering to OpenGL, but that's as far as it's going: whatever software OpenGL renderer ATI has supplied is being used. The OpenGL software renderer I've now upgraded to is somehow incompatible with IDL and spits erroneous data back to it, leading to the error message.

Given that I'm stuck with this hardware and this operating system, any ideas what I should do next?  
(except for smart ones like, "just use R then" ;)

Thanks!  
-Sam

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Subject: Re: iTools hardware rendering  
Posted by [Steve Houston](#) on Tue, 11 Mar 2008 17:08:40 GMT  
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sjwelch wrote:  
> Greetings all,  
>  
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> earlier version..)  
>

Do you have access to IDL 6.4 or later?

Significant improvements were made to rendering performance in 6.4 by using OpenGL vertex buffer objects whenever possible.

In 6.3 one of your CPU cores is maxed out sending points one by one to OpenGL. So 50,000 points means 50,000 calls to glVertex.

In 6.4 only one call is required to render all 50,000 points, moving the workload from the CPU to the GPU.

Regards,  
Steve.

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Subject: Re: iTools hardware rendering  
Posted by [sjwelch](#) on Mon, 17 Mar 2008 23:29:11 GMT  
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On Mar 12, 4:08 am, Steve Houston <[shoustonrem...@ittvis.com](mailto:shoustonrem...@ittvis.com)> wrote:  
> sjwelch wrote:  
>> Greetings all,  
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>> I'm having a string of problems relating to hardware rendering in IDL  
>> itools:  
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>> earlier version..)  
>  
> Do you have access to IDL 6.4 or later?

I've moved up to IDL6.4, still no improvement. I've also updated  
graphics drivers again. I've now gotten rid of the "arithmetic error:  
Floating illegal operand " message.

Cheers,  
Sam

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