Subject: Re: speed up the display on Linux
Posted by Mark Hadfield on Mon, 10 Jun 2002 22:29:26 GMT

"Sam Hou" <ssmilemonkey@hotmail.com> wrote in message
news:5a3b225f.0206101332.439ba410@posting.google.com...

> Hope someone can help us with this one. We have a IDL program which
> allows user to rotate, rescale a 3D mesh interactively. It is
> running well in window. However, it becomes extremely slow on
> Linux. It is almost useless.

I reported a similar-sounding problem to this group in January in a
thread entitled "Object graphics under Linux: are they supposed to be
that slow?". I eventually found that the problem was caused by the
RETAIN setting of my object-graphics window. It was originally set to
2, but re-draws ran 10x faster with a setting of 1.

You may want to review that thread.

--
Mark Hadfield   "Ka puwaha et tai nei, Hoea tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: speed up the display on Linux
Posted by Randall Skelton on Mon, 10 Jun 2002 23:59:50 GMT

What video card do you have? Do you have proper XFree drivers for your
card installed? Which version of XFree are you using? Is XFree running
with hardware OpenGL acceleration enabled?

Cheers,
Randall

On 10 Jun 2002, Sam Hou wrote:

> Dear all,
>   Hope someone can help us with this one. We have a IDL program
> which allows user to rotate, rescale a 3D mesh interactively. It is
> running well in window. However, it becomes extremely slow on Linux.
> It is almost useless. I am wondering if we can speed up this program
> on Linux. I have found that a lot of people has the same problem. I
> just want to make sure whether there is a solution beside buying a
> windows IDL lincense.
>

> Sam
>

Subject: Re: speed up the display on Linux
Posted by David Fanning on Tue, 11 Jun 2002 09:38:59 GMT
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Sam Hou writes:

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> which allows user to rotate, rescale a 3D mesh interactively. It is
> running well in window. However, it becomes extremely slow on Linux.
> It is almost useless. I am wondering if we can speed up this program
> on Linux. I have found that a lot of people has the same problem. I
> just want to make sure whether there is a solution beside buying a
> windows IDL lincense.

Have you tried this with software rendering turned on?
Turned off? Any difference?

Cheers,

David
--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
Phone: 970-221-0438, E-Mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: speed up the display on Linux
Posted by ssmilemonkey on Tue, 11 Jun 2002 15:33:51 GMT
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Thank you very much for your reply.

I ran the program with the following setting. Here are their results.
Widget_draw graphic_level = 2

Original setting: Renderer by default and retain = 2   Slow
Renderer = 0; Retain = 2 Slow
Renderer = 1; Retain = 2 Slow
Renderer = 0; Retain = 1 faster(at least 4 times faster than case in
retain=2)
Renderer = 1; Retain = 1 faster(at least 4 times faster than case in

retain=2)
Renderer = 0; Retain = 0 fastest(a little bit better than cases in
retain=1)
Renderer = 1; Retain = 0 fastest(a little bit better than cases in
retain=1)

I will check the speed of windows version, my XFree version, and my
video card type and come back to you later.

Sam

David Fanning <david@dfanning.com> wrote in message
news:<MPG.176f731f7913c349989685@news.frii.com>...
> Sam Hou writes:
>
>>   Hope someone can help us with this one. We have a IDL program
>> which allows user to rotate, rescale a 3D mesh interactively. It is
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>> windows IDL lincense.
>
> Have you tried this with software rendering turned on?
> Turned off? Any difference?
>
> Cheers,
>
> David

Subject: Re: speed up the display on Linux
Posted by ssmilemonkey on Tue, 11 Jun 2002 16:02:08 GMT
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Thank you very much for your reply.

We are running this program on a Mandrake 8.0 linux. The XFree
version is 4.0.3. (>rpm -aq | grep xfree; XFree86 4.0.3) Our video
card is Matrox Graphics Inc. Millennium G400 16MB MGA G400 AGP.

   We assume the drivers is runing fine but it would be better to show
us how to double check that. Could you please also show us how to
enable the hardware OpenGL acceleration? Thank you very much.

Sam

Randall Skelton <rhskelto@atm.ox.ac.uk> wrote in message
news:<Pine.LNX.4.33.0206110056250.15469-100000@moriarty.atm.ox.ac.uk>...
> What video card do you have? Do you have proper XFree drivers for your
> card installed? Which version of XFree are you using? Is XFree running
> with hardware OpenGL acceleration enabled?
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> Cheers,
> Randall
>
> On 10 Jun 2002, Sam Hou wrote:
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>> just want to make sure whether there is a solution beside buying a
>> windows IDL lincense.
>>
>> Sam
>>

Subject: Re: speed up the display on Linux
Posted by MKatz843 on Tue, 11 Jun 2002 21:08:06 GMT
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K0me problem with slow Object graphics rendering on Linux, so I had
our resident guru look into it. Here's his comment to me.

"Normally, all that you have to do is install the linux drivers for
the specific video adapter that you have, and make sure that hardware
acceleration is enabled for the video card. The hardware acceleration
module is called "glx" and it can be found in the XF86Config file
(usually /etc/X11/XF86Config). It should not be commented out."

Once he fixed it, our OpenGL rendering is lightning fast. Now it's
almost as nice as on my Mac :) Software rendering is not required
here.

> I just want to make sure whether there is a solution beside buying a
> windows IDL lincense.
(There's no need for that sort of nonsense.)

M. Katz

Subject: Re: speed up the display on Linux
Posted by Randall Skelton on Wed, 12 Jun 2002 09:18:10 GMT
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Hi Sam,

It seems you have run square into one of the poorly documented costs of
running a _free_ operating system on cheap _commodity_ hardware. It was
way easier when you could just call up Digital, Sun or SGI and request
hardware support. Of course, it is nice being able to by a workstation
for under $10K and being able to run bleeding-edge hardware. Installing a
modern-day Linux distribution gets you a relatively unoptimized system
with plenty of generic 386/Pentium binaries. While detecting hardware
during an install has improved considerably in modern distributions, in
many cases, the drivers installed are well out of date. In my experience,
to properly setup and optimize a Linux workstation you need to spend a few
days searching the web with Google and then a few days re-compiling and
patching your distribution. If you don't already know how to do this,
then expect to destroy your OS at least once or twice while you learn
during the next few months.

With regard to object graphics, for the best performance you need to
adjust your retain settings (as you have done) and ensure you are using
hardware openGL acceleration. I would start by issuing a 'xdpyinfo' at
the terminal and reading through the output. Likewise, with 'glxinfo'.
The latter command will tell you whether you are using direct hardware
rendering or not, but in order to debug why this is the case you may need
the results from xdpyinfo. You should also parse through the XFree log
file in '/var/log/XFree86.*.log' looking for initialization errors.
Ancillary commands include 'xwininfo' and 'xprop' (see man pages).

Your default installation will probably be using a maxtor driver but it
may not be the most current or be setup correctly. Likewise, you need to
ensure that 16MB of RAM is indeed enough memory to run hardware
acceleration at the resolution and color depth you are running (i.e. to
display 1200x1600 @ 32 bbp you need more than 22 MB video RAM for hardware
acceleration). You may want to compile the latest version of XFree 4.2.0
from source and install the latest Maxtor drivers. Installing the latest
generic XFree binaries (i.e. rpm) probably will not be of much help and
(in my experience) will usually break something. If you are using the
latest beta driver from Maxtor then you can use their nifty 'mgapdesk'
utility to configure X.

You will want to read through the following sites (paying particular
attention to the FAQs):

http://www.matrox.com/mga/support/drivers/latest/home.cfm
http://forum.matrox.com/cgi-bin/mgaforum/Ultimate.cgi
http://dri.sourceforge.net/

http://www.xfree.org

Typically, the best people to ask about graphics acceleration are game
players. Nevertheless, assuming you have a support contract, you may be
able to get some help from the folks at RSI.

Sorry I cannot be of more help, but you are now entering the realm of
Linux hackery and I don't want to be the one responsible for breaking your
XFree installation.

Good luck,
Randall

> We are running this program on a Mandrake 8.0 linux. The XFree
> version is 4.0.3. (>rpm -aq | grep xfree; XFree86 4.0.3) Our video
> card is Matrox Graphics Inc. Millennium G400 16MB MGA G400 AGP.
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>   We assume the drivers is runing fine but it would be better to show
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>> Randall
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Subject: Re: speed up the display on Linux
Posted by Mark Hadfield on Wed, 12 Jun 2002 21:17:26 GMT
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"M. Katz" <MKatz843@onebox.com> wrote in message
news:4a097d6a.0206111308.3a713d19@posting.google.com...
> K0me problem with slow Object graphics rendering on Linux, so I had
> our resident guru look into it. Here's his comment to me.
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> hardware acceleration is enabled for the video card. The hardware
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> XF86Config file (usually /etc/X11/XF86Config). It should not be
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>
> Once he fixed it, our OpenGL rendering is lightning fast. Now it's
> almost as nice as on my Mac :) Software rendering is not required
> here.

That's interesting. Here is one of the things Karl Schultz or RSI
wrote to me in response to the "Object graphics under Linux: are
they supposed to be that slow?" thread:

  We didn't support "hardware" rendering on Linux in IDL 5.5. In
  fact, on other UNIX-like systems with questionable OpenGL support,
  we don't support it either. (You can tell if we try by seeing if
  there is a "gl_driver.so" file in our binary distribution.) These
  systems without the gl_driver file just end up using the Mesa
  software rendering library for both IDL hardware and software
  rendering.

  [Karl also indicated that RSI are looking at enabling OpenGL support
  in future versions.]

So I am surprised that enabling the glx module has any effect on IDL
object graphics performance. But perhaps I am confused about the
various layers in the graphics system and how they connect.

Are you sure that you get different results on Linux with hardware vs
software rendering?

Perhaps Karl can comment on this.

PS: I can't test any of this because I've gone back to Windows for the time
being.

--
Mark Hadfield   "Ka puwaha te tai nei, Hoea tatou"

m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: speed up the display on Linux
Posted by Randall Skelton on Wed, 12 Jun 2002 22:38:45 GMT
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On Thu, 13 Jun 2002, Mark Hadfield wrote:

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>
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>   rendering.

I do hope someone from RSI can post a reply to the group and explain the
current state of OpenGL acceleration for Linux once and for all. If the
above is true, I agree that IDL will not benefit significantly from
enabling hardware acceleration in Free as the shared Mesa libraries
distributed with IDL will be used no matter what. Given the ever
increasing support for OpenGL in Linux, I do hope this changes soon.

> Are you sure that you get different results on Linux with hardware vs
> software rendering?

I will try and check this on my workstation later this week... sigh.

Cheers,
Randall

Subject: Re: speed up the display on Linux
Posted by Mark Hadfield on Fri, 14 Jun 2002 05:55:21 GMT
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"Randall Skelton" <rhskelto@atm.ox.ac.uk> wrote in message
 news:Pine.LNX.4.33.0206122323320.25959-100000@moriarty.atm.o x.ac.uk...

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> significantly from enabling hardware acceleration in Free as the
> shared Mesa libraries distributed with IDL will be used no matter
> what. Given the ever increasing support for OpenGL in Linux, I do
> hope this changes soon.

I'm sure Karl Schultz could enlighten us all about current position &
future plans. He has been know to follow this group, but perhaps he's
otherwise occupied at the moment. I do know that he was keen to get
OpenGL acceleration working with Linux.

In the meantime, if you want to find out what renderer your
IDLgrWindow object is using, call its GetDeviceInfo method with the
ALL keyword set and check the result. If it says something about
"Mesa" then it's using RSI's software renderer.

--
Mark Hadfield   "Ka puwaha te tai nei, Hoea tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: speed up the display on Linux
Posted by Karl Schultz on Mon, 17 Jun 2002 17:45:11 GMT
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"Randall Skelton" <rhskelto@atm.ox.ac.uk> wrote in message
 news:Pine.LNX.4.33.0206122323320.25959-100000@moriarty.atm.o x.ac.uk...
>
> On Thu, 13 Jun 2002, Mark Hadfield wrote:
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> above is true, I agree that IDL will not benefit significantly from
> enabling hardware acceleration in Free as the shared Mesa libraries
> distributed with IDL will be used no matter what. Given the ever

> increasing support for OpenGL in Linux, I do hope this changes soon.

Mark's right; we don't try to use hardware acceleration in IDL 5.5 on Linux.
The Linux support just wasn't mature enough at that time. Some of our best
Linux/OpenGL hacks just couldn't get a stable enough system to work with
even the best Linux distros.

>> Are you sure that you get different results on Linux with hardware vs
>> software rendering?

There really shouldn't be any difference. If there are differences,
something else is going on.

Karl