Subject: Re: Which Graphics Card?
Posted by Andy Loughe on Fri, 08 Jun 2001 16:34:04 GMT
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David Fanning wrote:
> Here's my question:
> what's the best graphics card on the market for under $500?
> It should make IDL object graphics scream. :-)

According to a hardware-savvy friend of mine, this is the
hot graphics card of the day:

GEFORCE3 4X/2X DDR AGP 64MB VGA TV/S-VIDEO

The best price I can find on shopper.com is $370 at the Gateway store.

http://www.necxdirect.com/hai/prod_page.html?nonce=guest_ces
p&refer=cesp&key=0000160495

What other recommendations have you received?

--
Andrew Loughe ==========
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325 Broadway | wwweb: www-ad.fsl.noaa.gov/users/loughe
Boulder, CO 80305-3328 | phone: 303-497-6211 fax: 303-497-6301

Subject: Re: Which Graphics Card?
Posted by Rick Towler on Fri, 08 Jun 2001 18:10:44 GMT
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You had to ask....

Andy's suggestion of nVidia's Geforce3 based cards is a good one. In fact,
for doing "professional" work with a "gamers" video card I feel your only
options are nVidia's products. ATI's radeon is another popular gamers card
that performs almost as well as the Geforce line but ATI has historically
delivered poor drivers (this comment is based on hardware reviews, not on
personal experience). But, the GF3 isn't your only option.

nVidia segments their market by offering consumer and professional products
based on the same core technology (consumer lines are based on the
GF/GF2/GF3 and the professional lines are based on the Quadro). AFAICT, the
only real difference between the consumer cards and the pro cards is that
the pro cards sport a different BIOS, a few resistors and better OpenGL
drivers. How much better? I wish I knew since that might drive my next

purchasing decision. Maybe someone with a Quadro would be willing to do some benchmarks?

When purchasing a Geforce2/Quadro based card there are a few things to look out for. All Geforce chips are limited to some extent by memory bottlenecks. Card manufacturers have used this fact to segment the market to the point of mass confusion. When shopping for a GF2, you will find 64 and 128 bit SDR based cards and 64/128 bit DDR based cards with RAM speeds that vary from 7.5 to 4 ns. The best performance will be had with the 128bit DDR based cards with the fastest RAM available. These products are generally labeled "ultra" as in the WinFast Geforce2 Ultra.

If you are looking at a Geforce3 things are a little simpler. This card started hitting the streets last month and there are only a few variants available. All seem to be shipping with 128 bit DDR running at 4ns. Your only options look like TV out, DVI-I, and the amount of RAM (64 vs 128MB). I highly doubt that you would ever make use of 32 let alone 64 MB of video memory so don't waste your money on the 128 MB version.

A bonus option with the GF cards is that they offer full scene anti-aliasing (at the cost of raw speed). I have found this feature to be indispensable when rendering 3d scenes for animation and am now rendering final animations on my Geforce based workstations exclusively. (on side note, with newer driver revisions make sure your desktop is set to 32 bit and the default color depth for textures is set to "desktop color depth" or 32bpp otherwise IDL will bomb when opening an object graphics window when anti-aliasing is enabled)

I know I sound like a commercial here but stick with me....

nVidia has also released the geforce2go chip. This is the first real step forward for portable 3d in years. For those looking for a portable only solution or for a laptop that can actually render high poly scenes this is your only choice. Don't think you are going to get this in that ultra slim vaio though.

For you Macatista's, rejoice that decent 3d power has come to your world too. The GF3 was released for both the PC and Mac. Since this is the first nVidia product for the mac I don't know what shape the drivers are in but at least you got the hardware.

For the penguin's, nVidia is producing drivers for XFree86 4.x. Last time I checked they were lagging behind windoze platforms in performance but quality has been steadily improving.

If you do end up with an nVidia based card (especially the GF3), I recommend

ditching the vendor's drivers and using the reference drivers available from nVidia's site. You may lose vendor specific add-ons (TV-out) but the drivers will be "fresher". With GF/GF2 based cards this is not as simple since with the latest release (v12.49) performance in IDL object graphics has decreased a bit.

good luck!

-Rick Towler
Object Graphics Junkie

"David Fanning" <davidf@dfanning.com> wrote in message
news:MPG.158a92bbffa84607989e25@news.frii.com...
> Hi Folks,
>
> OK, the wife came home from the last day of school with
> a brochure for a special deal on computers. (Thanks to
> the recent passage of the mill levy all classrooms are
> getting an updated PC.) The company (a large one who
> has not done too well lately) has offered to let school
> district employees in on the deal. The prices are
> fantastic. (But, alas, that super-thin Sony laptop
> I've been lusting after ever since the chiropractor
> told me to stop lugging my mammoth Dell machine around,
> is not on the list.)
>
> But this baby needs a graphics card. Here's my question:
> what's the best graphics card on the market for under $500?
> It should make IDL object graphics scream. :-)
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting
> Phone: 970-221-0438 E-Mail: davidf@dfanning.com
> Coyote's Guide to IDL Programming: http://www.dfanning.com/
> Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Which Graphics Card?
Posted by Pavel A. Romashkin on Fri, 08 Jun 2001 18:24:32 GMT
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Hi David,
I just went through this graphics card chosing business for building a
PC for a f riend and upgrading my own, although on a different budget
level. GeForce3 is the hottest 3D gaming accelerator, but is overpriced
(as all new products) and not many programs take advantage of its
features. GeForce3's advantages are in shadowing, lighting and massive
fill rates used for rendering 3D virtual worlds in games. However, for
2D CAD applications (and possibly IDL's OpenGL?) you might want to check
into expensive ($300 and up) professional cards that outperform the GF3
hands down. They are useless for games but superb for CAD.
I found out that a cheap ($70) Radeon LE 32Mb DDR card is totally
adequate for my needs. By adding a couple of registry entries, you turn
it into a $150 RadeonDDR :-) I have not tried IDL on it yet (the CD is
in the mail supposedly), and will report as soon as I try it.
Cheers,
Pavel

Subject: Re: Which Graphics Card?
Posted by Rick Towler on Fri, 08 Jun 2001 21:07:03 GMT
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"Pavel A. Romashkin" <pavel.romashkin@noaa.gov> wrote in message
news:3B21185F.AB2768D@noaa.gov...
> Hi David,
> I just went through this graphics card chosing business for building a
> PC for a f riend and upgrading my own, although on a different budget
> level. GeForce3 is the hottest 3D gaming accelerator, but is overpriced
> (as all new products) and not many programs take advantage of its
> features. GeForce3's advantages are in shadowing, lighting and massive
> fill rates used for rendering 3D virtual worlds in games.

Your assessment of the GF3 isn't quite correct. Yes, you will pay a premium
for it. And it is true that most of the new features (per pixel shading for
example) aren't utilized by most current software packages. But the GF3
sports a new memory architecture and faster clock rate which helps to push
more data making it faster than any consumer level graphics adapter on the
market even for such mundane tasks as data visualization.

> However, for
> 2D CAD applications (and possibly IDL's OpenGL?) you might want to check
> into expensive ($300 and up) professional cards that outperform the GF3
> hands down.

Yes, there are professional cards that will outperform the Geforce family.
It is too early to say that professional cards in the sub $800US range
outperform the GF3. I haven't been able to find any benchmarks pitting the

GF3 against professional cards like Diamond's (sonic blue) FireGL or 3d labs Oxygen GVX1 so I think the "hands down" comment is a little premature. I do believe that a price/performance comparison favors the Geforce cards but this is more of a gut feeling.

Take a look at this comparison of the FireGL vs GF2 GTS vs Quadro2 Pro:

http://www6.tomshardware.com/graphic/00q4/001213/index.html

And a slightly more dated review of some more professional 3d cards:

http://www6.tomshardware.com/graphic/00q2/000515/index.html

I think this discussion is in some serious need of real numbers. It is clear after parusing the two articles above that there are HUGE differences in performance between applications and that this discussion can only be answered with some IDL specific benchmarks. Hopefully this thread will ignite some interest in John-David Smith's posting regarding an object graphics test for IDLSpecIII.

-Rick Towler

They are useless for games but superb for CAD.
> I found out that a cheap ($70) Radeon LE 32Mb DDR card is totally
> adequate for my needs. By adding a couple of registry entries, you turn
> it into a $150 RadeonDDR :-) I have not tried IDL on it yet (the CD is
> in the mail supposedly), and will report as soon as I try it.
> Cheers,
> Pavel

Subject: Re: Which Graphics Card?
Posted by Pavel A. Romashkin on Fri, 08 Jun 2001 22:01:48 GMT
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Rick Towler wrote:
>
> Your assessment of the GF3 isn't quite correct. Yes, you will pay a premium
> for it. And it is true that most of the new features (per pixel shading for
> example) aren't utilized by most current software packages. But the GF3
> sports a new memory architecture and faster clock rate which helps to push

> more data making it faster than any consumer level graphics adapter on the
> market even for such mundane tasks as data visualization.

I take it, you own one or are ready to buy one? It is the hottest and
most modern gaming card, and there is no question about it. But it is
not the only one, and my question is, does a typical user utilize the
novelties provided by GF3 in everyday work, and if these advantages are
worth the extra money. Besides, you need an AGPpro slot to be sure it
will work reliably.
Since David's price range is beyond the cost of GF3, he might shop
around for a better card. http://www.anandtech.com might appear helpful.

Good luck,
Pavel

Subject: Re: Which Graphics Card?
Posted by davidf on Fri, 08 Jun 2001 22:20:22 GMT
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Pavel A. Romashkin (pavel.romashkin@noaa.gov) writes:

> I take it, you own one or are ready to buy one? It is the hottest and
> most modern gaming card, and there is no question about it. But it is
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> novelties provided by GF3 in everyday work, and if these advantages are
> worth the extra money. Besides, you need an AGPpro slot to be sure it
> will work reliably.
> Since David's price range is beyond the cost of GF3, he might shop
> around for a better card. http://www.anandtech.com might appear helpful.

This is the basis year for determining the parent's contribution
for my oldest son's college expenses, so expensive is more attractive than
it usually is. (I hope my son isn't reading this.) I've been thinking
about a fast car, but can't figure out how to write it off as
a business expense. A fast graphics card is easy. :-)

That GF2/Quadro professional OpenGL card goes for
about $670. It's not chump change, but I think I could
be happy with something like that for a month or so.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Which Graphics Card?
Posted by Rick Towler on Fri, 08 Jun 2001 23:55:38 GMT
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"Pavel A. Romashkin" <pavel.romashkin@noaa.gov> wrote in message news:3B214B4B.F42F10A5@noaa.gov...

> I take it, you own one or are ready to buy one? It is the hottest and
> most modern gaming card, and there is no question about it. But it is
> not the only one, and my question is, does a typical user utilize the
> novelties provided by GF3 in everyday work, and if these advantages are
> worth the extra money. Besides, you need an AGPpro slot to be sure it
> will work reliably

ha! ha! ha!

Pavel, you got me. Yes, the GF3 is on the list for the annual august upgrade.

Do I think that the average IDL user will benefit from the GF3? Unless they work with object graphics no, go buy a $30 4mb video card. If they are serious object graphics users? For sure! I guess I put David in the "serious object graphics user" category. (maybe that was my mistake? ;)

You do not *need* an AGP pro slot although I would recommend a hearty power supply.

-Rick

Subject: Re: Which Graphics Card?
Posted by Randall Frank on Sat, 09 Jun 2001 05:29:15 GMT
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Ok a topic worthy of a monthly rant...

A few notes from someone who has been using a GeForce 3 and a number of GeForce 2 variants (GTS, MX, Quadro and Ultra) for a bit now (as well as a fair helping of non-nVidia cards).

The GeForce 3 is the current "next great" gaming
card, but there is no software out there that uses it yet.
Thus, it is getting cheaper daily. I have seen the 64MB
version for $349 with a $50 rebate already. It is a very
"interesting" card, but rather immature (one might speculate
that a competing card might show up before the apps do).
On the average for a large distribution of scientific applications
(IDL, EnSight, MeshTV, home brew code), the GeForce 3 was around
20-30% slower than a GeForce 2 Ultra or a GF2 Quadro 2 card.
There is a lot of speculation about why this might be and it
ranges from immature drivers to some bad RAM design decisions to
questions about the hidden costs of the programmable vertex
pipeline. But this is all speculation. The biggest issue
has been the 3D texturing issue (not an IDL issue), but nVidia
is supposed to issue a press release to straighten that out
at some point. As hinted at in some of this thread, a quadro
version of the GF3 would probably be the best option for an
OG IDL user in the long run.

Advice is free, so here is a little bit:
Consider what you want to accelerate. If DG, stop and
buy a Matrox card. If OG, decide if your application is
dominated by drawing lines or polygons. If polygons, the
best price/performance combo I have seen is the Kyro cards
(~$70 for an astonishing fill rate), but you need a very high
speed CPU for that chip. The next best price/performer is
the GeForce 2 Ultra. If you need lines, then you might
consider a FireGL card, a great high quality CAD card, or
wait for a "quadro" version of a GeForce 3. If you want
to draw images, my advice is to time them. You might be
very surprised at what generally wins the OG image drawing
race.

IMHO the current GeForce 3 has little to offer the IDL user
in its current state to warrant its higher cost, hopefully
that will change...

Rick Towler wrote:
>
> You had to ask....
>
...
> nVidia segments their market by offering consumer and professional products
> based on the same core technology (consumer lines are based on the
> GF/GF2/GF3 and the professional lines are based on the Quadro). AFAICT, the
> only real difference between the consumer cards and the pro cards is that
> the pro cards sport a different BIOS, a few resistors and better OpenGL
> drivers. How much better? I wish I knew since that might drive my next

> purchasing decision. Maybe someone with a Quadro would be willing to do
> some benchmarks?

Actually, the BIOS is the same (no comment on the resistors) and the
chip
spin is better (quadros are clocked higher). The big win is in line
drawing performance. Overall polygon filling, I can get 20-25M tris/sec
on a GF2 GTS and around 30M tris/sec on a Quadro version of the same
chip, but both cards are seriously memory bandwidth bottlenecked. I
don't
have IDL numbers for the two cards as all my Quadro cards are in
machines
running Liunx.

>
> When purchasing a Geforce2/Quadro based card there are a few things to look
> out for. All Geforce chips are limited to some extent by memory
> bottlenecks. Card manufacturers have used this fact to segment the market
> to the point of mass confusion. When shopping for a GF2, you will find 64
> and 128 bit SDR based cards and 64/128 bit DDR based cards with RAM speeds
> that vary from 7.5 to 4 ns. The best performance will be had with the
> 128bit DDR based cards with the fastest RAM available. These products are
> generally labeled "ultra" as in the WinFast Geforce2 Ultra.

The Ultra is acutally a little different chipset and is a bit more than
just faster RAM. The Ultra is basically a Radeon killer...

>
> If you are looking at a Geforce3 things are a little simpler. This card
> started hitting the streets last month and there are only a few variants
> available. All seem to be shipping with 128 bit DDR running at 4ns. Your
> only options look like TV out, DVI-I, and the amount of RAM (64 vs 128MB).
> I highly doubt that you would ever make use of 32 let alone 64 MB of video
> memory so don't waste your money on the 128 MB version.

Depends on the app. The 128MB version is great for volume rendering.
Now
if nVidia would just release nvfence extensions for texture maps, we
would
be really in business.

>
> A bonus option with the GF cards is that they offer full scene anti-aliasing
> (at the cost of raw speed). I have found this feature to be indispensable
> when rendering 3d scenes for animation and am now rendering final animations
> on my Geforce based workstations exclusively. (on side note, with newer
> driver revisions make sure your desktop is set to 32 bit and the default
> color depth for textures is set to "desktop color depth" or 32bpp otherwise

> IDL will bomb when opening an object graphics window when anti-aliasing is
> enabled)

Actually, if you like this option, please RUN out to the store and buy
a GF3 or a 3DFX 5500. The FSAA support on a GF2 is really a hack and
the quality is laughable compared to the 3DFX and GF3 implementations.
>
> I know I sound like a commercial here but stick with me....
>
> nVidia has also released the geforce2go chip. This is the first real step
> forward for portable 3d in years. For those looking for a portable only
> solution or for a laptop that can actually render high poly scenes this is
> your only choice. Don't think you are going to get this in that ultra slim
> vaio though.

They work pretty nicely in the Dell 8500s. A little hot, but this
laptop
and an 802.11b card means I can clobber my UT friends from the forest of
my back yard...
>
...
> For the penguin's, nVidia is producing drivers for XFree86 4.x. Last time I
> checked they were lagging behind windoze platforms in performance but
> quality has been steadily improving.

The performance is pretty much a dead heat right now with raw, fenced
triangle performance leaning toward Linux. Things like the GLX
protocol do not work, but all the extensions are there and it works
like a charm.

Does that help murky up the waters a bit?

--
rjf.
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