

Re: DualScreen, 2 cards, AGP and PCI, have to boot from PCI?

Source: <http://linux.derkeiler.com/Newsgroups/comp.os.linux.x/2004-08/0206.html>

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Date: 08/27/04

Date: Fri, 27 Aug 2004 05:12:12 -0800

Dieter Soltau <sprockhoevel@web.de> wrote:

>*Mike Katasonov wrote:*

>*i have xinerama (currently disabled) installed, but as soon as i use it, i*

>*have one large screen – and this is not what i wanted. i like to keep the*

>*second screen seperate, it is simply there to watch TV ;)*

I can't tell from your descriptions just what you are getting, but it appears that what you want, as described above, can be done. It depends...

But whether it can be done, or not, you have to solve the problems one at a time, starting at the beginning, not in the middle. It is possible that in the process you may discover that what you want can't be done.

First Step: Take the PCI card out of the machine. Set the BIOS to init the AGP card. Boot to single user, or to multiuser without X running, and see if you get what you expect from a single monitor system. (If not, fix whatever it doesn't do before proceeding.) Then try running X, and configure it to work correctly with that video card and monitor.

Stop at this point and ask question in appropriate newsgroups if you cannot make it work correctly as above. Only when that works is it useful to go to the second step.

Second Step: Put the PCI card into the machine and connect a monitor to it. Do **not** change the BIOS. Boot to single user or to multiuser without X running. See which monitor Linux uses. If Linux uses the AGP monitor just as it did in the first step, you should be able to accomplish what you want. (If Linux comes up on the PCI card, you might not be able to make this work. But the primary thing to understand at that point is that you do **not** have a problem with X, and nothing you do with X is going to affect what you get up to this point.)

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If Linux comes up on the PCI monitor instead of the AGP monitor you'll need to ask questions in a different newsgroup. Perhaps folks in comp.os.linux.system would understand how to make Linux find the other video card, if that is even possible.

If Linux comes up on the AGP monitor, then you can proceed to configure X, and that can almost certainly work with either monitor, or with both. The first thing to do is run /sbin/lspci and see what you have. Here is an example (with everything except the video cards edited out), from a **really** old motherboard (a Dell with a PII-300 in it),

```
00:0d.0 VGA compatible controller: S3 Inc. ViRGE/DX or /GX (rev 01)
00:0e.0 VGA compatible controller: Matrox Graphics, Inc. MGA 2164W [Millennium II]
01:00.0 VGA compatible controller: ATI Technologies Inc 3D Rage Pro AGP 1X (rev 5c)
```

This motherboard has onboard video (the ATI, listed last). It also has two old PCI cards installed. You will be unhappy to know that the reason it has two PCI cards installed is because with this motherboard if a PCI card exists at all, the onboard AGP will simply **not** be initialized, period. Want two screens? Put in two PCI cards! (Basically the exact problem you have, except one "card" is onboard video.)

Whatever, if you can get Linux to boot using the AGP video when the PCI card is present, the trick then is merely to configure X to use whichever card for whatever you want. The way to select which monitor is which in X is to use a "BusID" specifier in the Device Section for each video card in your X configuration file. Here is what those sections look like for the cards listed above,

```
Section "Device"
    Identifier "Graphics1"
    Driver "mga"
    Option "DPMS"
    Videoram 8192
#$00:0e.0 VGA compatible controller: Matrox Graphics, Inc. MGA 2164W [Millennium II]
    BusID "PCI:00:14:00"
EndSection
```

```
Section "Device"
    Identifier "Graphics2"
    Driver "s3virge"
    Option "DPMS"
    Videoram 4096
    # S3 Inc. ViRGE/DX or /GX rev 1, BusID "PCI:00:13:00"
    BusID "PCI:00:13:00"
EndSection
```

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There must then be a Screen Section for each of those Device Sections, and your ServerLayout Section then must list each of them with a Screen option in the order you want them to be available to the server.

```
Section "Screen"
    Identifier "Screen1"
    Device "Graphics1"
    Monitor "Monitor1"
    ...
EndSection
```

```
Section "Screen"
    Identifier "Screen2"
    Device "Graphics2"
    Monitor "Monitor2"
    ...
EndSection
```

```
Section "ServerLayout"
    Identifier "Layout1"
    Screen "Screen1"
    Screen "Screen2"
#
# Xinerama mode joins the screens into one desktop.
# Screen "Screen2" RightOf "Screen1"
# Option "Xinerama"

    InputDevice "Mouse1" "CorePointer"
    InputDevice "Keyboard1" "CoreKeyboard"
EndSection
```

If the Xinerama options are uncommented, the two monitors appear as one display, host:0.0 to the server. Otherwise the two are found in the order listed, as host:0.0 and host:0.1 to the server.

For example, normally a program will be displayed on :0.0, which in this case is the MGA video card and its monitor. To access the other monitor, and individual program can be invoked from the command line like this:

```
> DISPLAY=:0.1 command
```

and it will display on the S3VIRGE video card and its monitor.

```
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