NAME
xgi – XGI video driver

SYNOPSIS
Section "Device"
  Identifier "*devname***"**
  Driver "xgi"
   ...
EndSection

DESCRIPTION
xgi is an XFree86 driver for XGI video chips. The driver is accelerated, and provides support for col-ordepths of 8, 16 and 24 bpp. XVideo, Render and other extensions are supported as well.

SUPPORTED HARDWARE
The **xgi** driver supports PCI and AGP video cards based on the following chipsets:

XGI5597/5598 XGI530/620 XGI6326/AGP/DVD XGI300/305 XGI540 XGI630/730 XGI315/H/PRO XGI550/551/552 XGI650/651/M650/661FX/M661FX/M661MX/740/741 XGI330 (Xabre) XGI760

In the following text, the following terms are used:

old series for XGI5597/5598, 530/620 and 6326/AGP/DVD

300 series for XGI300/305, 540 and 630/730

315/330 series for XGI315/H/PRO, 55x and (M)65x/(M)661xX/74x, 330, 760

Note: Support for 661FX, M661FX, M661MX, 741 and 760 is untested.

CONFIGURATION DETAILS
Please refer to XF86Config(5) for general configuration details. This section only covers configuration details specific to this driver.

Detailed information on all supported options can be obtained at http://www.winischhofer.net/linuxxgivga.shtml

This manpage only covers a subset of the supported options.

1. For all supported chipsets

The following driver **Options** are supported on all chipsets:

Option "NoAccel" "*boolean***"**
        Disable or enable 2D acceleration. Default: acceleration is enabled.

Option "HWCursor" "*boolean***"**
        Enable or disable the HW cursor. Default: HWCursor is on.

Option "SWCursor" "*boolean***"**
        The opposite of HWCursor. Default: SWCursor is off.

Option "Rotate" "CW"
        Rotate the display clockwise. This mode is unaccelerated, and uses the Shadow Frame Buffer layer. Using this option disables the Resize and Rotate extension (RandR). Default: no rotation.

Option "Rotate" "CCW"
        Rotate the display counterclockwise. This mode is unaccelerated, and uses the Shadow Frame Buffer layer. Using this option disables the Resize and Rotate extension (RandR). Default: no rotation.

Option "ShadowFB" "*boolean***"**
        Enable or disable use of the shadow framebuffer layer. Default: Shadow framebuffer is off.

Option "CRT1Gamma" "*boolean***"**
        Enable or disable gamma correction. Default: Gamma correction is on.

2. Old series specific information

The driver will auto-detect the amount of video memory present for all these chips, but in the case of the 6326, it will limit the memory size to 4MB. This is because the 6326's 2D engine can only address 4MB. The remaining memory seems to be intended for 3D texture data, since only the 3D engine can address RAM above 4MB. However, you can override this limitation using the **"VideoRAM"** option in the Device section if your board has more than 4MB and you need to use it. However, 2D acceleration, Xvideo and the HWCursor will be disabled in this case.

The driver will also auto-detect the maximum dotclock and DAC speed. If you have problems getting high resolutions because of dot clock limitations, try using the **"DacSpeed"** option, also in the Device section. However, this is not recommended for the 6326. For this chip, the driver has two built-in modes for high resolutions which you should use instead. These are named **"XGI1280x1024-75"** and **"XGI1600x1200-60"** and they will be added to the list of default modes. To use these modes, just place them in your Screen section. Example:

Modes "XGI1600x1200-60" "XGI1280x1024x75" "1024x768" ...

Of these modes, 1280x1024 is only available at 8, 15 and 16bpp. 1600x1200 is available at 8bpp only.

TV support for the 6326

TV output is supported for the 6326. The driver will auto detect a TV connected and in this case add the following modes to the list of default modes: "PAL800x600", "PAL800x600U", "PAL720x540", "PAL640x480", "NTSC640x480", "NTSC640x480U" and "NTSC640x400". Use these modes like the hi-res modes described above.

The following driver **Options** are supported on the old series:

Option "TurboQueue" "*boolean***"**
> Enable or disable TurboQueue mode. Default: off for 530/620, on for the others

Option "FastVram" "*boolean***"**
> Enable or disable FastVram mode. Enabling this sets the video RAM timing to one cycle per read operation instead of two cycles. Disabling this will set two cycles for read and write operations. Leaving this option out uses the default, which varies depending on the chipset.

Option "NoHostBus" "*boolean***"**
> (XGI5597/5598 only). Disable CPU-to-VGA host bus support. This speeds up CPU to video RAM transfers. Default: Host bus is enabled.

Option "NoXVideo" "*boolean***"**
> Disable XV (XVideo) extension support. Default: XVideo is on.

Option "NoYV12" "*boolean***"**
> Disable YV12 Xv support. This might me required due to hardware bugs in some chipsets. Disabling YV12 support forces Xv-aware applications to use YUV2 or XShm for video output. Default: YV12 support is on.

Option "TVStandard" "*string***"**
> (6326 only) Valid parameters are **PAL** or **NTSC.** The default is set by a jumper on the card.

Option "TVXPosOffset" "*integer***"**
> (6326 only) This option allows tuning the horizontal position of the image for TV output. The range is from -16 to 16. Default: 0

Option "TVYPosOffset" "*integer***"**
> (6326 only) This option allows tuning the vertical position of the image for TV output. The range is from -16 to 16. Default: 0

Option "XGI6326TVEnableYFilter" "*boolean***"**
> (6326 only) This option allows enabling/disabling the Y (chroma) filter for TV output.

Option "XGI6326TVAntiFlicker" "*string***"**
> (6326 only) This option allow enabling/disabling the anti flicker facility for TV output. Possible parameters are **OFF, LOW, MED, HIGH** or **ADAPTIVE.** By experience, **ADAPTIVE** yields

the best results, hence it is the default.

2. 300 and 315/330 series specific information

The 300 and 315/330 series feature two CRT controllers and very often come with a video bridge for controlling LCD and TV output. Hereinafter, the term **CRT1** refers to the VGA output of the chip, and **CRT2** refers to either LCD, TV or secondary VGA. Due to timing reasons, only one CRT2 output can be active at the same time. But this limitation does not apply to using CRT1 and CRT2 at the same time which makes it possible to run the driver in dual head mode.

The driver supports the following video bridges:

XGI301 XGI301B(-DH) XGI301C XGI301LV(X) XGI302LV

Instead of a video bridge, some machines have a **LVDS** transmitter to control LCD panels, and a **Chrontel 7005** or **7019** for TV output. All these are supported as well.

About TV output

On the XGI301 and the Chrontel 7005, only resolutions up to 800x600 are supported. On all others, resolutions up to 1024x768 are supported. However, due to a hardware bug, Xvideo might be distorted on XGI video bridges if running NTSC or PAL-M at 1024x768.

About XVideo support

XVideo is supported on all chipsets of both families. However, there are some differences in hardware features which cause limitations. The 300 series as well as the XGI55x, M650, 651, 661FX, M661FX, and 741 support two video overlays. The XGI315/H/PRO, 650/740 and 330 support only one such overlay. On chips with two overlays, one overlay is used for CRT1, the other for CRT2. On the other chipsets, the option **"XvOnCRT2"** can be used to select the desired output channel.

About Merged Framebuffer support

This mode is strongly recommended over Xinerama. Please see http://www.winischhofer.net/linuxxgivga.shtml for detailed information.

About dual-head support

Dual head mode has some limitations as regards color depth and resolution. Due to memory bandwidth limits, CRT1 might have a reduced maximum refresh rate if running on higher resolutions than 1280x1024.

Colordepth 8 is not supported when running in dual head mode.

The following driver **Options** are supported on the 300 and 315/330 series:

Option "NoXVideo" "*boolean***"**
  Disable XV (XVideo) extension support. Default: XVideo is on.

Option "XvOnCRT2" "*boolean***"**
  On chipsets with only one video overlay, this option can used to bind the overlay to CRT1 (if a monitor is detected and if this option is either unset or set to **false**) or CRT2 (if a CRT2 device is detected or forced, and if this option is set to **true**). If either only CRT1 or CRT2 is detected, the driver decides automatically. In Merged Framebuffer mode, this option is ignored. Default: overlay is used on CRT1

Option "ForceCRT1" "*boolean***"**
  Force CRT1 to be on of off. If a monitor is connected, it will be detected during server start. However, some old monitors are not detected correctly. In such cases, you may set this option to **on** in order to make the driver initialize CRT1 anyway. If this option is set to **off** , the driver will switch off CRT1. Default: auto-detect

Option "ForceCRT2Type" "*string***"**
  Force display type to one of: **NONE** , **TV** , **SVIDEO** , **COMPOSITE** , **SVIDEO+COMPOSITE** , **SCART** , **LCD** , **VGA** ; **NONE** will disable CRT2. The SVIDEO, COMPOSITE, SVIDEO+COMPOSITE and SCART parameters are for XGI video bridges only and can be used to force the driver to use a specific TV output connector (if present). Default: auto detect.

Option "CRT2Gamma" "*boolean***"**
> Enable or disable gamma correction for CRT2. Only supported for XGI video bridges. Default: Gamma correction for CRT2 is on.

Option "TVStandard" "*string***"**
> Force the TV standard to either **PAL** or **NTSC.** On some machines with 630, 730 and the 315/330 series, **PALM** , **PALN** and **NTSCJ** are supported as well. Default: BIOS setting.

Option "TVXPosOffset" "*integer***"**
> This option allows tuning the horizontal position of the image for TV output. The range is from -32 to 32. Not supported on the Chrontel 7019. Default: 0

Option "TVYPosOffset" "*integer***"**
> This option allows tuning the vertical position of the image for TV output. The range is from -32 to 32. Not supported on the Chrontel 7019. Default: 0

Option "XGITVXScale" "*integer***"**
> This option selects the horizontal zooming level for TV output. The range is from -16 to 16. Only supported on XGI video bridges. Default: 0

Option "XGITVYScale" "*integer***"**
> This option selects the vertical zooming level for TV output in the following modes: 640x480, 800x600. On the 315/330 series, also 720x480, 720x576 and 768x576. The range is from -4 to 3. Only supported on XGI video bridges. Default: 0

Option "CHTVOverscan" "*boolean***"**
> On machines with a Chrontel TV encoder, this can be used to force the TV mode to overscan or underscan. **on** means overscan, **off** means underscan. Default: BIOS setting.

Option "CHTVSuperOverscan" "*boolean***"**
> On machines with a Chrontel 7005 TV encoder, this option enables a super-overscan mode. This is only supported if the TV standard is PAL. Super overscan will produce an image on the TV which is larger than the viewable area.

The driver supports many more options. Please see http://www.winischhofer.net/linuxxgivga.shtml for more information.

3. 300 series specific information

DRI is supported on the 300 series only. On Linux, DRI requires the kernel's XGI framebuffer driver (**xgifb**) and some other modules which come with either the kernel or XFree86.

Xgifb takes care of memory management for texture data. In order to prevent the X Server and xgifb from overwriting each other's data, xgifb reserves an amount of video memory for the X driver. This amount can either be selected using xgifb's mem parameter, or auto-selected depending on the amount of total video RAM available.

Xgifb can be used for memory management only, or as a complete framebuffer driver. If you start xgifb with a valid mode (ie you gain a graphical console), the X driver can communicate with xgifb and doesn't require any manual configuration for finding out about the video memory it is allowed to use. However, if you are running a 2.4 series Linux kernel and use xgifb for video memory management only, ie you started xgifb with mode=none and still have a text mode console, there is no communication between xgifb and the X driver. For this purpose, the

Option "MaxXFBMem" "*integer***"**

exists. This option must be set to the same value as given to xgifb through its "mem" parameter, ie the amount of memory to use for X in kilobytes.

If you started xgifb without the mem argument, xgifb will reserve

12288KB if more than 16MB of total video RAM is available,

8192KB if between 12 and 16MB of video RAM is available,

4096KB in all other cases.

If you intend to use DRI, I recommend setting the total video memory in the BIOS to 64MB in order to at least overcome the lack of memory swap functions.

Option "DRI" "*boolean***"**
> This option allows enabling or disabling DRI. By default, DRI is on.

Option "AGPSize" "*integer***"**
> This option allows selecting the amount of AGP memory to be used for DRI. The amount is to be specified in megabyte, the default is 8.

KNOWN BUGS
> none.

SEE ALSO
> XFree86(1), XF86Config(5), xf86config(1), Xserver(1), X(7)

> **http://www.winischhofer.net/linuxxgivga.shtml** for more information and updates

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