NAME

fbio – frame buffer control operations

DESCRIPTION

The frame buffers provided with this release support the same general interface that is defined by **<sys/fbio.h>**. Each responds to an **FBIOGTYPE ioctl**(2) request which returns information in a **fbtype** structure.

Each device has an **FBTYPE** which is used by higher-level software to determine how to perform graphics functions. Each device is used by opening it, doing an **FBIOGTYPE ioctl( )** to see which frame buffer type is present, and thereby selecting the appropriate device-management routines.

FBIOGINFO returns information specific to the GS accelerator.

FBIOSVIDEO and **FBIOGVIDEO** are general-purpose **ioctl( )** requests for controlling possible video features of frame buffers. These **ioctl( )** requests either set or return the value of a flags integer. At this point, only the **FBVIDEO_ON** option is available, controlled by **FBIOSVIDEO**. **FBIOGVIDEO** returns the current video state.

The **FBIOSATTR** and **FBIOGATTR ioctl( )** requests allow access to special features of newer frame buffers. They use the **fbsattr** and **fbgattr** structures.

Some color frame buffers support the **FBIOPUTCMAP** and **FBIOGETCMAP ioctl( )** requests, which provide access to the colormap. They use the **fbcmap** structure.

Also, some framebuffers with multiple colormaps will either encode the colormap identifier in the high-order bits of the "index" field in the fbcmap structure, or use the **FBIOPUTCMAPI** and **FBIOGETCMAPI ioctl( )** requests.

FBIOVERTICAL is used to wait for the start of the next vertical retrace period.

FBIOVRTOFFSET Returns the offset to a read-only *vertical retrace page* for those framebuffers that support it. This vertical retrace page may be mapped into user space with **mmap**(2). The first word of the vertical retrace page (type unsigned int) is a counter that is incremented every time there is a vertical retrace. The user process can use this counter in a variety of ways.

FBIOMONINFO returns a mon_info structure which contains information about the monitor attached to the framebuffer, if available.

FBIOSCURSOR, FBIOGCURSOR, FBIOSCURPOS and **FBIOGCURPOS** are used to control the hardware cursor for those framebuffers that have this feature. **FBIOGCURMAX** returns the maximum sized cursor supported by the framebuffer. Attempts to create a cursor larger than this will fail.

Finally **FBIOSDEVINFO** and **FBIOGDEVINFO** are used to transfer variable-length, device-specific information into and out of framebuffers.

SEE ALSO

ioctl(2), **mmap**(2), **bwtwo**(7D), **cgeight**(7D), **cgfour**(7D), **cgsix**(7D), **cgthree**(7D), **cgtwo**(7D)

BUGS

The **FBIOSATTR** and **FBIOGATTR** **ioctl( )** requests are only supported by frame buffers which emulate older frame buffer types. For example, **cgfour**(7D) frame buffers emulate **bwtwo**(7D) frame buffers. If a frame buffer is emulating another frame buffer, **FBIOGTYPE** returns the emulated type. To get the real type, use **FBIOGATTR**.

The **FBIOGCURPOS** ioctl was incorrectly defined in previous operating systems, and older code running in binary compatibility mode may get incorrect results.