Framebuffer to V4L2 Output translation

Guennadi Liakhovetski

(Contact: linux-media@vger.kernel.org)

June 14, 2010

- ▶ Idea appeared while working on a driver for the Video Output Unit with an AK8813 TV-encoder connected, V4L2 Output has been selected
- ▶ The RFC has been posted to linux-media and fbdev mailing lists, e.g., http://thread.gmane.org/gmane.linux.drivers.video-input-infrastructure/19657
- ▶ Provide a translation layer on top of V4L2 output, exporting a /dev/fbX framebuffer device to the user
- ▶ There are already V4L2 drivers in the kernel, that export both a v4l2 and an fbdev interface
- ▶ Deferred IO

- ▶ Use the flexible and powerful V4L2 API internally
- ▶ Allow all fbdev user-space software to be used over V4L2 output drivers in a standard hardware-independent way
- ▶ Little user-space software to be used with V4L2 output

- ▶ A typical simple non-accelerated fbdev application:
    - ▶ open()
    - ▶ ioctl()
    - ▶ mmap()
    - ▶ memcpy()
- ▶ buffer management: recycled single buffer
- ▶ ioctl()s:
    - ▶ FBIOGET_FSCREENINFO - provide a `struct fb_fix_screeninfo`
    - ▶ FBIOGET_VSCREENINFO - provide a `struct fb_var_screeninfo`
    - ▶ FBIOPUT_VSCREENINFO - .try_fmt(), .s_fmt()
    - ▶ FBIOGETCMAP - provide a pseudo colour map
    - ▶ FBIOPUTCMAP - dummy
    - ▶ FBIOPAN_DISPLAY - switch to another buffer
    - ▶ FBIOBLANK - leave unimplemented - `EINVAL` will be returned
    - ▶ FBIO_WAITFORVSYNC - wake up on return from dqbuf() / qbuf()