

https://help.ubuntu.com/community/HybridGraphics



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Linux 图形系统

vesa 一个支持大部分显卡的通用驱动,不提供任何 2D 和 3D 加速功能。

Uvesafb 也是framebuffer 驱动, uvesafb 需要一个叫做 v86d 的用户空间虚拟化守护进程。可在非 x86 架构 使用framebuffer 代码。它比标准的 vesafb 有更多的特性。

要充分发挥显卡性能,需安装厂商驱动程序。

推荐使用开源驱动(需要KMS):

Brand	Туре	Driver	OpenGL	other
Intel	Open source	xf86-video-intel	mesa- libgl	i915 requires KMS
AMD/ATI	Open source	xf86-video-amdgpu/xf86- video-ati	mesa- libgl	radeon requires KMS
Nvidia	Open source	xf86-video-nouveau	mesa- libgl	Nouveau requires kernel mode setting(KMS)

KMS冲突的内核启动参数: "vga=" "video=",任何其它framebuffer drivers (如 uvesafb)。 Intel Nvidia双显卡禁用KMS,内核启动参数: "nomodeset i915.modeset=0 nouveau.modeset=0"

Forcing Modes

video=<conn>:<xres>x<yres>[M][R][-<bpp>][@<refresh>][i][m][eDd]

<conn>: Connector, e.g. DVI-I-1, see /sys/class/drm/ for available connectors

<xres> x <yres>: resolution M: compute a CVT mode?

R: reduced blanking?

-<bpp>: color depth

@<refresh>: refresh rate

i: interlaced (non-CVT mode)

m: margins?

e: output forced to on

d: output forced to off

D: digital output forced to on (e.g. DVI-I connector)

例,要强制 DVI 使用 1024x768 85 Hz,同时禁用 TV-out:

video=DVI-I-1:1024x768@85 video=TV-1:d 查看所有connectors状态:/sys/class/drm/*/status

Android-x86图形系统

Android uses framebuffer driver, no X

- · vesa driver
- · uvesa driver
- hardware driver KMS, non-KMS

Use soft rendering by default

- Buggy for 1366x768
- · Very slow in 32-bit color depth

Android-x86 implements hardware rendering using Mesa library

· Needs KMS driver

Android graphic system \longrightarrow drm_gralloc (HAL)` \rightarrow libGLES_mesa \rightarrow libdrm \rightarrow Kernel KMS

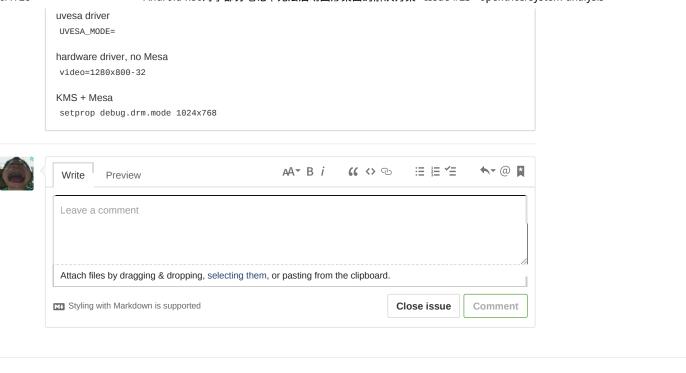
driver -> GPU hardware`

Support: Intel integrated graphic chip, AMD Radeon, Vmware? (vmwgfx)

更改分辨率

vesa driver

vga=xxx, vga=ask



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