

Xorg AMDGPU

I own a AMD Vega64 and am using it with i3 on Manjaro. The misaligned monitors on the greeter and the manual resolution and refresh rate switching were super annoying.

Setup

- Updated Manjaro with kernel >5.0 including amdgpu kernel driver
- AMD Vega64
- Monitor capable of 144Hz and Freesync
- Second Monitor not capable of those things

144Hz modline

This was relative simple, amdgpu is pretty verbose on startup and prints *all* available modlines for the connected outputs on the card into `/var/log/Xorg.0.log`. With a simple `less /var/log/Xorg.0.log` I quickly found it somewhere along with

```
[ 6.454] (II) AMDGPU(0): Printing probed modes for output DisplayPort-2
[ 6.454] (II) AMDGPU(0): Modeline "2560x1440"x60.0 241.50 2560 2608 2640 2720 1440 1443
1448 1481 +hsync -vsync (88.8 kHz eP)
[ 6.454] (II) AMDGPU(0): Modeline "2560x1440"x143.9 586.00 2560 2568 2600 2640 1440
1465 1473 1543 +hsync -vsync (222.0 kHz e)
[ 6.454] (II) AMDGPU(0): Modeline "2560x1440"x119.9 482.64 2560 2568 2600 2640 1440
1447 1455 1525 +hsync -vsync (182.8 kHz e)
[ 6.454] (II) AMDGPU(0): Modeline "2560x1440"x99.9 398.23 2560 2568 2600 2640 1440 1496
1504 1510 +hsync -vsync (150.8 kHz e)
```

and used the one with my desired configuration.

xorg config

To get my setup working as expected without manual configuration on every startup, I needed to place a persistent config in the xorg config folder so e.g. `/etc/X11/xorg.conf.d/10-monitors.conf`. There, I configured both my GPU driver and the monitors like following.

The *Monitor* sections are straightforward. *DisplayPort-2* is my 144Hz display, so I added the modline as a new preset `2560x1440_full` and used it in the *PreferredMode* option. Further I enabled DPMS, the *Display Power Management Signaling* so the system could turn of the Montiors just in case.

The *Device* section contains the preferred options for the given GPU drive, in my case *amdgpu*. I enabled *TearFree* as well as *VariableRefresh*, the first one should reduce tearing on both displays while the latter one enables FreeSync on my 144Hz monitor. After a reboot, my monitor indeed reported it was using FreeSync!

```
Section "Monitor"
    Identifier "DisplayPort-2"
    Modeline "2560x1440_full" 586.00 2560 2568 2600 2640 1440 1465 1473 1543 +hsync -vsync
    Option "Primary" "true"
    Option "PreferredMode" "2560x1440_full"
    Option "DPMS" "true"
EndSection

Section "Monitor"
    Identifier "DisplayPort-1"
    Option "PreferredMode" "2560x1440_59.95"
    Option "LeftOf" "DisplayPort-2"
    Option "DPMS" "true"
EndSection

Section "Device"
    Identifier "AMD-VEGA"
    Driver "amdgpu"
    Option "VariableRefresh" "true"
    Option "TearFree" "true"
EndSection
```

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