Radeon

- The Radeon hardware was tested with the following non-stock options:

- disabling swap buffers wait from the xorg.conf (SwapbuffersWait),
- enabling 2D color tiling (ColorTiling and ColorTiling2D in xorg.conf),
- and enabling PCI Express 2.0 support (radeon.pcie_gen2=1 as a kernel command-line parameter).

It is silly that these non-default options are still needed for the open-source driver that AMD officially supports, but that is how it stands right now.

- With the Nouveau driver the main performance-boosting item at this point is forcing the graphics card manually into its highest performance level / clock state. The Nouveau driver continues to leave the graphics core / memory / shader clocks at whatever the video BIOS to sets them at when initializing, unlike the NVIDIA binary driver that dynamically changes the performance levels based upon GPU load and other factors. Therefore, with most modern NVIDIA hardware having multiple performance levels, to get the GPU at the correct frequencies for 3D use you need to manually force them to the higher state. Meanwhile you need to hope that the NVIDIA driver properly supports re-clocking for your GPU and that once re-clocked you don't experience any rendering corruption or stability problems. Re-clocking involves loading the Nouveau DRM driver with a special command-line parameter and writing the desired performance level to a sysfs node. This information is covered in detail in Nouveau Reclocking: Buggy, But Can Boost Performance. I long for the day when the Nouveau driver properly supports re-clocking across all modern NVIDIA GPUs and can be enabled by default to be done automatically.

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