VPixx setup (second try)

This is the second try

2024-01-26

I “broke” the display two days ago when trying to fix a package upgrade issue that was stopping the graphics card driver from working, I think. The main error seemed to be that there was a newer version of some package installed, but an older version was needed, so I finally just tried removing everything. Then the display stopped working. So I decided to re-install the OS from scratch.

I had just finally gotten the 3DPixx glasses to work reliably, too! The trick had been to run PsychLinuxConfiguration in Octave, which I had apparently neglected to do last October during my first try at setting everything up.

Will need to re-install:

- MATLAB
- Octave
- PTB
- **NOT** all my old files; they are still there, because `/home` was/is on a different partition!

Xubuntu installation

From my usb drive with 22.04.01 LTS.

CRT setup with custom xorg.conf file

2024-01-26

Copied (pulled) git repo “CRT” to grogu.

Did:

```
sudo cp -p xorg.conf.new.1024x768_120 /etc/X11/xorg.conf.d/xorg.conf
```

... then rebooted. It worked! Display was in 1024×768 mode by default, with 119.8 Hz option available.

Graphics card driver after initial Xubuntu installation

Output (partial) of `lspci -v`:

```
01:00.0 VGA compatible controller: Advanced Micro Devices, Inc. [AMD/ATI]
Polaris 20 XL [Radeon RX 580 2048SP] (rev ef) (prog-if 00 [VGA controller])
    Subsystem: Advanced Micro Devices, Inc. [AMD/ATI] Polaris 20 XL [Radeon RX
580 2048SP]
    Flags: bus master, fast devsel, latency 0, IRQ 139
    Memory at a0000000 (64-bit, prefetchable) [size=256M]
    Memory at b0000000 (64-bit, prefetchable) [size=2M]
    I/O ports at 3000 [size=256]
    Memory at b2200000 (32-bit, non-prefetchable) [size=256K]
    Expansion ROM at 000c0000 [disabled] [size=128K]
    Capabilities: <access denied>
    Kernel driver in use: amdgpu
    Kernel modules: amdgpu
```

Octave and PTB installation

2024-01-26

Octave via apt.

PTB via NeuroDebian:

http://neuro.debian.net/install_pkg.html?p=octave-psychtoolbox-3

AMD GPU drivers installation

2024-01-26

I.e. from their website:

https://www.amd.com/en/support/previous-drivers/graphics

Unlike last attempt, I paid attention to the exact OS version number, and downloaded the one that matches the version given by `uname -a`: 22.04.1

Did:

```
dpkg -i amdgpu-install_5.4.50401-1_all.deb
```

No errors when installing, unlike last time.

However, VBLSyncTest and all other PTB demos I have tried have **all failed**.

The end of the error message, which is mostly repeats of the first line here:

```
PTB-ERROR: PsychOSKDGetBeamposition: Invalid headId -1 provided! Must be
between 0 and 5. Aborted.
PTB-WARNING: PsychGetCurrentGPUSurfaceAddresses(): Invalid headId -1 (greater
than max 5) provided for DCE-4+ display engine!
PTB-WARNING: Couldn't even collect one single valid flip interval sample!
Sanity range checks failed!
PTB-WARNING: Could be a system bug, or a temporary timing problem. Retrying
the procedure might help if
PTB-WARNING: the latter is the culprit.
PTB-WARNING: Couldn't collect valid flip interval samples! Fatal VBL sync
failure!
PTB-WARNING: Either synchronization of doublebuffer swapping to the vertical
retrace signal of your display is broken,
PTB-WARNING: or the mechanism for detection of swap completion is broken. In
any case, this is an operating system or gfx-driver bug!
PTB-WARNING: PsychGetCurrentGPUSurfaceAddresses(): Invalid headId -1 (greater
than max 5) provided for DCE-4+ display engine!


PTB-INFO: OpenGL-Renderer is Intel :: Mesa Intel(R) UHD Graphics 630 (CFL GT2)
:: 4.6 (Compatibility Profile) Mesa 23.0.4-0ubuntu1~22.04.1
PTB-INFO: VBL startline = 768 , VBL Endline = -1
PTB-INFO: Beamposition queries unsupported or defective on this system. Using
basic timestamping as fallback.
PTB-INFO: Timestamps returned by Screen('Flip') will be therefore less robust
and accurate.
PTB-INFO: Measured monitor refresh interval from VBLsync = 0.000000 ms [inf
Hz]. (0 valid samples taken, stddev=1000000000.000000 ms.)
PTB-INFO: Reported monitor refresh interval from operating system = 16.689197
ms [59.918999 Hz].
PTB-INFO: Small deviations between reported values are normal and no reason to
```

```
worry.

WARNING: Couldn't compute a reliable estimate of monitor refresh interval!
Trouble with VBL syncing?!?

WARNING: Mismatch between measured monitor refresh interval and interval
reported by operating system.
This indicates massive problems with VBL sync.


----- ! PTB - ERROR: SYNCHRONIZATION FAILURE ! -----

One or more internal checks (see Warnings above) indicate that synchronization
of Psychtoolbox to the vertical retrace (VBL) is not working on your setup.
```

Notice that the refresh interval is given as roughly 60 Hz. It is always given as this value, no matter what I set the monitor to do, and verified via `glxgears`.

Installed MATLAB and image processing toolbox

Installed in `/usr/local/MATLAB/R2023a/`

Installed SPM8

2024-01-26

On previous try had installed SPM12, but because the HolesFMRI study was done in SPM8, I wanted to try this for consistency.

Installed in `/usr/share/MATLAB/spm8`

Installed bspmview

See:

https://www.bobspunt.com/software/bspmview/

Installed in `/usr/share/MATLAB/spm8/toolbox`

Installed VPixx software

From

https://vpixx-support.atlassian.net/wiki/spaces/support/pages/41123939/Software+Download

Did

```
dpkg -i vpixx-software-tools.deb
```

2024-01-29

PTB VBLSyncTest still not working – maybe I should try installing `Screen.mex` because right now I think PTB is calling a file named `Screen.m`.

Looking for Datapixx.mex file

```
anthony@grogu:~$ locate Datapixx.mex
/usr/local/share/VPixx Software Tools/Software
Tools/Matlab/mexfiles/Windows/matlab/Datapixx.mexw64
/usr/local/share/VPixx Software Tools/Software
Tools/Matlab/mexfiles/linux/matlab/Datapixx.mexa64
/usr/local/share/VPixx Software Tools/Software
Tools/Matlab/mexfiles/macOS/matlab/Datapixx.mexmaci64
```

```
octave:3> Datapixx('Open?')

In place of the expected Octave .mex binary plugin file this placeholder file
was executed:

  Datapixx.m

This MEX file seems to be missing or inaccessible on your Octave path or it is
dysfunctional:

  Datapixx.mex

The following directory should be the *first one* on your Octave path:
 /usr/share/psychtoolbox-3/PsychBasic/Octave5LinuxFiles64/


NOTE: You may want to acquire paid support for future issues like this.
Please type 'PsychPaidSupportAndServices' to learn more.
```

```
error: Missing, inaccessible or dysfunctional Psychtoolbox Mex file for this
system, or Octave path wrong. Read the help text above carefully!!\n
error: called from
    AssertMex at line 113 column 5
    Datapixx at line 24 column 1
```

Did this, like I had done during First Try. I.e. made link named “Datapixx.mex” to Datapixx_octave5.mex file.

```
anthony@grogu:Downloads$ sudo ln -sf /usr/local/share/VPixx\ Software\
Tools/Software\ Tools/Matlab/mexfiles/linux/octave/Datapixx_octave5.mex
/usr/share/psychtoolbox-3/PsychHardware/DatapixxToolbox/DatapixxBasic/Datapixx
.mex
```

This worked, in the sense that doing the following worked instead of giving the error above:

```
octave:3> Datapixx('Open')
ans = 1
```

Making link to Screen.mex file

2024-01-30

Now to try a similar thing with Screen.mex?

Well, I was wrong (above) when I thought that PTB was calling Screen.m instead of Screen.mex:

```
octave:5> which Screen
'Screen' is a function from the file
/usr/share/psychtoolbox-3/PsychBasic/Screen.mex
```

So, I don't think there is anything to do for this goal.

Installing OEM Kernel

2024-01-30

I'm following my documentation from the First Try.

First, check which version of the Linux kernel is currently installed:

```
anthony@grogu:~$ uname -a
Linux grogu 6.5.0-15-generic #15~22.04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Jan 12 18:54:30 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
```

Tried installing AMD Pro driver several different ways, gave up

2024-02-20

I eventually broke the x server or whatever so that there were no graphics, and decided to do a clean install of Xubuntu instead of trying to fix it. I never got PTB to work even a little bit, although I did get progressively “better” error messages. At the end, the error message was only complaining that I had the wrong versions of mesa-related packages.

From:
https://www.wiki.anthonycate.org/ - **Visual Cognitive Neuroscience**

Permanent link:
https://www.wiki.anthonycate.org/doku.php?id=resources:vpixx_setup_second_try

Last update: **2024/02/23 17:02**