

Supported PC Hardware

If you have to choose a new GPU, recent Nvidia GTX and AMD Radeon RX cards are supported well in the main Batocera image, and usually give very good results. A combination of an Intel i5 4xxx CPU + Nvidia GT1030 GPU will support all emulators up to the PS2 for a reasonable cost. You can check out some [Batocera benchmarks on the "Choose a PC" page](#).

Nvidia graphics cards

Current Nvidia drivers

Batocera includes the latest official Nvidia drivers available at the time of a new release.

By default, the open-source Nouveau drivers (which are ironically more compatible than the official drivers, but aren't as performant) are used for Nvidia GPUs; the official Nvidia drivers **are not enabled by default**. To enable the official drivers instead, [plug your SD-card/USB drive into a computer](#). At the top level, find the `batocera-boot.conf` file and uncomment (i.e. remove the initial #) the `nvidia-driver=true` line. If the line is not present, add it. It should look like this:

```
nvidia-driver=true
```

You can find the list of supported GPU models for the official drivers at <https://www.nvidia.com/Download/driverResults.aspx/179599/en-us> (version 470.63.01 embedded in Batocera **v32**).

Nvidia is... [pretty bad at actually supporting the cards they say they support](#). Take this page with a grain of salt, and do your research. Discovering what 'architecture' (fermi/maxwell/kepler etc.) your card is will take you a long way in finding out whether it's actually supported or not.

If you edit the file under Windows, make sure you have an editor that respects Unix line terminators. Don't use Notepad, use a text editor like Notepad++ or Atom, that doesn't replace the Unix line terminations (LF) with DOS/Windows line terminations (CR/LF). Wordpad has also been reported to corrupt Unix text files.

You can alternatively edit this file by connecting to [Batocera through SSH](#) and remounting the `/boot` partition on write mode [like explained here](#), and edit `/boot/batocera-boot.conf` with Nano or Vim as text editors.

How can you tell if the Nvidia driver is correctly set up? Go to **SYSTEM SETTINGS → INFORMATION** and see if the OpenGL version mentions **NVIDIA** in its version. If it does, you're all set. If it mentions **MESA**, that means that the Nvidia driver is not correctly activated.

Hybrid/Optimus Nvidia laptops

To clarify, hybrid graphics refers to the laptop's ability to automatically switch between its integrated graphics (Intel) and its discrete graphics (Nvidia), not its laptop/tablet form-factor.

For Batocera versions **v31** and newer, if you use a laptop that has both an integrated Intel and a discrete Nvidia GPU (hybrid setup or "Optimus" technology, which is very common with post-2018 laptops), you need to enable the official Nvidia drivers and then tell your laptop to actually use them with `nvidia-prime=true` as well. Your config should contain these two uncommented lines:

```
nvidia-driver=true  
nvidia-prime=true
```

On Batocera versions **v30** and older, you would instead run the `batocera-hybrid-nvidia` command from SSH or terminal after activating the drivers.

Some laptops may have a setting in their BIOS which allows you to manually select the state of the hardware multiplexer, effectively making your laptop have only one graphics device. This avoids the complexities of running two graphics drivers, but offers no power savings. Changing this setting is at your own risk and support cannot be provided for it.

How can you tell if the Nvidia driver is correctly set up? Go to **SYSTEM SETTINGS → INFORMATION** and see if the OpenGL version mentions **NVIDIA** in its version. If it does, you're all set. If it mentions **MESA**, that means that the Nvidia driver is not correctly activated.

Legacy Nvidia drivers

Nvidia cards from the GT600 series or older (and soon the 700 series too) may not be supported by the current official Nvidia drivers included with Batocera.

Legacy Nvidia drivers were initially dropped from Batocera a while ago (back in **5.26** initially!), but there is an unmaintained beta build which has the legacy drivers available at the bottom of the [downloads page](#) ([direct link](#)). This build is not maintained, and support is not available for it. If issues occur with this build, upgrade to the current build first and see if they continue to persist.

Alternatively, you could try other Batocera versions from [5.26 and down](#). Unlike other operating systems that require the latest patches to stay secure, since Batocera [isn't designed to be a secure system](#) it's perfectly fine to use an older version just for playing your retro games.

ATI/Radeon graphics cards

AMD GPUs have their drivers installed and activated automatically, no need for user intervention in most cases. With that said, sometimes the automatic selection can fail, the following is for if that happens.

HDMI audio output

HDMI audio is disabled by default on Radeon graphics cards due to a black screen issue on some monitors. To enable it, edit the boot configuration file on the boot partition. In Batocera:

- **5.25** and above, `boot/syslinux/syslinux.cfg` for legacy boot and `boot/EFI/syslinux.cfg` for EFI boot.
-  **Fix Me!** **5.24** to **5.XX**, `boot/syslinux.cfg` for legacy boot
- **5.XX** and lower, `boot/grub.cfg` for legacy boot and `EFI/boot/grub.cfg` for EFI boot.

`radeon.audio=1` at the end of the relevant boot line.

For  **Fix Me!** **5.XX** and above:

```
APPEND label=BATOCERA console=tty3 quiet loglevel=0
vt.global_cursor_default=0
```

would become

```
APPEND label=BATOCERA console=tty3 quiet loglevel=0
vt.global_cursor_default=0 radeon.audio=1
```

For **5.XX** and lower:

```
menuentry "batocera.linux" {
linux /boot/linux label=BATOCERA console=tty3 quiet loglevel=0
vt.global_cursor_default=0
initrd /boot/initrd.gz
}
```

would become

```
menuentry "batocera.linux" {
linux /boot/linux label=BATOCERA console=tty3 quiet loglevel=0
vt.global_cursor_default=0 radeon.audio=1
initrd /boot/initrd.gz
}
```

Incorrect radeon/amdgpu driver selected

This is for the less common problem of the small range of AMD Radeon GPUs between RX300-RX400 choosing the older `radeon` driver instead of the newer `amdgpu`.

With that being said, if you opt to force the video-driver instead of letting the kernel choose the one most appropriate for it, you may encounter video/audio glitches/absent features.

Please not, RX and R cards older than the RX300 just **do not support the amdgpu drivers**, period, and doing this while using them will result in your graphics card not being used.

Edit the `syslinux.cfg` as instructed above, but instead of `radeon.audio=1` append this:

```
radeon.cik_support=0 amdgpu.cik_support=1 radeon.si_support=0  
amdgpu.si_support=1
```

Intel i965

Although most Intel integrated graphics should work out of the box, some chips such as the one in the [NUC6i5SYH](#) Intel NUC Kit require activating the latest official i965 drivers.

To activate these drivers, [plug your SD-card/USB drive into a computer](#). At the top level, find the `batocera-boot.conf` file and uncomment (i.e. remove the initial #) the `intel-i965-driver=true` line. If the line is not present, add it. It should look like this:

```
intel-i965-driver=true
```

Others

Other hardware issues can be diagnosed with the help of the [troubleshooting guide](#).

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