

Manage Nvidia Optimus chipset in Ubuntu with Bumblebee

Ubuntu systems that come with Nvidia Prime provide a way for users to switch between Intel and Nvidia GPUs. The problem is that it only works for the desktop and does not allow users to set up GPUs for certain applications. Some systems have reported heat and malfunction issues when the Nvidia GPU is set for the entire desktop. Therefore, using Bumblebee is probably useful in this case.

Bumblebee is a software tool for Linux with the aim of supporting laptops using NVIDIA Optimus technology for GNU / Linux distributions. Optimus is a hybrid display technology - where the CPU is integrated to display the screen while dedicated GPU (nVidia graphics card) performs all processing and sends the results to the integrated GPU. When a laptop runs on battery power, dedicated GPUs will be turned off to save energy and extend battery life.

Bumblebee tried to mimic Optimus's technology behavior by using GPU-specific rendering when needed and turning off the power when not in use.

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1. Instructions to install Ubuntu directly from the hard drive
2. Instructions for accessing Ubuntu Bash files on Windows

Install Bumblebee

Before you start installing Bumblebee, if you have not installed Nvidia graphics, you can open the terminal and run the following command:

```
sudo apt-get install nvidia-prime
```

You can also run this command to use an Intel graphics card:

```
sudo prime-select intel
```

The Bumblebee installation will be determined by Nvidia graphics that you want to use included. The following are the options.

nVidia-361

To use it with nVidia-361, you can run this command to install Bumblebee:

```
sudo apt-get install bumblebee
```

nVidia-370

If you want to use Bumblebee with nvidia-370 and are running Ubuntu 16.04 or earlier, you can use Bumblebee Development PPA to install:

```
sudo add-apt ppa repository: bumblebee / testing sudo apt-get update sudo apt-get
```

If you are using Ubuntu 16.10 or later, you will not need the Bumblebee Development PPA, because the patches already exist in the Ubuntu repositories. Run the following command to install:

```
sudo apt-get install bumblebee
```

Here, I am installing Bumblebee on Ubuntu 16.04

Configuration and usage

After successfully installing Bumblebee, you need to configure it to work properly. The Bumblebee configuration file will be located at `'/etc/bumblebee/bumblebee.conf'` Open it with the text editor of your choice. Open the configuration file and scroll down to the area shown below.

```
## Section with nvidia driver specific options, only parsed if Driver=nvidia
[driver-nvidia]
# Module name to load, defaults to Driver if empty or unset
KernelDriver=nvidia-current
PMMethod=auto
# colon-separated path to the nvidia libraries
LibraryPath=/usr/lib/nvidia-current:/usr/lib32/nvidia-current
# comma-separated path of the directory containing nvidia_drv.so and the
# default Xorg modules path
XorgModulePath=/usr/lib/nvidia-current/xorg,/usr/lib/xorg/modules
XorgConfFile=/etc/bumblebee/xorg.conf.nvidia
```

If you are using nvidia-361, change the following options from the image above to set it up:

1. Set the Driver to 'nvidia'.
2. Put KernelDriver into 'nvidia-361'.
3. Set the LibraryPath to `'/usr/lib/nvidia-361:/usr/lib32/nvidia-361'`.
4. Put XorgModulePath into `'/usr/lib/nvidia-361/xorg,/usr/lib/xorg/modules'`.
5. Save the file.

If using nvidia-370:

1. Set the Driver to 'nvidia'.
2. Put KernelDriver into 'nvidia-370'.
3. Set the LibraryPath to `'/usr/lib/nvidia-370:/usr/lib32/nvidia-370'`.
4. Put XorgModulePath into `'/usr/lib/nvidia-370/xorg,/usr/lib/xorg/modules'`.
5. Finally, save the file.

If you have another version of nVidia installed, be sure to change the configuration file to suit that version.

The final step to Bumblebee working is to restart your computer. Removable card will be disabled. If you want to run Bumblebee with an application, run the command below where some_app_or_game is the name of the application or game:

optirun app_name

Bumblebee is extremely important for users running intensive graphics applications on computers. With Bumblebee, you can switch between specialized and integrated graphics when needed, and it will maintain the performance of the machine without affecting battery life.

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