Installation of Ubuntu 9.04 Jaunty Jackalope on Sony Vaio VGN-Z11MN/B

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Step 1) Installation of Ubuntu 9.04 from CD.

After the Installation, several things work out of the box:

- Intel GM 45 Express Graphics
- Sound
- Integrated Camera (tested with Cheese)
- DVD Burner
- Several Special Buttons (Volume, Monitor Brightness)
- Wireless LAN and LAN
- Bluetooth

Some things don't work:

- Graphic Card switching. Nvidia Geforce is visible using lspci, but not initialized. Button to switch between Stamina/Speed without function.
- Memory Card Reader can't read Sony Memory Stick. No log entry when inserting a stick into the reader. There should be something, when calling dmesg.

Step 2) Getting Intel AND nVidia Graphics to work.

This laptop has two separate graphic cards: Intel GM 45 Express and nVidia GeForce 9300M. Under Windows Vista the Stamina/Speed switch will switch from one graphic card to the other while the laptop is running. Under Linux, both cards are visible on the PCI bus, but the nVidia card cannot be enabled out of the box. Only the Intel card works.

With the sony-laptop module from Eva Brucherseifer and Matthias Welwarsky it is possible to enable either Intel or nVidia card. Drawback in regard to Windows Vista is that the cards cannot be “hot”-switched during operation of the system. The computer has to be shut down (not only rebooted) completely. Then the card can be switched via the Stamina/Speed switch. On booting you have the Intel card (when choosing Stamina) or nVidia card (when choosing Speed) enabled.

To be able to cold-switch, you first download and compile the module from Eva:

```
> wget http://www.basyskom.org/~eva/sony-laptop-zseries-0.9.tar.bz2
> tar jvf sony-laptop-zseries-0.9.tar.bz2
> cd  sony-laptop-zseries-0.9
> make
```

Check if the module works:

```
> sudo make test
> dmesg
```

The output should end with something like

```
[ 4925.549898] iwlagn: Radio Frequency Kill Switch is On:
[ 4925.549900] Kill switch must be turned off for wireless networking to work.
[ 4925.660562] sony-laptop: Sony Programmable IO Control Driver v0.6.
[ 4925.660582] sony-laptop: detected Type3 model
[ 4925.660584] sony-laptop: Evaluating _STA
```

```
[ 4925.660592] sony-laptop: Device enabled
...
[ 4925.714751] sony-laptop: Invoking _INI
[ 4925.722377] sony-laptop: Doing SNC setup
[ 4925.846195] sony-laptop: brightness ignored, must be controlled by ACPI video
driver
[ 4925.846206] sony-laptop: Found PID getter: GPID
```

When no error occurs, install the module:

```
> sudo make install
```

When the module is loaded, most of the special buttons should work also – Eject DVD, S1, S2.
Now you have to configure both graphics cards and make sure that the right configuration is loaded in the X server, depending on the graphic card.

First, remove nVidia drivers if you have already installed them (command is for removing the 180 version of the nVidia binary driver) and restore intel driver setup

```
> sudo apt-get remove nvidia-glx-180
> sudo apt-get --reinstall install xserver-xorg-core libgl1-mesa-glx
```

Backup the X server configuration and libraries needed for the Intel card

```
> sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf.INTEL
> sudo cp /usr/lib/libGL.so.1 /usr/lib/libGL.so.1.INTEL
> sudo cp /usr/lib/xorg/modules/extensions/libglx.so \
      /usr/lib/xorg/modules/extensions/libglx.so .INTEL
```

Now install nVidia drivers

```
> sudo apt-get install nvidia-glx-180
```

The libraries for the nVidia card don't have to be backed up since they are soft-linked to the GL, i.e., glx libraries. You just have to provide an X server configuration for the nVidia card:

```
> sudo gedit /etc/X11/xorg.conf.NVIDIA
```

My configuration looks like this, your mileage may vary.

```
# X configuration for nVidia GeForce 9300M

Section "ServerLayout"
    Identifier     "Layout0"
    Screen      0  "Screen0" 0 0
    InputDevice    "Keyboard0" "CoreKeyboard"
    InputDevice    "Mouse0" "CorePointer"
EndSection

Section "Files"
EndSection

Section "Module"
    Load           "dbe"
    Load           "extmod"
```

```
    Load           "type1"
    Load           "freetype"
    Load           "glx"
EndSection

Section "ServerFlags"
    Option         "Xinerama" "0"
EndSection

Section "InputDevice"
    # generated from default
    Identifier     "Mouse0"
    Driver         "mouse"
    Option         "Protocol" "auto"
    Option         "Device" "/dev/psaux"
    Option         "Emulate3Buttons" "no"
    Option         "ZAxisMapping" "4 5"
EndSection

Section "InputDevice"
    # generated from default
    Identifier     "Keyboard0"
    Driver         "kbd"
EndSection

Section "Monitor"
    # HorizSync source: edid, VertRefresh source: edid
    Identifier     "Monitor0"
    VendorName     "Unknown"
    ModelName      "Nvidia Default Flat Panel"
    HorizSync       29.0 - 47.0
    VertRefresh     0.0 - 61.0
    Option         "DPMS"
EndSection

Section "Device"
    Identifier     "Device0"
    Driver         "nvidia"
    VendorName     "NVIDIA Corporation"
    BoardName      "GeForce 9300M GS"
EndSection

Section "Screen"
    Identifier     "Screen0"
    Device         "Device0"
    Monitor        "Monitor0"
    DefaultDepth    24
    Option         "TwinView" "0"
    Option         "metamodes" "nvidia-auto-select +0+0"
    SubSection     "Display"
```

```
        Depth       24
    EndSubSection
EndSection
```

Now everything is in place. You only have to make sure that the correct configuration is loaded, depending on which card is active. For that, you place a script in init.d which is executed on startup before the X server is loaded.

```
> sudo gedit /etc/init.d/switch-graphics
```

The content of the script:

```
#!/bin/sh

lspci | grep "00:02.0"

# if we find the Intel chipset, use Intel drivers & settings
if [ $? -eq 0 ]; then
      cp /etc/X11/xorg.conf.INTEL /etc/X11/xorg.conf
      ln -sf /usr/lib/libGL.so.1.INTEL /usr/lib/libGL.so.1
      ln -sf /usr/lib/xorg/modules/extensions/libglx.so.INTEL
/usr/lib/xorg/modules/extensions/libglx.so
# otherwise use nVidia drivers & settings
else
      cp /etc/X11/xorg.conf.NVIDIA /etc/X11/xorg.conf
      ln -sf /usr/lib/libGL.so.180.44 /usr/lib/libGL.so.1
      ln -sf /usr/lib/xorg/modules/extensions/libglx.so.180.44
/usr/lib/xorg/modules/extensions/libglx.so
fi
```

The script looks which card it finds on the PCI bus (the Intel is on 00:02.0, the nvidia card on 01:00.0 on my machine) and copies, i.e., links the correct files.
ATTENTION: when using another nVidia driver than 180.44, alter the `ln` commands accordingly.

Finally make the script executable and add it to the runlevels on position 29 (X server is started at position 30). `update-rc.d` is the runlevel managing command for Debian/Ubuntu systems.

```
> sudo chmod +x /ect/init.d/switch-graphics
> sudo update-rc.d switch-graphics defaults 29
```

If you don't have update-rc.d, just make a softlink in the runlevel you normally use. You can determine runlevel with the `runlevel` command.

```
> sudo ln -s /etc/init.d/switch-graphics /etc/rc2.d/S29switch-graphics
```

Before you shutdown and boot up again, you have to set the kernel option `acpi_osi="!Windows 2006"` so that the kernel notifies the ACPI subsystem of Vista incompatibility. Without this, the Stamina/Speed switch will not be activated by the new sony-laptop module.

```
> sudo gedit /boot/grub/menu.lst
```

Add the option to the line (in my setup the line 66)

```
# kopt=root=UUID=fb4858fa-e615-47ea-9cb1-65f22a9935fb ro
```

so that it reads

```
# kopt=root=UUID=fb4858fa-e615-47ea-9cb1-65f22a9935fb ro  acpi_osi="!Windows
2006"
```

Then save and reconfigure the GRUB-bootloader with

```
> sudo update-grub
```

You should be set and ready to go now. Shutdown your system, switch Stamina/Speed as you like and the Intel/nVidia card will be working.

Step 3) Getting Memory Card Reader to work.
To be done.

Thanks to Albert Vilella for installing the launchpad group https://launchpad.net/~sony-vaio-z-series. The instructions in this tutorial came from there and the log of Eva Brucherseifer.