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# Debian on DELL Inspiron 9300

fluffi

Release 1.2

## 1. the hardware

**Table 1. hardware**

<b>component</b>	<b>type</b>	<b>status</b>	<b>configuration</b>
CPU	Pentium M 750 (800MHz - 1,87GHz)	o.k.	.config
RAM	533MHz DDR2 SDRAM (2x1GB)	o.k.	.config
HD	80GB IDE SATA	o.k.	.config
internal ethernet	Broadcom Corpora- tion BCM4401-B0	o.k.	.config
NVidia	NVidia GeForce 6800	o.k.	XF86Config-4
Display	DELL Panel WUXGA	o.k.	XF86Config-4
Keyboard	Multimedia Keys	o.k.	lineakd.conf
Touchpad	Alps PS/2 ALPS Touchpad	o.k.	.config, XF86Config-4
internal wireless	Intel PRO/Wireless 2915 a/b/g	o.k.	.config
internal modem	Intel AC'97 Modem Controller	?	?
internal audio	Intel AC'97 Audio Controller	o.k.	.config
internal DVD	NEC DVD+/-RW ND-6500A	:	
ACPI	acpi-cpufreq, bat- tery	o.k.	.config
PCMCIA	Yenta	o.k.	.config
USB	Intel (ICH6 Family) USB(2) UHCI(EHCI)	o.k.	.config
firewire	Ricoh Co Ltd R5C552	?	.config

component	type	status	configuration
bluetooth	DELL Wireless 350	?	.config
Card Reader	Ricoh Co Ltd RL5c476	?	?

## 2. Thanks

Most information on this page is based on information out there in the internet. Thanks to all the people writing linux software/drivers/documentation. Hopefully this page is of use to somebody else but me. Feel free to contact me at fluffi (d\_o\_t) info.

## 3. Compiling your own custom kernel-2.6.15-4

Compiling a custom kernel-2.6.15-4 the debian way is not scope of this HowTo. I used this .config for my Inspiron 9300. Once created this kernel can be installed with:

```
root@shrek:~> dpkg -i kernel-your-custom-9300-kernel.deb
```

I had to enable PATA in `linux/include/linux/libata.h` manually to enable the CD/DVD-Rom. Change:

```
#undef ATA_ENABLE_PATA /* define to enable PATA support in some */
```

to

```
#define ATA_ENABLE_PATA /* define to enable PATA support in some */
```

Additionally this kernel feature has to be enabled via kernel parameters in your `lilo.conf` or if using grub in `menu.list`:

```
libata.atapi_enabled=1 idel=noprobe
```

## 4. The internal ethernet card

Drivers for the Broadcom Corporation BCM4401-B0 are included in the kernel-2.6.15-4.

To configure the ethernet interface automagically on system startup - if you have a

DHCP server running ;) - edit /etc/network/interfaces e.g.:

```
auto eth0
iface eth0 inet dhcp
```

## 5. Installing the nvidia drivers - using a custom kernel

```
fluff@shrek:~> sudo apt-get install nvidia-kernel-source
```

Compile nvidia drivers - not done in this HowTo - then install and load the driver and additional tools

```
root@shrek:~> dpkg -i nvidia-kernel-custom
root@shrek:~> depmod
root@shrek:~> modprobe nvidia
fluffi@shrek:~> sudo apt-get install nvidia-settings nvidia-glx
```

The NVidia and the ipw2200 kernel modules can be installed more comfortable using the module-assistant

```
fluff@shrek:~> sudo apt-get install module-assistant
root@shrek:~> module-assistant
```

A /etc/X11/XF86Config-4 Device section:

```
Section "Device"
    Identifier "NVIDIA GeForce 6800"
    Driver      "nvidia"
# BusID       "PCI:1:0:0"
# Option      "UseFBDev"          "true"
    Option     "NoLogo"            "true"
    Option     "FlatPanelProperties" "aspect-scaled"
    Option     "UseEdidFreqs"      "on"
EndSection
```

## 6. DELL Panel WUXGA and XFree86

A /etc/X11/XF86Config-4 Monitor section:

```
Section "Monitor"
    Identifier "DELL Panel WUXGA"
    DisplaySize 330 210
# DisplaySize 344.5 222.5
    HorizSync 28-110
    VertRefresh 43-90
    Option     "DPMS"
    Modeline "1920x1200" 162 1920 1984 2176 2480 1200 1201 1204 1250 +hsync +vsync
# Modeline "1680x1050" 147.1 1680 1784 1968 2256 1050 1051 1054 1087
```

```
EndSection
```

A /etc/X11/XF86Config-4 Screen section:

```
Section "Screen"
    Identifier      "Panel"
    Device          "NVidia GeForce 6800"
    Monitor         "DELL Panel WUXGA"
    DefaultDepth   24
    SubSection "Display"
        Depth       24
        Modes       "1920x1200"
    EndSubSection
EndSection
```

## 7. Alps PS/2 ALPS Touchpad

Due to license issues the synaptic driver is not included in xfree86 and has to be install separately. Kernel 2.6.11 with the modules evdev and psmouse works for me.

```
fluffi@shrek:~> sudo apt-get install xfree86-driver-synaptic
```

Add synaptics module to /etc/X11/XF86Config-4 Module section:

```
Section "Module"
    ...
    Load      "synaptics"
EndSection
```

A /etc/X11/XF86Config-4 InputDevice section:

```
Section "InputDevice"
    Driver      "synaptics"
    Identifier  "ALPS Touchpad"
    Option "Device"      "/dev/input/event1"
    Option "Protocol"    "auto-dev"
    Option "LeftEdge"    "120"
    Option "RightEdge"   "830"
    Option "TopEdge"     "120"
    Option "BottomEdge"  "650"
    Option "FingerLow"   "14"
    Option "FingerHigh"  "15"
    Option "MaxTapTime"  "180"
    Option "MaxTapMove"  "110"
    Option "EmulateMidButtonTime" "75"
    Option "VertScrollDelta" "20"
    Option "HorizScrollDelta" "20"
    Option "MinSpeed"     "0.3"
    Option "MaxSpeed"     "0.75"
    Option "AccelFactor"  "0.015"
    Option "EdgeMotionMinSpeed" "200"
    Option "EdgeMotionMaxSpeed" "200"
    Option "UpDownScrolling" "1"
    Option "CircularScrolling" "1"
    Option "CircScrollDelta" "0.1"
```

```
Option "CircScrollTrigger" "2"
Option "SHMConfig" "On"
Option "CorePointer"
EndSection
```

The option SHMConfig (shared memory) should be omitted on multiuser workstations. If in doubt check the type of the touchpad using:

```
fluffi@shrek:~> cat /proc/bus/input/devices|grep ALPS
N: Name="AlpsPS/2 ALPS TouchPad"
```

The current settings of the touchpad reveals the tpconfig tool:

```
fluffi@shrek:~> sudo apt-get install tpconfig
root@shrek:~> tpconfig -i
Found Synaptics Touchpad.
Firmware: 8.96 (multiple-byte mode).
Sensor type: unknown (0).
Geometry: rectangular/landscape/up.
Packets: absolute, 80 packets per second.
Corner taps disabled;          no tap gestures.
Edge motion: none.
Z threshold: 6 of 7.
2 button mode; corner tap is right button click.
```

An additional USB mouse can be attached to the laptop at any time when adding the following section:

```
Section "InputDevice"
    Identifier      "USB Mouse"
    Driver          "mouse"
    Option          "SendCoreEvents"      "true"
    Option          "Device"              "/dev/input/mice"
    Option          "Protocol"            "ImPS/2"
    Option          "Emulate3Buttons"     "true"
    Option          "ZAxisMapping"        "4 5"
EndSection
```

Both input devices need to be enabled in the server layout. A /etc/X11/XF86Config-4 ServerLayout section:

```
Section "ServerLayout"
    Identifier      "Default Layout"
    Screen          "Panel"
    InputDevice    "Generic Keyboard"
    InputDevice    "ALPS Touchpad"
    InputDevice    "USB Mouse"
EndSection
```

## 8. Intel AC'97 Audio Controller (rev 3)

Install the ALSA tools. Afterwards run the configure scripts.

```
fluffi@shrek:~> sudo apt-get install alsa-utils
root@shrek:~> alsacnf
```

**Note**

Keep in mind that there are two separate output levels to take care of. The one for the internal speakers (Master) and the external one (Headphone).

## 9. Keyboard

Install lineakd and the OSD plugin then create a default configuration using the DELLI-9200

**Note**

The template DELLI-9200 is available in release testing only.

```
fluffi@shrek:~> sudo apt-get --default-release=testing install lineak-xosdplugin
fluffi@shrek:~> lineakd -c DELLI-9200
```

Configuration can be adjusted manually: `.lineak/lineakd.conf` e.g.:

```
AudioLowerVolume = amixer set Master 2- && amixer set Headphone 2-
AudioMute = amixer set Master toggle && amixer set Headphone toggle
AudioNext = beep-media-player --fwd
AudioPlay|Pause = beep-media-player --play-pause
AudioPrev = beep-media-player --rew
AudioStop = beep-media-player --stop
AudioRaiseVolume = amixer set Master 2+ unmute && amixer set Headphone 2+ unmute
```

I added lineakd to the startup programs of my default (gnome) session.

## 10. ACPI

```
fluffi@shrek:~> sudo apt-get install acpid
```

```
fluffi@shrek:~> sudo apt-get install cpufrequtils cpufreqd gnome-cpufreq-applet
fluffi@shrek:~> sudo apt-get install i8kutils
```

All but the `acpi_cpufreq` and `i8k` module are loaded automatically. So i added them to `/etc/modules`:

```
# cpufreq
acpi_cpufreq

# i8k DELL fans
i8k
```

The Inspiron 9300 is not known to the module i8k and has to be loaded by force. :( Thus i added this file `/etc/modprobe.d/i8k` and update the `update-module.modutils` and load the module the first and hopefully last time by hand.

```
# i8k
options i8k force=1
```

```
root@shrek:~> update-module.modutils
root@shrek:~> modprobe i8k
```

## 11. Intel PRO/Wireless 2915 a/b/g

```
fluffi@shrek:~> sudo apt-get install ipw2200-source module-assistant
root@shrek:~> module-assistant
```

The NVidia and the ipw2200 kernel modules can be installed more comfortable using the `module-assistant`

```
root@shrek:~> tar xvfz ipw2200-fw-2.4.tgz
root@shrek:~> cp *fw /usr/lib/hotplug/firmware
root@shrek:~> modprobe ipw2200 led=1
```

Additionally you need to install the firmware driver. Download `ipw2200-fw-2.4.tgz` from [ipw2200.sourceforge.net/firmware.php](http://ipw2200.sourceforge.net/firmware.php) and install the files in `/usr/lib/hotplug/firmware` and load the kernel modules.

To configure the wireless interface automatically on system startup - if you have a DHCP server running ;) - edit `/etc/network/interfaces` e.g.:

```
iface eth1 inet dhcp
    wireless_mode managed
    wireless_rate 54M auto
    wireless_channel 9
    wireless_essid ESSID
    wireless_key s:THE_KEY
```

Some basic wireless tools:

```
fluffi@shrek:~> sudo apt-get install wireless-tools wavemon
```

## 12. The internal modem

Not needed till now, sorry.

## 13. The DVD+/-RW drive

Additionally you can download `libdvdcss2_2.1.8-1_i386.deb` from VideoLAN (pub/libdvdcss/version)

```
fluffi@shrek:~> sudo apt-get install libdvdread3
fluffi@shrek:~> sh /usr/share/doc/libread3/examples/install-css.sh
fluffi@shrek:~> wget http://download.videolan.org/pub/libdvdcss/1.2.8/deb/libdvdcss2_1.2.8-1_i386.deb
```

```
root@shrek:~> dpkg -i libdvdcss2_1.2.8-1_i386.deb
```

Then run your DVDs with a player software, e.g. totem-xine:

```
fluffi@shrek:~> totem
```

Tuning the DVD device with `hdparm` does currently not work for me. Anyhow video playback works fine and consumes about 10% of CPU usage in full screen mode.

```
root@shrek:~> hdparm -c 1 -X udma2 /dev/scd0
```

```
root@shrek:~> hdparm -d 1 /dev/scd0
/dev/hdc:
setting using_dma to 1 (on)
HDIO_SET_DMA failed: Operation not permitted
using_dma      = 0 (off)
```

The second command shows an error. Due to this error the device ist currently `_not_` using any DMA mode :(

The `hdparm` options currently set can be seen using the `-v` and `-i` options e.g.:

```
root@shrek:~> hdparm -v /dev/scd0
/dev/hdc:
IO_support    = 1 (32-bit)
unmaskirq     = 0 (off)
using_dma     = 0 (off)
keepsettings  = 0 (off)
readonly      = 0 (off)
readahead     = 256 (on)
```

Burning/Erasure of data CD-RW/DVD+R worked fine using Gnome's nautilus.

## 14. The PCMCIA subsystem

Yenta socket correctly finds a PCMCIA ethernet card.

## 15. The USB subsystem

USB-Sticks work fine.



## **16. Firewire**

Kernel modules seem to work.

## **17. Bluetooth**

Kernel modules seem to work.

## **18. Linux on Laptops**

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