

# Acer Aspire 1601LC Howto\*

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## Contents

<b>0 History</b>	<b>3</b>
<b>1 Introduction</b>	<b>3</b>
<b>2 Organisation of the document</b>	<b>3</b>
<b>3 Keyboard and launch buttons</b>	<b>4</b>
3.1 Keyboard . . . . .	4
3.2 Launch buttons . . . . .	4
<b>4 Touchpad</b>	<b>5</b>
<b>5 Graphic card</b>	<b>6</b>
<b>6 Screen</b>	<b>9</b>
<b>7 Sound card</b>	<b>10</b>
<b>8 Network card</b>	<b>10</b>
<b>9 CD burner</b>	<b>10</b>
<b>10 ACPI</b>	<b>10</b>
<b>11 PCMCIA ports</b>	<b>12</b>
<b>12 Acknowledgements</b>	<b>12</b>
<b>A modules</b>	<b>13</b>
<b>B modules.conf</b>	<b>14</b>

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\*This document has been made with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>. An up to date version of this document is available at the following address: <http://home.gna.org/aspire1601lc/>.

<b>C</b>	<b>lilo.conf</b>	<b>17</b>
<b>D</b>	<b>GNU Free Documentation License</b>	<b>20</b>
<b>1.</b>	<b>APPLICABILITY AND DEFINITIONS</b>	<b>21</b>
<b>2.</b>	<b>VERBATIM COPYING</b>	<b>22</b>
<b>3.</b>	<b>COPYING IN QUANTITY</b>	<b>22</b>
<b>4.</b>	<b>MODIFICATIONS</b>	<b>23</b>
<b>5.</b>	<b>COMBINING DOCUMENTS</b>	<b>25</b>
<b>6.</b>	<b>COLLECTIONS OF DOCUMENTS</b>	<b>25</b>
<b>7.</b>	<b>AGGREGATION WITH INDEPENDENT WORKS</b>	<b>25</b>
<b>8.</b>	<b>TRANSLATION</b>	<b>26</b>
<b>9.</b>	<b>TERMINATION</b>	<b>26</b>
<b>10.</b>	<b>FUTURE REVISIONS OF THIS LICENSE</b>	<b>26</b>
	<b>ADDENDUM: How to use this License for your documents</b>	<b>26</b>

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## 0 History

- v0.5.2 : some minor changes and the document is now licensed under the Gnu Free Documentation License (GFDL) (2004-02-21).
- v0.5.1 : an important note about APIC was added and the howto was updated for the new version of the synaptics driver.
- v0.5.0 : the section about the PCMCIA ports was added and reorganization of the sections.
- v0.4.3-1 : end of the translation. I raise the version number to the same of the French version.
- v0.3 : the graphic card and screen sections were added.
- v0.2 : the touchpad section was added.
- v0.1 : beginning of the translation.

## 1 Introduction

When I bought this laptop, I realized how difficult it was to find correct informations about the compatibility with GNU/Linux. I created this howto in order to centralise the information I collected.

As I have a Debian Sid, it's this distribution which was used to test the laptop. This doesn't mean that the others distributions won't work with the laptop ! You will just have to adapt some things to your distribution.

The goal of this document is to help people to configure the hardware of this laptop. This means that I will not give any information on the installation of the Debian...

It's possible that there are mistakes and oversights in this howto. Help me to improve it : report them. In the same way, my English is not very good. Send me a mail if you see spelling mistakes. Thanks.

**Important note : if you use the ACPI patch or not, the kernel won't boot without the "noapic" option which disables the APIC (the APIC is different from the ACPI).**

## 2 Organisation of the document

Each following section treats of a particular piece of hardware. In appendix, you will find some files like "modules.conf" that you can use to configure your installation.

The lines beginning with \$ are commands that you can run as user. Those beginning with # have to be run as root.

## 3 Keyboard and launch buttons

### 3.1 Keyboard

No problem with the keyboard. I just noticed a bug (?) : the combinations of keys  $Fn+x$  where x is a digit don't work neither in the console nor in X. However, the combinations  $Fn++$ ,  $Fn+-$  and  $Fn+*$  work perfectly. Moreover, if you activate "NumLock", the digits will work without any problem !

### 3.2 Launch buttons

For the launch buttons, it's a bit more complicated... Three of the five launch buttons work : P1, P2 and P3. The "Email key" seems to be in conflict with P1. The "Internet key" doesn't work at all.

You have to compile [this driver](#). For that, the sources of your kernel have to be installed<sup>1</sup>. This kernel must have the following properties :

- Loadable module support (Y).
- Set version information on all module symbols (Y).
- /proc file system support (Y)<sup>2</sup>.
- Input core support (Y or M).
- Keyboard support (Y or M)<sup>3</sup>.

If your kernel is a kernel from a distribution, it's likely that these options are already correctly configured.

Before you compile the driver, change *KERNELSRC* in the makefile to your path to the kernel sources. Then compile the driver with the command :

```
$ make
```

Copy the created driver *acerhk.o* to the path `/lib/modules/<kernel_version>/kernel/drivers/char/`. Finally, load the module with the command :

```
# insmod acerhk poll=1
```

If *procfs* is activated, then run :

```
$ cat /proc/driver/acerhk/info
```

You should obtain something like that :

```
Acer hotkeys version 0.4.2
Model(Type)      : (1)
```

---

<sup>1</sup>If it's a kernel from a Debian distribution, a package *kernel-headers* would be sufficient. If it's a kernel from a Mandrake, you have to install the package *kernel-source*.

<sup>2</sup>This is recommended but not necessary according to the driver's author. I advise you to activate it as it serves for other things.

<sup>3</sup>These two last things, which lie in the *Input Core Support* section, aren't necessary. However, they will permit you to use softwares like hotkeys or acme to configure the launch buttons. Thus they are important.

```
request handler : 0xc00fdc60
CMOS index      : 0x60
kernel polling  : active
events pending  : 0
preg400         : 0xe09e1400
```

It remains to configure the keys. Personally, I use *acme* (a software delivered with Gnome) that I find very convenient. If you wish to use hotkeys, here are **apparently** the keycodes (**not tested !**) :

- P1 : 153.
- P2 : 144.
- P3 : 171.

## 4 Touchpad

The touchpad works without any problem. If you don't use the horizontal and vertical scrolling, the driver called *mouse* included in XFree will be sufficient. Otherwise, you have to install a driver available [here](#). I tested the version 0.12.1.

Here is the part of the file `/etc/X11/XF86Config-4` about the touchpad if you don't use the horizontal and vertical scrolling :

```
Section "InputDevice"
    Identifier "TouchPad"
    Driver "mouse"
    Option "Protocol" "PS/2"
    Option "Buttons" "3"
    Option "Device" "/dev/psaux"
    Option "Emulate3Buttons"
EndSection
...
Section "ServerLayout"
...
    InputDevice "TouchPad" "CorePointer"
...
EndSection
```

If you wish to use the horizontal and vertical scrolling, download the driver. Then, unpack the file and run the following commands :

```
$ make
# make install
```

You also have to modify your file `/etc/X11/XF86Config-4` like that :

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

```

...
EndSection
...
Section "InputDevice"
    Driver      "synaptics"
    Identifier   "TouchPad"
    Option      "Device"      "/dev/psaux"
    Option      "Protocol"    "auto-dev"
    Option      "LeftEdge"    "1900"
    Option      "RightEdge"   "5400"
    Option      "TopEdge"     "1900"
    Option      "BottomEdge"  "4000"
    Option      "FingerLow"   "25"
    Option      "FingerHigh"  "30"
    Option      "MaxTapTime"  "180"
    Option      "MaxTapMove"  "220"
    Option      "VertScrollDelta" "100"
    Option      "MinSpeed"    "0.02"
    Option      "MaxSpeed"    "0.18"
    Option      "AccelFactor" "0.0010"
    Option      "SHMConfig"   "on"
EndSection
...
Section "ServerLayout"
...
    InputDevice "TouchPad" "CorePointer"
...
EndSection

```

Finally, restart the X server.

## 5 Graphic card

Two different drivers are available for the graphic card :

1. A free driver included in XFree 4.3 (or greater). This driver gives apparently bad performance in 3D.
2. A proprietary driver provided by ATI and available [here](#). This driver gives better performance in 3D but is less stable.

At the moment, the version of XFree included in the Debian Sid is 4.2.1-9. So I didn't test the free driver and I'm not sure of what I wrote above. If you have XFree 4.3 (or greater), choose according to your requirements and your taste. Nevertheless you must know that the installation of the ATI drivers is not so easy (in comparison with the Nvidia drivers).

As I didn't test the free driver, I will not describe his installation. The version of the ATI drivers I tested is 3.2.5. The third version of the ATI drivers enables the TV

out and there are less graphic bugs. Nevertheless, some people noted a reduction in the performances.

First, download the drivers [here](#) (pay attention at the version of XFree for which the drivers are made).

If you don't have a distribution with a package system based on rpm (Debian, Knopix, etc.), you have to convert the provided *rpm* file into a *deb* file. For that, use *alien* :

```
$ alien -d fglrx-glc22-4.2.0-2.9.13.i586.rpm
```

This should give you a file called *fglrx-glc22\_4.2.0-3.9\_i386.deb*<sup>4</sup>. Then, you have to install the package. If you use Debian, run :

```
# dpkg -i fglrx-glc22_4.2.0-3.9_i386.deb
```

If *dpkg* complains because the package *xlibmesa3* already provides a file called *libGL.so.1.2*, then use :

```
# dpkg -i --force-overwrite fglrx-glc22_4.2.0-3.9_i386.deb
```

If you have a distribution with a package system based on rpm, use :

```
# rpm -Uvh fglrx-glc22-4.2.0-2.9.13.i586.rpm
```

If this doesn't work because of a conflict, try :

```
# rpm -i --force fglrx-glc22-4.2.0-2.9.13.i586.rpm
```

Then, run the following command :

```
# fglrxconfig
```

Answer the different questions. When you don't know what to answer, choose the default answer. Anyhow, you can change your answers by modifying the file *XF86Config-4*. Here is the portion of my *XF86Config-4* referring to the graphic card :

```
# === ATI device section ===
```

```
Section "Device"
```

```
    Identifier          "ATI Graphics Adapter"
    Driver              "fglrx"
```

```
# === disable PnP Monitor ===
```

```
    #Option             "NoDDC"
```

```
# === disable/enable XAA/DRI ===
```

```
    Option "no_accel"  "no"
```

```
    Option "no_dri"    "no"
```

```
# === FireGL DDX driver module specific settings ===
```

```
# === Screen Management ===
```

```
    Option "DesktopSetup"    "0x00000100"
```

```
    Option "MonitorLayout"   "AUTO, NONE"
```

```
    Option "IgnoreEDID"      "off"
```

```
    Option "HSync2"          "unspecified"
```

```
    Option "VRefresh2"       "unspecified"
```

```
    Option "ScreenOverlap"   "0"
```

```
# === TV-out Management ===
```

```
    Option "NoTV"            "no"
```

```
    Option "TVStandard"      "PAL-B"
```

---

<sup>4</sup>The version numbers can of course be different.

```

Option "TVHSizeAdj"          "0"
Option "TVVSizeAdj"          "0"
Option "TVHPosAdj"           "0"
Option "TVVPosAdj"           "0"
Option "TVHStartAdj"         "0"
Option "TVColorAdj"          "0"
Option "GammaCorrectionI"     "0x00000000"
Option "GammaCorrectionII"    "0x00000000"
# === OpenGL specific profiles/settings ===
Option "Capabilities"         "0x00000000"
# === Video Overlay for the Xv extension ===
Option "VideoOverlay"         "on"
# === OpenGL Overlay ===
# Note: When OpenGL Overlay is enabled, Video Overlay
#       will be disabled automatically
Option "OpenGLOverlay"       "off"
Option "CenterMode"           "off"
# === QBS Support ===
Option "Stereo"               "off"
Option "StereoSyncEnable"     "1"
# === Misc Options ===
Option "UseFastTLS"           "1"
Option "BlockSignalsOnLock"   "on"
Option "UseInternalAGPGART"   "yes"
Option "ForceGenericCPU"      "no"
# === FSAA ===
Option "FSAAScale"            "1"
Option "FSAADisableGamma"     "no"
Option "FSAACustomizeMSPos"   "no"
Option "FSAAMSPosX0"          "0.000000"
Option "FSAAMSPosY0"          "0.000000"
Option "FSAAMSPosX1"          "0.000000"
Option "FSAAMSPosY1"          "0.000000"
Option "FSAAMSPosX2"          "0.000000"
Option "FSAAMSPosY2"          "0.000000"
Option "FSAAMSPosX3"          "0.000000"
Option "FSAAMSPosY3"          "0.000000"
Option "FSAAMSPosX4"          "0.000000"
Option "FSAAMSPosY4"          "0.000000"
Option "FSAAMSPosX5"          "0.000000"
Option "FSAAMSPosY5"          "0.000000"
BusID "PCI:1:0:0"             # vendor=1002, device=4c66
Screen 0
EndSection
...
Section "Screen"

```

```

        Identifier "Screen0"
        Device     "ATI Graphics Adapter"
...
EndSection
...
Section "ServerLayout"
...
    Screen "Screen0"
...
EndSection

```

It remains to compile/load the *fglrx* module. Indeed, as with the *Nvidia* drivers, there is a kernel module which is needed to support AGP, DMA transfers, etc. This module has to be loaded at the boot time or when launching the X server. Except if you have a RedHat 7.3 or 8.0 with the original kernel, you have to compile your own module. See the file *fglrx\_info.txt* located in */lib/modules/fglrx* for more details. Before to go further, check that the sources of your kernel are in */usr/src/linux* (a symbolic link is authorised). Run the following commands :

```

$ cd /lib/modules/fglrx/build_mod
# ./make.sh
$ cd ..
# ./make_install.sh

```

Some errors can appear, in particular about some sort of pointer conversion. These errors aren't "important" (they won't affect the compilation). It remains to load the created module by running :

```

# modprobe fglrx

```

Normally, everything is now installed. You just have to run :

```

$ startx

```

## 6 Screen

Nothing special with the screen... Here is just the portion of my XF86Config-4 referring to the screen<sup>5</sup> :

```

Section "Monitor"
    Identifier "Monitor0"
    HorizSync  28.0 - 96.0
    VertRefresh 50.0 - 76.0
    Option     "DPMS"
EndSection
...
Section "Screen"
    Identifier "Screen0"
    Device     "ATI Graphics Adapter"
    Monitor    "Monitor0"

```

---

<sup>5</sup>The horizontal and vertical sync range were given by the Knoppix 3.2.

```
...
EndSection
...
Section "ServerLayout"
    Identifier "Server Layout"
    Screen "Screen0"
...
EndSection
```

## 7 Sound card

You can use the drivers included in the kernel (use the module *i810\_audio*) or install the [ALSA drivers](#). For that, follow this [guide](#). Except if you use *devfs*, I advise you to run the script *snddevices*.

## 8 Network card

The network card will work without any problem with the driver *8139too*. Here is the portion of my file `.config` referring to the network card :

```
#
# Ethernet (10 or 100Mbit)
#
CONFIG_NET_ETHERNET=y
...
CONFIG_NET_PCI=y
...
# CONFIG_8139CP is not set
CONFIG_8139T00=m
# CONFIG_8139T00_PIO is not set
# CONFIG_8139T00_TUNE_TWISTER is not set
CONFIG_8139T00_8129=y
# CONFIG_8139_OLD_RX_RESET is not set
...
```

## 9 CD burner

The SCSI emulation will permit you to burn CD. See a guide referring to the SCSI emulation for more details.

## 10 ACPI

To enable the ACPI, you have to use the ACPI patch or use the kernel 2.4.22 (or greater).

1. Download the ACPI patch [here](#). The file is called *acpi-20030619-2.4.21.diff.gz*.

2. Download the sources of the kernel 2.4.21 [here](#).
3. Unpack the sources (as root) :
  - (a) `cp <download_directory>/linux-2.4.21.tar.bz2 /usr/src`
  - (b) `cd /usr/src`
  - (c) `tar jxvf linux-2.4.21.tar.bz2`
  - (d) `rm -f linux-2.4.21.tar.bz2`
4. Apply the patch (as root) :
  - (a) `cd linux-2.4.21`
  - (b) `make mrproper`
  - (c) `gunzip -c <path to acpi-patch>/acpi-20030619-2.4.21.diff.gz | patch -p1`
5. Configure and compile the kernel : for more details, see the *README* file in `/usr/src/linux-2.4.21` and/or make a research on Internet.
6. Don't forget to modify `/etc/lilo.conf` and then to run `lilo` as root.

Here is the portion of my file `.config` referring to the ACPI :

```
CONFIG_PM=y
# CONFIG_APM is not set

#
# ACPI Support
#
CONFIG_ACPI=y
# CONFIG_ACPI_HT_ONLY is not set
CONFIG_ACPI_BOOT=y
CONFIG_ACPI_BUS=y
CONFIG_ACPI_INTERPRETER=y
CONFIG_ACPI_EC=y
CONFIG_ACPI_POWER=y
CONFIG_ACPI_PCI=y
CONFIG_ACPI_SLEEP=y
CONFIG_ACPI_SYSTEM=y
CONFIG_ACPI_AC=m
CONFIG_ACPI_BATTERY=m
CONFIG_ACPI_BUTTON=m
CONFIG_ACPI_FAN=m
CONFIG_ACPI_PROCESSOR=m
CONFIG_ACPI_THERMAL=m
# CONFIG_ACPI_ASUS is not set
# CONFIG_ACPI_TOSHIBA is not set
# CONFIG_ACPI_DEBUG is not set
...
```

For more details about the installation and the configuration of the ACPI, I advise you to read this [guide](#).

If you are not so much motivated to configure/compile a kernel, you can use my .config file, or you can use my Debian package (see the Web page of the howto). In the second case, you must have a Debian system. In the first case, you have to copy the file in `/usr/src/linux-2.4.21`. Next, run :

```
# make menuconfig
```

Then, save the configuration even if you don't change anything.

**Notes :**

1. The files are adapted to my configuration. You will have to perhaps modify them !
2. **The kernel won't boot without the parameters "pci=noacpi" and "noapic".**

## 11 PCMCIA ports

Gregory Auzanneau <greg AT gregory5.sytes.net> reported me that PCMCIA ports work. You have to activate the following options in the kernel :

- General setup → PCMCIA/CardBus support → PCMCIA/CardBus support
- General setup → PCMCIA/CardBus support → CardBus support
- General setup → ISA bus support<sup>6</sup>

There is also a package to install. If you have a Debian or a Mandrake, the name of this package is *pcmcia-cs*. This package will install a card manager daemon that can respond to card insertion and removal events.

**Note :** the package *pcmcia-cs* is installed by default if you use a Debian system. So, it should already be installed except if you remove it by your self or if you ask the Debian setup program to remove it for you.

## 12 Acknowledgements

I would like to thank all the persons who contributed to the design of this document and in particular:

- François Valenduc <Francois.Valenduc AT skynet.be>.
- Gregory Auzanneau <greg AT gregory5.sytes.net>.

---

<sup>6</sup>This last option is required only to use 16 bits PCMCIA cards.

# Appendices

## A modules

```
# /etc/modules: kernel modules to load at boot time.
#
# This file should contain the names of kernel modules that are
# to be loaded at boot time, one per line. Comments begin with
# a "#", and everything on the line after them are ignored.

# USB
usb-ohci
input
keybdev
mousedev
usbmouse
printer

# Network Card
8139too

# Sound
# Kernel driver
# i810_audio

# ALSA driver
snd-intel8x0
snd-pcm-oss
snd-mixer-oss
snd-seq-oss

# Graphic Card
agpgart
radeon
# fglrx

# ACPI
# modules loaded by acpid
# ac
# battery
# button
# fan
# processor
# thermal

# SCSI
```

```
ide-scsi
sr_mod

# USB stick
usb-storage
sg
sd_mod

# Launch Buttons
acerhk
```

## B modules.conf

```
### This file is automatically generated by update-modules"
#
# Please do not edit this file directly. If you want to change or add
# anything please take a look at the files in /etc/modutils and read
# the manpage for update-modules.
#
### update-modules: start processing /etc/modutils/0keep
# DO NOT MODIFY THIS FILE!
# This file is not marked as conffile to make sure if you upgrade modutils
# it will be restored in case some modifications have been made.
#
# The keep command is necessary to prevent insmod and friends from ignoring
# the builtin defaults of a path-statement is encountered. Until all other
# packages use the new 'add path'-statement this keep-statement is essential
# to keep your system working
keep

### update-modules: end processing /etc/modutils/0keep

### update-modules: start processing /etc/modutils/acerhk
options acerhk poll=1

### update-modules: end processing /etc/modutils/acerhk

### update-modules: start processing /etc/modutils/actions
# Special actions that are needed for some modules

# The BTTV module does not load the tuner module automatically,
# so do that in here
post-install bttv insmod tuner
post-remove bttv rmmod tuner
```

```

### update-modules: end processing /etc/modutils/actions

### update-modules: start processing /etc/modutils/aliases
# Aliases to tell insmod/modprobe which modules to use

# Uncomment the network protocols you don't want loaded:
# alias net-pf-1 off # Unix
# alias net-pf-2 off # IPv4
# alias net-pf-3 off # Amateur Radio AX.25
# alias net-pf-4 off # IPX
# alias net-pf-5 off # DDP / appletalk
# alias net-pf-6 off # Amateur Radio NET/ROM
# alias net-pf-9 off # X.25
# alias net-pf-10 off # IPv6
# alias net-pf-11 off # ROSE / Amateur Radio X.25 PLP
# alias net-pf-19 off # Acorn Econet

alias char-major-10-175 agpgart
alias char-major-10-200 tun
alias char-major-81 bttv
alias char-major-108 ppp_generic
alias /dev/ppp ppp_generic
alias tty-ldisc-3 ppp_async
alias tty-ldisc-14 ppp_synctty
alias ppp-compress-21 bsd_comp
alias ppp-compress-24 ppp_deflate
alias ppp-compress-26 ppp_deflate

# Crypto modules (see http://www.kerneli.org/)
alias loop-xfer-gen-0 loop_gen
alias loop-xfer-3 loop_fish2
alias loop-xfer-gen-10 loop_gen
alias cipher-2 des
alias cipher-3 fish2
alias cipher-4 blowfish
alias cipher-6 idea
alias cipher-7 serp6f
alias cipher-8 mars6
alias cipher-11 rc62
alias cipher-15 dfc2
alias cipher-16 rijndael
alias cipher-17 rc5

alias scd0 sr_mod
alias scsi_hostadapter ide-scsi

```

```

options ide-cd ignore=hdc

### update-modules: end processing /etc/modutils/aliases

### update-modules: start processing /etc/modutils/alsa
# ALSA portion
alias char-major-116 snd
alias snd-card-0 snd-intel8x0
# module options should go here

# OSS/Free portion
alias char-major-14 soundcore
alias sound-slot-0 snd-card-0

# card #1
alias sound-service-0-0 snd-mixer-oss
alias sound-service-0-1 snd-seq-oss
alias sound-service-0-3 snd-pcm-oss
alias sound-service-0-8 snd-seq-oss
alias sound-service-0-12 snd-pcm-oss

### update-modules: end processing /etc/modutils/alsa

### update-modules: start processing /etc/modutils/apm
alias char-major-10-134 apm
alias /dev/apm_bios /dev/misc/apm_bios
alias /dev/misc/apm_bios apm

### update-modules: end processing /etc/modutils/apm

### update-modules: start processing /etc/modutils/paths
# This file contains a list of paths that modprobe should scan,
# beside the ones that are compiled into the modutils tools
# themselves.

### update-modules: end processing /etc/modutils/paths

### update-modules: start processing /etc/modutils/setserial
#
# This is what I wanted to do, but logger is in /usr/bin, which isn't loaded
# when the module is first loaded into the kernel at boot time!
#
#post-install serial /etc/init.d/setserial start | logger -p daemon.info -t "setserial
#pre-remove serial /etc/init.d/setserial stop | logger -p daemon.info -t "setserial-m
#

```

```

alias /dev/tts          serial
alias /dev/tts/0        serial
alias /dev/tts/1        serial
alias /dev/tts/2        serial
alias /dev/tts/3        serial
post-install serial /etc/init.d/setserial modload > /dev/null 2> /dev/null
pre-remove serial /etc/init.d/setserial modsave > /dev/null 2> /dev/null

### update-modules: end processing /etc/modutils/setserial

### update-modules: start processing /etc/modutils/arch/i386
alias parport_lowlevel parport_pc
alias char-major-10-144 nvram
alias binfmt-0064 binfmt_aout
alias char-major-10-135 rtc

### update-modules: end processing /etc/modutils/arch/i386

```

## C lilo.conf

```

# /etc/lilo.conf - See: 'lilo(8)' and 'lilo.conf(5)',
# ----- 'install-mbr(8)', '/usr/share/doc/lilo/',
#          and '/usr/share/doc/mbr/'.

# +-----+
# |                !! Reminder !!                |
# |                                                |
# | Don't forget to run 'lilo' after you make changes to this |
# | conffile, '/boot/bootmess.txt', or install a new kernel. The |
# | computer will most likely fail to boot if a kernel-image |
# | post-install script or you don't remember to run 'lilo'. |
# |                                                |
# +-----+

# Support LBA for large hard disks.
#
lba32

# Overrides the default mapping between harddisk names and the BIOS'
# harddisk order. Use with caution.
#disk=/dev/hde
#    bios=0x81

#disk=/dev/sda

```

```

#    bios=0x80

# Specifies the boot device.  This is where Lilo installs its boot
# block.  It can be either a partition, or the raw device, in which
# case it installs in the MBR, and will overwrite the current MBR.
#
boot=/dev/hda

# Specifies the device that should be mounted as root. (‘/’)
#
root=/dev/hda4

# Enable map compaction:
# Tries to merge read requests for adjacent sectors into a single
# read request.  This drastically reduces load time and keeps the
# map smaller.  Using ‘compact’ is especially recommended when
# booting from a floppy disk.  It is disabled here by default
# because it doesn’t always work.
#
# compact

# Installs the specified file as the new boot sector
# You have the choice between: bmp, compat, menu and text
# Look in /boot/ and in lilo.conf(5) manpage for details
#
# install=/mnt/hda4/boot/boot.0300

# Specifies the location of the map file
#
map=/boot/map

# You can set a password here, and uncomment the ‘restricted’ lines
# in the image definitions below to make it so that a password must
# be typed to boot anything but a default configuration.  If a
# command line is given, other than one specified by an ‘append’
# statement in ‘lilo.conf’, the password will be required, but a
# standard default boot will not require one.
#
# This will, for instance, prevent anyone with access to the
# console from booting with something like ‘Linux init=/bin/sh’,
# and thus becoming ‘root’ without proper authorization.
#
# Note that if you really need this type of security, you will
# likely also want to use ‘install-mbr’ to reconfigure the MBR
# program, as well as set up your BIOS to disallow booting from
# removable disk or CD-ROM, then put a password on getting into the

```

```

# BIOS configuration as well. Please RTFM 'install-mbr(8)'.
#
# password=tatercounter2000

# Specifies the number of deciseconds (0.1 seconds) LILO should
# wait before booting the first image.
#
delay=20

# You can put a customized boot message up if you like. If you use
# 'prompt', and this computer may need to reboot unattended, you
# must specify a 'timeout', or it will sit there forever waiting
# for a keypress. 'single-key' goes with the 'alias' lines in the
# 'image' configurations below. eg: You can press '1' to boot
# 'Linux', '2' to boot 'LinuxOLD', if you uncomment the 'alias'.
#
# message=/boot/bootmess.txt
prompt
timeout=150
# prompt
# single-key
# delay=100
# timeout=100

# Specifies the VGA text mode at boot time. (normal, extended, ask, <mode>)
#
# vga=ask
# vga=9
#
vga=normal

# Kernel command line options that apply to all installed images go
# here. See: The 'boot-prompt-HOWO' and 'kernel-parameters.txt' in
# the Linux kernel 'Documentation' directory.
#
# append=""

# Boot up Linux by default.
#
default=2.4.21-new

image=/vmlinuz.old
label=2.4.21-old
read-only
append="pci=noacpi noapic hdc=ide-scsi"
# optional

```

```

# restricted
# alias=2

image=/vmlinuz
label=2.4.21-new
read-only
append="pci=noacpi noapic hdc=ide-scsi"
# optional
# restricted
# alias=2

# If you have another OS on this machine to boot, you can uncomment the
# following lines, changing the device name on the 'other' line to
# where your other OS' partition is.
#
# other=/dev/hda4
# label=HURD
# restricted
# alias=3
other=/dev/hda1
    label="Windows"

```

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