Linux Hardware Compatibility HOWTO

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Patrick Reijnen, <antispam.hardware_howto@antispam.reijnen.nl.com (remove both "antispam.")>

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This document lists most of the hardware supported by Linux and helps you locate any necessary drivers.

6.Video cards

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1.Introduction

NOTE: USB is not yet supported by Linux.

1.1 Welcome

Welcome to the Linux Hardware Compatibility HOWTO. This document lists most of the hardware components (not computers with components build in) supported by Linux, so reading through this document you can choose the components for your own Linux computer. As the list of components supported by Linux is growing rapidly, this document will never be complete. So, when components are not mentioned in this HOWTO, the only reason will be that I don't know they are supported. I simply have not found support for the component and/or nobody has told me about support.

Subsections titled 'Alpha, Beta drivers' list hardware with alpha or beta drivers in varying degrees of usability. Note that some drivers only exist in alpha kernels, so if you see something listed as supported but isn't in your version of the Linux kernel, upgrade.

Some devices are supported by binary−only modules; avoid these when you can. Binary−only modules are modules which are compiled for ONE kernel version. The source code for these modules has NOT been released. This may prevent you from upgrading or maintaining your system.
Linus Torvalds says "I allow binary−only modules, but I want people to know that they are _only_ ever expected to work on the one version of the kernel that they were compiled for"
See http://www.kt.opensrc.org/kt19990211_5.html#10 for information on source code availability of components.

The latest version of this document can be found on http://users.bart.nl/~patrickr/hardware−howto/Hardware−HOWTO.html, SunSite and all the usual mirror sites. Translations of this and other Linux HOWTO's can be found at http://metalab.unc.edu/pub/Linux/docs/HOWTO/translations and ftp://metalab.unc.edu/pub/Linux/docs/HOWTO/translations.

If you know of any Linux hardware (in)compatibilities not listed here please let me know, just send mail.

Still need some help selecting components after reading this document? Check the "Build Your Own PC" site at http://www.verinet.com/pc/.

Want to have a preconfigured Linux system? Have a look at http://www.linuxresources.com/web/.

1.2 Copyright

1.3 System architectures

This document only deals with Linux for Intel platforms, for other platforms check the following:

- ARM Linux
  http://www.arm.uk.linux.org/
- Linux/68k
  http://www.clark.net/pub/lawrencc/linux/index.html
- Linux/8086 (The Embeddable Linux Kernel Subset)
  http://www.linux.org.uk/ELKS−Home/index.html
- Linux/Alpha
  http://www.azstarnet.com/~axplinux/
- Linux/MIPS
  http://www.linux.sgi.com
- Linux/PowerPC
  http://www.linuxppc.org/
- Linux for Acorn
  http://www.ph.kcl.ac.uk/~amb/linux.html
- Linux for PowerMac
  http://ftp.sunet.se/pub/os/Linux/mklinux/mkarchive/info/index.html

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2.Computers/Motherboards/BIOS

ISA, VLB, EISA, and PCI buses are all supported.

2.1 Specific system/motherboard/BIOS

- IBM PS/2 MCA systems
  Supported since kernel version 2.0.7, but only for the stable kernel releases. For information you can look at the Micro Channel Linux Home Page (http://www.dgmicro.com/default.htm). Software for MCA systems can be found at ftp://ftp.dgmicro.com/pub/linuxmca. Information on the MCA SCSI subsystem can be found at http//www.uni−mainz.de/~langm000/linux.html.
- EFA E5TX−AT motherboard has a solvable problem with RedHat Linux 5.0 and possibly other

versions of Linux. It spontaneously reboots while probing hardware. To solve, update BIOS to version 1.01. Get the BIOS update at http://www.efacorp.com/download/bios/e5tx103.exe.
- The Edom MP080 motherboard needs a BIOS flash for Linux to work. Without the BIOS flash Linux will reboot during the hardware scan. for the BIOS flash check http://www.edom.com/tech/tech.htm and http://www.edom.com/download
- The Zida 6MLX motherboard with PII Intel LX chipset is mentioned only to work with Linux when the PII cache is disabled in BIOS. BIOS upgrade does not solve the problem. Symptom is random reboots during or shortly after system boot.

Many new PCI boards are causing a couple of failure messages during boot time when "Probing PCI Hardware". The procedure presents the folowing message

```
Warning : Unknown PCI device (8086:7100).  Please read include/linux/pci.h
```

It tells you to read the pci.h file. From this file is the following quote

```
     PROCEDURE TO REPORT NEW PCI DEVICES
We are trying to collect information on new PCI devices, using
the standard PCI identification procedure. If some warning is
displayed at boot time, please report
     - /proc/pci
     - your exact hardware description. Try to find out
       which device is unknown. It may be you mainboard chipset.
       PCI-CPU bridge or PCI-ISA bridge.
     - If you can't find the actual information in your hardware
       booklet, try to read the references of the chip on the board.
     - Send all that to linux-pcisupport@cao-vlsi.ibp.fr,
       and I'll add your device to the list as soon as possible

BEFORE you send a mail, please check the latest linux releases
to be sure it has not been recently added.

       Thanks
             Frederic Potter.
```

Normally spoken you motherboard and the unknown PCI devices will function correctly.

2.2 Unsupported

- Supermicro P5MMA with BIOS versions 1.36, 1.37 and 1.4. Linux will not boot on this motherboard. A new (beta) release of the BIOS which makes Linux boot, is available at ftp.supermicro.com/mma9051.zip
- Supermicro P5MMA98. Linux will not boot on this motherboard. A new (beta) release of the BIOS which makes Linux boot, is available at ftp.supermicro.com/a98905.zip?
- DataExpert Corp. ExpertColor TX531 V1.0 motherboard with chipset ACER M1531 (Date: 9729, TS6) and ACER M1543 (Date: 9732 TS6) seems to present not reproducible segmentations faults, kernel oops and kernel hangs under heavy load and tape access. The problem seems to be the PCI–bus, respectively the ACER chipset.

3.Laptops

For more information about Linux and laptops, the following site is a good starting point.

- Linux Laptop Homepage
  http://www.cs.utexas.edu/users/kharker/linux−laptop/

Other information related to laptops can be found at the following sites:

- Avanced Power Management
  ftp://ftp.cs.unc.edu/pub/users/faith/linux/
- Notebook battery status
  ftp://metalab.unc.edu/pub/Linux/system/power/
- non−blinking cursor
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/console/noblink−1.7.tar.gz
- other general info
  ftp://tsx−11.mit.edu/pub/linux/packages/laptops/

3.1 Specific laptops

- Compaq Concerto (pen driver)
  http://www.cs.nmsu.edu/~pfeiffer/
- Compaq Contura Aero
  http://domen.uninett.no/~hta/linux/aero−faq.html
- IBM ThinkPad
  http://peipa.essex.ac.uk/tp−linux/tp−linux.html
- IBM Thinkpad 770 series
  http://resources.inw.com/linux/thinkpad770
- NEC Versa M and P
  http://www.santafe.edu:80/~nelson/versa−linux/
- Tadpole P1000
  http://www.tadpole.com/support−trdi/plans/linux.html
- Tadpole P1000 (another one)
- TI TravelMate 4000M
  ftp://ftp.biomath.jussieu.fr/pub/linux/TM4000M−mini−HOWTO.txt.Z
- TI TravelMate 5100
- Toshiba Satellite Pro 400CDT
  http://terra.mpikg−teltow.mpg.de/~burger/T400CDT−Linux.html

3.2 PCMCIA

- PCMCIA
  http://hyper.stanford.edu/HyperNews/get/pcmcia/home.html

PCMCIA drivers currently support all common PCMCIA controllers, including Databook TCIC/2, Intel i82365SL, Cirrus PD67xx, and Vadem VG−468 chipsets. Motorola 6AHC05GA controller used in some Hyundai laptops is not supported. See Appendix B for a list of supported PCMCIA cards.

4.CPU/FPU

Intel/AMD/Cyrix 386SX/DX/SL/DXL/SLC, 486SX/DX/SL/SX2/DX2/DX4 are supported. Intel Pentium, Pentium Pro and Pentium II, Pentium III (regular and Xeon versions) ans Celeron also work. AMD K5 and K6 work good, although older versions of K6 should be avoided as they are buggy. Setting "internal cache" disabled in bios setup can be a workaround. AMD K6−2 and K6−3 also work. Some early K6−2 300Mhz have problems with the system chips. Cyrix 6x86 works out of the box.

Also IDT Winchip C6−PSME2006A processors are supported under Linux (http://www.winchip.com).

Linux has built−in FPU emulation if you don't have a math coprocessor.

Experimental SMP (multiple CPU) support is included in kernel 1.3.31 and newer. Check the Linux/SMP Project page for details and updates.

- Linux/SMP Project
  http://www.linux.org.uk/SMP/title.html

Advanced multi−media effects built into the Cyrix MediaGX ar not supported.

A few very early AMD 486DX's may hang in some special situations. All current chips should be okay and getting a chip swap for old CPU's should not be a problem.

ULSI Math*Co series has a bug in the FSAVE and FRSTOR instructions that causes problems with all protected mode operating systems. Some older IIT and Cyrix chips may also have this problem.

There are problems with TLB flushing in UMC U5S chips in very old kernels. (1.1.x)

- enable cache on Cyrix processors
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/CxPatch030.tar.z
- Cyrix software cache control
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/linux.cxpatch
- Cyrix 5x86 CPU register settings
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/cx5x86mod_1.0c.tgz

5.Memory

All memory like DRAM, EDO and SDRAM can be used with Linux. There is one thing you have to look at: normally the kernel is not supporting more than 64 Mb of memory. When you add more than 64 Mb of memory you have to add the following line to your LILO configuration file.

```
append="mem=<number of Mb>M"
```

So, when you have 96 Mb of memory this should become

```
append="mem=96M"
```

Don't type a number higher than the number Mb you really have. This can present unpredictable crashes.

6.Video cards

Linux will work with all video cards in text mode, VGA cards not listed below probably will still work with mono VGA and/or standard VGA drivers.

If you're looking into buying a cheap video card to run X, keep in mind that accelerated cards (ATI Mach, ET4000/W32p, S3) are MUCH faster than unaccelerated or partially accelerated (Cirrus, WD) cards.

``32 bpp'' is actually 24 bit color aligned on 32 bit boundaries. It does NOT mean the cards are capable of 32 bit color, they still display 24 bit color (16,777,216 colors). 24 bit packed pixels modes are not supported in XFree86, so cards that can do 24 bit modes to get higher resolutions in other OS's are not able to do this in X using XFree86. These cards include Mach32, Cirrus 542x, S3 801/805/868/968, ET4000, and others.

AGP (Accelerated Graphics Port) support is growing fast. Most of the X−servers (both freely available and commercial versions) have more or less support for AGP.

6.1 Diamond video cards

Most currently available Diamond cards ARE supported by the current release of XFree86. Early Diamond cards may not be officially supported by XFree86, but there are ways of getting them to work. Diamond is now actively supporting the XFree86 Project.

6.2 SVGALIB (graphics for console)

- VGA
- EGA
- ARK Logic ARK1000PV/2000PV
- ATI VGA Wonder
- ATI Mach32
- Cirrus 542x, 543x
- OAK OTI−037/67/77/87
- S3 (limited support)
- Trident TVGA8900/9000
- Tseng ET3000/ET4000/W32

6.3 XFree86 3.3.2

Accelerated

- ARK Logic ARK1000PV/VL, ARK2000PV/MT
- ATI Mach8
- ATI Mach32 (16 bpp supported for cards with RAMDAC ATI68875, AT&T20C49x, BT481 and 2Mb video ram)
- ATI Mach64 (16/32 bpp supported for cards with RAMDAC ATI68860, ATI68875, CH8398, STG1702, STG1703, AT&T20C408, 3D Rage II, internal, IBM RGB514)
- Chips & Technologies 64200, 64300, 65520, 65525, 65530, 65535, 65540, 65545, 65546, 65548, 65550, 65554
- Cirrus Logic 5420, 542x/5430 (16 bpp), 5434 (16/32 bpp), 5436, 544x, 546x, 5480, 62x5, 754x
- Diamond Viper 330
- Gemini P1 (ET6000 chip)
- IBM 8514/A
- IBM XGA−I, XGA−II
- IIT AGX−010/014/015/016 (16 bpp)
- Matrox MGA2064W (Millennium)
- Matrox MGA1064SG (Mystique)
- Number Nine Imagine I128
- Oak OTI−087
- S3 732 (Trio32), 764 (Trio64), Trio64V+, 801, 805, 864, 866, 868, 86C325 (ViRGE), 86C375 (ViRGE/DX), 86C385 (ViRGE/GX), 86C988 (ViRGE/VX), 911, 924, 928, 964, 968
    - see Appendix A for list of supported S3 cards
- SiS 86c201, 86c202, 86c205
- Trident 9440, 96xx, Cyber938x
- Tseng ET4000/W32/W32i/W32p, ET6000
- Weitek P9000 (16/32 bpp)

    - Diamond Viper VLB/PCI
    - Orchid P9000
- Western Digital WD90C24/24A/24A2/31/33

Unaccelerated

- Alliance AP6422, AT24
- ATI VGA Wonder series
- Avance Logic AL2101/2228/2301/2302/2308/2401
- Cirrus Logic 6420/6440, 7555
- Compaq AVGA
- DEC 21030
- Genoa GVGA
- MCGA (320x200)
- MX MX68000/MX68010
- NCR 77C22, 77C22E, 77C22E+
- NVidia NV1
- Oak OTI−037C, OTI−067, OTI−077
- RealTek RTG3106
- SGS−Thomson STG2000
- Trident 8800CS, 8200LX, 8900x, 9000, 9000i, 9100B, 9200CXr, 9320LCD, 9400CXi, 9420, 9420DGi, 9430DGi
- Tseng ET3000, ET4000AX
- VGA (standard VGA, 4 bit, slow)
- Video 7 / Headland Technologies HT216−32
- Western Digital/Paradise PVGA1, WD90C00/10/11/30

Monochrome

- Hercules mono
- Hyundai HGC−1280
- Sigma LaserView PLUS
- VGA mono

Alpha, Beta drivers

- EGA (ancient, from c. 1992)
  ftp://ftp.funet.fi/pub/Linux/BETA/Xega/

6.4 S.u.S.E. X−Server

S.u.S.E. is building a serie of X−servers based on the XFree−86 code. These X−servers support new video cards and are bug fixe releases for XFree86 X−servers. S.u.S.E is building these X−servers together with The XFree86 Project, Inc. These X−Servers will be in the next XFree86 version. These X−servers can be found at http://www.suse.de/index.html. At this moment S.u.S.E. X−Servers are available for the following video cards.

- XSuSE Elsa GLoria X−Server
  - ELSA GLoria L, GLoria L/MX, Gloria S
- Video cards with the Alliance Semiconductor AT3D (also AT25) Chip
  - Hercules Stingray 128 3D
- XSuSE NVidia X−Server (PCI and AGP support, NV1 chipset and Riva128)
  - ASUS 3Dexplorer
  - Diamond Viper 330
  - ELSA VICTORY Erazor
  - STB Velocity 128
- XSuSE Matrox. Support for Mystique, Millennium, Millennium II and Millennium II AGP
- XSuSE Trident. Support for the 9685 (including ClearTV) and the latest Cyber chipset
- XSuSE Tseng. W32, W32i ET6100 and ET6300 support.

6.5 Commercial X servers

Commercial X servers provide support for cards not supported by XFree86, and might give better performances for cards that are supported by XFree86. In general they support many more cards than XFree86, so I'll onlys list cards that aren't supported by XFree86 here. Contact the vendors directly or check the Commercial HOWTO for more info.

Xi Graphics, Inc

Xi Graphics, Inc http://www.xig.com (formerly known as X Inside, Inc) is selling three X server products (cards supported are sorted by manufacturer):

- Accelerated−X Display Server
  - 3Dlabs
    - 300SX
    - 500TX Glint
    - 500MX Glint
    - Permedia 4MB/8MB

    ◊ Permedia II 4MB/8MB
- Actix
    ◊ GE32plus 1MB/2MB
    ◊ GE32ultra 2MB
    ◊ GraphicsENGINE 64 1MB/2MB
    ◊ ProSTAR 64 1MB/2MB
- Alliance
    ◊ ProMotion−3210 1MB/2MB
    ◊ ProMotion−6410 1MB/2MB
    ◊ ProMotion−6422 1MB/2MB
- ARK Logic
    ◊ ARK1000PV 1MB/2MB
    ◊ ARK1000VL 1MB/2MB
    ◊ ARK2000PV 1MB/2MB
- AST
    ◊ Manhattan 5090P (GD5424) 512KB
- ATI
    ◊ 3D Xpression 1MB/2MB
    ◊ 3D Pro Turbo PC2TV 4MB/8MB
    ◊ 3D Pro Turbo PC2TV 6144
    ◊ 3D Xpression+ PC2TV 2MB/4MB
    ◊ 3D Xpression+ 2MB/4MB
    ◊ ALL−IN−WONDER 4MB/8MB
    ◊ ALL−IN−WONDER PRO 4MB/8MB
    ◊ Graphics Ultra (Mach8) 1MB
    ◊ Graphics Pro Turbo (Mach64/VRAM) 2MB/4MB
    ◊ Graphics Pro Turbo 1600 (Mach64/VRAM) 2MB/4MB
    ◊ Graphics Ultra Plus (Mach32) 2MB
    ◊ 8514/Ultra (Mach8) 1MB
    ◊ Graphics Ultra Pro (Mach32) 1MB2MB
    ◊ Graphics Vantage (Mach8) 1MB
    ◊ VGA Wonder Plus 512KB
    ◊ VGA Wonder XL 1MB
    ◊ Video Xpression 1MB
    ◊ XPERT@Play 4MB/6MB/8MB
    ◊ XPERT@Work 4MB/6Mb/8MB
    ◊ Video Xpression 2MB
    ◊ WinBoost (Mach64/DRAM) 2MB
    ◊ WinTurbo (Mach64/VRAM) 2MB
    ◊ Graphics Wonder (Mach32) 1MB
    ◊ Graphics Xpression 1MB/2MB
    ◊ Rage II (SGRAM) 2MB/4MB/8MB
    ◊ Rage II+ (SGRAM) 2MB/4MB/8MB
    ◊ Rage Pro 2MB/4MB/8MB
- Avance Logic

    ◊ ALG2101 1MB
    ◊ ALG2228 1MB/2MB
    ◊ ALG2301 1MB/2MB
♦ Boca

    ◊ Voyager 1MB/2MB
    ◊ Vortek−VL 1MB/2MB
♦ Colorgraphic

    ◊ Dual Lightning 2MB
    ◊ Pro Lightning Accelerator 2MB
    ◊ Quad Pro Lightning Accelerator 2MB
    ◊ Twin Turbo Accelerator 1MB/2MB
♦ Chips & Technology

    ◊ 64300 1MB/2MB
    ◊ 64310 1MB/2MB
    ◊ 65510 512KB
    ◊ 65520 1MB
    ◊ 65530 1MB
    ◊ 65535 1MB
    ◊ 65540 1MB
    ◊ 65545 1MB
    ◊ 65550 2MB
    ◊ 82C450 512KB
    ◊ 82C451 256KB
    ◊ 82C452 512KB
    ◊ 82C453 1MB
    ◊ 82C480 1MB/2MB
    ◊ 82C481 1MB/2MB
♦ Cirrus Logic

    ◊ GD5402 512KB
    ◊ GD5420 1MB
    ◊ GD5422 1MB
    ◊ GD5424 1MB
    ◊ GD5426 1MB/2MB
    ◊ GD5428 1MB/2MB
    ◊ GD5429 1MB/2MB
    ◊ GD5430 1MB/2MB
    ◊ GD5434 1MB/2MB
    ◊ GD5436 1MB/2MB
    ◊ GD5440 1MB/2MB
    ◊ GD5446 1MB/2MB
    ◊ GD5462 2MB/4MB PCI and AGP
    ◊ GD5464 2MB/4MB PCI and AGP
    ◊ GD5465 2MB/4MB PCI and AGP
    ◊ GD54M30 1MB/2MB
    ◊ GD54M40 1MB/2MB
♦ Compaq

- ◊ ProLiant Series 512KB
- ◊ ProSignia Series 512KB
- ◊ QVision 1024 1MB
- ◊ QVision 1280 1MB/2MB
- ◊ QVision 2000+ 2MB
- ◊ QVision 2000 2MB

♦ DEC

- ◊ DECpc XL 590 (GD5428) 512KB

♦ Dell

- ◊ 466/M & 466/ME (S3 805) 1MB
- ◊ OnBoard ET4000 1MB
- ◊ DGX (JAWS) 2MB
- ◊ OptiPlex XMT 590 (Vision864) 2MB

♦ Diamond

- ◊ Fire GL 1000 Pro 4MB/8MB
- ◊ Fire GL 1000 4MB/8Mb
- ◊ Stealth 3D 2000 2MB/4MB
- ◊ Stealth 3D 3000XL 2MB/4MB
- ◊ Stealth 64 Graphics 2001 1MB/2MB
- ◊ Stealth 64 Graphics 2121XL 1MB/2MB
- ◊ Stealth 64 Graphics 2201XL 2MB
- ◊ SpeedStar 1MB
- ◊ SpeedStar 64 Graphics 2000 1MB/2MB
- ◊ SpeedStar 24 1MB
- ◊ SpeedStar 24X 1MB
- ◊ SpeedStar 64 1MB/2MB
- ◊ SpeedStar Hicolor 1MB
- ◊ SpeedStar PCI 1MB
- ◊ SpeedStar Pro 1MB
- ◊ SpeedStar Pro SE 1MB/2MB
- ◊ Stealth 1MB
- ◊ Stealth 24 1MB
- ◊ Stealth 32 1MB/2MB
- ◊ Stealth 64 VRAM 2MB/4MB
- ◊ Stealth 64 DRAM 1MB/2MB
- ◊ Stealth 64 Video VRAM (175MHz) 2MB/4MB
- ◊ Stealth 64 Video DRAM 1MB/2MB
- ◊ Stealth 64 Video VRAM (220MHz) 2MB/4MB
- ◊ Stealth Hicolor 1MB
- ◊ Stealth Pro 1MB/2MB
- ◊ Stealth SE 1MB/2MB
- ◊ Stealth 64 Video 2001TV 2MB
- ◊ Stealth 64 Video 2121 1MB/2MB
- ◊ Stealth 64 Video 2121TV 1MB/2MB
- ◊ Stealth 64 Video 2201 2MB
- ◊ Stealth 64 Video 2201TV 2MB
- ◊ Stealth 64 Video 3200 2MB
- ◊ Stealth 64 Video 3240 2MB/4MB

- ◊ Stealth 64 Video 3400 4MB
- ◊ Viper 1MB/2MB
- ◊ Viper Pro 2MB
- ◊ Viper Pro Video 2MB/4MB
- ◊ Viper SE 2MB/4MB

♦ ELSA

- ◊ VICTORY 3D 2MB/4MB
- ◊ WINNER 1000 1MB/2MB
- ◊ WINNER 1000AVI 1MB/2MB
- ◊ WINNER 1000ISA 1MB/2MB
- ◊ WINNER 1000PRO 1MB/2MB
- ◊ WINNER 1000TRIO 1MB/2MB
- ◊ WINNER 1000TRIO/V 1MB/2MB
- ◊ WINNER 100VL 1MB
- ◊ WINNER 2000 2MB/4MB
- ◊ WINNER 2000AVI 2MB/4MB
- ◊ WINNER 2000AVI/3D 2MB/4MB
- ◊ WINNER 2000PRO 2MB/4MB
- ◊ WINNER 2000PRO/X 2MB/4MB/8MB
- ◊ WINNER 3000−L 4MB
- ◊ WINNER 3000−M 2MB
- ◊ WINNER 3000−S 2MB
- ◊ WINNER 1024 1MB
- ◊ WINNER 1280, TLC34075 Palette 2MB
- ◊ WINNER 1280, TLC34076 Palette 2MB
- ◊ Gloria−XL
- ◊ Gloria−MX
- ◊ Gloria−L
- ◊ Synergy

♦ Everex

- ◊ ViewPoint 64P 1MB/2MB
- ◊ VGA Trio 64P 1MB/2MB

♦ Gateway

- ◊ Mach64 Accelerator (Mach64/VRAM) 2MB

♦ Genoa

- ◊ 5400 512KB
- ◊ 8500/8500VL 1MB
- ◊ Phantom 32i 8900 2MB
- ◊ Phantom 64 2MB

♦ Hercules

- ◊ Dynamite 1MB
- ◊ Dynamite Pro 1MB/2MB
- ◊ Dynamite Power 2MB
- ◊ Dynamite 3D / GL
- ◊ Graphite 1MB
- ◊ Stingray 64 1MB/2MB

    ◊ Stingray Pro 1MB/2MB
    ◊ Stringray 1MB
    ◊ Terminator 3D 2MB/4MB
    ◊ Terminator 64/Video 2MB
    ◊ Graphite Terminator Pro 2MB/4MB
- HP
    ◊ NetServer LF/LC/LE (TVGA9000i) 512KB
    ◊ Vectra VL2 (GD5428) 1MB
    ◊ Vectra XM2i (Vision864) 1MB/2MB
    ◊ Vectra XU (Vision864) 1MB/2MB
- IBM
    ◊ 8514/A 1MB
    ◊ PC 300 Series (GD5430) 1MB
    ◊ PC 300 Series (Vision864) 1MB/2MB
    ◊ PC 700 Series (Vision864) 1MB/2MB
    ◊ PS/ValuePoint Performance Series (Vision864) 1MB/2MB
    ◊ VC550 1MB
    ◊ VGA 256KB
    ◊ XGA−NI 1MB
    ◊ XGA 1MB
- IIT
    ◊ AGX014 1MB
    ◊ AGX015 1MB/2MB
- Integral
    ◊ FlashPoint 1MB/2MB
- Leadtek
    ◊ WinFast L2300 4MB/8MB
- Matrox
    ◊ Comet 2MB
    ◊ Marvel II 2MB
    ◊ Impression (MGA−IMP/3/A/H, MGA−IMP/3/V/H, MGA−IMP/3/M/H) 3MB
    ◊ Impression Lite (MGA−IMP+/LTE/P) 2MB
    ◊ Impression Plus Lite (MGA−IMP+/LTE/V) 2MB
    ◊ Millennium (MGA−MIL) 2MB/4MB/8MB
    ◊ Millennium 220 (MGA−MIL) 2MB/4Mb/8MB
    ◊ Millennium PowerDoc (WRAM) 2MB/4MB/8MB
    ◊ Millennium II (WRAM) 2MB/4MB/8MB PCI and AGP
    ◊ Mystique (MGA−MYS) 2MB/4MB
    ◊ Mystique 220
    ◊ Matrox (con.t)
    ◊ Impression Plus (MGA−IMP+/P, MGA−IMP+/A) 2MB/4MB
    ◊ Impression Plus 220 (MGA−IMP+/P/H, MGA−IMP+/A/H) 2MB/4MB
    ◊ Impression Pro (MGA−PRO/4.5/V) 4.5MB
    ◊ Ultima Plus (MGA−PCI/2+, MGA−VLB/2+) 2MB/4MB
    ◊ Ultima (MGA−ULT/2/A, MGA−PCI/2, MGA−VLB/2) 2MB

    - ◊ Ultima (MGA−ULT/2/A/H, MGA−ULT_2/M/H) 2MB
    - ◊ Ultima Plus 200 (MGA−PCI/4/200, MGA−VLB/4/200) 4MB
- ♦ MaxVision
    - ◊ VideoMax 2000 2MB/4MB
- ♦ Metheus
    - ◊ Premier 801 1MB
    - ◊ Premier 928−1M 1MB
    - ◊ Premier 928−2M 2MB
    - ◊ Premier 928−4M 4MB
- ♦ Micronics
    - ◊ Mpower 4 Plus (Mach64) 1MB
- ♦ MIRO
    - ◊ miroCRYSTAL 10AD 1MB
    - ◊ miroCRYSTAL 12SD 1MB
    - ◊ miroCRYSTAL 12SD 2MB
    - ◊ miroCRYSTAL 20PV 2MB
    - ◊ miroCRYSTAL 20SD 2MB
    - ◊ miroCRYSTAL 20SV 2MB
    - ◊ miroCRYSTAL 22SD 2MB
    - ◊ miroCRYSTAL 40SV 4MB
    - ◊ miroCRYSTAL VR2000 2MB/4MB
    - ◊ miroMAGIC 40PV 4MB
    - ◊ miroMAGIC plus 2MB
    - ◊ miroVIDEO 12PD 1MB/2MB
    - ◊ miroVIDEO 20SD 2MB
    - ◊ miroVIDEO 20SV 2MB
    - ◊ miroVIDEO 20TD 2MB
    - ◊ miroVIDEO 22SD 2MB
    - ◊ miroVIDEO 40SV 4MB
- ♦ NEC
    - ◊ Versa P Series 1MB
- ♦ Nth Graphics
    - ◊ Engine/150 2MB
    - ◊ Engine/250 2MB
- ♦ Number Nine
    - ◊ GXE Level 10, AT&T 20C491 Palette 1MB
    - ◊ GXE Level 10, Bt485 or AT&T20C505 Palette 1MB
    - ◊ GXE Level 11 2MB
    - ◊ GXE Level 12 3MB
    - ◊ GXE Level 14 4MB
    - ◊ GXE Level 16 4MB
    - ◊ GXE64 1MB/2MB
    - ◊ GXE64pro 2MB/4Mb
    - ◊ GXE64pro (−1600) 2MB/4MB

- ◊ Imagine 128 2MB
- ◊ Image 128 (−1280) 4MB
- ◊ Image 128 Series 2 (DRAM) 2MB/4Mb
- ◊ Image 128 Pro (−1600) 4MB/8MB
- ◊ Image 128 Series 2 (VRAM) 2MB/4MB/8MB
- ◊ Image 128 Series III (Revolution 3D) (WRAM) 8MB/16MB PCI and AGP
- ◊ Revolution 3D "Ticket to Ride" (WRAM) 8MB/16MB PCI and AGP
- ◊ 9FX Motion331 1MB/2MB
- ◊ 9FX Motion531 1MB/2MB
- ◊ 9FX Motion771 2MB/4MB
- ◊ 9FX Reality332 2MB
- ◊ 9FX Reality772 2MB/4MB
- ◊ 9FX Reality 334 PCI and AGP
- ◊ 9FX Vision330 1MB/2MB

♦ Oak Technology

- ◊ OTI−067 512KB
- ◊ OTI−077 1MB
- ◊ OTI−087 1MB
- ◊ OTI−107 1MB/2MB
- ◊ OTI−111 1MB/2MB

♦ Orchid

- ◊ Farenheit 1280 Plus, ATT20C491 Palette 1MB
- ◊ Farenheit 1280 1MB
- ◊ Farenheit 1280 Plus, SC15025 Palette 1MB
- ◊ Farenheit ProVideo 64 2MB/4MB
- ◊ Farenheit Video 3D 2MB
- ◊ Kelvin 64 1MB/2MB
- ◊ Kelvin Video64 1MB/2MB
- ◊ P9000 2MB

♦ Packard Bell

- ◊ Series 5000 Motherboard 1MB

♦ Paradise

- ◊ 8514/A 1MB
- ◊ Accelerator 24 1MB
- ◊ Accelerator Value card 1MB
- ◊ Bahamas 64 1MB/2MB
- ◊ Bali 32 1MB/2MB
- ◊ VGA 1024 512KB
- ◊ VGA Professional 512KB

♦ Pixelworks

- ◊ WhrilWIN WL1280 (110MHz) 2MB
- ◊ WhrilWIN WL1280 (135MHz) 2MB
- ◊ WhirlWIN WW1280 (110MHz) 2MB
- ◊ WhirlWIN WW1280 (135MHz) 2MB
- ◊ WhrilWIN WW1600 1MB

♦ Radius

    ◊ XGA−2 1MB
- ♦ Reveal
    ◊ VC200 1MB
    ◊ VC300 1MB
    ◊ VC700 1MB
- ♦ S3
    ◊ ViRGE 2MB/4MB
    ◊ ViRGE/DX 2MB/4MB
    ◊ ViRGE/GX 2MB/4MB
    ◊ ViRGE/GX /2 2MB/4MB
    ◊ ViRGE/VX 2MB/4MB
    ◊ Trio32 1MB/2MB
    ◊ Trio64 1MB/2MB
    ◊ Trio64V+ 1MB/2MB
    ◊ Trio64V2/DX 1MB/2MB
    ◊ Trio64V2/GX 1MB/2MB
    ◊ 801 1MB/2MB
    ◊ 805 1MB/2MB
    ◊ Vision864 1MB/2MB
    ◊ Vision866 1MB/2MB
    ◊ Vision868 1MB/2MB
    ◊ 911 1MB
    ◊ 924 1MB
    ◊ 928 1MB
    ◊ 928 2MB/4MB
- ♦ Sierra
    ◊ Falcon/64 1MB/2MB
- ♦ Sigma
    ◊ Legend 1MB
- ♦ SPEA/V7
    ◊ Mercury P64 2MB
    ◊ Storm Pro 4MB
    ◊ ShowTime Plus 2MB
    ◊ STB
    ◊ Evolution VGA 1MB
    ◊ Horizon Plus 1MB
    ◊ Horizon VGA 1MB
    ◊ Horizon 64 1MB/2MB
    ◊ Horizon 64 Video 1MB/2MB
    ◊ Horizon Video 1MB
    ◊ LightSpeed 2MB
    ◊ LightSpeed 128 2MB
    ◊ Nitro 3D 2MB/4MB
    ◊ Nitro 64 1MB/2MB
    ◊ Nitro 64 Video 1MB/2MB
    ◊ PowerGraph VL−24 1MB

    - ◊ PowerGraph X−24 1MB
    - ◊ PowerGraph 64 3D 2MB
    - ◊ PowerGraph 64 1MB/2MB
    - ◊ PowerGraph 64 Video 1MB/2MB
    - ◊ PowerGraph Pro 2MB
    - ◊ Velocity 3D 4MB
    - ◊ Velocity 64V 2MB/4MB
- ♦ Toshiba
    - ◊ T4900CT 1MB
- ♦ Trident
    - ◊ TGUI9400CXi 1MB/2MB
    - ◊ TGUI9420DGi 1MB/2MB
    - ◊ TGUI9440 1MB/2MB
    - ◊ TGUI9660 1MB/2MB
    - ◊ TGUI9680 1MB/2MB
    - ◊ TVGA8900B 1MB
    - ◊ TVGA8900C 1MB
    - ◊ TVGA8900CL 1MB
    - ◊ TVGA8900D 1MB
    - ◊ TVGA9000 512KB
    - ◊ TVGA9000i 512KB
    - ◊ TVGA9200CXr 1MB/2MB
- ♦ Tseng Labs
    - ◊ ET3000 512KB
    - ◊ ET4000 1MB
    - ◊ ET6000 2MB/4MB
    - ◊ VGA/16 (ISA) 1MB
    - ◊ VGA/16 (VLB) 1MB/2MB
    - ◊ VGA/32 1MB/2MB
    - ◊ ET4000/W32 1MB
    - ◊ ET4000/W32i 1MB/2MB
    - ◊ ET4000/W32p 1MB/2MB
- ♦ VLSI
    - ◊ VL82C975 (AT&T RAMDAC) 2MB
    - ◊ VL82C975 (BrookTree RAMDAC) 2MB
    - ◊ VL82C976 (Internal RAMDAC) 2MB
- ♦ Western Digital
    - ◊ WD90C00 512KB
    - ◊ WD90C11 512KB
    - ◊ WD90C24 1MB
    - ◊ WD90C26 512KB
    - ◊ WD90C30 1MB
    - ◊ WD90C31 1MB
    - ◊ WD90C33 1MB
    - ◊ WD9510−AT 1MB
- ♦ Weitek

- ◊ P9100 2MB
- ◊ P9000 2MB
- ◊ W5186 1MB
- ◊ W5286 1MB

• Laptop Accelerated−X Display Server

- ♦ Broadax
  - ◊ NP8700 (Cyber 9385)
- ♦ Chips & Technology
  - ◊ 65510 512KB
  - ◊ 65520 1MB
  - ◊ 65530 1MB
  - ◊ 65535 1MB
  - ◊ 65540 1MB
  - ◊ 65545 1MB
  - ◊ 65554 2MB/4MB
  - ◊ 65555 2MB
- ♦ Cirrus Logic
  - ◊ GD7541 1MB/2MB
  - ◊ GD7543 1MB/2MB
  - ◊ GD7548 2MB
- ♦ Compaq
  - ◊ LTE 5400 (Cirrus Logic CL5478)
  - ◊ Presario 1090ES (NM 2093)
- ♦ Dell
  - ◊ Latitude XPi 896 (NeoMagic 2070)
  - ◊ Latitude XPi (NM 2070)
  - ◊ Latitude XPi CD 1MB (NM 2090)
  - ◊ Latitude LM (NM 2160)
  - ◊ Latitude CP (NM 2160)
  - ◊ Inspiron 3000 (NM 2160)
- ♦ Digital (DEC)
  - ◊ HiNote VP (NeoMagic 2090)
  - ◊ Fujitsu
  - ◊ Lifebook 435DX (NeoMagic 2093)
- ♦ Gateway 2000
  - ◊ Solo 2300 (NeoMagic 2160)
  - ◊ Solo 2300 SE (NM 2160)
  - ◊ Solo 9100 (C&T 65554)
  - ◊ Solo 9100XL (C&T 65555)
- ♦ Hewlett Packard
  - ◊ OmniBook 800 (NM 2093)
- ♦ Hitachi

        ◊ Notebook E133T (NeoMagic 2070)
    ♦ IBM

        ◊ VGA 256KB
        ◊ Thinkpad 380D (NeoMagic 2090)*
        ◊ Thinkpad 385ED (NeoMagic 2090)*
        ◊ Thinkpad 560E (Cyber 9382)
        ◊ Thinkpad 760XD (Cyber 9385)
        ◊ Thinkpad 770 (Cyber 9397)
    ♦ Micron

        ◊ TransPort XKE (NeoMagic 2160)
        ◊ Millenia Transport (Cirrus Logic GD7548)
    ♦ NEC

        ◊ Versa P Series 1MB
        ◊ Versa 6230 2MB (NeoMagic 2160)
    ♦ NeoMagic

        ◊ MagicGraph128 / NM2070 896
        ◊ MagicGraph128 / NM2070
        ◊ MagicGraph128V / NM2090
        ◊ MagicGraph128V+ / NM2097
        ◊ MagicGraph128ZV / NM2093
        ◊ MagicGraph128XD / NM2160
    ♦ Sony

        ◊ VAIO PCG–505 (NeoMagic 2097)
    ♦ Toshiba

        ◊ T4900CT 1MB
        ◊ Tecra 740CDT (C&T 65554)
    ♦ Trident

        ◊ Cyber 9397
        ◊ Cyber 9385
        ◊ Cyber 9382
    ♦ Twinhead

        ◊ Slimnote 9166TH (Cyber 9385)

    * Numerous XiG customers have comfirmed support.
• Multi–head Accelerated–X Display Server

Metro–X 4.3.0

Metro Link <sales@metrolink.com>

Supported Cards:

Graphics	Card Chipset
ATI 3D RAGE	3D RAGE
ATI 3D RAGE II	3D RAGE II
ATI ALL−IN−WONDER PRO AGP	3D RAGE PRO
ATI ALL−IN−WONDER PRO PCI	3D RAGE PRO
ATI Graphics Pro Turbo	Mach64
ATI Graphics Ultra	Mach8
ATI Graphics Xpression	Mach64
ATI Mach32	Mach32
ATI Mach64	Mach64
ATI VGA STEREO−F/X	ATI 28800
ATI Winturbo PCI	Mach64
ATI XPERTPlay	3D RAGE PRO
ATI XPERTPlay AGP	3D RAGE PRO
ATI XPERTWork	3D RAGE PRO
ATI XPERTWork AGP	3D RAGE PRO
Diamond Fire GL 1000Pro	PERMEDIA 2
Diamond SpeedStar 24X	Western Digital 90C31
Diamond SpeedStar Pro SE	Cirrus 5430
Diamond Stealth 24	S3 801
Diamond Stealth 32	ET4000/W32p
Diamond Stealth 3D 2000	S3 ViRGE
Diamond Stealth 64	S3 964, Bt485KPJ135
Diamond Stealth 64 DRAM	S3 Trio64
Diamond Stealth 64 DRAM (SDAC)	S3 864, S3 SDAC
Diamond Stealth 64 Graphics 2000 Series	S3 864, S3 SDAC
Diamond Stealth 64 Graphics 2200	S3 Trio64
Diamond Stealth 64 VRAM	S3 968, IBM RGB526CF22
Diamond Stealth 64 Video 3000 Series	S3 968, TI 3026−175
Diamond Stealth 64 Video VRAM	S3 968, TI 3026−175
Diamond Stealth Video (SDAC)	S3 868, S3 SDAC
Diamond Stealth Video 2000 Series	S3 868, S3 SDAC
Diamond Viper (110 MHz RAMDAC)	P9000

Diamond Viper (135 MHz RAMDAC)	P9000
ELSA GLoria Synergy	PERMEDIA 2
ELSA Victory 3D	S3 ViRGE
ELSA WINNER 2000 Office AGP	PERMEDIA 2
ELSA Winner 1000 TRIO/V	S3 Trio64V+
ELSA Winner 2000 AVI	S3 968, TI 3026−175
ELSA Winner 2000 PRO/X−2, −4	S3 968, TI 3026−220
ELSA Winner 2000 PRO/X−8	S3 968, IBM RGB528CF25
EPS Apex L−200	C&T 65550
Generic	ATI 28800
Generic	Alliance ProMotion
Generic	Ark 2000
Generic	Avance Logic 22xx/23xx/24xx
Generic	Chips & Technologies
Generic	Cirrus 5420
Generic	Cirrus 5422/5424
Generic	Cirrus 5426/5428
Generic	Cirrus 5429
Generic	Cirrus 5430
Generic	Cirrus 5434
Generic	Cirrus 5436
Generic	Cirrus 5446
Generic	Cirrus 5462
Generic	Cirrus 5462/5465
Generic	Cirrus 5480
Generic	Cirrus 62x5
Generic	Cirrus 6410/6412/6420/6440
Generic	Cirrus 754x
Generic	ET3000
Generic	ET4000/W32P
Generic	ET4000AX
Generic	ET6000
Generic	Mach32

Generic	Mach64
Generic	Mach8
Generic	P9000
Generic	PERMEDIA 2
Generic	S3 864/868/924/928/964
Generic	S3 968
Generic	S3 Trio64
Generic	S3 Trio64V+
Generic	S3 ViRGE
Generic	S3 ViRGE/GX/DX
Generic	SiS 86c201/86c202/86c205
Generic Trident	TGUI9440
Generic Trident	TGUI96xx
Generic	Trident8900
Generic	VGA
Generic	Western Digital SVGA
Genoa Phantom 64	S3 Trio64V+
Genoa WindowsVGA 8500VL	Cirrus 5426
Hercules Dynamite 128/Video	ET6000
Hercules Dynamite 3D/GL	PERMEDIA 2
Hercules Dynamite 3D/GL AGP	PERMEDIA 2
Hercules Stingray	Avance Logic 2301
Hercules Stingray 128/3D	Alliance ProMotion AT3D
Hercules Stingray 64	Ark 2000
Hercules Terminator 3D	S3 ViRGE/DX
IBM VGA	
Matrox Marvel	ET4000
Matrox Marvel II	ET4000
Matrox Millennium	MGA Storm
Matrox Millennium II AGP	MGA 2164, TI 3026−250
Matrox Millennium II PCI (220 MHz)	MGA 2164, TI 3026−220
Matrox Millennium II PCI (250 MHz)	MGA 2164, TI 3026−250
Matrox Mystique	MGA 1064

Matrox Mystique 220	MGA 1164
Number Nine GXE64	S3 864
Number Nine Imagine 128	Imagine 128
Number Nine Imagine 128 Series 2	Imagine 128 Series 2
Number Nine Motion 531	S3 868
Number Nine Motion 771	S3 968
Number Nine Revolution 3D	Ticket to Ride
Number Nine Vision 330	S3 Trio64
Orchid Kelvin 64	Cirrus 5434
SPEA Mirage Video	S3 Trio64V+
STB NITRO 3D	S3 ViRGE/GX
STB/Symmetric GLyder MAX−2	PERMEDIA 2
Sigma Designs VGA Legend	ET4000
Tech Source Raptor	Imagine 128 Series 2
Trident 64−Bit Providia 9685	
Trident 8900	Trident 8900
Trident 9440	TGUI9440−2
V PCI−53	Cirrus 5434

7.Controllers (hard drive)

Linux will work with standard IDE, MFM and RLL controllers. When using MFM/RLL controllers it is important to use ext2fs and the bad block checking options when formatting the disk.

Enhanced IDE (EIDE) interfaces are supported. With up to two IDE interfaces and up to four hard drives and/or CD−ROM drives. Linux will detect these EIDE interfaces:

- CMD−640 (Support for buggy interfaces in kernel 2.2)
- DTC 2278D
- FGI/Holtek HT−6560B VLB (Support for secondary interface in kernel 2.2)
- RZ1000 (Support for buggy interfaces in kernel 2.2)
- Triton I (82371FB) (with busmaster DMA)
- Triton II (82371SB) (with busmaster DMA)

ESDI controllers that emulate the ST−506 (MFM/RLL/IDE) interface will also work. The bad block checking comment also applies to these controllers.

Generic 8 bit XT controllers also work.

Starting with pre−patch−2.0.31−3 IDE/ATAPI is provided.

7.1 Alpha, Beta drivers

- UMC 8672 interfaces (experimental in kernel 2.2)
- Promise DC4030VL caching interface card (experimental support in kernel 2.2)

8.Controllers (hard drive RAID)

- Tekram D690CD IDE PCI Cache Controller (with RAID level 1 Mirroring and caching)
- ARCO Inc. DupliDisk IDE disk mirroring controller
  Support for ATA, IDE, E−IDE and UDMA drive. Controllers available can be plugged into ISA and PCI slots, and directly into the IDE controller. Furthermore, 3.5−inch and 5.25−inch Bay Mount units are available that fit into the respective drive bays. More information at http://www.arcoide.com. Make sure you have at least rev 3.00 of the firmware.
- Mylex RAID controllers
  More information can be found at http://www.dandelion.com/Linux/DAC960.html

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9.Controllers (SCSI)

It is important to pick a SCSI controller carefully. Many cheap ISA SCSI controllers are designed to drive CD−ROM's rather than anything else. Such low end SCSI controllers are no better than IDE. See the SCSI HOWTO and look at performance figures before buying a SCSI card.

9.1 Supported

- AMI Fast Disk (**VLB/EISA**) (BusLogic compatible)
- Adaptec AVA−1502E (**ISA/VLB**) (AIC−6360) (*AHA1520*)
- Adaptec AVA−1505/1515 (**ISA**) (Adaptec AHA−152x compatible)
- Adaptec AVA−1825 (**VLB**) (Adaptec AHA−152x compatible)
  This card has a SCSI, EIDE and floppy port which all work nicely.
- Adaptec AHA−1510/152x (**ISA/VLB**) (AIC−6260/6360)
- Adaptec AHA−154x (**ISA**) (all models)

- Adaptec AHA−174x (**EISA**) (in enhanced mode)
- Adaptec AHA−274x/274xT (**EISA**) (AIC−7771). The 274xT is supported since kernel series 2.1.x (*AHA2740*)
- Adaptec AHA−284x (**VLB**) (AIC−7770) (*AHA2740*)
- Adaptec AHA−2910B (**PCI**) (since kernel series 2.1.x)
- Adaptec AHA−2920 (**PCI**). Use the Future Domain driver. LILO parameters are needed when used for hard disks.
- Adaptec AHA−2920C (**PCI**)
- Adaptec AHA−2930/U/U2 (**PCI**)
- Adaptec AHA−2940/U/W/AU/UW/U2W/U2/U2B/U2BOEM (**PCI**) (AIC−7861, AIC−7871, AIC−7844, AIC−7881, AIC−7884). Some of these are only supported since kernel series 2.1.x (*AHA2740*)
- Adaptec AHA−2944D/WD/UD/UWD (**PCI**). Some of these are only supported since kernel series 2.1.x (*AHA2740*)
- Adaptec AHA−2950U2/U2B/U2W
- Adaptec AHA−3940/U/W/UW/AUW/U2W (**PCI**) (AIC−7872, AIC−7882) (since 1.3.6). Some of these are only supported since kernel series 2.1.x
- Adaptec AHA−3950U2B/U2D
- Adaptec AHA−3985U/W/UW (**PCI**) (AIC−7873, AIC−7883). Some of these are only supported since kernel series 2.1.x
- Adaptec **PCI** controllers with AIC−7850, AIC−7855, AIC−7860
- Adaptec on board controllers with AIC−777x (**EISA**), AIC−785x, AIC−786x, AIC−787x (**PCI**), AIC−788x (**PCI**), AIC−789x, AIC−3860. AIC−786x and AIC−789x are supported since kernel series 2.1.x
- AdvanSys ABP510/5150 Bus−Master (**ISA**) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP5140 Bus−Master (**ISA**) PnP http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP5142 Bus−Master (**ISA**) PnP with floppy http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP920 Bus−Master (**PCI**) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP930/U Bus−Master (**PCI/Ultra>**) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP960/U Bus−Master (**PCI/ULTRA**) MAC/PC http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP542 Bus−Master (**ISA**) with floppy (single channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP742 Bus−Master (**EISA**) (single channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP842 Bus−Master (**VL**) (single channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP940/U Bus−Master (**PCI/Ultra**) (single channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP970/U Bus−Master (**PCI/Ultra**) MAC/PC (single channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP752 Dual Channel Bus−Master (**EISA**) (dual channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP852 Dual Channel Bus−Master (**VL**) (dual channel) http://advansys.com/support/software/os/linux.htm
- AdvanSys ABP950 Dual Channel Bus−Master (**PCI**) (dual channel)

http://advansys.com/support/software/os/linux.htm
- Always IN2000
- AMD AM53C974
- BusLogic FlashPoint LT/DL/LW/DW (BT−930(R), BT−920, BT−932(R), BT−950(R), BT−952(R)) http://www.dandelion.com/Linux/
- Compaq Smart Array 2
- DPT PM2001, PM2012A (EATA−PIO)
- DPT Smartcache/SmartRAID Plus,III,IV families (**ISA/EISA/PCI**)
  Take a look at http://www.uni−mainz.de/~neuffer/scsi/dpt/(EATA−DMA)
  Cards in these families are PM2011, PM2021, PM2041, PM3021, PM2012B, PM2022, PM2122, PM2322, PM2042, PM3122, PM3222, PM3332, PM2024, PM2124, PM2044, PM2144, PM3224, PM3334
- DTC 3180/3280
- DTC 329x (**EISA**) (Adaptec 154x compatible)
- Future Domain TMC−16x0, TMC−3260 (**PCI**)
- Future Domain TMC−8xx, TMC−950
- Future Domain chips TMC−1800, TMC−18C50, TMC−18C30, TMC−36C70
- ICP−Vortex PCI−SCSI Disk Array Controllers (many RAID levels supported)
  Patches for Linux 1.2.13 and 2.0.29 are available at ftp://icp−vortex.com/download/linux/. The controllers GDT6111RP, GDT6121RP, GDT6117RP, GDT6127RP, GDT6511RP, GDT6521RP, GDT6517RP, GDT6527RP, GDT6537RP and GDT6557RP are supported. You can also use pre−patch−2.0.31−4 to pre−patch−2.0.31−9.
- ICP−Vortex EISA−SCSI Controllers (many RAID levels supported)
  Patches for Linux 1.2.13 and 2.0.29 are available at ftp://icp−vortex.com/download/linux/. The controllers GDT3000B, GDT3000A, GDT3010A, GDT3020A and GDT3050A are supported. You can also use pre−patch−2.0.31−4 to pre−patch−2.0.31−9.
- Iomega PPA3 parallel port SCSI Host Bus Adapter embedded in ZIP drive
- Initio Corp. INI−9090U INI−9100, INI−9100W/A/UW, INI−9200U/UW, INI−9400U/UW, INI−9520U/UW, INI−A100U2W
- Initio Corp. INIC−950
- Media Vision Pro Audio Spectrum 16 SCSI (**ISA**)
- Mylex (formerly BusLogic) W Series (**PCI**) (BT−948, BT−958, BT−958D)
- Mylex (formerly BusLogic) C Series (**ISA/EISA/VLB/PCI**) (BT−946C, BT−956C, BT−956CD, BT−445, BT−747C, BT−757C, BT−757CD, BT−545C, BT−540CF)
- Mylex (formerly Buslogic) S Series (**ISA/EISA/VLB**) (BT−445S, BT−747S, BT−747D, BT−757S, BT−757D, BT−545S, BT−542D, BT−742A, BT−542B)
- Mylex (formerly BusLogic) A Series (**ISA/EISA**) (BT−742A, BT−542B)
- NCR 5380 generic cards
- NCR 53C400 (Trantor T130B) (use generic NCR 5380 SCSI support)
- NCR 53C406a (Acculogic ISApport / Media Vision Premium 3D SCSI)
- NCR chips 53C7x0 (the 53C710 is only supported in PCI variant)
- NCR chips 53C810(A), 53C815, 53C820, 53C825(A), 53C860, 53C875, 53C895 (53C895 supported 'on paper')
- Qlogic / Control Concepts SCSI/IDE (FAS408) (**ISA/VLB**)
- Qlogic FASXXX/FASXX family of chips (**ISA/VLB**)
- QLogic IQ−PCI, IQ−PCI−10, IQ−PCI−D (**PCI**) (ISP1020 chip)
- Quantum ISA−200S, ISA−250MG
- Seagate ST−01/ST−02 (**ISA**)
- SIIG Ultrawide SCSI Pro (Initio chipset). Drivers and kernel patch to be found at http://www.initio.com/suse.htm
- SoundBlaster 16 SCSI−2 (Adaptec 152x compatible) (**ISA**)

- Tekram DC−390, DC−390W/U/F
- Trantor T128/T128F/T228 (**ISA**)
- UltraStor 14F (**ISA**), 24F (**EISA**), 34F (**VLB**)
- Western Digital WD7000 SCSI

9.2 Alpha, Beta drivers

- AMD AM79C974 (**PCI**) (Compaq, HP, Zeos onboard SCSI)
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/scsi/AM53C974−0.3.tgz
- Adaptec ACB−40xx SCSI−MFM/RLL bridgeboard
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/scsi/adaptec−40XX.tar.gz
- Always Technologies AL−500
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/scsi/al500−0.2.tar.gz
- Iomega PC2/2B
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/scsi/iomega_pc2−1.1.x.tar.gz
- Ricoh GSI−8
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scsi/gsi8.tar.gz

9.3 Unsupported

- Adaptec AHA 2940UW Pro
- Adaptec AAA−13x RAID Adapters
- Adaptec AAA−113x Raid Port Cards
- Adaptec AIC−7810
- NCR chip 53C710 (**ISA**) (old obsolete chip, but still used in some Compaq models)
- Non Adaptec compatible DTC boards (327x, 328x)

10.Controllers (I/O)

Any standard serial/parallel/joystick/combo cards. Linux supports 8250, 16450, 16550, and 16550A UART's. Cards that support non−standard IRQ's (IRQ > 9) can be used.

See National Semiconductor's ``Application Note AN−493'' by Martin S. Michael. Section 5.0 describes in detail the differences between the NS16550 and NS16550A. Briefly, the NS16550 had bugs in the FIFO circuits, but the NS16550A (and later) chips fixed those. However, there were very few NS16550's produced by National, long ago, so these should be very rare. And many of the ``16550'' parts in actual modern boards are from the many manufacturers of compatible parts, which may not use the National ``A'' suffix. Also, some multiport boards will use 16552 or 16554 or various other multiport or multifunction chips from National or other suppliers (generally in a dense package soldered to the board, not a 40 pin DIP). Mostly, don't worry about it unless you encounter a very old 40 pin DIP National ``NS16550'' (no A) chip loose or in an old board, in which case treat it as a 16450 (no FIFO) rather than a 16550A. − Zhahai Stewart

<zstewart@hisys.com>

11.Controllers (multiport)

11.1 Non−intelligent cards

Supported

- AST FourPort and clones (4 port)
- Accent Async−4 (4 port)
- Arnet Multiport−8 (8 port)
- Bell Technologies HUB6 (6 port)
- Boca BB−1004, 1008 (4, 8 port) − no DTR, DSR, and CD
- Boca BB−2016 (16 port)
- Boca IO/AT66 (6 port)
- Boca IO 2by4 (4 serial / 2 parallel, uses 5 IRQ's)
- Computone ValuePort (4, 6, 8 port) (AST FourPort compatible)
- DigiBoard PC/X, PC/Xem, PCI/Xem, EISA/Xem, PCI/Xr (4, 8, 16 port)
- Comtrol Hostess 550 (4, 8 port)
- PC−COMM 4−port (4 port)
- SIIG I/O Expander 4S (4 port, uses 4 IRQ's)
- STB 4−COM (4 port)
- Twincom ACI/550
- Usenet Serial Board II (4 port)

Non−intelligent cards usually come in two varieties, one using standard com port addresses and use 4 IRQ's, and another that's AST FourPort compatible and uses a selectable block of addresses and a single IRQ. (Addresses and IRQ's are set using `setserial`.) If you're getting one of these cards, be sure to check which standard it conforms to, prices are no indication.

11.2 Intelligent cards

Supported

- Computone IntelliPort II (4/8/16 port)
  ftp://ftp.computone.com/pub/bbs/beta/ip2linux−1.0.2.tar.gz
- Cyclades Cyclom−Y (RISC−based, 8−32 ports) (**ISA/PCI**)

http://www.cyclades.com/
- Cyclades−Z (high−end, 16−64 ports) (**PCI**)
  http://www.cyclades.com/
- DigiBoard PC/Xe (**ISA**), PC/Xi (**EISA**) and PC/Xeve
  ftp://ftp.digibd.com/drivers/linux/
- Equinox SST Intelligent serial I/O cards
  http://www.equinox.com
- Hayes ESP 1, 2 and 8 port versions
  Included in kernel since 2.1.15. The driver for kernel versions 2.0.x can be found at
  http://www.nyx.net/~arobinso
- Stallion EasyIO (**ISA**) / EasyConnection 8/32 (**ISA/MCA**) / EasyConnection 8/64 (**PCI**)
  For DIP switch settings and configuration files check http://www.stallion.com
- Stallion EasyConnection 8/64 (**ISA/EISA**) / ONboard (**ISA/EISA/MCA**) / Brumby (**ISA**)
  The latest driver can be found at ftp://ftp.stallion.com/drivers/ata5/Linux/v544.tar.gz

Alpha, Beta drivers

- Comtrol RocketPort (8/16/32 port)
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/serial/comtrol−1.04.tar.gz (kernels 1.2.x). A driver for kernels 2.x can be found at http://ftp.leidenuniv.nl/linux/tsx−11/packages/comtrol/
- DigiBoard COM/Xi
  Contact Simon Park (si@wimpol.demon.co.uk) or Mark Hatle (fray@krypton.mankato.msus.edu).
  NOTE: both email addresses seem not to exist any longer.
- Moxa C102, C104, C168, C218 (8 port), C320 (8/16/24/32 expandable) and C320T
  ftp://ftp.moxa.com.tw/drivers/linux/
- RISCom/8
- Specialix SIO/XIO (modular, 4 to 32 ports)
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/serial/sidrv.taz
- Specialix IO8+
  Contact devices@BitWizard.nl

12.Network adapters

Ethernet adapters vary greatly in performance. In general the newer the design the better. Some very old cards like the 3Com 3c501 are only useful because they can be found in junk heaps for $5 a time. Be careful with clones, not all are good clones and bad clones often cause erratic lockups under Linux. Read the Ethernet HOWTO, http://metalab.unc.edu/LDP/HOWTO/, for detailed descriptions of various cards.

12.1 Supported

Ethernet

For ethernet cards with the DECchip DC21x4x family the "Tulip" driver is available. More information on this driver can be found at http://cesdis.gsfc.nasa.gov/linux/drivers/tulip.html.

- 3Com 3c501 − ``avoid like the plague" (3c501 driver)
- 3Com 3c503 (3c503 driver), 3c505 (3c505 driver), 3c507 (3c507 driver), 3c509/3c509B (**ISA**) / 3c579 (**EISA**)
- 3Com Etherlink III Vortex Ethercards (3c590, 3c592, 3c595, 3c597) (**PCI**), 3Com Etherlink XL Boomerang (3c900, 3c905) (**PCI**) and Cyclone (3c905B, 3c980) Ethercards (3c59x driver) and 3Com Fast EtherLink Ethercard (3c515) (**ISA**) (3c515 driver)
  Newer versions of this drivers are available at http://cesdis.gsfc.nasa.gov/linux/drivers/vortex.html
  Avoid the 3c900 card when possible as the driver is not functioning well for this card.
- 3Com 3ccfe575 Cyclone Cardbus (3c59x driver)
- 3Com 3c575 series Cardbus (3c59x driver) (ALL PCMCIA ??)
- AMD LANCE (79C960) / PCnet−ISA/PCI (AT1500, HP J2405A, NE1500/NE2100)
- AT&T GIS WaveLAN
- Allied Telesis AT1700
- Allied Telesis LA100PCI−T
- Allied Telesyn AT2400T/BT ("ne" module)
- Ansel Communications AC3200 (**EISA**)
- Apricot Xen−II / 82596
- Cabletron E21xx
- Cogent EM110
- Crystal Lan CS8920, Cs8900
  http://www.cirrus.com/private/drivers/ethernet/edrivers.html
- Danpex EN−9400
- DEC DE425 (**EISA**) / DE434/DE435 (**PCI**) / DE450/DE500 (DE4x5 driver)
- DEC DE450/DE500−XA (dc21x4x) (Tulip driver)
- DEC DEPCA and EtherWORKS
- DEC EtherWORKS 3 (DE203, DE204, DE205)
- DEC QSilver's (Tulip driver)
- Digi International RightSwitch
- DLink DE−220P, DE−528CT, DE−530+, DFE−500TX, DFE−530TX
  More information at http://www.dlink.ca/linux.html
- Fujitsu FMV−181/182/183/184
- HP PCLAN (27245 and 27xxx series)
- HP PCLAN PLUS (27247B and 27252A)
- HP 10/100VG PCLAN (J2577, J2573, 27248B, J2585) (**ISA/EISA/PCI**)
  More information at http://cesdis1.gsfc.nasa.gov:80/linux/drivers/100vg.html
- ICL EtherTeam 16i / 32 (**EISA**)
- Intel EtherExpress
- Intel EtherExpress Pro
- KTI ET16/P−D2, ET16/P−DC ISA (work jumperless and with hardware−configuration options)
- Macromate MN−220P (PnP or NE2000 mode)

- NCR WaveLAN
- NE2000/NE1000 (be careful with clones)
- Netgear FA−310TX (Tulip chip)
- New Media Ethernet
- PureData PDUC8028, PDI8023
- SEEQ 8005
- SMC Ultra / EtherEZ (**ISA**)
- SMC 9000 series
- SMC PCI EtherPower 10/100 (Tulip driver)
- SMC EtherPower II (epic100.c driver)
- Sun LANCE adapters (kernel 2.2 and newer)
- Sun Intel adapters (kernel 2.2 and newer)
- Schneider & Koch G16
- Western Digital WD80x3
- Zenith Z−Note / IBM ThinkPad 300 built−in adapter
- Znyx 312 etherarray (Tulip driver)

ISDN

- Linux ISDN WWW page
  This page seems to be gone ??
- ISDN4Linux tools are available from ftp://ftp.franken.de/pub/isdn4linux/v2.0

- 3Com Sonix Arpeggio
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/network/sonix.tgz
- ASUSCOM Network Inc. ISDNLink 128K PC adapter (HiSax)
- AVM A1 (HiSax)
- AVM B1 (avmb1)
- Combinet EVERYWARE 1000 ISDN
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/network/combinet1000isdn−1.02.tar.gz
- Compaq ISDN S0 (**ISA**) (HiSax)
- Creatix PnP S0 (HiSax)
- Dr. Neuhaus Niccy PnP/PCI (HiSax)
- Dynalink IS64PH (HiSax)
- Eicon.Diehl Diva 2.0 (**ISA/PCI**) (S0 and U interface, no PRO version) (HiSax)
- Eicon.Diehl Diva Piccola (HiSax)
- Elsa Microlink PCC−16, PCF, PCF−Pro, PCC−8 (HiSax)
- ELSA QuickStep 1000/1000PCI/3000 (HiSax)
- HFC−2BS0 based cards (HiSax)
- IBM Active 2000 (**ISA**) (act2000)
- ICN ISDN cards (icn)
- Ith Kommunikationstechnik GmbH MIC 16 (ISA) (HiSax)
- ITK ix1−micro Rev.2 (HiSax)
- Octal PCBIT (pcbit)
- Sedlbauer Speed Card (HiSax)
- Teles SO−8/SO−16.0/SO−16.3/SO−16.3c/SO−16.4 and compatible ones (HiSax)
- Traverse Technologie NETjet PCI S0 (HiSax)

- USR Sportster internal TA (HiSax)

ISDN cards that emulate standard modems or common Ethernet adapters don't need any special drivers to work.

Frame Relay

- Emerging Technologies Inc Synchronous Adapters (http://www.etinc.com)
    - ET/5025 (1 port, 8−bit **ISA**)
    - ET/5025−16 (2 ports, 16−bit **ISA**)
    - ET/5025−25 (2 ports, 16−bit **ISA**)
    - ET/5025pq (4 ports, **PCI**)

Wireless

- ZCOM WL2420 ISA
  Product information can be found at http://www.zcom.com.tw. Object file kernel drivers are available at www.boerde.de/~matthias/airnet/zcom_v12

X25

- Emerging Technologies Inc Synchronous Adapters (http://www.etinc.com)
    - ET/5025 (1 port, 8−bit **ISA**)
    - ET/5025−16 (2 ports, 16−bit **ISA**)
    - ET/5025−25 (2 ports, 16−bit **ISA**)
    - ET/5025pq (4 ports, **PCI**)

Pocket and portable adapters

- For more information on Linux and use of the parallel port, go to the Linux Parallel Port Home Page http://www.torque.net/linux−pp.html or http://www.torque.net/parport/. Check Appendix C for a complete list of supported parallel port devices (excluding printers)

Slotless

- SLIP/CSLIP/PPP (serial port)
- EQL (serial IP load balancing)
- PLIP (parallel port) − using ``LapLink cable'' or bi−directional cable

ARCnet

- Works with all ARCnet cards

http://www.linuxtr.net

- 3Com 3C619/B/C Tokenlink 16/4 (ibmtr)
- 3Com 3C319 Velocity ISA (ibmtr)
- IBM PCI token ring adapter
- IBM Wake on Lan TR adapter
- IBM 16/4 TR PCI Adapter 2, Adapter 2 Wake on Lan, Adapter 2 Wake on Lan Special
- IBM High Speedd 100/16/4 token ring
- IBM ISA 16/4, MCA 16/4 (ibmtr)
- IBM Tropic chipset cards
- Olicom RapidFire 3139, 3140, 3141, 3540
  http://www.olicom.com
- Olicom OC−3136, OC−3137, OC−3138, OC−3129
  http://www.olicom.com
- Madge Smart 100/16/4 PCI, 16/4 PCI Mk3, 16/4 PCI Mk2
  http://www.madge.com
- Madge Presto PCI, 16/4 CardBus
  http://www.madge.com
- Syskonnect TR4/16(+) SK−4190 ISA, SK−4590 PCI, SK−4591 PCI (sktr)

FDDI

- DEC DEFEA (**EISA**) / DEFPA (**PCI**) (kernel 2.0.24 and later)

Amateur radio (AX.25)

- Gracilis PackeTwin
- Ottawa PI/PI2
- Most generic 8530 based HDLC boards

PCMCIA cards

- See Appendix B for complete list or the webpages of David Hinds at http://hyper.stanford.edu/HyperNews/get/pcmcia/home.html

12.2 Alpha, Beta drivers

Ethernet

- Racal−Interlan NI5210 (i82586 Ethernet chip). Improved support in kernel 2.2 and newer
- Racal−Interlan NI6510 (am7990 lance chip). Starting with kernel 1.3.66 more than 16Mb Ram is supported.
- Racal−Interlan PCI card (AMD PC net chip 97c970) ??

ISDN

- SpellCaster's Datacomute/BRI, Telecomute/BRI (**ISA**) (sc)

ATM

- Efficient Networks ENI155P−MF 155 Mbps ATM adapter (**PCI**) http://lrcwww.epfl.ch/linux−atm/

Frame Relay

- Sangoma S502 56K Frame Relay card ftp://ftp.sovereign.org/pub/wan/fr/

Wireless

- Proxim RangeLan2 7100 (**ISA**) / 630x (OEM **mini−ISA**) http://www.komacke.com/distribution.html

12.3 Unsupported

- 3Com 3C359 Velocity XL PCI
- 3Com 3C339 Velocity PCI
- IBM PCI LANStreamer, MCA LANStreamer token ring
- Intel TokenExpress PRO, TokenExpress 16/4
- Sysconnect / Schneider & Koch Token Ring cards (all of them)

13.Sound cards

More information on sound drivers and sound cards can be found on http://www.opensound.com/ossfree or http://www.opensound.com/oss.html.

13.1 Supported

- 4Front Technology Virtual Mixer (includes SoftOSS)
- 4Front Technology Virtual Synth (SoftOSS)
- 6850 UART MIDI
- A−Plus Sound of Music (OPL3−SA)
- A−Trend Harmony 3Ds751 (**PCI**)
- AcerMagic S23
- Adlib FM synthesizer card
- Adlib MSC 16 PnP (CS4235)
- AMD Interwave reference card
- ARC Probook
- Audio Excell DSP16
- Avance Logic ALS−007 chip based cards.
  Code for this chip is integrated in the Sound Blaster 16 driver. Isapnptools should be used for configuration.
- AW32 Pro (R2.2−W2)
- AW35 (CS4237)
- AW37 Pro (CS4235)
- Aztech Sound Galaxy NX Pro, NX Pro 16, WaveRider 32+
- Aztech Washington
- BTC Mozart Sound System
- BTC−1831 Sound Card (Opti 1688)
- Bravo Sound Card (Opti 82C930)
- Bull PowerPc builtin audio
- CDR4235−6/−8
- CS32−3DI
- Compaq Deskpro XL integrated Business Audio
- Creative EMU8000 add on (PnP)
- Creative Phone Blaster 28.8/33.6

- Creative Sound Blaster 1.0 to 2.0
- Creative Sound Blaster Pro
- Creative Sound Blaster 16
- Creative Sound Blaster 16 ASP
- Creative Sound Blaster 16 PnP (type−1 upto type−10)
- Creative Sound Blaster 16 Vibra
- Creative Sound Blaster 2.x
- Creative Sound Blaster 32/AWE
- Creative Sound Blaster 32/AWE PnP (type−1 upto type−10)
- Creative Sound Blaster AWE64 (type−1 upto type−7)
- Creative Sound Blaster AWE64 Gold (type−1 and type−2)
- Creative Sound Blaster PCI64/128
- Creative Sound Blaster AWE64/Gold and 16/32/AWE PnP cards need to be activated using isapnptools
- Creative ViBRA16C/CL/S (type−1 and type−2) PnP
- Creative ViBRA16X PnP (half duplex only)
- CrystaLake Crystal Clear Series 100
- Crystal Audio (CS4235)
- Crystal CRD4236B−1E
- Crystal CRD4237B−5/−8
- Crystal CSC0B35 (CS4236B)
- Crystal CX4237B−SIDE
- Crystal Onboard PnP Audio (CS4235)
- Dell Latidude builtin audio
- Diamond Crystal MM PC/104
- Digital AXP builtin audio
- ECHO−PSS cards (Orchid SoundWave32, Cardinal DSP16)
- ESS 1868, 1869 (type−1 and type−2), 1878, 1879, 1968 PnP AudioDrive
- Ensoniq AudioPCI (ES1371)
- Ensoniq AudioPCI / SoundBlaster PCI (ES1370)
- Ensoniq Soundscape Elite
- Ensoniq Soundscape PnP (model 1 and 2)
- Ensoniq Soundscape S−2000
- Ensoniq Soundscape VIVO, VIVO90
- Ensoniq ActionNote 880 C/CX
- Gallant's sound card (SC−6000 and SC−66000 based)
- Generic AD1815 based soundcard (PnP)
- Generic CMI8330 based soundcard (PnP)
- Generic Crystal CS4232 based soundcard or motherboard (non PnP)
- Generic Crystal CS4232 by Acer (PnP mode)
- Generic Crystal CS4232 type−1 upto type−3 (PnP mode)
- Generic Crystal CS4235 type−1
- Generic Crystal CS4236 (type−1 upto type−3)
- Generic Crystal CS4236 based soundcard or motherboard (non PnP)
- Generic Crystal CS4236A (type−1 and type−2), CS4236B
- Generic Crystal CS4237 based soundcard or motherboard (non PnP)
- Generic Crystal CS4237B (type−1 and type−2)
- Generic Crystal CS4238 based soundcard or motherboard (non PnP)
- Generic ESS ES688, ES1688, ES1788, ES1868, ES1869, ES1887, ES1888 based soundcard or motherboard
- Generic Jazz16 based soundcard

- Generic MAD16 (OPTi 82C928), MAD16 Pro, MAD16 Pro (duplex) (OPTi 82C929)
- Generic Mozart soundcard (OAK OTI−601 chip)
- Generic OPTi 82C924, 82C925 based sound card (PnP)
- Generic OPTi 82C924 soundcard (non PnP mode). Use the MSS driver and the isapnp tools
- Generic OPTi 82C930
- Generic OPTi 82C931
  See http://spoke.nols.com/~drees/opti931.html
- Generic Soundscape based soundcard
- Generic Windows Sound System compatible
- Generic Yamaha OPL3−SA1 (YMF701) based soundcard
- Generic Yamaha OPL3−SA2 (YMF711) based soundcard (type−1, type−3, type−4)
- Generic Yamaha OPL3−SA3 (YMF715) based soundcard
- Generic Yamaha OPL3−SAx (YMF715/YMF719) non−PnP
- Gravis Ultrasound
- Gravis Ultrasound Extreme
- Gravis Ultrasound 16−bit sampling daughterboard
- Gravis Ultrasound MAX
- Gravis Ultrasound ACE
- Gravis Ultrasound PnP (with RAM), PnP Pro
- HP OmniBook 2100 (CS4236)
- Home Studio 64 (analog audio only)
- IBM Audio Feature (CS423x)
- Logitech SoundMan Games (SBPro, 44kHz stereo support)
- Logitech SoundMan Wave (Jazz16/OPL4)
- Logitech SoundMan 16 (PAS−16 compatible)
- MED3201 audio card
- Maxi Sound 32 PnP (analog audio only)
- Maxi Sound 64 Dynamic 3D (analog audio only)
- Media Sound SW/32 (non PnP mode)
- MediaTriX AudioTriX Pro, 3D XG
- Media Vision Premium 3D (Jazz16)
- Media Vision Pro Sonic 16 (Jazz)
- Media Vision Pro Audio Spectrum 16 (PAS−16)
- Media Vision Pro Audio Studio 16
- Media Vision Thunderboard
- Microsoft Windows Sound System board (AD1848)
- MiroSound PCM!−pro
- MultiWave AudioWave Green 16
- Music Quest MIDI connector card (MCC)
- Music Quest MQX−16, MQX−16S MIDI adapter
- Music Quest MQX−32, MQX−32M MIDI adapter
- Music Quest PC MIDI card
- NEC Harmony
- Orchid SoundDrive 16EZ
- Pine PT201
- Primax SoundStorm FM 16, SoundStorm Wave
- Pro Audio Spectrum 16, Studio 16
- RME Digi32, Digi32 Pro, Digi32/8
- Reveal SC300
- Reveal WaveExtreme Pro (with RAM)
- Roland MPU IPC−T MIDI adapter

* S3 SonicVibes
* Shark Mako
* Sharp PC8800
* Shuttle Sound System 48
* Spacewalker HOT−255 PCI 3D (**PCI**)
* TerraTec Maestro 32/96
* Terratec EWS64XL (audio only)
* Terratec Sound System Base 1 (AD1816)
* Terratec Sound System Base 64 (AD1816)
* Tomato Sound System (OPTi 82C930)
* Trust Sound Expert De Luxe Wave 32
* Turtle Beach Classic/Tahiti/Monterey
* Turtle Beach Maui
* Turtle Beach Monte Carlo 928, Monte Carlo 929
* Turtle Beach Pinnacle/Fiji
* Turtle Beach Tropez, Tropez Plus (audio only)
* Turtle Beach Daytona (audio only)
* Wearnes Classic 16
* Yamaha Sound Edge SW20−PC
* Zefiro Acoustics ZA2 (NOT RECOMMENDED)
* Zenith Z−Player

* AWE32/64 supports is started in kernel series 2.1.x (check the SoundBlaster AWE mini−HOWTO by Marcus Brinkmann for installation details)
* MPU−401 MIDI Intelligent mode (don't enable blindly)
    * MPU IPC−T
    * MQX−32M
* MPU−401 MIDI UART only dumb port (don't enable blindly)
* Yamaha FM synthesizers (OPL2, OPL3, OPL3−SAx (since kernel series 2.1.x) and OPL4)

OSS supports all MIDI daughter cards including Wave Blaster, TB Rio and Yamaha DB50XG. The only requirement is that the "host" card is supported by OSS. Note that only the "host" card needs to be configured using soundconf. The daughter card will be automatically accessible through the MIDI of the "host" card.

13.2 Alpha, Beta drivers

* 4Front Tech. Waveloop loopback audio device
* Acer FX−3D (AD1816 based)
* AVM Apex Pro card (AD1816 based)
* Aztech AZT1008, AZT2320, AZT3000
* Aztech SC−16 3D (AD1816 based)
* Creative Sound Blaster Vibra16x
* Creative Sound Blaster Live! and Live! Value Edition
  Creative Labs has beta driver for this card. They work with kernels 2.0.36 and 2.2.5 (and most probably newer kernels in these series). The drivers can be downloaded under the software download area at http://www.creativelabs.com

- Highscreen Sound−Boostar 32 Wave 3D (AD1816 based)
- Highscreen Sound−Boostar 16 (AD1816 based)
- HP Kayak (AD1816 based)
- IBM MWave
- Newcom SC−16 3D (AD1816 based)
- PC speaker / Parallel port DAC ftp://ftp.informatik.hu−berlin.de/pub/os/linux/hu−sound/
- Rockwell WaveArtist chipset
- Sonorus STUDI/O
- SY−1816 (AD1816 based)
- Terratec Base 1, Base 64 (AD1816 based)
- Terratec EWS64S (AD1816 based)
- Turtle Beach Malibu ftp://ftp.cs.colorado.edu/users/mccreary/archive/tbeach/multisound/

For the AD1816 sound chip based sound cards isapnptools is needed for configuration.

13.3 Unsupported

- A−Trend Harmony 3DS724 (**PCI**)
- Actech PCI 388−A3D q
- Adaptec AME−1570
- Aureal Vortex (**PCI**)
- Cardinal DSP 16
- Contributed lowlevel drivers
- Crystal CS4614 (**PCI**)
- Cyrix MediaGX builtin audio
- Diamond Monster Sound MX300
- Diamond Sonic Impact
- Dream 94PnP Home Studio
- EON Bach SP901 (A3D)
- ESS (**PCI**)
- ESS Maestro−1 (**PCI**), Maestro−2 (**PCI**)
- ESS Solo−1 (**PCI**)
- Echo Personal Sound System
- Generic ALS007, ALS100 based soundcard
- Orchid NuSound 3D
- Orchid SoundWave 32
- Paradise DSP−16
- Quicknet Internet LineJACK
- Terratec XLerate (A3D)
- Turtle Beach Montego
- Turtle Beach TBS−2000
- Videologic SonicStorm
- Wearnes Beethoven ADSP−16
- Western Digital Paradise DSP−16
- Yamaha YMF724 (**PCI**)

The ASP chip on Sound Blaster 16 series is not supported. AWE32's onboard E−mu MIDI synthesizer is not supported.

Nathan Laredo <laredo@gnu.ai.mit.edu> is willing to write AWE32 drivers if you send him a complimentary card. He is also willing to write drivers for almost any hardware if you send him free samples of your hardware.

Sound Blaster 16's with DSP 4.11 and 4.12 have a hardware bug that causes hung/stuck notes when playing MIDI and digital audio at the same time. The problem can happen with either Wave Blaster daughterboards or MIDI devices attached to the MIDI port. There is no known fix.

14.Hard drives

All hard drives should work if the controller is supported.

(From the SCSI HOWTO) All direct access SCSI devices with a block size of 256, 512, or 1024 bytes should work. Other block sizes will not work (Note that this can often be fixed by changing the block and/or sector sizes using the MODE SELECT SCSI command).

Large IDE (EIDE) drives work fine with newer kernels. The boot partition must lie in the first 1024 cylinders due to PC BIOS limitations.

Some Conner CFP1060S drives may have problems with Linux and ext2fs. The symptoms are inode errors during `e2fsck` and corrupt file systems. Conner has released a firmware upgrade to fix this problem, contact Conner at 1−800−4CONNER (US) or +44−1294−315333 (Europe). Have the microcode version (found on the drive label, 9WA1.6x) handy when you call.

Many Maxtor and Western Digital IDE drives are reported to not happily co−exist on the same IDE cable with the other manufacturers drive. Usually one of the drives will fail during operation. Solution is to put them on different IDE cables.

Certain Micropolis drives have problems with Adaptec and BusLogic cards, contact the drive manufacturers for firmware upgrades if you suspect problems.

- Multiple device driver (RAID−0, RAID−1)
  ftp://sweet−smoke.ufr−info−p7.ibp.fr/public/Linux/

14.1 Unsupported

The following hard drives are mentioned as not supported by Linux. Read the bug report available.

- NEC D3817, D3825, D3827, D3847
  "These drives are slightly non−SCSI−2 compliant in the values reported in Mode Sense Page 3. In Mode Sense Page 3 all NEC D38x7 drives report their sector size as zero. The NEC drives are the

first brand of drive we have ever encountered that reported the sector size as zero. Unfortunately, that field in Mode Sense Page 3 is not modifiable and there is no way to update the firmware on the D38x7 drives to correct this problem." Problems are mentioned for D3825 and D3827 (both revision 0407). Revision 0410 of these two hard drives seems to solve this problem.

15.Tape drives

15.1 Supported

- SCSI tape drives
  (From the SCSI HOWTO) Drives using both fixed and variable length blocks smaller than the driver buffer length (set to 32k in the distribution sources) are supported. Virtually all drives should work. (Send mail if you know of any incompatible drives.)
    - Seagate Sidewinder 50 AIT (on ICP 6527 RAID−controller)
- QIC−02 drives
- Iomega Ditto internal (ftape 3.04c and newer)

15.2 Alpha, Beta drivers

- QIC−117, QIC−40/80, QIC−3010/3020 (QIC−WIDE) drives
  Most tape drives using the floppy controller should work. Various dedicated controllers (Colorado FC−10/FC−20, Mountain Mach−2, Iomega Tape Controller II) are also supported
  ftp://metalab.unc.edu/pub/Linux/kernel/tapes
- ATAPI tape drives
  For these an alpha driver (ide−tape.c) is available in the kernel. ATAPI tape drives supported are
    - Seagate TapeStor 8000
    - Conner CTMA 4000 IDE ATAPI Streaming tape drive

15.3 Unsupported

- Emerald and Tecmar QIC−02 tape controller cards − Chris Ulrich `<insom@math.ucr.edu>`
- Drives that connect to the parallel port (eg: Colorado Trakker)
- Some high speed tape controllers (Colorado TC−15)
- Irwin AX250L/Accutrak 250 (not QIC−80)
- IBM Internal Tape Backup Unit (not QIC−80)

* COREtape Light

16.CD−ROM drives

For more information on CD−ROM drives check the CDROM−HOWTO at http://metalab.unc.edu/LDP/HOWTO/.

16.1 Supported

Common CD−ROM drives

* SCSI CD−ROM drives
  (From the CD−ROM HOWTO) Any SCSI CD−ROM drive with a block size of 512 or 2048 bytes should work under Linux; this includes the vast majority of CD−ROM drives on the market.
* EIDE (ATAPI) CD−ROM drives (IDECD)
  Almost all double, quad and six speed drives are supported, including
    - Mitsumi FX400
    - Nec−260
    - Sony 55E

Proprietary CD−ROM drives

* Aztech CDA268−01A, Orchid CDS−3110, Okano/Wearnes CDD−110, Conrad TXC, CyCDROM CR520ie/CR540ie/CR940ie (AZTCD)
* Creative Labs CD−200(F) (SBPCD)
* Funai E2550UA/MK4015 (SBPCD)
* GoldStar R420 (GSCD)
* IBM External ISA (SBPCD)
* Kotobuki (SBPCD)
* Lasermate CR328A (OPTCD)
* LMS Philips CM 206 (CM206)
* Longshine LCS−7260 (SBPCD)
* Matsushita/Panasonic CR−521/522/523/562/563 (SBPCD)
* MicroSolutions Backpack parallel portdrive (BPCD)
* Mitsumi CR DC LU05S (MCD/MCDX)
* Mitsumi FX001D/F (MCD/MCDX)
* Optics Storage Dolphin 8000AT (OPTCD)
* Sanyo CDR−H94A (SJCD)
* Sony CDU31A/CDU33A (CDU31A)
* Sony CDU−510/CDU−515 (SOMYCD535)
* Sony CDU−535/CDU−531 (SONYCD535)
* Teac CD−55A SuperQuad (SBPCD)

16.2 Alpha, Beta drivers

- LMS/Philips CM 205/225/202
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/cdrom/lmscd0.4.tar.gz
- NEC CDR−35D (old)
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/cdrom/linux−neccdr35d.patch
- Sony SCSI multisession CD−XA
  ftp://tsx−11.mit.edu/pub/linux/patches/sony−multi−0.00.tar.gz
- Parallel Port Driver
  http://www.torque.net/linux−pp.html

16.3 Notes

All CD−ROM drives should work similarly for reading data. There are various compatibility problems with audio CD playing utilities. (Especially with newer low−end NEC drives.) Some alpha drivers may not have audio support yet.

Early (single speed) NEC CD−ROM drives may have trouble with currently available SCSI controllers.

PhotoCD (XA) is supported. The hpcdtoppm program by Hadmut Danisch converts PhotoCD files to the portable pixmap format. The program can be obtained from ftp://ftp.gwdg.de/pub/linux/hpcdtoppm or as part of the PBM utilities.

Also, reading video CD is supported in kernel series 2.1.3x and later. A patch is available for kernel 2.0.30.

Finally, most IDE CD−ROM Changers are supported.

17.CD−Writers

Many CD−Writers are supported by Linux now. For an up to date list of CD−Writers supported check the CD−Writing mini−HOWTO at http://metalab.unc.edu/LDP/HOWTO/CD−Writing−HOWTO.html, check http://www.shop.de/cgi−bin/winni/lsc.pl or check http://www.guug.de:8080/cgi−bin/winni/lsc.pl. Cdwrite ftp://metalab.unc.edu/pub/Linux/utils/disk−management/ and cdrecord http://www.fokus.gmd.de/research/cc/glone/employees/joerg.schilling/private/cdrecord.html can be used for writing CD's. The X−CD−Roast package for Linux is a graphical front−end for using CD writers. The package can be found at ftp://metalab.unc.edu/pub/Linux/utils/disk−management/xcdroast−0.96d.tar.gz.

- Grundig CDR 100 IPW
- HP CD−Writer+ 7100
- HP SureStore 4020i
- HP SureStore 6020es/i
- JVC XR−W2010

* Kodak PCD 225
* Mitsubishi CDRW−226
* Mitsumi CR−2600TE
* Olympus CDS 620E
* Philips CDD−521/10,522,2000,2600,3610
* Pinnacle Micro RCD−5020/5040
* Plextor CDR PX−24CS
* Ricoh MP 1420C
* Ricoh MP 6200S/6201S
* Sanyo CRD−R24S
* Smart and Friendly Internal 2006 Plus 2.05
* Sony CDU 920S/924/926S
* Taiyo Yuden EW−50
* TEAC CD−R50S
* WPI(Wearnes) CDR−632P
* WPI(Wearnes) CDRW−622
* Yamaha CDR−100
* Yamaha CDR−200/200t/200tx
* Yamaha CDR−400t/400tx

18.Removable drives

All SCSI drives should work if the controller is supported, including optical (MO), WORM, floptical, Bernoulli, Zip, Jaz, SyQuest, PD, and others.

* Panasonic MO (combines a CD−ROM drive and an optical removable disk). You have to set a switch when configuring the kernel to get both part work at the same time.
* Parallel port Zip drives
  ftp://gear.torque.net/pub/
* Parallel port Avatar Shark−250
  http://www.torque.net/parport/

Removable drives work like hard disks and floppies, just `fdisk`/`mkfs` and mount the disks. Linux provides drive locking if your drives support it. `mtools` can also be used if the disks are in MS−DOS format.

CD−R drives require special software to work. Read the CD−R Mini−HOWTO.

Linux supports both 512 and 1024 bytes/sector disks. Starting with kernel 2.1.32 Linux also supports 2048 bytes/sector. A patch to kernel 2.0.30 is available at http://liniere.gen.u−tokyo.ac.jp/2048.html.

The 2048 bytes/sector support is needed for

* Fujitsu magneto−optical disk drives M2513

Starting with pre−patch−2.0.31−3 IDE/ATAPI internal Zip drives, flopticals and PD's are supported.

- LS−120 floptical
- PD−CD

19.Mice

19.1 Supported

- Microsoft serial mouse
- Mouse Systems serial mouse
- Logitech Mouseman serial mouse
- Logitech serial mouse
- ATI XL Inport busmouse
- C&T 82C710 (QuickPort) (Toshiba, TI Travelmate)
- Microsoft busmouse
- Logitech busmouse
- PS/2 (auxiliary device) mouse

19.2 Alpha, Beta drivers

- Sejin J−mouse
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/console/jmouse.1.1.70−jmouse.tar.gz
- MultiMouse − use multiple mouse devices as single mouse
  ftp://metalab.unc.edu/pub/Linux/system/misc/MultiMouse−1.0.tgz
- Microsoft Intellimouse

19.3 Notes

Touchpad devices like Alps Glidepoint also work, so long they're compatible with another mouse protocol.

Newer Logitech mice (except the Mouseman) use the Microsoft protocol and all three buttons do work. Eventhough Microsoft's mice have only two buttons, the protocol allows three buttons.

The mouse port on the ATI Graphics Ultra and Ultra Pro use the Logitech busmouse protocol. (See the Busmouse HOWTO for details.)

20.Modems

All internal modems or external modems connected to the serial port should work. Alas, some manufactures have created Windows 95 only modems. Check Appendix E for Linux incompatible hardware. Furthermore, many flash upgradable modems only have flash programs for Win95/NT. These modems cannot be upgraded under Linux.

A small number of modems come with DOS software that downloads the control program at runtime. These can normally be used by loading the program under DOS and doing a warm boot. Such modems are probably best avoided as you won't be able to use them with non PC hardware in the future.

All PCMCIA modems should work with the PCMCIA drivers.

Fax modems need appropriated fax software to operate. Also be sure that the fax part of the modem supports Class 2 or Class 2.0. It seems to be generally true for any fax software on unix that support for Class 1.0 is not available.

An exception to this is the Linux efax program which supports both Class 1 and Class 2 fax modems. In some cases there can be a few (minor) technical problems with Class 1 modems. If you have a choice it is recommend to get a Class 2 modem.

- Digicom Connection 96+/14.4+ − DSP code downloading program
  ftp://metalab.unc.edu/pub/Linux/apps/serialcomm/smdl−linux.1.02.tar.gz
- Motorola ModemSURFR internal 56K. Add a couple of line to RC.SERIAL to account for IRQ and ports if they are non−standard.
- ZyXEL U−1496 series − ZyXEL 1.4, modem/fax/voice control program
  http://www.pe1chl.demon.nl/ZyXEL/ZyXEL−1.6.tar.gz
- ZyXEL Elite 2864 series − modem/fax/voice control program
  http://www.pe1chl.demon.nl/ZyXEL/ZyXEL−1.6.tar.gz
- ZyXEL Omni TA 128 − modem/fax/voice control program
  http://www.pe1chl.demon.nl/ZyXEL/ZyXEL−1.6.tar.gz

Also multimodem cards are supported by Linux.

- Moreton Bay RAStel multimodem card
  Check http://www.moreton.com.au/linux.htm for Linux drivers.

The following modem is mentioned not to be supported

- Aztech MDP3858 56.6 (PCI)

21.Printers/Plotters

All printers and plotters connected to the parallel or serial port should work. Alas, some manufacturers have created Windows 95 only printers. Check Appendix E for Linux incompatible hardware.

- HP LaserJet 4 series − free−lj4, printing modes control program
  ftp://metalab.unc.edu/pub/Linux/system/printing/free−lj4−1.1p1.tar.gz
- BiTronics parallel port interface
  ftp://metalab.unc.edu/pub/Linux/kernel/patches/misc/bt−ALPHA−0.0.1.module.patch.gz
- Epson Stylus Color 850. Use Magicfilter with either of the filters 'stylus800−filter', 'stylus_color_360dpi−filter' or 'stylus_color_720dpi−filter'.

21.1 Ghostscript

Many Linux programs output PostScript files. Non−PostScript printers can emulate PostScript Level 2 using Ghostscript.

- Ghostscript
  ftp://ftp.cs.wisc.edu/pub/ghost/aladdin/

Ghostscript 5.1 supported printers

- Apple Imagewriter
- Apple Dot Matrix printer
- Apple StyleWriter 2x00 (*bjc600*)
- Brother HL−660 (*ljet4*)
- C. Itoh M8510
- Canon BubbleJet BJ10e, BJ20 (*bj10e*)
- Canon BubbleJet BJ100, BJ200, BJC−210 (B/W only), BJC−240 (B/W only), BJC−250 (B/W only), BJC−70 (B/W only) (*bj200*)
- Canon BubbleJet BJC−600, BJC−610, BJC−4000, BJC−4100 (B/W only), BJC−4200, BJC−4300, BJC−4400, BJC−4550, BJC−210, BJC−450, MultiPASS C2500, BJC−240, BJC−70 (*bjc600*)
- Canon BubbleJet BJC−800, BJC−7000 (*bjc800*)
- Canon Bubblejet BJC−610 (*uniprint*)
- Canon LBP−8II, LIPS III
- DEC LA50/70/75/75plus
- DEC LN03, LJ250 (*decl250*)
- Epson 9 pin, 24 pin, LQ series, AP3250
- Epson Stylus Color/Color II/400/500/600/800 (*stcolor*)
- Epson Stylus Color/Color II/500/600/800/1520 (*uniprint*)
- Fujitsu 3400,2400,1200
- HP 2563B
- HP DesignJet 650C
- HP DeskJet, Deskjet Plus (*deskjet*)
- HP Deskjet 500, Deskjet Portable (*djet500*)
- HP Deskjet 500C (*cdeskjet*)

- HP Deskjet 550C (*uniprint*)
- HP DeskJet 400/500C/520C/540C/690C/693C (*cdj500*)
- HP DeskJet 550C/560C/600/660C/660Cse/682C/683C/693C/694C/695C/850/870Cse (*cdj550*)
- HP DeskJet 850/855/870Cse/870Cxi/890C/672C/680/1100C (*cdj850*)
- HP DeskJet 500C/510/520/5540C/693C printing black only (*cdjmono*)
- HP DeskJet 600 (*lj4dith*)
- HP DeskJet 600/870Cse, LaserJet 5/5L/6L (*ljet4*)
- HP Deskjet 600/1200C/1600C (*pjxl300*)
- HP Deskjet 500/500C/510/520/540/550C/560C/850C/855C and other PCL3 printers
  ftp:ftp.pdb.sni.de/pub/utilities/misc/hpdj−2.1.tar.gz
- HP Deskjet 710, 720, 820 and 1000 series
  http://www.httptech.com/ppa/
- HP Paintjet (*pjtest*)
- HP Paintjet XL (*pjxltest*)
- HP PaintJet XL300 (*pjxl300*)
- HP LaserJet/Plus/II/III/4/5/6
- IBM 3853 Jetprinter color
- IBM Proprinter
- Imagen ImPress
- Lexmark Optra E+ (*ljet4*)
- Mitsubishi CP50 color
- NEC P6/P6+/P60
- NEC Pinwriter P2X (*uniprint*)
- NEC SuperScript 860 (*ljetplus*)
- Oki OL410ex LED (*ljet4*)
- Okidata MicroLine 182
- Ricoh 4081/6000 (*r4081*)
- SPARCprinter
- StarJet 48 inkjet printer
- Tektronix 4693d color 2/4/8 bit
- Tektronix 4695/4696 inkjet plotter
- Xerox XES printers (2700, 3700, 4045, etc.)

Alpha, Beta drivers

- Epson Stylus Color 440

22.Scanners

For scanner support there is the package SANE (Scanner Access Now Easy). Information can be found at http://www.mostang.com/sane/. It can be downloaded from ftp://ftp.mostang.com/pub/sane/. This is a universal scanner interface. It comes complete with documentation and several frontends and backends.

More information on handheld scanners can be found at http://www.willamowius.de/scanner.html

Many scanners also have their own, scanner specific, software packages which include drivers.

22.1 Supported

- A4 Tech AC 4096 / AS 8000P (*a4scan*)
  ftp://ftp.informatik.hu−berlin.de/pub/local/linux/a4scan/a4scan.tgz
- Adara Image Star I
  ??? http://fb4−1112.uni−muenster.de/ffwd/
  ??? ftp://fb4−1112.uni−muenster.de/pub/ffwd/mtekscan−0.2.tar.gz
- Conrad Personal Scanner 64, P105 handheld scanners (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz
- Epson GT−5500 (*SANE epson*)
- Epson GT−6000
  ftp://metalab.unc.edu/pub/Linux/apps/graphics/capture/ppic0.5.tar.gz
- Escom Image Scanner 256 (*SANE umax*)
- Fujitsu SCSI−2 scanners
  contact Dr. G.W. Wettstein `<greg%wind.UUCP@plains.nodak.edu>`
- Genius ColorPage−SP2
  ??? http://fb4−1112.uni−muenster.de/ffwd/
  ??? ftp://fb4−1112.uni−muenster.de/pub/ffwd/mtekscan−0.2.tar.gz
- Genius GS−B105G handheld scanner (*gs105*
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/gs105−0.0.1.tar.gz
- Genius GeniScan GS−4500, GS−4500A handheld scanners (*gs4500*
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/gs4500−2.0.tar.gz
- HighScreen Greyscan 256 handheld scanner (BW only) (*gs4500*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/gs4500−2.0.tar.gz
- HP ScanJet II series SCSI
  ftp://metalab.unc.edu/pub/Linux/apps/graphics/capture/hpscanpbm−0.3a.tar.gz
- HP ScanJet IIc, IIcx, IIp, 3c, 4c, 4p, 5p, 5pse, plus
  http://www.tummy.com/xvscan/
- Linotype Hell Jade, Jade2 (*SANE umax*)
- Logitech Scanman+, Scanman 32, Scanman 256 handheld scanners (*logiscan*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/logiscan−0.0.4.tar.gz
- Microtek ScanMaker E3, E6, II, IIXE, III and 35t models
  ??? http://fb4−1112.uni−muenster.de/ffwd/
  ??? ftp://fb4−1112.uni−muenster.de/pub/ffwd/mtekscan−0.2.tar.gz
  E3 and E6 scanners are also supported by http://www.tummy.com/xvscan/
- Mustek M105 handheld scanner (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz
- Mustek HT800 Turbo, Matador 105, Matador 256 handheld scanners (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz
- Mustek Paragon 6000CX
  ftp://metalab.unc.edu/pub/Linux/apps/graphics/capture/muscan−2.0.6.taz
- Nikon Coolscan SCSI 35mm film scanner
  ftp://metalab.unc.edu/pub/Linux/apps/graphics/capture/coolscan−0.2.tgz
- Nikon AX−210 (*SANE umax*)
- Pearl 256 handheld scanner (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz

* Polaroid DMC (*SANE dmc*)
* Vobis/Highscreen Scanboostar Premium (*SANE umax*)
* UMAX SCSI scanners
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/umax−0.5.5.tar.gz
* UMAX Vista S6, S6E, T630, Supervista S−12 (*SANE umax*)
* UMAX S−6E, S−6EG, S−12, S−12G (*SANE umax*)
* UMAX Astra 600S, 610S, 1200S, 1220S (*SANE umax*)
* UMAX UC 630, 840, 1200S, 1200SE (*SANE umax*)
* UMAX UG 80, 630 (*SANE umax*)
* UMAX PSD, Gemini D−16 (*SANE umax*)

NOTE: The Mustek drivers work only with GI1904 interface cards. Eric Chang eric.chang@chrysalis.org has created a patch to use them with IF960 interface cards.

22.2 Alpha, Beta drivers

* Abaton Scan 300/S (*SANE abaton*)
* Abaton Scan 300/GS (*SANE abaton*)
* Agfa Focus, Focus II (*SANE agfafocus*)
* Agfa Focus Color, Focus Color Plus (*SANE agfafocus*)
* Agfa Focus Lineart (*SANE agfafocus*)
* Agfa Arcus II (*SANE microtek*)
* Agfa StudioScan II, IIsi (*SANE microtek*)
* Agfa SnapScan 300, 310, 600 (*SANE snapscan*)
* Apple Scanner, OneScanner, ColorOneScanner (*SANE apple*)
* Artec/Ultima AT3, AT6, AT12 (*SANE artec*)
* Artec A6000C+ (*SANE artec*)
* Canon CanoScan 300, CanoScan 600, CanoScan 2700F (*SANE canon*)
* Genius Colorpage−Vivid+
  Info can be found on http://thor.prohosting.com/~chrordig/Primax/index.html. The driver can also be found here.
* Genius GS−4000, ScanMate/32, ScanMate/GS handheld scanners (*gs4500*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/gs4500−2.0.tar.gz
* HP ScanJet IIc, IIp, IIcx, 3c, 4c, 3p, 4p, 5p, 6100c, 6200c (*SANE hp*)
* HP PhotoSmart PhotoScanner (*SANE hp*)
* Kodak DC210 (*SANE dc210*)
* Kodak DC20, DC25 (*SANE dc25*)
* Microtek Scanmaker E2, E3, E6, II, IIG, IIHR, IISP, III, 35t+, 600Z(S), 600G(S) (*SANE microtek*)
* Microtek ScanMaker E3plus, 330, 630, 636, X6 (*SANE microtek2*)
* Microtek Phantom 636 (*SANE microtek2*)
* Mustek MFC−600S, MFC−600CD, MFC−800S (*SANE mustek*)
* Mustek MFS−6000CX, MFS−6000SP, MFS−8000SP, MFS−1200SP, MFS−12000CX (*SANE mustek*)
* Mustek SE−6000SP, SE−12000SP (*SANE mustek*)
* Mustek HT105, M800 handheld scanners (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz
* Nework Scanny MM100
  Info can be found on http://thor.prohosting.com/~chrordig/Primax/index.html. The driver can also be

found here.

- Nikon LS−20, LS−30, LS−1000 (*SANE Coolscan*)
- Plustek OpticPro 4830P, OpticPro 4831P, OpticPro 9630P/PL, OpticPro 600P, OpticPro FBIII, OpticPro FBIV (*SANE plustek*)
  The sane driver can be found at http://www.efn.org/~rick/plustek/
- Primax Colorado Direct 300, Colorado Direct 600/30bit, Storm Totalscan
  Info can be found on http://thor.prohosting.com/~chrordig/Primax/index.html. The driver can also be found here.
- Siemens S9036 (*SANE agfafocus*)
- Tamarack Artiscan 6000C, 8000C, 12000C (*SANE tamarack*)
- UMAX Vista−S8, UC−1260, Mirage IIse, PL−II (*SANE umax*)
- Vobis HighScan (*SANE microtek2*)
- Voelkner Personal Scanner 64 handheld scanner (*scan−driver*)
  ftp://tsx−11.mit.edu/pub/linux/ALPHA/scanner/scan−driver−0.1.8.tar.gz
- Vuego 310S (*SANE snapscan*)

22.3 Unsupported

- Acer scanners. Acer is not releasing any programming information.
- Escom 256 (Primax Lector Premier 256) handheld scanner
- Genius ScanMate/256, ScanMate/Color, EasyScan handheld scanners
- Mustek CG 8000 handheld scanner
- Primax Colorado Direct 9600, Colorado 1200p, Colorado USB 19200
  Info can be found on http://thor.prohosting.com/~chrordig/Primax/index.html
- Trust Ami Scan handheld scanner
- UMAX parallel scanners

23.Other hardware

23.1 Amateur Radio

The following cards etc. are supported:

- KISS based Terminal Node Controllers
- Ottawa PI card
- Gracilis PacketTwin card
- Other Z8530 SCC based cards
- Parallel and serial port Baycom modems
- Soundblaster cards
- Soundcards based on the Crystal chipset

23.2 VESA Power Savings Protocol (DPMS) monitors

Support for power savings is included in the Linux kernel. Use `setterm` to enable support in the Linux console, and `xset` to enable support under X.

23.3 Touch screens

The Metro−X X−server is supporting the following touch screen controllers:

- Carrol Touch serial touch screen
  http://www.carrolltouch.com
- EloGraphics
- Lucas Deeco
- MicroTouch

23.4 Terminals on serial port

Old terminals can easily be used under Linux by connecting them to the serial port of your system. At least the following terminals will be supported:

- VT52
- VT100
- VT220
- VT320
- VT420

23.5 Joysticks

Joystick support is in the latest XFree86 distributions (3.3.x) and in kernel versions 2.1.xx and 2.2.xx. For older kernels the links below are usefull.

- Joystick driver
  For information check http://atrey.karlin.mff.cuni.cz/~vojtech/joystick. An FTP archive can be found at ftp://atrey.karlin.mff.cuni.cz/pub/linux/joystick.

Currently supported joysticks are:

- Amiga joysticks on Amiga
- CH Flightstick Pro compatibles with additional two hats and two buttons
- DirectPad Pro parallel port joystick interfaces (http://www.ziplabel.com/dpadpro/index.html)
- FP Gaming Assasin 3D (http://www.fpgaming.com/portfolio/assn3d.html)
- Gamepads with 6 and 8 buttons

- Genius Flight2000 Digital F−23 (http://www.genius.kye.de/english/product/game.html)
- Gravis Blackhawk Digital (http://www.gravis.com/products/js_blackhawkdigital.html)
- Gravis GamePad Pro (http://www.gravis.com/products/gp_gamepadpro.html)
- Gravis Xterminator GamePad (http://www.gravis.com/products/xterminator.html)
- Logitech CyberMan 2 (http://www.cyberman2.de)
- Logitech ThunderPad Digital (http://www.logitech.ch/Game+Controllers/ThunderPadDigital.html)
- Logitech WingMan Extreme Digital (http://www.logitech.ch/Game+Controllers/WingManExtremeDigital.html)
- MadCatz Panther (http://www.fpgaming.com/portfolio/panther.html)
- MadCatz Panther XL (http://www.fpgaming.com/portfolio/panthxl.html)
- Microsoft SideWinder 3D Pro (http://www.eu.microsoft.com/products/hardware/sidewinder/3Dpro/default.htm)
- Microsoft SideWinder Force Feedback Pro (http://www.eu.microsoft.com/products/hardware/sidewinder/force−feedback/default.htm)
- Microsoft SideWinder GamePad (http://www.eu.microsoft.com/products/hardware/sidewinder/gamepad/default.htm)
- Microsoft SideWinder Precision Pro http://www.eu.microsoft.com/products/hardware/sidewinder/precision−pro/default.htm)
- Multisystem joysticks (Atari, Amiga, Commodore, Amstrad)
- Multisystem joysticks using 0.8.0.2 hw interface
- Nintendo Entertainment System (and clone − SVI, Pegasus ...) gamepads
- PDPI Lightning L4 gamecard (http://www.pdpi.net)
- Sega Genesis (MegaDrive) gamepads
- Sega Master System gamepads
- Sega Saturn gamepads
- SNESKey parallel port joystick interfaces
- Sony PlayStation gamepads
- Standard joysticks with 2, 3 or 4 axes, and up to 4 buttons
- Super Nintendo Entertainment System gamepads
- ThrustMaster FCS compatibles with additional hat
- ThrustMaster Millenium 3D Inceptor (http://www.thrustmaster.com/products/millennium.htm)
- ThrustMaster Rage 3D (http://www.thrustmaster.com/products/rage3d.htm)
- TurboGraFX parallel port joystick interface (http://www2.burg−halle.de/~schwenke/parport.html)

23.6 Video capture boards / Frame Grabbers / TV tuner

A couple of programs are available that support TV tuners. These are:

- BTTV http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html
- Xawtv
- Xtvscreen

All cards with Bt848/Bt848a/Bt849/Bt878/Bt879 and normal Composite/S−VHS inputs are supported. Teletext and Intercast support (PAL only) via VBI samples decoding in software.

- Adlink 7200 Digital I/O device ftp://metalab.unc.edu/pub/Linux/science/lab/adl7200−0.60.tar.gz
- Adlink 7300A Digital I/O device

ftp://ftp.systemy.it/pub/develop/adl7300−0.04.tar.gz

- CMOS Video Conferencing Kit. The video capture card has a Bt849 chipset. It comes with a CCD camera.
- Data Translation DT2803
- Data Translation DT2851 Frame Grabber
ftp://metalab.unc.edu/pub/Linux/apps/video/dt2851−2.01.tar.gz
- Data Translation DT3155
http://krusty.eecs.umich.edu/people/ncowan/linux/welcome.html
- Diamond DTV2000 (based on Bt848)
- Dipix XPG1000/FPG/PPMAPA (based on TI C40 DSP). Most add−on cards are supported.
http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html or
http://www.atlantek.com.au/USERS/wes/linux/frame.html. The driver can be found at
ftp://ftp.atlantek.com.au/pub/ldipix
- Epix SVM
- Epix Silicon Video MUX series of video frame grabbing boards
http://www.ssc.com/lj/issue13/npc13c.html
- FAST Screen Machine II
ftp://metalab.unc.edu/pub/Linux/apps/video/ScreenMachineII.2.0.tgz
- Hauppage Wincast TV PCI (based on Bt848)
http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html
- Imaging Technology ITI/IC−PCI
ftp://ftp.gom−online.de/pub/IC−PCI/icpci−0.3.2.tar.gz
- ImageNation Cortex I
ftp://metalab.unc.edu/pub/Linux/apps/video/cortex.drv.1.1.tgz
- ImageNation CX100
ftp://metalab.unc.edu/pub/Linux/apps/video/cxdrv−0.86.tar.gz
- ImageNation PX500
ftp://ftp.systemy.it/pub/develop
- ImageNation PXC200
ftp://ftp.systemy.it/pub/develop
- Imaging Technology Inc. IC−PCI frame grabber board
ftp://gandalf.expmech.ing.tu−bs.de/pub/driver/icpci−0.2.0.tar.gz
- Matrix Vision MV−Delta
http://www.matrix−vision.de/
- Matrox Meteor
ftp://metalab.unc.edu/pub/Linux/apps/video/meteor−1.4a.tgz
- Matrox PIP−1024
http://www.powerup.com.au/~sobeyp/pip_tar.gz
- MaxiTV/PCI (based on ZR36120)
ftp://metalab.unc.edu/pub/Linux/kernel/misc−cards/zr36120−971127.tgz
- Miro PCTV (based on Bt848)
http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html
- MuTech MV1000 PCI
ftp://metalab.unc.edu/pub/Linux/apps/video/mv1000drv−0.33.tgz
- MuTech MV200
http://www.powerup.com.au/~sobeyp/mu_tar.gz
- Philips PCA10TV (not in production anymore)
ftp://ftp.il.ft.hse.nl/pub/tv1000/pctv1000.02.tgz
- Pinnacle PCTV (based on Bt848)
- Pro Movie Studio
ftp://metalab.unc.edu/pub/Linux/apps/video/PMS−grabber.3.0.tgz

- Quanta WinVision B&W video capture card
  ftp://metalab.unc.edu/pub/Linux/apps/video/fgrabber−1.0.tgz
- Quickcam
  ftp://metalab.unc.edu/pub/Linux/apps/video/qcam−0.7c−5.tar.gz
- Nomadic Technologies Sensus 700
  http://www.robots.com/ for common information. Alas, Nomadic Technologies has removed the page about the Sensus 700.
- Smart Video Recoder III (based on Bt848)
  http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html
- STB TV PCI Television Tuner (based on Bt848)
  http://www.thp.Uni−Koeln.DE/~rjkm/linux/bttv.html
- Tekram C210 (based on ZR36120)
  ftp://metalab.unc.edu/pub/Linux/kernel/misc−cards/zr36120−971127.tgz
- Video Blaster, Rombo Media Pro+
  ftp://metalab.unc.edu/pub/Linux/apps/video/vid_src−0.7.tgz
- VT1500 TV cards
  ftp://metalab.unc.edu/pub/Linux/apps/video/vt1500−1.0.9.tar.gz

23.7 Digital Camera

Currently there are five programs which can be used in combination with digital cameras.

- Camediaplay (http://www.itojun.org/itojun.html)
  You can download it from ftp://ftp.itojun.org/pub/digicam/C−400L/unix/
- Photopc (http://www.average.org/digicam/)
  It can be downloaded from ftp://ftp.average.org/pub/photopc/
- Qvplay (http://www.asahi−net.or.jp/~XG2K−HYS/index−e.html)
  It can be downloaded from http://www.asahi−net.or.jp/~XG2K−HYS/qvplay−0.93.tar.gz
- JCAM, a Java application which allows digital camera owners to access and download pictures from a wide variety of popular digital cameras (http://www.jcam.com)
  It can be downloaded from http://www.jcam.com/jcam/download.shtml
- gPhoto (http://www.gphoto.org)
  It can be downloaded from http://www.gphoto.org/download.php3

Photopc can be extended with a graphical Tk frontend. This can be found at http://www.mediacity.com/~pwhite/Phototk/phototk.html. Also Qvplay cab be extended with a graphical Tk frontend, which can be found at http://www.bekkoame.or.jp/~tormato/pub/qvplaytk−0.73c.tar.gz

Supported

- Agfa ePhoto line of cameras (*photopc, camediaplay, JCAM*)
  http://www.agfahome.com/ephoto/
- Apple QuickTake 200 (*JCAM*)
- Casio QV10, QV−10A, QV−11, QV−30, QV−70, QV−100, QV−200, QV−300, QV−700, QV−770 (*qvplay*)
  http://www.casio.com/digitalimaging/digital−results.cfm?ObjectGroup_ID=171

- Casio QV−10A, QV−11, QV−30, QV−70, QV−100, QV−300, QV−700, QV−770 (*JCAM*)
- Chinon ES−1000 (same hardware, protocol and image format as Kodak DC20) (*JCAM*)
  http://www.planet−interkom.de/oliver.hartmann/dc20secr.htm
- Epson "Colorio Photo" CP−100 (PhotoPC) (*photopc, camediaplay*)
  http://www.epson.com/cam_scan/
- Epson "Colorio Photo" CP−200 (PhotoPC 500) (*photopc, camediaplay, JCAM*)
  http://www.epson.com/cam_scan/
- Epson "Colorio Photo" CP−200 (PhotoPC 550) (*JCAM*)
- Epson "Colorio Photo" CP−500 (PhotoPC 600) (*photopc, camediaplay, JCAM*)
  http://www.epson.com/cam_scan/
- Epson "Colorio Photo" CP−500 (PhotoPC 700) (*JCAM*)
- Epson PhotoPC 550 (photopc, camediaplay)
  http://www.epson.com/cam_scan/
- Fuji DS−7, DX−5 (DS−10), DX−7 (DS−20), DX−9 (DS−30), DS−300, MX−700 (*JCAM*)
- HP Photo Smart Digital Camera (Some people say it is supported, others say it isn't !!??)
- Kodak DC−20, DC−25, DC−200/210 (*JCAM*)
  http://www.planet−interkom.de/oliver.hartmann/dc20secr.htm
- Olympus C−300L, C−320L, C−420L, C−800L, C−840L, C−1000L, C−1400L (*JCAM*)
  http://www.olympusamerica.com/digital/dhome.html
- Olympus "Camedia" C−400L (D−200L) (*photopc, camediaplay, JCAM*))
  http://www.olympusamerica.com/digital/dhome.html
- Olympus "Camedia" C−820L (D−320L) (*photopc, camediaplay, JCAM*))
  http://www.olympusamerica.com/digital/dhome.html
- Olympus C2000Z (*photocd*)
- Sanyo VPC−G200/G200EX (*photopc, camediaplay*)
  http://www.sanyo.co.jp/AV/CEmedia_e/products/digicam/digicam.html
- Sanyo DSC−V1 (VPC−G200E) (*photopc, camediaplay*)
  http://www.sanyo.co.jp/AV/CEmedia_e/products/digicam/digicam.html
- Sanyo DSC−X1 (VPC−X300) (*JCAM*)
- Sanyo DSC−X300 (*photopc, camediaplay*)
  http://www.sanyo.co.jp/AV/CEmedia_e/products/digicam/digicam.html
- Nikon Coolpix 600/900 (Coolpix 600 untested) (*photopc*)
  http://www.nikonusa.com/products/products.taf?id=128 and
  http://www.nikonusa.com/products/products.taf?id=129
- Sierra Imaging SD640 (*photopc*)
  http://www.sierraimaging.com/support/supchimgex.html
- Toshiba PDR−2 (not sure: *photopc*)
  http://www.toshiba.com/taisisd/dsc/indexj.htm

Unsupported

- Casio QV−120, QV−5000SX, QV−7000SX
- Kodak DC40, DC50, DC120

23.8 UPS

Various other UPS's are supported, read the UPS HOWTO

- APC SmartUPS
  http://www.dyer.vanderbilt.edu/server/apcupsd
- APC−BackUPS 400/600, APC−SmartUPS SU700/1400RM
  http://www.dyer.vanderbilt.edu/server/apcupsd
- Fenton PowerPal
  ftp://megatec.com.tw/Rups2/UNIX/v3.0.1 for downloads and manuals. Web site information can be found at http://www.fentonups.com/index2.htm
- Fenton Tele−UPS
  ftp://megatec.com.tw/Rups2/UNIX/v3.0.1 for downloads and manuals. Web site information can be found at http://www.fentonups.com/index2.htm
- Fenton PowerOn
  ftp://megatec.com.tw/Rups2/UNIX/v3.0.1 for downloads and manuals. Web site information can be found at http://www.fentonups.com/index2.htm
- UPS's with RS−232 monitoring port (genpower package)
  ftp://metalab.unc.edu/pub/Linux/system/ups/genpower−1.0.1.tgz
- MGE UPS's
  http://www.mgeups.com/download/softlib.htm and
  http://www.mgeups.com/download/software/linux/upsp.tgz
- A daemon to shut down and up computers connected to ups's. It's network aware and allows server− and client−mode
  ftp://metalab.unc.edu/pub/Linux/system/ups/powerd−2.0.tar.gz

23.9 Multifunction boards

- Pro Audio Spectrum 16 SCSI / Sound interface card

23.10 Data acquisition

The Linux Lab Project site collects drivers for hardware dealing with data acquisition, they also maintain some mailing lists dealing with the subject. I have no experience with data acquisition so please check the site for more details.

- Linux Lab Project
  http://www.llp.fu−berlin.de/

- CED 1401
- DBCC CAMAC

- IEEE−488 (GPIB, HPIB) boards
- Keithley DAS−1200
- National Instruments AT−MIO−16F / Lab−PC+

- Analog Devices RTI−800/815 ADC/DAC board
  contact Paul Gortmaker <gpg109@anu.edu.au>

23.11 Watchdog timer interfaces

- Berkshire Products PC Watchdog Card (ISA cards rev. A and C)
  Check ftp://ftp.bitgate.com/pub/bitgate/pcwd for the PC Watchdog program. A driver is included in recent kernels. More information on this product can be found at http://www.berkprod.com/wdog.htm
- ICS WDT500−P
  http://www.indcompsrc.com/products/data/html/wdt500−p.html
- ICS WDT501−P (with and without fan tachometer)
  http://www.indcompsrc.com/products/data/html/wdt500−p.html
- Outsource Engineering & Manufacturing Inc. Basic Watchdog Timer Board (ISA)
  Information can be found at http://www.ctec.net/basicwdt. Drivers currently running on 2.0.29, 2.0.33 and 2.0.36 kernels

23.12 Miscellaneous

- Mattel Powerglove
- AIMS Labs RadioTrack FM radio card
  ftp://metalab.unc.edu/pub/Linux/apps/sound/radio/radiotrack−1.1.tgz
- Reveal FM Radio card
  ftp://magoo.uwsuper.edu/docs/radio.html
- Videotext cards
  ftp://metalab.unc.edu/pub/Linux/apps/video/videoteXt−0.6.tar.gz

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24.Related sources of information

- Cameron Spitzer's hardware FAQ archive (??)
  ftp://ftp.rahul.net/pub/cameron/PC−info/
- Guide to Computer Vendors
  http://guide.sbanetweb.com/
- System Optimization Information
  http://www.dfw.net/~sdw/

25.Acknowledgments

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26.Appendix A. S3 cards supported by XFree86 3.3.x.

CHIPSET	RAMDAC	CLOCKCHIP	BPP	CARD
801/805	AT&T 20C490		16	Actix GE 32 / 32+ 2Mb
				Orchid Fahrenheit 1280(+)
801/805	AT&T 20C490	ICD2061A	16	STB PowerGraph X.24
801/805				Del S3 805
				Miro Crystal 8S
				Orchid Fahrenheit VA
				VL−41
805	S3 GENDAC		16	Miro 10SD VLB/PCI
				SPEA Mirage VLB
801/805	SS2410	ICD2061A	8	Diamond Stealth 24 VLB/ISA
801/805	AT&T 20C490	Ch8391	16	JAX 8231/8241, SPEA Mirage
801/805	S3 GENDAC			Miro Crystal 10SD
805i				Actix GE 32i
				ELSA Winner 1000 ISA
928	AT&T 20C490		16	Actix Ultra
928	Sierra SC15025	ICD2061A	32	ELSA Winner 1000 ISA/VLB/EISA
928	Bt485	ICD2061A	32	STB Pegasus VL
928	Bt485	SC11412	16	SPEA(/V7) Mercury VLB
928	Bt485	ICD2061A	32	#9 GXE Level 10/11/12
928	Ti3020	ICD2061A	32	#9 GXE Level 14/16

928				928Movie
				Diamond Stealth Pro
				ELSA Winner 1000TwinBus
				ELSA Winner 1000VL
				ELSA Winner 2000
				Miro Crystal 16S
864		ICD2061A		Miro Crystal 20SD (BIOS 2.xx)
864	AT&T 20C498	ICS2494	32	Miro (Crystal) 20SD (BIOS 1.xx)
864	AT&T 20C498/	ICD2061A/	32	ELSA Winner 1000 PRO VLB/PCI
864	STG1700	ICS9161		MIRO 20SD (BIOS 2.x)
				ELAS Winner 1000 PRO
864	STG1700	ICD2061A	32	Actix GE 64 VLB
864	AT&T 20C498/	ICS2595	16	SPEA(/V7) Mirage P64 DRAM (BIOS 3.x)
	AT&T 21C498			
864	S3 86C716 SDAC		32	ELSA Winner 1000 PRO
				Miro 20SD (BIOS 3.x)
				SPEA Mirage P64 DRAM (BIOS 4.x)
				Diamond Stealth 64 DRAM
				Genoa Phantom 64i
				Miro Crystal 20SD VLB (BIOS 3.xx)
864	ICS5342	ICS5342	32	Diamond Stealth 64 DRAM (some)
864	SDAC			Diamond Stealth 64 Graphics 2001
864	AT&T 20C498−13	ICD2061A	32	#9 GXE64 PCI
864				ASUS Video Magic PCI V864
				VidTech FastMax P20

CHIPSET	RAMDAC	CLOCKCHIP	BPP	CARD
964				ELSA Winner 2000 PRO−2,4
				spider Tarantula 64
964	AT&T 20C505	ICD2061A	32	Miro Crystal 20SV PCI/40SV
964	Bt485	ICD2061A	32	Diamond Stealth 64

964	Bt9485	ICS9161A	32	SPEA Mercury 64
964	Ti3020	ICD2061A	8	ELSA Winner 2000 PRO PCI
964	Ti3025	Ti3025	32	#9 GXE64 Pro VLB/PCI
				Miro Crystal 40SV
964	IBM RGB		32	Hercules Graphite Terminator 64
868	S3 86C716 SDAC		32	ELSA Winner 1000AVI
				Miro Crystal 20SD PCI
868	AT&T 29C409			ELSA Winner 1000AVI
868				Diamond Stealth Video DRAM
				Diamond Stealth 64 Video 2120/2200
				ELSA Winner 1000PRO/X
				#9 FX Motion 531
				VideoLogic GrafixStar 500
968				Diamond Stealth 64 Video 3200
				ELSA Gloria−4/8
				ELSA Winner 2000AVI
				ELSA Winner 2000PRO/X−2/X−4/X−8
				Genoa VideoBlitz III AV
				Hercules Graphite Terminator Pro 64
				LeadTek WinFast S430
				LeadTek WinFast S510
				Miro Crystal 80SV
				Miro Crystal 20SV
				#9 FX Motion 771
				VideoLogic GrafixStar 700
				WinFast S430/S510
968	TVP3026		32	ELSA Winner 2000PRO/X
				Diamond Stealth 64 Video VRAM
968	IBM RGB		32	Genoa VideoBlitz III AVI
				Hercules Terminator Pro 64
				STB Velocity 64 Video
				#9 FX Motion 771
				Diamond Stealth 64 Video 3240/3400

968	TI RAMDAC			Diamond Stealth 64 Video 3240/3400
732	(Trio32)		32	Diamond Stealth 64 DRAM SE
				(all Trio32 based cards)
764	(Trio64)		32	SPEA Mirage P64 (BIOS 5.x)
				Diamond Stealth 64 DRAM
				Diamond Stealth 64 Graphics 2xx0
				#9 FX Vision 330
				STB PowerGraph 64
				(all Trio64 based cards)

CHIPSET	RAMDAC	CLOCKCHIP	BPP	CARD
	(Trio64V+)			DSV3326
				Diamond Stealth 64 Video 2001
				DataExpert DSV3365
				ExpertColor DSV3365
				MAXColor S3 Trio64V+
				ELSA Winner 1000TRIO/V
				Hercules Terminator 64/Video
				#9 FX Motion 331
				STB Powergraph 64 Video
				VideoLogic GrafixStar 400
	(Trio64V2)			ELSA Winner 1000/T2D
	(ViRGE)			Canopus Co. Power Window 3DV
				DSV3325
				DataExpert DSV3325
				Diamond Multimedia Stealth 3D 2000
				Diamond Multimedia Stealth 3D 2000 PRO
				Diamond Stealth 3D 2000
				Diamond Stealth 3D 2000 PRO
				Diamond Stealth 3D 3000
				ELSA Victory 3D

				ELSA Victory 3DX
				ELSA Winner 3000−S
				Expertcolor DSV3325
				Hercules Terminator 64/3D
				LeadTek WinFast 3D S600
				MELCO WGP−VG4S
				#9 FX Motion 332
				Orchid Tech. Fahrenheit Video 3D
				STB systems Powergraph 3D
				WinFast 3D S600
	(ViRGE/DX)			Hercules Terminator 3D/DX
	(ViRGE/GX)			STB Nitro 3D
	(ViRGE/VX)			ELSA Winner 2000AVI/3D
				ELSA Winner 3000
				ELSA Winner 3000−L−42/−M−22
				MELCO WGP−VX8
				STB Systems Velocity 3D
911/924				Diamond Stealth VRAM
924	SC1148 DAC			

NOTE: for the ViRGE/VX,DX,GX,GX2 chipsets you need XFree86 3.3.1 or newer. You should use the XF86_SVGA server.

27.Appendix B. Supported PCMCIA cards

These cards are supported by David Hinds' PCMCIA package and this list is taken from his web page (http://hyper.stanford.edu/HyperNews/get/pcmcia/home.html).

CardBus cards are listed at the end of each section. At this time, all CardBus drivers should be treated as experimental. Beware that some cards have 16−bit and CardBus versions with very similar names. If the CardBus version is not specifically listed as supported here, then you should not expect it to work.

27.1 Ethernet cards

- SMC, Megahertz and Ositech cards use the smc91c92_cs driver
- 3Com and Farallon cards use the 3c589_cs driver
- Fujitsu, TDK, RATOC, CONTEC, Eagle and Nextcom cards use the fmvj18x_cs driver

All other cards use the pcnet_cs driver. Other NE2000−compatible cards that are not on the list are also likely to work with pcnet_cs.

- 3Com 3c589, 3c589B, 3c589C, 3c589D (3c589_cs)
- 3Com Megahertz 3CCE589E, 3CXE589D, 3CXE589EC (3c589_cs)
- Accton EN2212, EN2216 EtherCard (pcnet_cs)
- Accton SOHO BASIC EN220 (pcnet_cs)
- Addtron Ethernet (pcnet_cs)
- AIBrain EPCM−T (pcnet_cs)
- Allied Telesis CentreCOM CE6001, LA−PCM, LA−PCM V2 (pcnet_cs)
- AmbiCom AMB8002, AMB8002T (pcnet_cs)
- AnyCom ECO Ethernet (pcnet_cs)
- Apollo RE450CT (pcnet_cs)
- Argosy EN210 (pcnet_cs)
- Asante FriendlyNet (pcnet_cs) (new cards seem not to work!!)
- AST 1082 Ethernet (pcnet_cs)
- Billionton LNT−10TB, LNT−10TN (pcnet_cs)
- Califormia Access LAN Adapter
- CeLAN EPCMCIA (pcnet_cs)
- CNet CN30BC, CN40BC Ethernet (pcnet_cs)
- Compaq Ethernet Adapter (xirc2ps_cs)
- Compex/ReadyLINK Ethernet Combo (pcnet_cs)
- Compex Linkport Ethernet (pcnet_cs)
- COMPU−SHACK BASEline Ethernet (pcnet_cs)
- Connectware LANdingGear Adapter (pcnet_cs)
- Corega Ether PCC−T, PCM−T (pcnet_cs)
- CyQ've ELA−010 10baseT (pcnet_cs)
- CONTEC C−NET(PC)C (fmvj18x_cs)
- Danpex EN−6200P2 Ethernet (pcnet_cs)
- Datatrek NetCard (pcnet_cs)
- Dayna Communications CommuniCard E (pcnet_cs)
- Digital DEPCM−AA, PCP78−AC Ethernet (pcnet_cs)
- Digital EtherWORKS Turbo Ethernet (pcnet_cs)
- D−Link DE−650, DE−660 (pcnet_cs)
- DynaLink L10C Ethernet (pcnet_cs)
- Eagle NE200 Ethernet (fmvj18x_cs)
- Edimax Technology Ethernet Combo (pcnet_cs)
- EFA InfoExpress 205, 207 Combo (pcnet_cs)
- Eiger Labs EPX−ET10T2 Combo (pcnet_cs)
- Eiger Labs EPX−10BT, EPX−ET 10BT EPX−ET 10TZ (fmvj18x_cs)
- ELECOM Laneed LD−CDWA, LD−CDX, LD−CDNIA, LD−CDY, LD−CDF (pcnet_cs)

- EP−210 Ethernet (pcnet_cs)
- Epson Ethernet (pcnet_cs)
- EtherPRIME Ethernet (pcnet_cs)
- Explorer NE−10000 Ethernet (pcnet_cs)
- EZLink 4109 Ethernet (pcnet_cs)
- Farallon Etherwave, EtherMac (3c589_cs)
- Fiberline FL−4680 (pcnet_cs)
- Fujitsu FMV−J181, FMV−J182, FMV−J182A, FMV−J183 (fmvj18x_cs)
- Fujitsu Towa LA501, FMV−1080, FM50N−183 (fmvj18x_cs)
- Gateway 2000 Ethernet (pcnet_cs)
- Genius ME3000II Ethernet (pcnet_cs)
- Grey Cell Ethernet (pcnet_cs)
- GVC NIC−2000P Ethernet Combo (pcnet_cs)
- Hitachi HT−4840−11 EtherCard (fmvj18x_cs)
- Hypertec HyperNet (pcnet_cs)
- IBM CreditCard Ethernet Adapter (pcnet_cs)
- IC−Card Ethernet (pcnet_cs)
- Infotel IN650ct Ethernet (pcnet_cs)
- I−O Data PCLA/T, PCLA/TE (pcnet_cs)
- Katron PE−520 Ethernet (pcnet_cs)
- KingMax Technology EN10−T2 Ethernet (pcnet_cs)
- Kingston KNE−PCM/M, KNE−PC2, KNE−PC2T (pcnet_cs)
- KTI PE−520 Plus (pcnet_cs)
- LANEED LD−CDW Ethernet (pcnet_cs)
- LanPro EP4000A (pcnet_cs)
- Lantech Ethernet (pcnet_cs)
- Level One EPC−0100TB (pcnet_cs)
- Linksys EtherCard (pcnet_cs)
- Logitec LPM−LN10T, LPM−LN10BA, LPM−LN20T Ethernet (pcnet_cs)
- Longshine ShineNet LCS−8534TB Ethernet (pcnet_cs)
- Macnica ME−1 Ethernet (pcnet_cs)
- Maxtech PCN2000 Ethernet (pcnet_cs)
- Megahertz XJ10BT, XJ10BC, CC10BT Ethernet (smc91c92_cs)
- Melco LPC−TJ, LPC−TS, LPC−T, LPC2−T (pcnet_cs)
- Microdyne NE4200 Ethernet (pcnet_cs)
- Midori LANNER LT−PCMT (pcnet_cs)
- Micronet Etherfast Adapter (pcnet_cs)
- NDC Instant−Link (pcnet_cs)
- Network General ``Sniffer'' (pcnet_cs)
- New Media EtherLAN (nmclan_cs)
- New Media LanSurfer (pcnet_cs)
- New Media LiveWire (NOT the LiveWire+) (nmclan_cs)
- New Media BASICS Ethernet (smc91c92_cs)
- NextCom NC5310 (fmvj18x_cs)
- Novell/National NE4100 InfoMover (pcnet_cs)
- Ositech Four of Diamonds (smc91c92_cs)
- OvisLink Ethernet (pcnet_cs)
- Panasonic CF−VEL211P−B (pcnet_cs)
- Planet SmartCom 2000, 3500, ENW−3501−T, ENW−3502−T (pcnet_cs)
- Pretec Ethernet (pcnet_cs)
- PreMax PE−200 Ethernet (pcnet_cs)

- Proteon Ethernet (pcnet_cs)
- Ratoc REX−9822, REX−5588A/W, REX−R280 (fmvj18x_cs)
- Relia RE2408T Ethernet (pcnet_cs)
- Reliasys 2400A Ethernet (pcnet_cs)
- RPTI EP400, EP401 Ethernet (pcnet_cs)
- SCM Ethernet (pcnet_cs)
- Sky Link Express (pcnet_cs)
- SMC 8020BT EtherEZ (not the EliteCard) (smc91c92_cs)
- SMC 8022 EZCard−10 (pcnet_cs)
- Socket Communications EA LAN Adapter (pcnet_cs)
- Socket Communications LPE Low Power Ethernet (pcnet_cs)
- SOHOware Ethernet (pcnet_cs)
- SuperSocket RE450T (pcnet_cs)
- Surecom Ethernet (pcnet_cs)
- SVEC PN605C (pcnet_cs)
- TDK LAC−CD02x, LAK−CD021, LAK−CD022A, LAK−CD021AX, LAK−CD021BX (fmvj18x_cs)
- Thomas−Conrad Ethernet (pcnet_cs)
- Trust Ethernet Combo (pcnet_cs)
- UNEX NexNIC MA010 (pcnet_cs)
- Volktek NPL−402CT Ethernet (pcnet_cs)
- Xircom CreditCard CE2 (xirc2ps_cs)

27.2 Fast Ethernet (10/100baseT) adapters

epic_cb and tulip_cb drivers are experimental and need a 2.2.x or newer kernel

- 3Com 3c574TX, 3CCFE574BT (3c574_cs)
- 3Com 3c575TX, 3CCFE575BT, 3CXFE575BT CardBus (3c575_cb, performance problem)
- Abocom LinkMate FE1000 (pcnet_cs)
- Accton Fast EtherCard−16 (xirc2ps_cs)
- Accton EN2220 CardBus (tulip_cb)
- Allied Telesyn AT−2800 (tulip_cb)
- AmbiCom AMB8100 (tulip_cb)
- AnyCom ECO Ethernet 10/100 (pcnet_cs)
- Apollo Fast Ethernet (pcnet_cs)
- Argosy EN220 (smc91c92_cs)
- Compaq Netelligent 10/100 (xirc2ps_cs)
- Compex Linkport TX (tulip_cb)
- COMPU−SHACK FASTline 10/100 (pcnet_cs)
- Corega FastEther PCC−TX (pcnet_cs)
- D−Link DFE−650 (pcnet_cs)
- D−Link DFE−660TX (tulip_cb)
- Dynalink L100C (smc91c92_cs)
- EXP ThinLan 100 (pcnet_cs)
- Fiberline Fast Ethernet (pcnet_cs)
- Hamlet FE1000 10/100 (pcnet_cs)
- Intel EtherExpress PRO/100 (xirc2ps_cs, 16−bit NOT 32−bit)
- IO DATA PCET/TX (pcnet_cs)

- Kingston KNE−CB4TX (tulip_cb)
- KTI KF−C16 (pcnet_cs)
- Laneed LD−10/100CD (pcnet_cs)
- Lantech FastNet/TX (smc91c92_cs)
- LevelOne FPC−0100TX (pcnet_cs)
- LevelOne FPC−0101TX 10/100Mbps CardBus (tulip_cb)
- Linksys PCMPC100 EtherFast 10/100 (pcnet_cs)
- Linksys PCMPC200 EtherFast CardBus (tulip_cb)
- Logitec LPM−LN100TX (pcnet_cs)
- Melco LPC2−TX (pcnet_cs)
- Melco/SMC LPC−TX (smc91c92_cs)
- Microcom TravelCard 10/100 (pcnet_cs)
- Micronet EtherFast Adapter (pcnet_cs)
- NetGear FA410TXC (pcnet_cs)
- Ositech Seven of Diamonds (smc91c92_cs)
- Ositech Seven of Spades CardBus (epic_cb)
- Planet FNW−3600T (pcnet_cs)
- SMC EZ CardBus 10/100 Ethernet (tulip_cb)
- SVEC FD606 10/100 Ethernet (tulip_cb)
- TDK NetworkFlyer LAK−CB100X, LAK−CB100AX CardBus (tulip_cb)
- Toshiba IPC5008A, Advanced Network 10/100 (xirc2ps_cs)
- UMAX Technologies UMAX250 (tulip_cb)
- WiseCom WC−PC400 (smc91c92_cs)
- Xircom CBEII−10/100 (tulip_cb)
- Xircom CreditCard CE3 (xirc2ps_cs, new cards may not work !!)

27.3 Token−ring adapters

You should at least have kernel 1.3.72

- 3Com 3c389 Tokenlink Velocity (ibmtr_cs)
- 3Com 3c689 TokenLink III (ibmtr_cs)
- IBM Token ring Adapter (ibmtr_cs)
- IBM Turbo 16/4 Token Ring (ibmtr_cs)

27.4 Wireless network adapters

- Aironet PC4500, PC4800 wireless network adapters (airco_cs) (Ben Reed breed@almaden.ibm.com)
- AT&T / NCR / Lucent WaveLAN version 2.0 (wavelan_cs)
- DEC RoamAbout/DS (wavelan_cs)
- Harris PRISM/AM79C930 IEEE 802.11 wireless LAN http://www.absoval.com/linux−wlan (Mark Mathews mark@absoval.com)
- Lucent WaveLAN/IEEE wireless network adapter (wavelan2_cs) (Lucent Technologies betasupport@wavelan.com)
- Raylink Wireless Network http://world.std.com/~corey/raylink.html (Corey Thomas

corey@world.std.com)
- WaveLAN/IEEE wireless network adapter http://www.fasta.fh−dortmund.de/users/andy/wvlan (Andreas Neuhaus andy@fasta.fh−dortmund.de)
- Xircom CreditCard Netwave (netwave_cs)

27.5 ISDN

- Elsa MicroLink ISDN adapter (elsa_cs) (Klaus Lichtenwalder Klaus.Lichtenwalder@WebForum.DE)
- MPS ISLINEnote ISDN adapter (mpsuni_cs) (Detlef Glaschick glaschick@mps−software.de)
- Sedlbauer Speed Star ISDN adapter (sedl_cs) (Marcus Niemann niemann@www−bib.fh−bielefeld.de)
- Teles ISDN adapter (teles_cs) (Christof Petig ea0141@uni−wuppertal.de)

27.6 Modem and serial cards

Virtually all modem cards, simple serial port cards, and digital cellular modems should work. Also ISDN modems that emulate a standard UART are supported.

- Advantech COMpad−32/85 dual serial (serial_cs)
- Argosy dual serial (serial_cs)
- Black Box I114A RS−422/485 (serial_cs)
- National Instruments PCMCIA−232, PCMCIA−232/2, PCMCIA−232/4 (serial_cs)
- National Instruments PCMCIA−485, PCMCIA−485/2 (serial_cs)
- Omega Engineering QSP−100 (serial_cs)
- Quatech, IOTech dual RS−232 cards (serial_cs)
- Quatech quad RS−232 card (serial_cs)
- Socket Communications dual RS−232 card (serial_cs)
- Trimble Mobile GPS (serial_cs)

27.7 Memory cards

All SRAM cards should work. Unsupported flash cards can be read but not written.

- Epson 2MB SRAM
- IBM 8MB Flash (memory_cs)
- Intel Series 2, Series 2+ and Value Series 100 Flash (memory_cs)
- Maxtor MobileMax 16MB Flash (memory_cs)
- New Media SRAM
- RATOC SmartMedia Adapter (memory_cs)
- TDK Flash Memory SFM20W/C 20MB (memory_cs)

27.8 SCSI adapters

Be careful. Many vendors, particularly CD−ROM vendors, seem to switch controller chips at will. Generally, They will use a different product code, but not always: older (supported) New Media Bus Toaster cards are not easily distinguishable from the current (unsupported) Bus Toaster cards.

- Adaptec APA−1450A, APA−1460, APA−1460A/B/C/D SlimSCSI (aha152x_cs)
- Adaptec SlimSCSI 1480 Cardbus (apa1480_cb, experimental, requires kernel 2.2.2.x or later)
- Digital SCSI II adapter
- Eiger Labs SCSI (qlogic_cs)
- Epson SC200 (qlogic_cs)
- Future Domain SCSI2GO (fdomain_cs)
- IBM SCSI (fdomain_cs)
- Iomega ZIP and JAZ Cards (PPA3) (aha152x_cs)
- IO−DATA PCSC−II, PCSC−II−L
- IO−DATA CDG−PX44/PCSC CD−ROM
- Logitec LPM−SCSI2
- Logitec LCD−601 CD−ROM
- MACNICA mPS110, mPS110−LP SCSI (qlogic_cs)
- Melco IFC−SC2, IFC−DC
- Midori CN−SC43 (qlogic_cs)
- NEC PC−9801N−J03R (qlogic_cs)
- New Media Bus Toaster SCSI (older cards only) (aha152x_cs)
- New Media Toast 'n Jam (SCSI only) (aha152x_cs)
- Noteworthy Bus Toaster SCSI (aha152x_cs)
- Panasonic KXL−D740, KXL−DN740A, KXL−DN740A−NB 4X CD−ROM
- Pioneer PCP−PR1W, PCP−PR2W CD−ROM
- Qlogic FastSCSI (qlogic_cs)
- Raven CD−Note 4X (qlogic_cs)
- RATOC REX−9530 SCSI−2 (qlogic_cs)
- Simple Technologies SCSI (fdomain_cs)
- Sony CD−ROM Discman PRD−250
- Taxan ICD−400PN
- Toshiba NWB0107ABK, SCSC200A, SCSC200B (qlogic_cs)

27.9 ATA/IDE CD−ROM adapters

You should at least have kernel 1.3.72

- Argosy EIDE CD−ROM (ide_cs)
- Caravelle CD−36N (ide_cs)
- CNF CARDport CD−ROM (ide_cs)
- Creative Technology CD−ROM (ide_cs)
- Digital Mobile Media CD−ROM (ide_cs)
- EXP CD940 CD−ROM (ide_cs, Some work, some do not)

* EXP Traveler 620 CD−ROM (ide_cs)
* H45 Technologies Quick 2x CD−ROM (ide_cs)
* H45 Technologies QuickCD 16X (ide_cs)
* IBM Max 20X CD−ROM (ide_cs)
* IO DATA CDP−TX4/PCIDE, CDP−TX6/PCIDE, CDV−HDN6/PCIDE (ide_cs)
* IO DATA CDP−TX10/PCIDE, CDP−FX24/CBIDE, MOP−230/PCIDE (ide_cs)
* IO DATA HDP−1G/PCIDE, HDP−1.6G/PCIDE (ide_cs)
* Microtech International MicroCD (ide_cs)
* Microtech Mii Zip 100 (ide_cs)
* NOVAC NV−CD410 (ide_cs)
* Sony PCGA−CD5 CD−ROM (ide_cs)
* TEAC IDE Card/II (ide_cs)

27.10 Multifunction cards

You should at least have kernel 1.3.73

* 3Com 3c562, 3c562B/C/D, 3c563B/C/D (3c589_cs)
* 3Com Megahertz 3CCEM556, 3CXEM556, 3CCEM556B (3c589_cs)
* 3Com Megahertz 3CCFEM556 (3c574_cs)
* 3Com 3CCFEM656B (3c575_cb, ethernet only!!)
* Accton UE2218 (pcnet_cs)
* ActionTex ComNet 33.6 (pcnet_cs)
* AnyCom Fast Ethernet + 56K Combo (pcnet_cs)
* Asus combo card (pcnet_cs)
* Billionton LM5LT−10B (pcnet_cs)
* Compaq Microcom CPQ550 Modem + 10/100 LAN (xirc2ps_cs)
* Dayna Communicard (pcnet_cs)
* D−Link DME336T, DMF560TX (pcnet_cs)
* Gateway Telepath Combo (smc91c92_cs)
* Grey Cell GCS3400 (pcnet_cs)
* GVC LAN modem (pcnet_cs)
* IBM Home and Away, Home and Away 28.8 (pcnet_cs)
* IO DATA PCEM−336T (pcnet_cs)
* Intel EtherExpress PRO/100 LAN/Modem (xirc2ps_cs)
* Linksys LANmodem 28.8 (PCMLM28), 33.6 (PCMLM336) (pcnet_cs)
* Linksys EtherFast LANmodem 56K (PCMLM56) (pcnet_cs)
* Megahertz/U.S. Robotics EM1144, EM3288, EM3336 (smc91c92_cs)
* Motorola Mariner (smc91c92_cs)
* Motorola Marquis (3c589_cs)
* Ositech Jack of Diamonds, Jack of Hearts (smc91c92_cs)
* Ositech Jack of Spades CardBus (epic_cb, experimental, requires kernel 2.2.x or later)
* PREMAX LAN modem (pcnet_cs)
* Psion V.34 Gold Card (pcnet_cs)
* Psion Gold Card Netglobal 56K+10Mb (pcnet_cs)
* Rover ComboCard 33.6 (pcnet_cs)
* TDK 3000/3400/5670 (pcnet_cs)
* Telecom Device SuperSocket LM336 (pcnet_cs)

- Xircom CreditCard CEM28, CEM33, CEM56 (xirc2ps_cs)
- Xircom RealPort REM10BT, REM56G−100 (xirc2ps_cs)
- Xircom RBEM56G−100BTX, CBEM56G−100BTX (tulip_cb, experimental, requires kernel 2.2.x or later)

27.11 ATA/IDE card drives

These card drives are supported starting with kernel 1.3.72. Both Flash−ATA cards and rotating−media cards are supported. The very old Western Digital 40MB drives are not supported, because they do not conform to the PCMCIA ATA specifications.

27.12 ATA/IDE Interface Cards

- Archos Zip100 MiniDrive (ide_cs)
- Microtech International XpressDock (ide_cs)
- DataStor Technology PCMCIA ATA/ATAPI Card (ide_cs)
- Creo DNBoy (ide_cs)
- GREYSTONE DD−25 (ide_cs)
- Shining Technology CitiDISK 250PE (ide_cs)
- Sicon Periperal Micro Mate (ide_cs)

27.13 Parallel port cards:

See the appendix on supported parallel port devices

27.14 Miscellaneous cards

- GemPlus GPR400 Smart Card Reader http://www.linuxnet.com/smartcard/code.html (Wolf Geldmacher wgeldmacher@paus.ch)
- IBM Smart Capture (iscc_cs) (Koji Okamura oka@ec.kyushu−u.ac.jp)
- IBM Etherjet (cs89x0_cs) (Danilo Beuche danili@cs.uni−magdeburg.de)
- National Instruments DAQcard700 ftp://ftp.rtlinux.org/pub/rtlinux/sources/DAQCard700/ (Oleg Subbotin)
- Netwave AirSurfer Plus (asplus_cs) http://ipoint.vlsi.uiuc.edu/wireless/asplus.html (Jay Moorman jrmoorma@uiuc.edu)
- New Media Bus Toaster SCSI (new version) (sym53c500_cs) (Tim Corner tcorner@via.at)
- New Media BASICS SCSI (sym53c500_cs) (Tim Corner tcorner@via.at)
- Nokia/InTalk ST−500A http://www.absoval.com/linux−wlan (Mark Mathews mark@absoval.com)
- Proxim RangeLAN2 and Symphony wireless LAN cards

http://www.komacke.com/distribution.html (Dave Koberstein davek@komacke.com)
- RATOC REX−9590 (iscc_cs) (Koji Okamura oka@nanotsu.kobe−u.ac.jp)
- Samsung MagicWave SWL−1000N http://www.absoval.com/linux−wlan (Mark Mathews mark@absoval.com)
- Silicom SPE ethernet, SEM EtherModem, SES EtherSerial http://www.silicom.co.il/linux.htm
- SIMA TECH SCSI9000 (sym53c500_cs) (Tim Corner tcorner@via.at)
- SST 5136−DN−PC DeviceNet Interface (ss5136_cs) http://www.gnofn.org/~marksu/dn5136man.html (Mark Sutton Mark.Sutton@laitram.com)
- Trimble Mobile GPS (uses serial/modem driver)
- Y−E Data FlashBuster floppy drive adapter (floppy_cs) (David Bateman dbateman@eng.uts.edu.au)
- Zoom Telephonics ZoomAir 4000 http://www.absoval.com/linux−wlan (Mark Mathews mark@absoval.com)

27.15 Working on ...

People are working on the following cards:

- Roland SCP−55 MIDI (Toshiaki Nakatsu ir9k−nkt@asahi.net.or.jp)
- CyberRom CD−ROM (David Rowntree rowntree@dircon.co.uk)
- IO DATA PCSC−II (Katayama Nobuhiro kata−n@po.iijnet.or.jp)
- Macnica mPS−1x0 (Katayama Nobuhiro kata−n@po.iijnet.or.jp)
- Proxim RangeLAN/2 http://students.ou.edu/D/James.R.Duchek−1/rangelan2.html (Jim Duchek jimducheck@primary.net
- TView Preso (Brenden Tuck friar@zendragon.com)

27.16 Unsupported

- Adaptec/Trantor APA−460 SlimSCSI
- Eiger Labs SCSI w/FCC ID K36..
- New Media .WAVjammer and all other sound cards
- New Media LiveWire+
- Nikon CoolPix100
- Panasonic KXL−D720, KXL−D745, KXL−D783
- SMC 8016 EliteCard
- Xircom CE II Ethernet/Modem
- Xircom CE−10BT Ethernet

28.Appendix C. Supported Parallel Port devices

More and more, the parallel port is used to connect other devices than printers. To support this parallel port drivers are written for the devicesto work. This appendix presents devices for which parallel port support is written.

To be clear: printers are not presented in this appendix as they are not supported by parallel port support projects.

Also, check the Linux Parallel Port support pages for more information http://www.torque.net/parport. Here you can find

- paride subsystem for parallel port IDE devices (http://www.torque.net/parport/paride.html)
- support for parallel port SCSI devices (http://www.torque.net/parport/parscsi.html)

28.1 Ethernet

- Accton EtherPocket adapter
- AT−Lan−Tec/RealTek parallel port ethernet adapter
- D−Link DE600/DE620 parallel port ethernet adapter

28.2 Hard drives

- H45 Quick HD
- KingByte IDE/ATAPI disks
- KT Technologies PHd portable hard disk
- MicroSolutions backpack hard−drives
- SyQuest EZ−135
- SyQuest EZ−230
- SyQuest SparQ
- ValueStor external hard−drive

28.3 Tape drives

- Hewlett−Packard Colorado Tracker 250 tape drive (all except the T1000e)
- Hewlett−Packard HP Colorado 5GB tape drive
- Iomega Ditto tape drive
- MicroSolutions backpack 8000t, 8000td tape drives

28.4 CD−ROM drives

- Freecom Power CD
- Freecom Traveller CD−ROM
- H45 Quick CD
- Hewlett−Packard HP 7100e/7200e CD−R
- KingByte IDE/ATAPI CD−ROMs
- MicroSolutions backpack CD−ROM. Models 163550 and later are supported by the paride driver.
  For models 160550 and 162550 seperate drivers are availavble.
- MicroSolutions backpack PD/CD drive
- SyQuest SyJet

28.5 Removable drives

- Avatar Shark 250
- Imation Superdisk
- Iomega ZIP, ZIP Plus drives

28.6 IDE Adapter

- Arista ParaDrive products
- DataStor Commuter disks
- Fidelity International Technologies TransDisk products
- Freecom IQ Cable Parallel
- Shuttle Technology EPAT/EPEZ parallel port IDE adapter
- Shuttle Technology EPIA parallel port IDE adapter

28.7 SCSI Adapters

- Adaptec APA−348 mini−SCSI plus adapter cable
  Driver available at http://www.torque.net/parpart/parscsi.html
- Adaptec APA−358 mini−SCSI EPP adapter cable
  Driver available at http://www.torque.net/parpart/parscsi.html
- Shuttle Technology EPSA−2 parallel port SCSI adapter
  Driver available at http://www.torque.net/parpart/parscsi.html
- Shuttle Technology EPST parallel port SCSI adapter

Driver available at http://www.torque.net/parpart/parscsi.html

28.8 Digital Camera

- Connectix QuickCam

28.9 PCMCIA parallel port cards

The parport_cs driver requires kernel 2.2.x or later

- Quatech SPP−100
- IOtech DBK35, WBK20A

29.Appendix D. Plug and Play devices

For people having trouble getting Plug and Play devices to work, the ISA PnP utilities written by Peter Fox are available. Quote from the README:

```
These programs allow ISA Plug-And-Play devices to be configured
on a Linux machine.

This program is suitable for all systems, whether or not they
include a PnP BIOS.
```

Commands have been taken from the Plug and Play ISA specification Version 1.0a.

More information on ISA PnP utilities can be found on the website of Peter Fox:
http://www.roestock.demon.co.uk/isapnptools/

Please let me know about hardware (not normally supported under Linux) which can be put to work with the aid of these utilities. A list of this hardware will be put in this appendix.

30.Appendix E. Linux incompatible Hardware

Some hardware manufacturers have created devices which are compatible with MS−Dos and Windows 95/98 only. They seem to emulate part of the normally available hardware in the devices by software packages sold together with the device. Specification on these devices are not presented to the world so it is almost impossible to write drivers for these devices. Below a list of devices reported as being Linux incompatible will be given.

Simply put, it is best to avoid hardware which states things like "Needs Windows" or "Windows only".

- Printers
    - Brother HL−820 printer
    - Canon LBP−465 printer
    - HP Deskjet 710, 720, 820 and 1000 series printers (although Windows only) are supported under Linux. Have a look at http://www.httptech.com/ppa/. Be warned: Support is still in early development.
    - Lexmark 1000 inkjet printer
    - Lexmark 3200. For windows it has a emulation driver for HP500 and HP500C. Under Linux this printer will not work using a HP500 or HP500C driver.
    - Lexmark 5000 printer
    - Lexmark CJ5000 (ColorJet) printer
    - OkiData OkiPage 4w
    - Sharp JX−9210 printer
- Modems
    - 3Com 3CXM356/3CCM356 and 3CXM656/3CCM656 PCMCIA
    - AOpen FM56−P and FM56−H
    - AT&T/Lucent winmodem
    - Boca Research 28.8 internal modem (model MV34AI)
    - Boca Research 33.6 internal modem (model MV34)(Joe Harjung has succeeded in configuring the modem under Win95 and then soft booting into Linux with the modem still working. Filippo is using this modem under Linux directly without any problems and without soft booting from Windows. I definitely need more info on these Boca Research modems.) The Boca Research 33.6 modem (model M336I) is mentioned to work with Linux. The only thing that needed to be done was diabling Plug and Play. Here are the specs of the modem
        - Three stickers saying "MC2920A−3.3", "E6030D 4035−01" and "1721 8011 A"
        - Chips etc on the board
            - Cirrus Logic CL−MD3450D−SC−B
            - Cirrus Logic MD1724−11VC−D
            - Datatronic VLM301−1??
            - Omron G5V−1 (2 of them)
            - AST (?) M628032−20E1
            - Cirrus Logic CL−MD4450C−SC−A
            - Abracon 23−040−20
            - two empty places for additional chips, one of which might be a Cirrus Logic CL−MD1724D
        - 4 jumpers for COM port selection
        - 10 jumpers for IRQ selection
        - other unknown jumpers
    - Compaq 192 PCMCIA modem/serial card
    - HP Fastmodem D4810B
    - IBM Mwave ("Dolphin") card. This card is a combination of sound, modem, fax, voice

control and dictation. Software is replacing part of hardware functionality so this software should be loaded to get things working.

- Multiwave Innovation CommWave V.34 modem (http://www.multiwave.com/)
- Megahertz XJ/CC2560 PCMCIA
- New Media Winsurfer PCMCIA modem/serial card
- Rockwell SoftK56
- US Robotics WinModem series
- Zoltrix 33.6 Win HSP Voice/Speaker Phone modem
- Zoltrix Phantom 56K, model FM−HSP56PCI, chipset PCTel (**PCI**)

31.Glossary

AGP

Accelerated Graphics Port. A bus interconnect mechanism designed to improve performance of 3D graphics applications. AGP is a dedicated bus from the graphics subsystem to the core−logic chipset.
http://www.euro.dell.com/intl/euro/r+d/r+dnews/vectors/vect_2−1/v2−1_agp.htm

ATAPI

AT Attachment Packet Interface. A new protocol for controlling mass storage devices similar to SCSI protocols. It builds on the ATA (AT Attachment) interface, the official ANSI Standard name for the IDE interface developed for hard disk drives. ATAPI is commonly used for hard disks, CD−ROM drives, tape drives, and other devices.

ATM

Asynchronous Transfer Mode

CDDA

Compact Disk Digital Audio. Capability of CD−ROM/Writer to read out audio tracks.

DMA

Direct Memory Access

EGA

Enhanced Graphics Adapter

EIDE

Enhanced IDE

EISA

Extended Industry System Architecture

FDDI

Fiber Distributed Data Interface. High−speed ring local area network.

IDE

Integrated Drive Electronics. Each drive has a built−in controller.

ISA

Industry System Architecture

ISDN

Integrated Services Digital Network

MCA

MicroChannel Architecture

MFM

Modified Frequency Modulation

MMX

Multimedia Extensions. Added to the newest generation of Intel Pentium Processors. It offers better audio and video quality

PCI

Pheripheral Component Interconnect. 32−bit bus designed by Intel. Information can be found on http://www.pcisig.com and http://infoserver.ee.siue.edu/~jbutter/EE580_1.html.

RAID

Redudant Arrays of Inexpensive Disks. The basic idea of RAID is to combine multiple small, inexpensive disk drives into an array of disk drives which yields performance exceeding that of a single large expensive drive. There are five types of redundant array Architectures; RAID−1 through RAID−5. A non−redudant array of disk drives is referred to as RAID−0. Some RAID systems can mix formats.
http://www.uni−mainz.de/~neuffer/scsi/what_is_raid.html

PPA

Printing Performance Architecture. Protocol developed by Hewlett Packard for their series of Deskjet printers. In essence, the protocol moves the low−level processing of the data to the host computer rather than the printer. This allows for a low−cost printer with a small amount of memory and computing power and a flexible driver. However, this comes at the price of compatibility. HP's decision was to develop drivers only for Windows 95 for this printer.

RLL

Run Length Limited

SCSI

Small Computer Systems Interface. A standerd interface defined for all devices in a computer. It make it possible to use a single adapter for all devices. http://www.uni−mainz.de/~neuffer/scsi/what_is_scsi.html

SVGA

Super Video Graphics Adapter

UART

Universal Asynchronous Receiver Transmitter

USB

Universal Serial Bus. Not yet supported by Linux.

VGA

Video Graphics Adapter

VLB

VESA Local Bus. Used in some 486 PC's.

WORM

Write Once Read Many