

[PATCH 12/12] Add DVB documentation

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2003-12/4251.html>

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To: akpm@osdl.org, torvalds@osdl.org, linux-kernel@vger.kernel.org

DVB: - add some valuable documentation about the DVB subsystem, the supported cards, a faq, ...

diff -uNrWB --new-file xx-linux-2.6.0/Documentation/dvb/cards.txt

linux-2.6.0.p2/Documentation/dvb/cards.txt

--- xx-linux-2.6.0/Documentation/dvb/cards.txt 1970-01-01 01:00:00.000000000 +0100

+++ linux-2.6.0.p2/Documentation/dvb/cards.txt 2003-12-19 11:54:08.000000000 +0100

@@ -0,0 +1,63 @@

+Hardware supported by the linuxtv.org DVB drivers

+=====

+

+ Generally, the DVB hardware manufacturers frequently change the
+ frontends (i.e. tuner / demodulator units) used, usually without
+ changing the product name, revision number or specs. Some cards
+ are also available in versions with different frontends for
+ DVB-S/DVB-C/DVB-T. Thus the frontend drivers are listed seperately.

+

+ Note 1: There is no guarantee that every frontend driver works
+ out-of-the box with every card, because of different wiring.

+

+ Note 2: The demodulator chips can be used with a variety of
+ tuner/PLL chips, and not all combinations are supported. Often
+ the demodulator and tuner/PLL chip are inside a metal box for
+ shielding, and the whole metal box has its own part number.

+

+

+o Frontends drivers:

+ - dvb_dummy_fe: for testing...

+ DVB-S:

+ - alps_bsrv2 : Alps BSRV2 (ves1893 demodulator)

+ - cx24110 : Conexant HM1221/HM1811 (cx24110 or cx24106 demod, cx24108 PLL)

+ - grundig_29504-491 : Grundig 29504-491 (Philips TDA8083 demodulator), tsa5522 PLL

+ - mt312 : Zarlink mt312 or Mitel vp310 demodulator, sl1935 or tsa5059 PLL

+ - stv0299 : Alps BSRU6 (tsa5059 PLL), LG TDQB-S00x (tsa5059 PLL),

+ LG TDQF-S001F (sl1935 PLL), Philips SU1278 (tua6100 PLL),

+ Philips SU1278SH (tsa5059 PLL)

+ DVB-C:

+ - ves1820 : various (ves1820 demodulator, sp5659c or spXXXX PLL)

+ - at76c651 : Atmel AT76c651(B) with DAT7021 PLL

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+ DVB-T:
+ - alps_tdlb7 : Alps TDLB7 (sp8870 demodulator, sp5659 PLL)
+ - alps_tdm7 : Alps TDMB7 (cx22700 demodulator)
+ - grundig_29504-401 : Grundig 29504-401 (LSI L64781 demodulator), tsa5060 PLL
+ - tda1004x : Philips tda10045h (td1344 or tdm1316l PLL)
+ - nxt6000 : Alps TDME7 (MITEL SP5659 PLL), Alps TDED4 (TI ALP510 PLL),
+ Comtech DVBT-6k07 (SP5730 PLL)
+ (NxtWave Communications NXT6000 demodulator)
+
+
+o Cards based on the Phillips saa7146 multimedia PCI bridge chip:
+ - TI AV7110 based cards (i.e. with hardware MPEG decoder):
+ - Siemens/Technotrend/Hauppauge PCI DVB card revision 1.1, 1.3, 1.5, 1.6, 2.1
+ (aka Hauppauge Nexus)
+ - "budget" cards (i.e. without hardware MPEG decoder):
+ - Technotrend Budget / Hauppauge WinTV-Nova PCI Cards
+ - SATELCO Multimedia PCI
+ - KNC1 DVB-S
+
+o Cards based on the B2C2 Inc. FlexCopII:
+ - Technisat SkyStar2 PCI DVB
+
+o Cards based on the Conexant Bt8xx PCI bridge:
+ - Pinnacle PCTV Sat DVB
+ - Nebula Electronics DigiTV
+
+o Technotrend / Hauppauge DVB USB devices:
+ - Nova USB
+ - DEC 2000-T
+
+o Preliminary support for the analog module of the Siemens DVB-C PCI card
+
diff -uNrWB --new-file xx-linux-2.6.0/Documentation/dvb/contributors.txt
linux-2.6.0.p2/Documentation/dvb/contributors.txt
--- xx-linux-2.6.0/Documentation/dvb/contributors.txt 1970-01-01 01:00:00.000000000 +0100
+++ linux-2.6.0.p2/Documentation/dvb/contributors.txt 2003-12-19 11:54:08.000000000 +0100
@@ -0,0 +1,54 @@
+Thanks go to the following people for patches and contributions:
+
+Michael Hunold <m.hunold@gmx.de>
+ for the initial saa7146 driver and it's recent overhaul
+
+Christian Theiss
+ for his work on the initial Linux DVB driver
+
+Marcus Metzler <mocm@metzlerbros.de>
+Ralph Metzler <rjkm@metzlerbros.de>
+ for their contining work on the DVB driver
+
+Michael Holzt <kju@debian.org>
+ for his contributions to the dvb-net driver

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+
+Diego Picciani <d.picciani@novacom.it>
+ for CyberLogin for Linux which allows logging onto EON
+ (in case you are wondering where CyberLogin is, EON changed its login
+ procedure and CyberLogin is no longer used.)
+
+Martin Schaller <martin@smurf.franken.de>
+ for patching the cable card decoder driver
+
+Klaus Schmidinger <Klaus.Schmidinger@cadsoft.de>
+ for various fixes regarding tuning, OSD and CI stuff and his work on VDR
+
+Steve Brown <sbrown@cortland.com>
+ for his AFC kernel thread
+
+Christoph Martin <martin@uni-mainz.de>
+ for his LIRC infrared handler
+
+Andreas Oberitter <andreas@oberitter.de>
+Florian Schirmer <jolt@tuxbox.org>
+...and all the other dBox2 people
+ for many bugfixes in the generic DVB Core and their work on the
+ dBox2 port of the DVB driver
+
+Oliver Endriss <o.endriss@gmx.de>
+ for many bugfixes
+
+Andrew de Quincey <adq_dvb@lidskialf.net>
+ for the tda1004x frontend driver, and various bugfixes
+
+Peter Schildmann <peter.schildmann@web.de>
+ for the driver for the Technisat SkyStar2 PCI DVB card
+
+Vadim Catana <skystar@moldova.cc>
+Roberto Ragusa <r.ragusa@libero.it>
+Augusto Cardoso <augusto@carhil.net>
+ for all the work for the FlexCopII chipset by B2C2,Inc.
+
+(If you think you should be in this list, but you are not, drop a
+ line to the DVB mailing list)
diff -uNrwB ---new-file xx-linux-2.6.0/Documentation/dvb/faq.txt
linux-2.6.0.p2/Documentation/dvb/faq.txt
--- xx-linux-2.6.0/Documentation/dvb/faq.txt 1970-01-01 01:00:00.000000000 +0100
+++ linux-2.6.0.p2/Documentation/dvb/faq.txt 2003-12-19 11:54:08.000000000 +0100
@@ -0,0 +1,109 @@
+Some very frequently asked questions about linuxtv-dvb
+
+1. The signal seems to die a few seconds after tuning.
+
+ It's not a bug, it's a feature. Because the frontends have
+ significant power requirements (and hence get very hot), they

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- + are powered down if they are unused (i.e. if the frontend device
- + is closed). The dvb–core.o module paramter "dvb_shutdown_timeout"
- + allow you to change the timeout (default 5 seconds). Setting the
- + timeout to 0 disables the timeout feature.
- +
- +2. How can I watch TV?
- +
- + The driver distribution includes some simple utilities which
- + are mainly intended for testing and to demonstrate how the
- + DVB API works.
- +
- + Depending on whether you have a DVB–S, DVB–C or DVB–T card, use
- + apps/szap/szap, czap or tzap. You must supply a channel list
- + in ~/.[sct]zap/channels.conf. If you are lucky you can just copy
- + one of the supplied channel lists, or you can create a new one
- + by running apps/scan/scan. If you run scan on an unknown network
- + you might have to supply some start data in apps/scan/initial.h.
- +
- + If you have a card with a built–in hardware MPEG–decoder the
- + drivers create a video4linux device (/dev/v4l/video0) which
- + you can use to watch TV with any v4l application. xawtv is known
- + to work. Note that you cannot change channels with xawtv, you
- + have to zap using [sct]zap. If you want a nice application for
- + TV watching and record/playback, have a look at VDR.
- +
- + If your card does not have a hardware MPEG decoder you need
- + a software MPEG decoder. Mplayer or xine are known to work.
- + Newsflash: MythTV also has DVB support now.
- + Note: Only very recent versions of Mplayer and xine can decode.
- + MPEG2 transport streams (TS) directly. Then, run
- + '[sct]zap channelname –r' in one xterm, and keep it running,
- + and start 'mplayer – < /dev/dvb/adapater0/dvr0' or
- + 'xine stdin://mpeg2 < /dev/dvb/adapater0/dvr0' in a second xterm.
- + That's all far from perfect, but it seems no one has written
- + a nice DVB application which includes a builtin software MPEG
- + decoder yet.
- +
- + Newsflash: Newest xine directly supports DVB. Just copy your
- + channels.conf to ~/.xine and start 'xine dvb://', or select
- + the DVB button in the xine GUI. Channel switching works using the
- + numpad pgup/pgdown (NP9 / NP3) keys to scroll through the channel osd
- + menu and pressing numpad–enter to switch to the selected channel.
- +
- + Note: Older versions of xine and mplayer understand MPEG program
- + streams (PS) only, and can be used in conjunction with the
- + ts2ps tool from the Metzler Brother's dvb–mpegtools package.
- +
- +3. Which other DVB applications exist?
- +
- + <http://www.cadsoft.de/people/cls/vdr/>
- + Klaus Schmidinger's Video Disk Recorder

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- +
+ <http://www.metzlerbros.org/dvb/>
- + Metzler Bros. DVB development; alternate drivers and
- + DVB utilities, include dvb–mpegtools and tuxzap.
- +
+ <http://www.linuxstb.org/>
- + <http://sourceforge.net/projects/dvbtools/>
- + Dave Chapman's dvbtools package, including
- + dvbstream and dvbtune
- +
+ <http://www.linuxdvtv.tv/>
- + Henning Holtschneider's site with many interesting
- + links and docs
- +
+ <http://www.dbox2.info/>
- + LinuxDVB on the dBox2
- +
+ <http://www.tuxbox.org/>
- + <http://cvs.tuxbox.org/>
- + the TuxBox CVS many interesting DVB applications and the dBox2
- + DVB source
- +
+ <http://sourceforge.net/projects/dvbsak/>
- + DVB Swiss Army Knife library and utilities
- +
+ <http://www.nenie.org/misc/mpsys/>
- + MPSYS: a MPEG2 system library and tools
- +
+ <http://mplayerhq.hu/>
- + mplayer
- +
+ <http://xine.sourceforge.net/>
- + <http://xinehq.de/>
- + xine
- +
+ <http://www.mythtv.org/>
- + MythTV – analog TV PVR, but now with DVB support, too
- + (with software MPEG decode)
- +
+4. Can't get a signal tuned correctly
- +
+ If you are using a Technotrend/Hauppauge DVB–C card *without* analog
- + module, you might have to use module parameter adac=-1 (dvb–ttpci.o).
- +
+5. The dvb_net device doesn't give me any multicast packets
- +
+ Check your routes if they include the multicast address range.
- + Additionally make sure that "source validation by reversed path
- + lookup" is disabled:
- + \$ "echo 0 > /proc/sys/net/ipv4/conf/dvb0/rp_filter"
- +
+

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```
+eof
diff -uNrWB ---new-file xx-linux-2.6.0/Documentation/dvb/firmware.txt
linux-2.6.0.p2/Documentation/dvb/firmware.txt
--- xx-linux-2.6.0/Documentation/dvb/firmware.txt 1970-01-01 01:00:00.000000000 +0100
+++ linux-2.6.0.p2/Documentation/dvb/firmware.txt 2003-12-19 11:54:08.000000000 +0100
@@ -0,0 +1,116 @@
+Some DVB cards and many newer frontends require proprietary,
+binary-only firmware.
+
+The DVB drivers will be converted to use the request_firmware()
+hotplug interface (see linux/Documentation/firmware_class/).
+(CONFIG_FW_LOADER)
+
+The firmware can be loaded automatically via the hotplug manager
+or manually with the steps described below.
+
+Currently the drivers still use various different methods
+to load their firmwares, so here's just a short list of the
+current state:
+
+-- dvb-ttpci: driver uses firmware hotplug interface
+-- ttusb-budget: firmware is compiled in (dvb-ttusb-dspbootcode.h)
+-- sp887x: firmware is compiled in (sp887x_firm.h)
+-- alps_tdlb7: firmware is loaded from path specified by
+ "mcfile" module parameter; the binary must be
+ extracted from the Windows driver (Sc_main.mc).
+-- tda1004x: firmware is loaded from path specified in
+ DVB_TDA1004X_FIRMWARE_FILE kernel config
+ variable (default /etc/dvb/tda1004x.bin); the
+ firmware binary must be extracted from the windows
+ driver
+-- ttusb-dec: see "ttusb-dec.txt" for details
+
+1) Automatic firmware loading
+
+You need to install recent hotplug scripts if your distribution did not do it
+for you already, especially the /etc/hotplug/firmware.agent.
+http://linux-hotplug.sourceforge.net/ (Call /sbin/hotplug without arguments
+to find out if the firmware agent is installed.)
+
+The firmware.agent script expects firmware binaries in
+/usr/lib/hotplug/firmware/. To avoid naming and versioning
+conflicts we propose the following naming scheme:
+
+ /usr/lib/hotplug/firmware/dvb-{driver}-{ver}.fw for MPEG decoders etc.
+ /usr/lib/hotplug/firmware/dvb-fe-{driver}-{ver}.fw for frontends
+
+ {driver} name is the basename of the driver kernel module (e.g. dvb-ttpci)
+ {ver} is a version number/name that should change only when the
+ driver/firmware internal API changes (so users are free to install the
+ latest firmware compatible with the driver).
```

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+
+2) Manually loading the firmware into a driver
+ (currently only the dvb–ttpci / av7110 driver supports this)
+
+Step a) Mount sysfs–filesystem.
+
+Sysfs provides a means to export kernel data structures, their attributes,
+and the linkages between them to userspace.
+
+For detailed informations have a look at Documentation/filesystems/sysfs.txt
+All you need to know at the moment is that firmware loading only works through
+sysfs.
+
+> mkdir /sys
+> mount –t sysfs sysfs /sys
+
+Step b) Exploring the firmware loading facilities
+
+Firmware_class support is located in
+/sys/class/firmware
+
+> dir /sys/class/firmware
+
+The "timeout" values specifies the amount of time that is waited before the
+firmware upload process is cancelled. The default values is 10 seconds. If
+you use a hotplug script for the firmware upload, this is sufficient. If
+you want to upload the firmware by hand, however, this might be too fast.
+
+> echo "180" > /sys/class/firmware/timeout
+
+Step c) Getting a usable firmware file for the dvb–ttpci driver/av7110 card.
+
+You can download the firmware files from
+<http://www.linuxtv.org/download/dvb/>
+
+Please note that in case of the dvb–ttpci driver this is *not* the "Root"
+file you probably know from the 2.4 DVB releases driver.
+
+> wget <http://www.linuxtv.org/download/dvb/dvb-ttpci-01.fw>
+gets you the version 01 of the firmware fot the ttpci driver.
+
+Step d) Loading the dvb–ttpci driver and loading the firmware
+
+"modprobe" will take care that every needed module will be loaded
+automatically (except the frontend driver)
+
+> modprobe dvb–ttpci
+
+The "modprobe" process will hang until
+a) you upload the firmware or
+b) the timeout occurs.

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```
+
+Change to another terminal and have a look at
+
+> dir /sys/class/firmware/
+
+total 0
+drwxr-xr-x 2 root root 0 Jul 29 11:00 0000:03:05.0
+--rw-r--r-- 1 root root 0 Jul 29 10:41 timeout
+
+"0000:03:05.0" is the id for my dvb-c card. It depends on the pci slot,
+so it changes if you plug the card to different slots.
+
+You can upload the firmware like that:
+
+> export DEVDIR=/sys/class/firmware/0000\:03\:05.0
+> echo 1 > $DEVDIR/loading
+> cat dvb-ttpci-01.fw > $DEVDIR/data
+> echo 0 > $DEVDIR/loading
+
+That's it. The driver should be up and running now.
diff -uNrWB --new-file xx-linux-2.6.0/Documentation/dvb/readme.txt
linux-2.6.0.p2/Documentation/dvb/readme.txt
--- xx-linux-2.6.0/Documentation/dvb/readme.txt 1970-01-01 01:00:00.000000000 +0100
+++ linux-2.6.0.p2/Documentation/dvb/readme.txt 2003-12-19 11:54:08.000000000 +0100
@@ -0,0 +1,39 @@
+Linux Digital Video Broadcast (DVB) subsystem
+=====
+
+The main development site and CVS repository for these
+drivers is http://linuxtv.org/.
+
+The developer mailing list linux-dvb is also hosted there,
+see http://linuxtv.org/maillinglists.xml. Please check
+the archive http://linuxtv.org/maillinglists/linux-dvb/
+before asking newbie questions on the list.
+
+API documentation, utilities and test/example programs
+are available as part of the old driver package for Linux 2.4
+(linuxtv-dvb-1.0.x.tar.gz), or from CVS (module DVB).
+We plan to split this into separate packages, but it's not
+been done yet.
+
+http://linuxtv.org/download/dvb/
+
+What's inside this directory:
+
+"cards.txt"
+contains a list of supported hardware.
+
+"contributors.txt"
+is the who-is-who of DVB development
```

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```
+
+"faq.txt"
+contains frequently asked questions and their answers.
+
+"firmware.txt"
+contains informations for required external firmware
+files and where to get them.
+
+"ttusb-dec.txt"
+contains detailed informations about the
+TT DEC2000/DEC3000 USB DVB hardware.
+
+Good luck and have fun!
diff -uNrWB --new-file xx-linux-2.6.0/Documentation/dvb/ttusb-dec.txt
linux-2.6.0.p2/Documentation/dvb/ttusb-dec.txt
--- xx-linux-2.6.0/Documentation/dvb/ttusb-dec.txt 1970-01-01 01:00:00.000000000 +0100
+++ linux-2.6.0.p2/Documentation/dvb/ttusb-dec.txt 2003-12-19 11:54:08.000000000 +0100
@@ -0,0 +1,52 @@
+TechnoTrend/Hauppage DEC USB Driver
+=====
+
+Driver Status
+-----
+
+Supported:
+ DEC2000-t
+ Linux Kernels 2.4 and 2.6
+ Video Streaming
+ Audio Streaming
+ Channel Zapping
+ Hotplug firmware loader under 2.6 kernels
+
+In Progress:
+ DEC3000-s
+
+To Do:
+ Section data
+ Teletext streams
+ Tuner status information
+ DVB network interface
+ Streaming video PC->DEC
+
+Note: Since section data can not be retrieved yet, scan apps will not work.
+
+Getting the Firmware
+-----
+Currently, the driver only works with v2.15a of the firmware. The firmwares
+can be obtained in this way:
+
+wget http://hauppauge.lightpath.net/de/dec215a.exe
+unzip -j dec215a.exe Software/Oem/STB/App/Boot/STB_PC_T.bin
```

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+unzip -j dec215a.exe Software/Oem/STB/App/Boot/STB_PC_S.bin

+

+

+Compilation Notes for 2.4 kernels

+-----

+For 2.4 kernels the firmware for the DECs is compiled into the driver itself.

+The firmwares are expected to be in /etc/dvb at compilation time.

+

+mv STB_PC_T.bin /etc/dvb/dec2000t.bin

+mv STB_PC_S.bin /etc/dvb/dec3000s.bin

+

+

+Hotplug Firmware Loading for 2.6 kernels

+-----

+For 2.6 kernels the firmware is loaded at the point that the driver module is

+loaded. See linux/Documentation/dvb/FIRMWARE for more information.

+

+mv STB_PC_T.bin /usr/lib/hotplug/firmware/dec2000t.bin

+mv STB_PC_S.bin /usr/lib/hotplug/firmware/dec3000s.bin

-

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