

Multimedia Devices with USB connection

MULTIMEDIA

IN SERIES

CHRISTIAN REISER



Philips DSS 330: Mini-USB keyboard for remote control is included

Whether it's a loudspeaker, radio or MP3 player – most USB devices currently available on the market can also be connected with Linux – but there are also some black sheep. More about that in this test report.



Multimedia under Linux? A few years ago that would have been unthinkable. The domain of Unix was always the server field, where it's enough if the computer has an input/output port: the network connection. But recently a lot has happened, and, mainly as the result of the popularity of Linux in the private domain, a large market has sprung up. This has unfortunately not yet been recognised by all the hardware companies. For precisely this reason, it is still advisable to find out first before buying new hardware if the device you want will also function under Linux, because otherwise you might be in for some nasty surprises, as we found in our test. You can also find out more about the latest USB driver support under Linux at <http://www.qbik.ch/usb/devices/> and at <http://www.geocrawler.com/lists/3/SourceForge/4563/0/>.

Philips DSS 330

When you unpack this sub-woofer satellite system, a great big logo boasts: 600 Watt PMPO (Peak Maximum Power Output). On taking a closer look at the introduction it emerges that this leaves just 50 watts: 25 for the sub-woofer and 12.5 for each satellite. This is adequate for almost any normal application, but again shows how much influence marketing people have and how seriously big numbers should be taken. Unlike the Yamaha boxes introduced below, in this case the Line-In input is not adjustable: The incoming signal is thus always turned up to the maximum. Anyone trying to insert a device during operation does in fact risk damaging the loudspeaker. Another unpleasant side effect is that the boxes therefore hiss slightly. But only the owners of whisper-quiet computers will notice this. The only adjustment option on the device is the sub-woofer volume. The cable remote control appears under Linux as a keyboard with just two keys: louder and quieter. The other buttons – Power and Surround – are hard-wired and function without additional software aids. Under Linux, apart from volume, it is also possible to adjust balance, treble and bass.

Teac PowerMax Traveller

This product advertised with the USB logo cheered up the tester enormously: There is certainly a USB cable, leading from the computer to the end device, but on the end of it the connector finishes in a two-pin plug for 5-volt power supply. So this means these loudspeakers are simply misusing the USB connection as a replacement for a (certainly too expensive) plug-in power supply unit – the sound has to be conducted via a conventional sound card and appropriate analogue audio cable to the boxes. When plugging in to the USB connector, accordingly, no new device is found, as expected. But the USB controller monitors power consumption and switches off if appropriate. The USB logo on the packaging is accordingly slightly misleading. It is only apparent from the product

description printed on the side that these boxes are not USB devices in any real sense. Obviously the speakers functioned with Linux and appropriate sound card with no problems.

Yamaha YST-M45D

These boxes are in a classic design go with any monitor. With respect to the racket... er, music output, they are perfectly adequate as computer boxes – but don't plan to use them as a substitute for a stereo system. Apart from music transmission via USB you can also feed in two analogue signals with a pair of 3.5mm jacks. All connectors and settings are combined on the right-hand loudspeaker. From there, there is only a little cable to the left-hand box. The loudspeakers do not have an internal power supply, so a transformer unit has always to be left lying around. Under Linux the tested product behaved in exemplary fashion – after loading the driver module (see box) you can get started straight away. In terms of adjustment options the mixer offers, apart from the volume control, bass and treble amplification – all working well. These parameters can also be controlled directly on the device. This is very practical, as physical access is usually quicker.

Yamaha MS35D

The smallest sub-woofer satellite system in our test uses exactly the same external power supply as the YST-M45D: and again there are two analogue 3.5mm jack inputs. But when it comes to the type of construction, this is the only external similarity between the two systems. Treble and bass controllers were left out on the small one, but instead there is a controller with which one can set the amplification of the bass box. The power switch and the volume control are, practically, placed on the right-hand satellite. The whole thing is slightly reminiscent of Bose systems. In technical terms both systems are pretty similar: This three-part system with adjustable feet functions just as reliably and offers under Linux exactly the same adjustment options as in its big brother system presented above: treble, bass and volume control.

Yamaha YST-MS55D

Unlike its smaller brothers, the Yamaha top model declined to co-operate at all. Not even the standard initialisation could be completed (no inputs in `/proc/bus/usb/devices`). The only way to coax a sound from the device, was with a sound card with analogue connection cable. But then the powerful bass really makes itself felt: an 80 watt amplifier makes for good pitch, and the two-way satellites show off their quality too. But none of this is any help. At present there is sadly no USB support for these boxes.

D-Link DRU-R100

For anyone who does not yet have a radio, this external device is perfect. For anyone else, it's a nice toy, or a nice ornament for your desk. The device does its duty happily under Linux too. But unfortunately only with a kernel of version series 2.4, since the necessary driver is not included in the backport. Tuning is done via the `video4linux` interface. For this reason the `videodev` module must be loaded. Now only the module `dsbr100` itself has to be loaded – that's it. There are a large number of programs under Linux to control it. And for KDE and GNOME there are special versions, which all in all can only alter the frequency, since the control for the volume sadly did not work in any of the programs tested. The most astonishing thing about this device: the sound is not transported via USB. There is a 3.5mm jack for this, which has to be

Teac PowerMax Traveller: Despite the USB logo on the carton, these are not USB loudspeakers – the connection to the computer is used only for power supply



USB loudspeakers under Linux

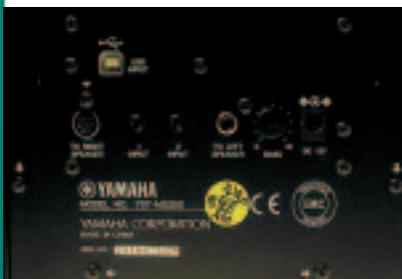
There is a kernel module under Linux, which is responsible for the integration of USB loudspeakers (`audio.o`). The USB sound output slips seamlessly into the existing collection of sound card drivers. Which is why the module `soundcore` is also needed (which is loaded automatically by `modprobe`). The advantage of this driver solution is that the application programs normally have nothing else to worry about. All mixers, play programs and other speaker functions operate immediately after loading the module. This is also included in the USB backport patch for Kernel 2.2 and runs stably there – so in all mainstream distributions (such as the SuSE 7.0 used in the test) a `modprobe audio` should suffice to be able to use the loudspeaker without restriction. For this to happen automatically if required, you will still need to add the following lines in the file `/etc/modules.conf`:

```
alias char-major-14 soundcore
alias char-major-116 snd
alias sound-slot-0 snd-card-0
alias snd-card-0 audio
```

Make sure `char-major-14` is not in any other line. Uncomment this as necessary by simply putting `#` before it.

ON TEST

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Exemplary: All functions of the Yamaha YST-M45D boxes worked straight off and without any problems.



plugged into the Line-In input of the sound card or on the boxes.

WinTV USB

With this device, apart from listening to the radio, it should also be possible to watch television. Unfortunately here again there is no Linux driver available yet. But there is some hope for all those who have already added on WinTV. There was a report in the USB mailing list recently about a driver at the development stage. Anyone interested can contact (jig@satec.es or jorg.heckenbach@fgan.de).

Webcams under Linux

Everything went wrong with the Webcams in this test. Of the four test samples which reached the test lab, not a single one worked at first. Georg Acher, one of the USB kernel developers, accepted, after an interview (see Linux Magazine November 2000 page 49) the Logitech Quickcam Express, and lo and

behold: there is now a driver to support some of the functions of this camera. It has been completely created as the result of time-consuming re-engineering, as Logitech itself will not issue any specifications. For this reason, the driver is not yet one hundred per cent stable at this time. For those who have already added this model, though, it's certainly worth a test.

Philips

We had high hopes for the Webcams from Philips, because this is the only manufacturer who will reveal any information. Of the Webcams requested, however, only the new ToUcam Pro reached our offices – shame, because this is precisely the device which is not yet supported by Linux. Obviously none of the USB developers was prepared to sign the Non-Disclosure Agreement, in order to get the specification from Philips necessary to create a Linux driver. So far only *Nemosoft Univ.* (Pseudonym) has agreed to do so and is programming drivers for the models PCA645VC, PCA646VC, PCVC675K (Vesta), PCVC680K (Vesta Pro), and PCVC690K (Vesta Scanner). They are in fact only available as ready-compiled modules (<http://www.smcc.demon.nl/webcam>), but according to reports on the USB mailing list they do work without any problems. Apparently there is still work to be done with the ToUcam (PCVC 740K): Nemosoft has announced that it will be meeting representatives of Philips about this matter.

Dlink

Nor did we have any luck with Dlink. Instead of the requested Webcam DSB-C300 we got the DRU-350, which, however, you've guessed it, was not supported by Linux.

Personal JukeBox PJB100

The Personal Jukebox, an MP3 player, was originally developed by Compaq and is now being produced under licence by a firm specially founded by them. In the interior of this box there is a 6-GB hard disk, which can provide for about four days of uninterrupted listening pleasure (manufacturer's specification: 100 hours at 128 Kbps), with the hard disk being replaced by an even larger model if required. Theoretically any commercial 2.5" disk should fit. The player obtains its songs exclusively via the PC. There is neither an analogue nor a digital sound input. The headphones supplied fit very well, due to their sophisticated construction, and yet do not press too hard on the ears. They can be folded up for transport. Only thing missing: the player sadly has no cable remote control, but on the other hand the rest of the accessories are worth a mention: plug-in power supply, a cigarette-lighter adapter and a cassette adapter.

Small but wow: in the Yamaha YST-MS35D it's not just the sound that's as smooth as silk





Not even powerful basses can help here: with USB the Yamaha YST-MS55D boxes won't make a sound



With the D-Link DRU-R100 Radio only the frequency can be adjusted by USB. The sound has to be tapped by analogue means



Only worked with extra help from a USB developer: Logitech-Webcam

Data swap

Transfer of digital audio data is of course done via the USB bus. The appropriate kernel module has to be downloaded from <http://phobos.fs.tum.de/pjbox/> or <http://crl.research.compaq.com/downloads/register.cgi?download=Linux+Jukebox> and it only works under 2.3 or 2.4 kernels. As a front-end there is either the command line program supplied, *pjb* or alternatively for GNOME *pjbmanager* (<http://mews.org.uk/pjb/>) or for KDE the Jukebox Manager (<http://sourceforge.net/projects/jukeboxmgr/>).

Unfortunately not one of these programs can read back the files. The JukeBox is operated via six keys: Start, Stop and four cursor keys. With the On/Off keys it is possible to navigate in the menu; with right/left the settings selected are changed. The user can toggle between various playback modes (Album/Interpret, Genre). But there are also the normal functions, such as random selection and repeat. The run time is stated as 10 hours. If the sample rate deviates from 128 kbps, this is shown in the display.

Rock steady

The hard disk, by the way, could not be ruffled even by vigorous shaking. The player should thus be suitable for jogging. Also, the disk does not run constantly anyway: it only runs up briefly, loads the song into the RAM and switches the motor off again immediately. This process has just one small drawback: if you select a new song during playback, it takes three to four seconds before anything happens. At the end of the song this pause does not occur, as the hard disk starts again before the end of the playing time.

Conclusion

Although there now exist a considerable number of Linux drives for USB multimedia devices,

blindly purchasing such a product is still a game of chance. Only when it becomes normal for the hardware manufacturers to develop, in addition to Windows drivers, also the corresponding Linux drivers (and this is then also made clear on the product packaging) will the purchase of such devices become much simpler for the average Linux user.

In the next issue we will be concentrating on USB printers and scanners.

At about 100 hours the Personal JukeBox PJB100 MP3 player leaves very little to be desired – not even in connection with Linux

