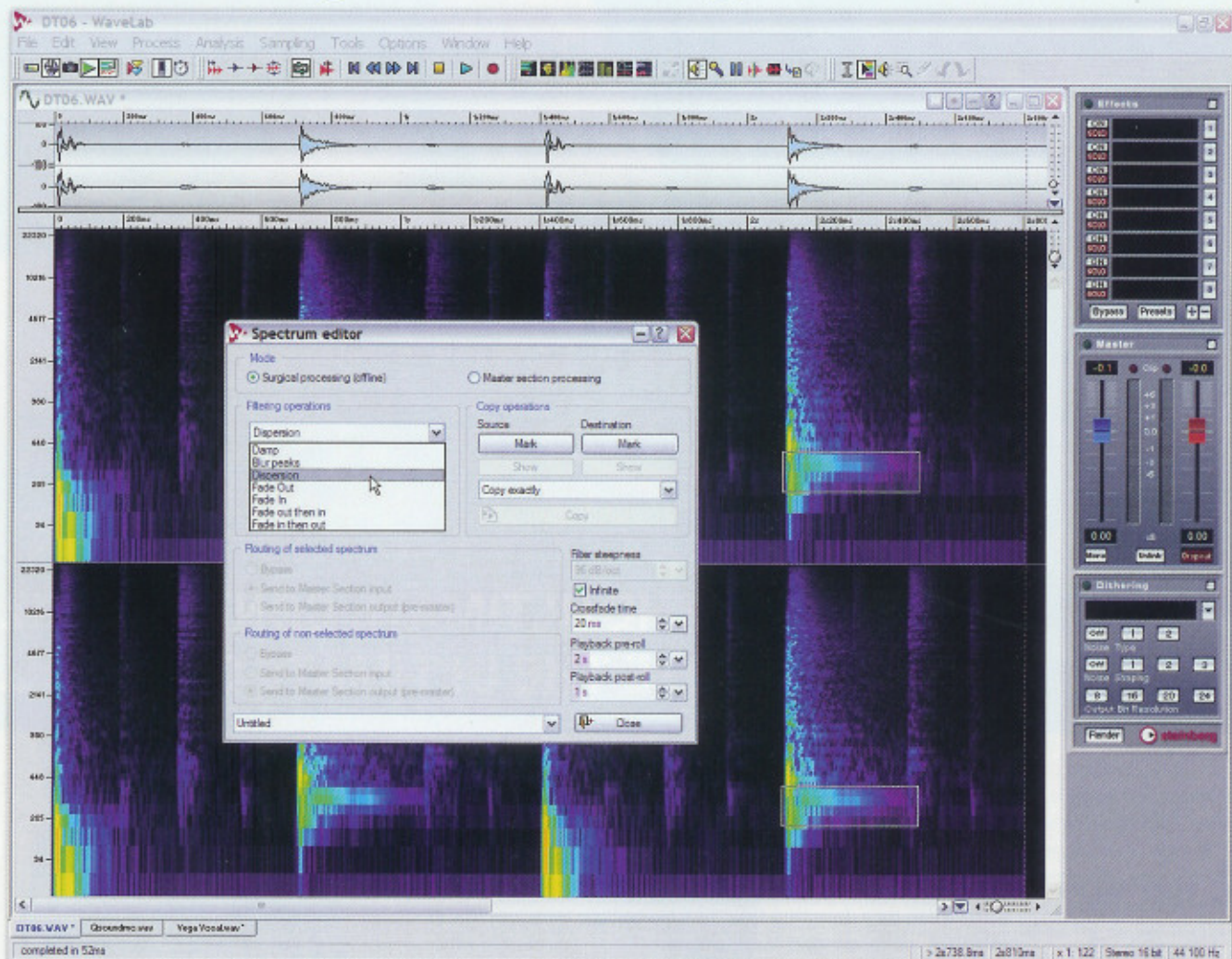


Steinberg Wavelab 6

Audio Editing And Mastering Suite For PC



Wavelab's latest tricks include a revolutionary Spectrum Editor, which allows you to identify problem areas in your material visually before applying extremely precise restoration processes.

Martin Walker

Since its first release in 1996, Philippe Coutier's *Wavelab* application has jumped to the next major revision every couple of years. Each new version has managed to add numerous new features and improvements without sacrificing stability or performance. Given that *Wavelab 5* already

included more features than many musicians could shake a stick at, some may have wondered if there were any more new features that could possibly be added.

Wavelab 6 proves them wrong, but one new addition may not be as welcome as the others. For the first time ever, *Wavelab* is protected by a USB dongle. The full version is supplied with a Synchronsoft dongle identical to that used by *Cubase SX*, *Nuendo*

The Spectrum Editor lets you view audio files in spectrogram mode, draw round any region and edit it in lots of different ways that will prove invaluable to anyone trying to restore damaged or problem recordings.

2 and *3*, *Hypersonic* and *Halion 3*. *Wavelab* upgrades don't include this dongle, but if you already own any of the aforementioned products you can use its dongle to authorise *Wavelab 6*. Those upgrading without a suitable dongle can buy one from Yamaha for \$29.95 (it must be bought at the same time as the upgrade, though).

Spectrum Display

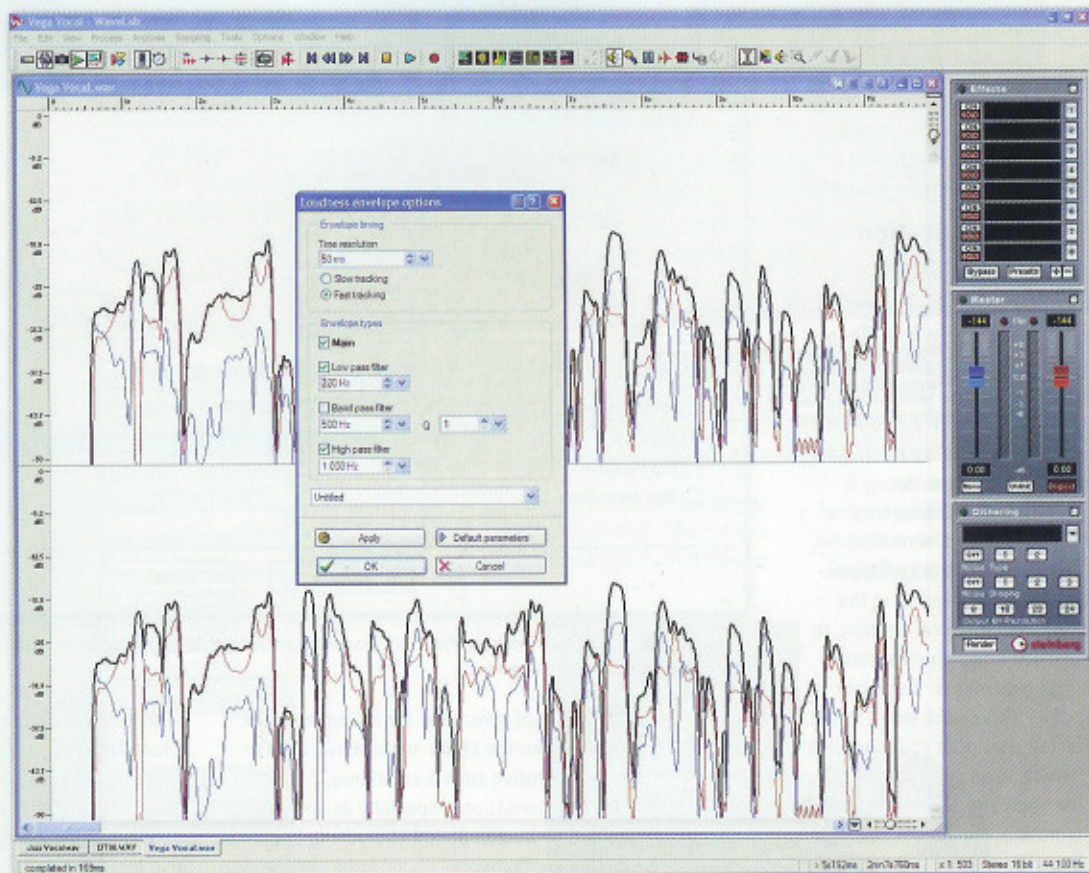
The most notable new feature is that each waveform window and associated overview

The new Loudness Display shows loudness over time in up to four frequency bands, so you can see the spectral distribution of energy in your songs.

can now be viewed in any of three display modes. The standard mode familiar from previous versions is Wave, but this is now joined by Loudness Envelope and Spectrum. You can choose different modes for the main window and overview, and either zoom each separately, or synchronise them so that (for instance) you can have a spectrum display in the overview and wave displays in the main windows beneath, and they will remain

locked together when you zoom in and out.

The Spectrum option displays your waveforms in spectrogram format, with time across the horizontal axis, frequency content rising up the vertical axis, and intensity linked to a range of colours or black/white strength. The Spectrum display options include colour, black and white, logarithmic/linear frequency scale, resolution of the FFT spectral analysis (a compromise between frequency and time



resolution), and audio range; as this is lowered, only the 'louder' frequency content appears on screen, which is a great way to home in on transients, for instance.

I've always enjoyed spectrogram views because they show things that may not be visible any other way, such as low-level hums and whistles (which appear as horizontal lines) and what enhancers are actually doing to your audio (changes of colour near the top of the window). However, you don't often get the option of performing edits in this mode, so *Wavelab 6's* spectrum editing is a very welcome addition in an application at this price.

Once you've selected Spectrum editor mode, an associated dialog window appears and the cursor changes to allow you to define a rectangular region on the display. With stereo files, an identical region is automatically created in the other channel. You can either treat the selected regions with off-line Surgical processing, or real-time Master Section processing. Both modes use high-quality linear-phase filters capable of 'infinite' steepness in excess of 1000dB/octave, although you have full control over the steepness and the crossfade time where the filtered portion is merged with the original audio signal.

Surgical processing offers a variety of filtering alternatives. Damp is generally used to reduce levels, with a choice of band-pass,

low-pass and high-pass filter options to reduce various unwanted parts of a region. Blur Peaks is easy to understand in the graphic sense, and is a powerful tool when you want to remove certain spectral parts of a sound. Dispersion smears sounds so they are less obvious in the mix, without removing them and leaving a hole in the spectrum, while the four Fade options are great for reducing the impact of transients or gradually changing certain spectral aspects of a region.

There are also copious Copy operations that let you transfer a Source to a Destination region, so you can, for instance, replace a bum note with a good one from another part of the song. By working with limited frequency ranges you can also remove or replace sounds like a few seconds of feedback in a rock concert or a

Alternatives

Popular stereo editing packages on the Windows platform include Sony's *Sound Forge*, the latest version 8 of which was reviewed in *SOS* June 2005. This is a well-featured and highly regarded editor, but has nothing directly comparable to the new Loudness Envelope and Spectral Display or Spectral Editing tools in *Wavelab 6*. The new version 2 of Adobe's *Audition* (formerly *Cool Edit Pro*, as reviewed in *SOS* July 2002), however, does include a spectral display mode, and is also a widely used and powerful piece of software.

SOUND ON SOUND

Steinberg *Wavelab 6* \$700

pros

- Sophisticated spectrum editing for audio restoration work.
- Wonderfully creative spectrum plug-in options.
- High-quality DIRAC pitch and time manipulation.
- Improved sample-rate conversion algorithm.
- Lots of new loudness analysis and treatment options.
- Bargain upgrade prices.

cons

- Requires dongle for the first time.

summary

Wavelab 6 manages yet again to add a further comprehensive selection of must-have additions and improvements to an already world-class application used by lots of professionals on a daily basis. Wonderful!

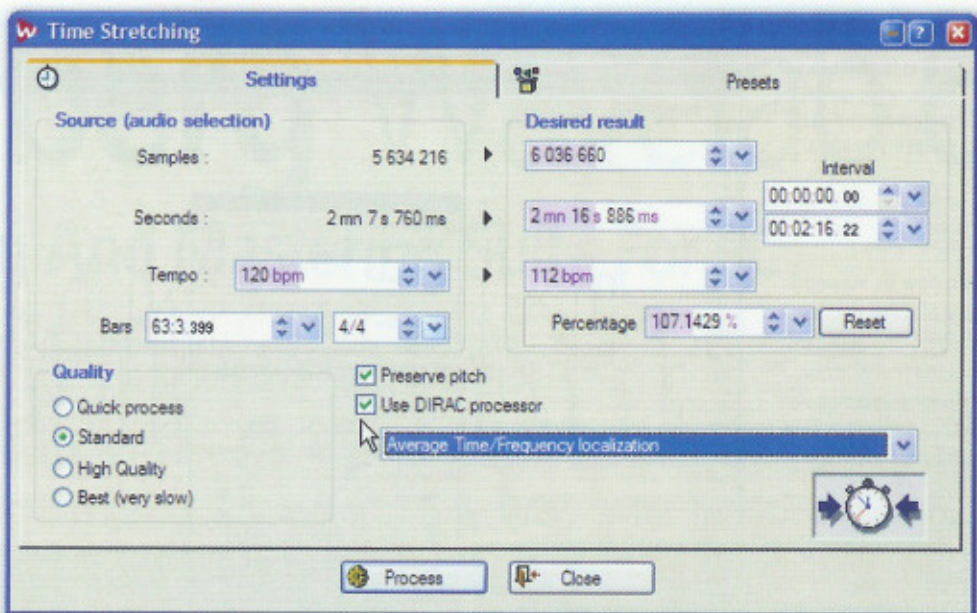
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► sneeze during a live classical concert. The copious and informative PDF manual provides plenty of operational details, although you'll need skill and a lot of practice to perform such miracles invisibly.

Master Section Processing

With Master Section processing you can treat the whole file in real time through a chain of up to eight plug-ins. These plug-ins are either fed from a frequency spectrum defined by the region you select, or from the remainder of the frequency spectrum, while the non-effected part of the spectrum can either be mixed in at the output of the Master Section, or discarded altogether for more radical treatments. The latter mode is also useful when fine-tuning the effected part prior to recombining the two.

While Surgical processing is one of the most sophisticated tools there is for audio restoration, Master Section processing offers a huge range of new creative options, such as frequency-selective reverb, flanging and chorus, auto-panning of different parts of the spectrum and narrow-band distortion of drum loops. By the time I tried out spectrally limited delays and echoes my head was reeling with new possibilities. Occasionally the selected and non-selected parts got



Tucked away in the Time-stretch and Pitch-shift windows is a new set of DIRAC processing algorithms, providing arguably the cleanest results available anywhere.

slightly out of sync after removing complex plug-ins from the chain in real time, but I'm happy to forgive such a small bug in the delay compensation, especially as clicking on the Play button pulled everything back together perfectly.

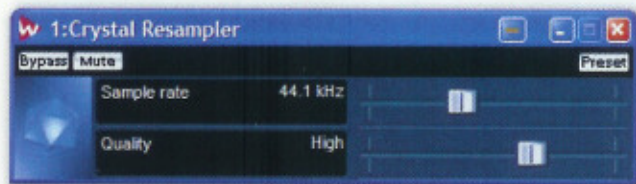
On The Level

After the excitement of Spectrum Editing, the new Loudness Envelope display option seems mundane by comparison. It shows loudness over time in various predefined frequency bands, and up to four curves can be chosen from Main (overall), low-pass, band-pass and high-pass. By studying them you can learn a lot about frequency distribution through a song, or the amount of compression used. However, recalculation

of the display for a complete track can take a long time, even if you're just resizing or zooming the window, so if you need to do this, switch back to Wave display first.

The Audio Analysis menu options now also include a Loudness Distribution window that plots the most frequent, rather than the average, loudness level in any file. On this display, most modern finished songs appear as a single horizontal lobe, but unaccompanied vocals and classical tracks display significantly wider or more numerous lobes, indicating a far greater variation in dynamics. You can store up to three different results to compare different tracks.

Another related function is the off-line Level Envelope processor that lets you apply a user-defined envelope to any or all of your file. This is far more versatile than the previous Fade processes, especially with its 'smooth envelope' function that turns lines into curves. Yet another enveloping function



It may not look impressive, but the new *Crystal* sample-rate conversion plug-in offers significantly more transparent results than previous algorithms, and also shows the new interface sported by generic plug-ins.

Smaller Improvements

Global improvements in *WaveLab 6* include enhanced file read/write performance and the removal of all limitations on file size, plus a noticeably slicker graphic interface and icons. There are also many smaller additions and improvements that prove really helpful. Here are some that particularly appealed to me:

- *WaveLab* has always had a comprehensive Key Commands section allowing you to assign keyboard shortcuts to most operations, but this has now been extended to include MIDI command options, which makes it a lot easier to couple *WaveLab* up to MIDI controllers or sync it to other applications. *WaveLab* can now also be slaved to ASIO Positioning Protocol for sample-accurate sync.

- The Rename File function can now automatically update any references to the file in all other open documents, and rename any associated peak and marker files. This is particularly handy if you want to rename an individual track used in one or more Montages, since in the past the next time you opened them you'd get 'file not found' problems. There's also a Batch file-renaming tool with more comprehensive features.

- The old Wave Scope oscilloscope display has been renamed Oscilloscope and been augmented by a new Waveform Scope that displays a real-time drawing of the audio signal being monitored — anyone who has ever used a high-persistence

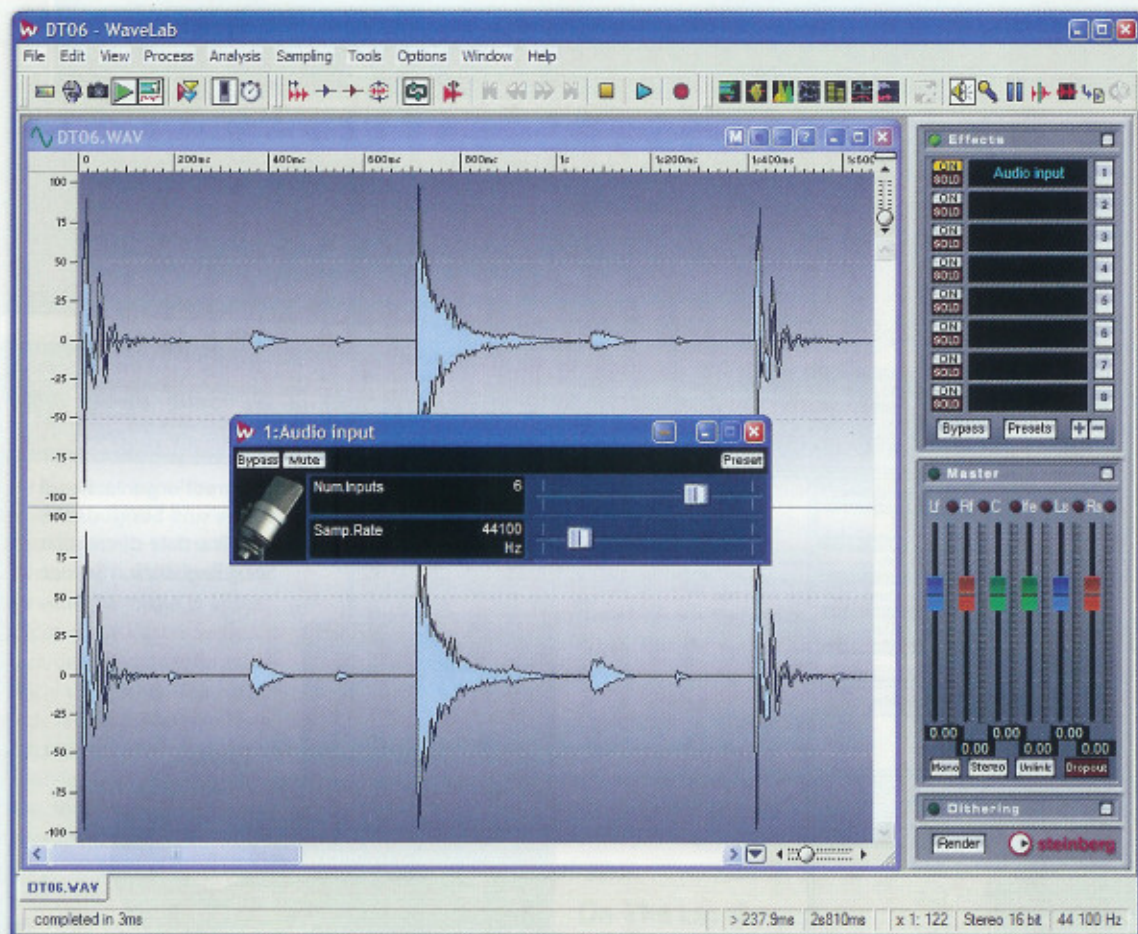
storage 'scope will know exactly what to expect, and it's a handy way to monitor an in-progress recording to check that everything's OK.

- Generic plug-ins without a dedicated graphic interface finally appear with a full set of slider controls, rather than the previous rather primitive parameter pages and a single rotary knob.

- The new Edit Folders dialogue lets you specify all the document, work and temporary folders used by *WaveLab*, while graphic peak files can now be stored separately from the audio files.

- An improved Insert Silence tool now lets you load in an audio file to use as background noise instead of true silence, with adjustable gain and fade in/out at the edges.

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The newly refined *Audio Input* plug-in now lets you record incoming signals to up to eight audio channels simultaneously, for live surround recording and treatment.

source material such as instruments, voices, classical music, percussion and so on, and I found they imposed significantly fewer artifacts on long stretches than the previous algorithms.

Also new in the process menu is a Pitch Quantise option that works on monophonic lines to correct

that I found particularly useful is the Effect Morphing: you apply plug-in effects to whatever part of your file you wish, open this new window, create a user-defined envelope, and *Wavelab* then mixes in the most recent (unprocessed) Undo file to fade the effect in/out as you wish. I also found this a very useful way to avoid clicks when you want to process only part of a file.

The previous Normalise process has become Level Normaliser, and is joined by Loudness Normaliser, which works with RMS levels to set a loudness and is thus far more appropriate than the conventional peak level adjustment when you're trying to make individual tracks sit in an album context. There's also a new Pan Normaliser which can balance the peak or RMS levels across stereo channels. Finally, the level/pan meters now have K-Metering options, as defined by renowned mastering engineer Bob Katz, which you use in connection with calibrated monitor levels to ensure repeatable high-quality mastering results without compromising dynamics or squashing transients.

New Treatments

Previous *Wavelab* versions offered the same sample-rate conversion algorithms as *Cubase* and *Nuendo*, but *Wavelab 6* includes

a new SRC Crystal Resampler that's gaining much praise for its conversion accuracy — it's significantly more transparent, and roughly on a par with Voxengo's highly acclaimed *rBrain Pro*.

Also, tucked away inside both the Time-stretch and Pitch Correction processing windows is an innocuous new tick box that should bring a big smile to all those who do a lot of work with loops. The 'Use DIRAC processor' option switches in possibly the best available time-stretch/pitch-shifting algorithm available on the market today, albeit at the expense of longer processing times. There are six variations on the DIRAC algorithm for dealing with different kinds of

intonation problems; you can define the reference frequency, pitch tolerance and slur time. It's a sort of poor man's *Auto-Tune*, and can also be persuaded to perform subtle Cher-like robotic glitches at extreme settings.

Two new plug-ins appear in the Master Section under a new ASIO heading, and only function with ASIO drivers. *Audio Input* replaces the previous 'Live Input' function, letting you capture any incoming signal from your audio interface hardware with Master Section effects, but is far more versatile since the plug-in window lets you select any number of input channels from one to eight, and your choice of sample rate. It must always be loaded in the topmost

Previous *Wavelab* Reviews In *SOS*

- **Wavelab 5:** February 2005
www.soundonsound.com/sos/feb05/articles/steinbergwavelab5.htm
- **Wavelab 4:** May 2002
www.soundonsound.com/sos/may02/articles/wavelab4.asp
- **Wavelab 3:** March 2000
www.soundonsound.com/sos/mar00/articles/wavelab.htm
- **Wavelab 2:** June 1998
www.soundonsound.com/sos/jun98/articles/wavelab.html
- **Wavelab 1.6:** October 1997
www.soundonsound.com/sos/1997_articles/oct97/steinbergwavelab.html
- **Wavelab 1.5:** February 1997
www.soundonsound.com/sos/1997_articles/feb97/steinbergwavelab.html
- **Wavelab 1.01:** August 1996
www.soundonsound.com/sos/1996_articles/aug96/steinbergwavelab.html

System Requirements

All Steinberg recommend for running *Wavelab 6* is a PC with any Pentium 4, Athlon or Opteron processor of 2.4GHz or faster, running Windows 2000 or XP, and 1GB of RAM. Unlike multitrack applications where lots of simultaneous plug-ins and soft synths are likely to be required, this seems entirely reasonable, and even the quoted minimum requirements of a Pentium III/Athlon 800MHz processor and 256MB of RAM seem feasible to me as long as you don't attempt complex plug-in chains.

effect slot. *External Gear* can only be used once in the chain, and as its name suggests, it lets you plumb in hardware effects to spare ASIO input/output pairs. The latency of the send/return loop can be automatically compensated for, just as in the latest versions of *Cubase* and *Nuendo*.

The Master Section itself also benefits from a few new options. You can now store its current set of plug-ins with an audio file, its display now indicates both 'plug-ins active' (green) and 'global bypass' (red) states, and the plug-ins organiser now recognises folders. However, for me the

most useful new function is Smart Bypass, which compensates for any change in loudness when processing a file, so that you can A/B switch between the original and processed versions and hear the change in sound quality rather than the change in level. The stand-alone *Harbal* application does this as well, and it's an extremely useful tool when making mastering decisions.

Final Thoughts

Those who aren't yet *Wavelab* users might consider \$700 a lot of money for an audio editing, mastering, restoration and CD/DVD burning application, but considering that *Wavelab 1.6* — the first version I reviewed, back in *SOS* October 1997 — was already £399 (around \$730), the price seems eminently reasonable considering the absolutely vast array of features that has been added since. I feel more comfortable working in the *Wavelab* environment than with any other audio application I've ever used, and rely on it a great deal for my day-to-day work. It has rarely let me down over the last nine years.

I can see a few laptop owners sticking with their existing *Wavelab* version to avoid

Test Spec

- *Wavelab v6.00a* build 285).
- PC with Intel Pentium 4/C 2.8GHz processor with Hyperthreading, Asus P4P800 Deluxe motherboard with Intel 865 PE chip set, running 800MHz front side buss and 1GB DDR400 RAM, Emu 1820M and Echo Mia soundcards, running Windows XP Service Pack 2.

the inconvenience of the new dongle, but those with desktop PCs would be fools not to upgrade, especially since existing *Wavelab 5* owners can do so for just £70. Even at £130, version 3 and 4 owners should find this upgrade a bargain given the huge number of new features it adds to their arsenal of editing options. **5/5**

information

- S** \$699.99; upgrade from v5 \$199; upgrade from v3 or 4 \$299.
- T** Yamaha Corporation +1 714 522 9011.
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