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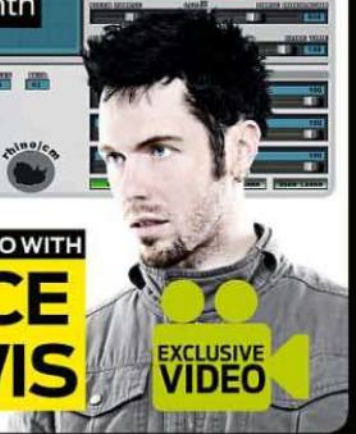
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welcome

On September 25th and 26th, SAE London will play host to **cm**'s first ever live show. *Producer Sessions Live*, brought to you by *Computer Music* and *Future Music* magazines, and our sister website **MusicRadar.com**, is set to be a truly star-studded weekend of masterclasses, manufacturer/developer demos and general music technology shindiggery.

Artists already confirmed to appear include Dave Spoon, Freemasons, Tommy D, Danny Byrd and London Elektricity, and there'll be more announced over the coming months. These luminaries of the dance and electronic music scenes will be laying bare their personal production techniques 'in the classroom', dispensing tons of essential advice, and giving attendees plenty of creative ideas to bring to bear on their own music.

The cream of the music technology industry will also be in attendance, giving you the chance to see and hear the experts put the latest gear through its paces, and, of course, get hands-on with it yourself.

Tickets start at a bargainous £8 and they're going to go fast, so book now at **www.producersessionslive.com**.

ENJOY THE ISSUE...

Ronan Macdonald **Editor**



The **cm** Mission Our goal is to help you create great music with your PC or Mac. With that objective always in mind, we bring you step-by-step tutorials on all aspects of software-based music production, unbiased reviews of the latest products, technical Q&As, and a Dual Layer DVD-ROM packed with exclusive software and samples.

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PDF GUIDES FOR NEWCOMERS

If you're a rookie, check out the **CM Beginners** folder on the DVD – a library of material put together to help you get your head around many basic computer music concepts

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Message of the month

I enjoyed the interview with Culprit 1 (**cm**151), and it was interesting to hear how he's stripping down his hardware to the bare minimum of just a laptop and one sequencer. That said, he came across as a bit arrogant when he started talking about other musicians. He has a problem with the fact that 'you can download a crap sequencer off the net and start creating tunes in five minutes, and in the next five minutes start a MySpace page', to which I say, 'Yeah, and what's wrong with that?'. Many **cm** readers will be the kind of people who download a demo and get making music quickly – and get tremendous pleasure from it. It's what I did, and I would like to think that after producing a few dodgy beginner efforts along the way, he now wouldn't call my music 'crap'. It's a bit like David Bailey moaning that anyone can buy an SLR for £250 and the internet is being dragged down by their 'crap' Flickr sites.

Showing our musical progress and getting feedback via a MySpace/SoundCloud page is all part of the journey. **cm** gives away a lot of good free content and tools that can really help beginners create music quickly and easily, yet James' comments seems to be insulting this not-insignificant percentage of your readership.

Not everyone can 'make it' and be a full-time producer/musician, and I think his attitude toward 'the layer of crap' of excited beginners and people aiming to get better showed him to be a bit up himself. It's great that everyone can create music today, even if it means that established acts like Culprit 1 have 'an extra filter of crap to go through'.

Spencer Steel, Kings Langley

The old 'quality vs democratisation' debate crops up in so many areas of the digital arts these days. I agree that it's an amazing and ultimately good thing that anyone can make music these days, but I also see James' point that there is, undeniably, a lot of chaff out amongst all that wheat. *RM*

The writer of our *Message of the month* will receive a brand new Cakewalk A-500S controller keyboard, worth £155, courtesy of Cakewalk and Roland!

www.cakewalk.com



Retro niche

I read your article on Emily Howell (**cm**151) with interest, because I use software that composes its own music, too. The programs I typically use to come up with MIDI tunes are Instant Music and Music Mouse, both released in the late 80s and hosted on the old Commodore 64 and Amiga platforms.

Instant Music is a simple sequencer that enables you to 'doodle' patterns on the screen. These patterns are then played back in accordance with rules set down by the master template. The program is good for coming up with complete pieces, though 'composing' only basic riffs enables you to be more flexible in what you can overdub when the tune is ported to a DAW. Music Mouse enables you to play notes and chords in various scales as you glide the mouse around the desk.

I'm no musician, but I can doodle, so these pieces of software give me the real boost I don't deserve when compiling sweet little theme tunes. If anybody's interested, my site contains a good few MP3s of music put together in various ways: **www.concept-single.net**. (It also links to a sizeable Commodore 64 links page, as that's a great little music computer in its own right.)

You can find my page on Instant Music here: **www.dustybin.org.uk/IM.htm**.

Michael Braisher, Reading

Superb. If we had a prize for 'retro niche of the month', it would clearly be yours. *RM*

Internet explorer

I'm over the moon, I'm excited, I'm inspired and impressed. Heck, even my wife was impressed with the results! What am I talking about? It's the results I started seeing while using the features in the *How To Make It In Music* **cm** *Special*. Starting with sorting out my social networking sites, I set up an account on Reverb Nation. I uploaded a demo of a song I'd just finished. It entered the local area rock charts at 27, and within a week I'd climbed to 12!

The fact that people were actually listening to my stuff really was a bit of an eye opener. It gave me a real confidence boost. Then I asked for feedback, and got



Our recent cm *Special, How To Make It In Music*, helped Stewart Henderson get on the right track



niko20's Electrum is one of the few quality music apps on Android

it. Most of it was positive, but I did get two criticisms from producers who gave me some tips. Even that was worded in an encouraging way. All that from just social networking! I'm now working on some more tracks and hoping to get them up there soon.

I have read various books on different aspects of the music business, but nothing comes close to the clear, concise and easy-to-follow advice you guys presented. I've only used a couple of chapters of the *Special* so far. I look forward to seeing what else will happen as I continue to apply the advice you give.

> "I did get two criticisms from producers who gave me some tips"

Thanks for creating such an amazing publication.

Stewart Henderson, Margate

That's what we like to hear! While finishing a great track is always a reward in itself, most of us reach a point where we want to share our music with the world, and many go even further and consider a career in music production. So whatever 'making it' means to you – international fame and fortune, or the ability to produce pro-quality tracks – the opportunities are certainly out there today, if you know where to look for them.

For those who missed it, get hold of *Computer Music Special 40: How To Make It In Music* at myfavouritemagazines.com, while stocks last. *AR*

Padding things out

Computer Music seems to be featuring a lot of iPhone/iPad stuff these days. As a proud iPhone owner, I'm certainly not complaining, but I am wondering if this is a full-on shift in direction for the magazine or just a temporary thing while Apple's machines are grabbing headlines.

Could you clarify your position on this, please? And also, how come it's all iPhone/iPad, with no mention of Android devices?

Simon Wright, Doncaster

First and foremost, rest assured we're not turning into 'iMusic magazine' – our priorities absolutely remain Mac and PC.

Our position on the iPhone and iPad is simply that we see them – particularly the latter – as extremely exciting and potential-filled supplementary music platforms to laptop and desktop machines. So, yes, they have become permanent fixtures in the magazine, but in a realistic, 'secondary' way.

As for Android, there isn't a vast amount of quality music-making software available for Google's mobile OS yet, but it is on our radar, so watch this space. *RM*

Reader music

I'm Oliver from ABSORB vs Sequel, and you made our track your featured demo in **cm**152. I just wanted to say thanks for such a positive review from Tim Oliver – we both really appreciate all constructive criticism and are very grateful that you chose our demo as your featured one.

We'll definitely be adding this to the old CV and making some noise about it on the blogs, etc. Plus, we may well send you some more tracks soon...

Oliver Davy, Newcastle

Please do! Seems like a good opportunity to remind cm readers that submitting a demo to our *Reader Music* section couldn't be easier, thanks to the magic of SoundCloud. Turn to p48 to find out how. *RM*

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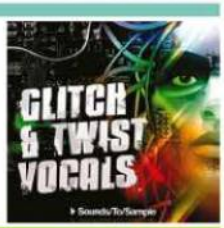
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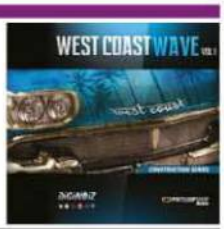
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App, app and away

Propellerhead's ReBirth and IK's AmpliTube iRig take iPhone music-making to the next level

> Mobile music-making is being taken more seriously than ever since the arrival of the iPad, with apps such as Korg's iElectribe proving just how viable the concept has become. In May, Propellerhead and IK Multimedia pushed things even further by bringing some of their desktop brands to iPhone.

We asked Propellerhead CEO Ernst Nathorst-Böös why they've resurrected ReBirth, the techno micro composer. "We have been talking about this for a long time, since the iPhone first came around," he says. "It's a fun thing for us and our users."

The software is the same 2.0.1 version that was discontinued on PC and Mac in 2005. You use one finger for parameter adjustment and two for screen navigation, including zooming.

Propellerhead's ReBirth for iPhone/iPod touch is out now, priced £3.99.

rebirthapp.com



No, you're not seeing things. It is indeed the full version of Propellerhead ReBirth running on an iPhone!



Plug and play: use the iRig plug interface adapter to hook up your axe, then rock out with AmpliTube for iPhone

IK Multimedia have announced AmpliTube for iPhone and the iRig plug interface adapter hardware for guitar input. The full version of the app ($20) features five amps and cabs, 11 stompbox effects and two mics, and there are free and LE ($3) versions too, with further virtual gear purchasable in-app.

The iRig adapter hardware is out now for iPhone/iPod touch, priced £30.

www.ikmultimedia.com

Softube are Dyna-mite

> Softube have rather impressed us of late, especially with their Tube-Tech CL 1B (9/10, cm150) and Trident A-Range EQ (9/10, cm151) simulations. Now they have another: an official emulation of Valley People's Dyna-mite dynamics processor.

This explosive 80s hardware unit packed a compressor/limiter, expander, gate, de-esser and two sidechain modes (duck and key follow), all of which have been faithfully recreated in Softube's plug-in version. Other features of note include a program-dependent release stage that uses Valley People's Anticipatory Release Computation technology to reduce pumping, and three peak detector modes.

Softube's Valley People Dyna-mite is out now for PC and Mac, priced $279.

www.softube.com



Softube have modelled their latest effort on Valley People's Dyna-mite, right down to the look

In a state of Flux

New processors being developed with IRCAM



Flux's Spat (left) is a complex reverb processor, with a huge array of tweakable parameters to explore

Also new from Flux and IRCAM is Trax (right), for real-time voice manipulation

> Flux Sound and Picture Development, makers of the weird and wonderful Syrah adaptive dynamics processor (8/10, cm148), have unveiled a collaboration with IRCAM, aka the Institute for Research and Coordination in Acoustics and Music. The result will be the IRCAM Tools range.

There are five plug-ins in total, the first two of which are reverb-type effects: Spat, a "multiformat room acoustic simulation and localisation processor" and IRCAM'Verb', which Flux say is a "room acoustic and reverberation processor."

"IRCAM Tools is the result of over 20 years of research within music-related digital signal processing"

Flux Sound and Picture Development

The other three units come under the 'Trax' banner, referring to transformation and cross-synthesis. They are Trax Transformer, for real-time voice modelling; Trax Cross Synthesis, a spectral envelope morphing plug-in; and Trax Source/Filter, for "enhanced sound filtering". Details are a little vague right now, but YouTube videos of the plug-ins in being demonstrated are very impressive indeed.

Flux Sound and Picture Development's IRCAM Tools for PC and Mac will be available in Q2/Q3 of 2010, price TBC.

www.fluxhome.com

MC Euphonix

New MC Control 2 unit from the digital controller company

> Euphonix have brought their MC Control unit up to version 2, improving it with some very useful new features.

Chief amongst these is the inclusion of an LED-backlit touchscreen, which can be used to display and control parameters such as automation, panning, record arm, etc. Also new this time are eight touch-sensitive, freely-assignable rotary encoders at the edges of the display.

Euphonix's MC Control 2 is out now for PC and Mac, priced $1500.

www.euphonix.com



The display at the centre of the Euphonix MC Control 2 is a customisable touchscreen



Mixdown

With his head in the clouds, our Deputy Editor spouts yet more fanciful predictions

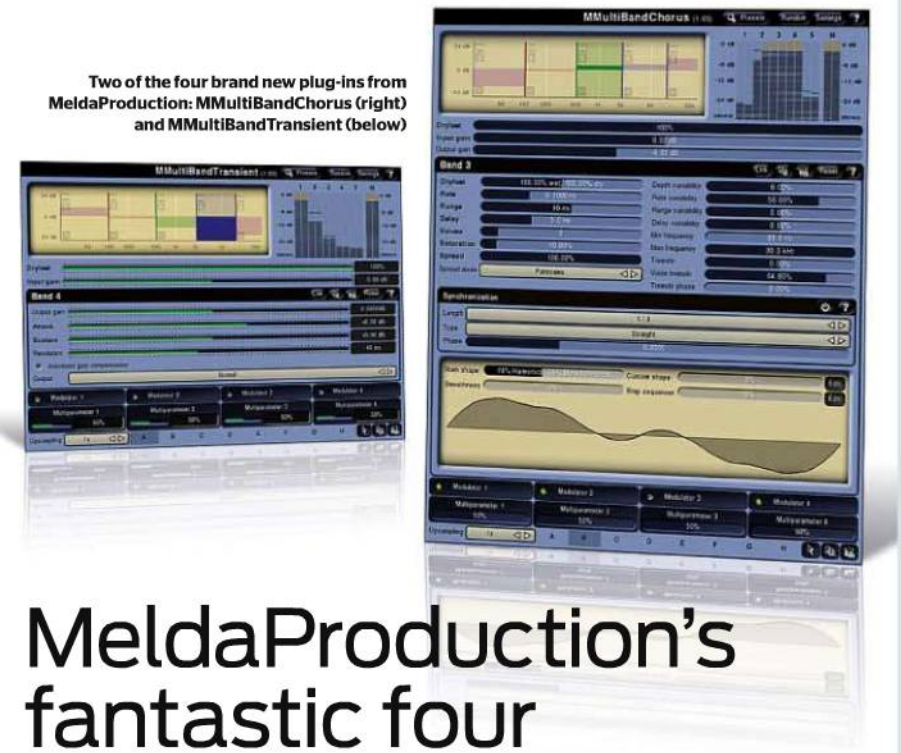
> With Sony discontinuing production of 3.5" diskettes, it looks like the end of the line for this once ubiquitous storage format. To be honest, I'm surprised it's taken so long – how can the humble floppy possibly compete with the rock 'ard drives we have today? The only time I've laid hands on one in recent memory was to fire up my yellowing Amiga 500 a few months back. Incredibly, it still worked, and what's more, I found a disk containing my first *ever* computer music effort (I'd be lying if I described it as a song).

Nowadays, USB thumb drives are where it's at for fast, portable storage, but in this age of unquenchable impatience and demand for convenience, for how much longer? Online storage systems like Dropbox mean that you don't have to think about where to save that document, or even remember to bring your files along with you at all – they're just 'there' waiting for you, whenever and wherever you log in. Of course, 'there' means a web server... somewhere... out there. If your connection goes down, the server pops a fuse, or someone goes the whole hog and blows up the internet, you're stuffed.

"If someone goes the whole hog and blows up the internet, you're stuffed"

Strange, then, that I still feel safer stashing files online than putting them on a USB stick. I guess I have more confidence in the stability of the internet than in my own ability not to lose or simply forget the stick, and I'm sure the nice people at Dropbox are more security-conscious and back-up-happy than me. Besides that, it means my files only have to exist in one central place, so there's less drive space wasted and no more getting mixed up with multiple versions of the same file. Oh, and it's also dead easy to share uploaded files with others.

OK, these systems aren't perfect yet (I'm certainly not using them extensively), but for all their potential pitfalls, I don't think it'll do much to impede the eventual uptake of 'the cloud' as a storage medium – perhaps one day it'll be directly integrated into our operating systems. However it's done, as it gets quicker, slicker and more convenient, cloud storage will make more and more sense, for an increasing range of file types.



Two of the four brand new plug-ins from MeldaProduction: MMultiBandChorus (right) and MMultiBandTransient (below)

MeldaProduction's fantastic four

Quartet of brand new multiband effects released

> MeldaProduction, who already have a multitude of multiband plug-ins available, have just added four more units to their MMultiBand range.

First up is MMultiBandChorus, which can process up to ten voices, has six stereoising algorithms and features between one and six individual bands. If that isn't enough, there are continuously adjustable oscillator shapes (comprising a mix of predefined oscillator shapes, a step sequencer and envelopes), plus four global modulators and randomisation controls.

MMultiBandDistortion also features six bands and four global modulators, as well as 12 simulated amp setups for a variety of styles (rock, metal, etc), five digital distortion algorithms and, like all of the plug-ins in the range, fully automatable parameters.

Next up, there's MMultiBandTransient, which features an "advanced transient detector and processor" for controlling the attack and sustain portions of a signal.

Last but not least, there's the MMultiBandHarmonizer, which processes up to 120 voices using granular, adaptive granular and vocoder pitchshifting algorithms, with a chord generator, formant control and global picthshifting.

MeldaProduction's MMultiBandChorus (€30), MMultiBandTransient (€40), MMultiBandDistortion (€30) and MMultiBandHarmonizer (€35) are all available now for PC and Mac.

www.meldaproduction.com

cm Special

> More than 15 hours of expert video tuition on one packed DVD! That's what you get with our current cm *Special*, the *Producer Masterclass Collection (vol 2)*.

Featuring the best of cm's *PM*s from the past 25 issues, this is a unique opportunity for you to get in the studio with some of the UK's leading cutting-edge producers. With names like Mr Scruff, Shut Up & Dance, John '00' Fleming, Deekline & Wizard and 18 other masters of electronic music lining up to show you their l33t skills, you definitely don't want to miss this one. It's only in the shops for a couple more weeks, so turn to p64 now for a list of stockists.

www.computermusic.co.uk





Damaged

Life's never easy for Chris Randall, especially when it comes to making music

> If you read my blog quite frequently – or even quite occasionally – you're probably aware that I fancy myself as Captain Anachronistic. While it's true that I'm as big a fan of the very latest and greatest as anyone, I also enjoy struggling with song writing and recording techniques from the good old days. In fact, I'm constantly trying to get some ridiculously old software to work or otherwise attempting to track down long-out-of-production parts for an incredibly prosaic instrument from the 70s. This carries over in to other aspects of my life, as well. I like old cars, and I still take pictures with a film camera. I even recently flirted with the idea of shooting all the footage of my band only on Super 8mm film, until I realised that was perhaps taking things a bit too far.

There's no particular reason for this behaviour, or at least no reason that I could easily put in to words. Despite what we prattle on about on a regular basis, the good old days weren't exactly all that good. It was a pain in the arse to record on tape, for example. Modern computers, bless their little black hearts, have made the entire process – from the first initial spark of inspiration right on down the line to where the guy that buys (hopefully) your music hangs out – so seamless and easy that anybody could do it.

"Modern computers, bless their little black hearts, have made the entire process seamless"

I think that's the rub, right there, though. Should it be so easy? Whenever my business partner is complaining that a piece of code is going to be difficult to write, I always say, 'Well, if it was easy, everybody would be doing it'. Since I'm typing it in an AIM window, it probably doesn't carry the full weight of the contempt I feel for this mythical 'everybody'. You know what amazes people? Something that hardly anyone can do. That's a battle worth fighting, in my humble opinion.

Chris Randall is the co-owner of Audio Damage, Inc, and proprietor of the Analog Industries blog, on which he regularly pulls no punches.

www.audiodamage.com
www.analogindustries.com
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PreSonus score points

Major point release for relatively new DAW Studio One



Studio One 1.5 adds a wealth of new features to tempt users of other DAWs across to the PreSonus camp

> We were rather impressed with PreSonus' first foray into the hotly contested DAW market, awarding their Studio One software a highly respectable 8/10 back in cm146. Now the company have added a wealth of useful features and improvements to the Studio One package with a comprehensive point-update.

Studio One 1.5 brings integrated video playback (in QuickTime format) for those who dabble in soundtracking; 64-bit operation for those using Windows Vista/7 or Mac OS X 10.6; SoundCloud integration, so you can easily upload your tracks to various websites, including Facebook, all without leaving the comfort of your DAW; a Key Command Editor for creating your own custom mappings; improved automation facilities with selectable line, parabola, square, triangle, saw and sine shapes; and innovative drag-and-drop functionality for automatically saving presets and bouncing audio/MIDI to file locations outside the DAW.

"Those who create sound for picture will be delighted with the new video features" PreSonus

There's much more, which we can't cover here, so for the full list of new features and improvements, check out the online info.

PreSonus' Studio One 1.5 is available now for PC and Mac. It's a free update for registered users. Newcomers to the DAW can get Studio One Pro for £305.

www.presonus.com

Ableton Partner up

> Ableton have unveiled their latest collaboration, which brings to Live users a raft of brand new instrument packs from third-party developers.

The Partner Instruments cover everything from sampled grand pianos, Balinese gamelan, E-Bow guitar, vintage synths and percussion to found sounds, FX and soundscapes. Some of the industry's top sample producers and virtual instrument developers have weighed in, including Puremagnetik, e-instruments and SonArte, who have worked with Ableton before, as well as newbies such as Sample Logic, Toontrack and Soniccouture.

The new Partner Instruments for Ableton Live are out now, priced from $39-$99. All of them are compatible with Ableton's Suite 8, Live 8 and Live Intro for PC and Mac.



Ableton's Partner Instruments collection, from the likes of Puremagnetik, Sample Logic and Toontrack, gives Live users plenty of sample fodder

www.ableton.com

Trackers & Demoscene

Tracker news for the Nintendo DS and a rather cool compo

> We've waxed lyrical about homebrew Nintendo DS NitroTracker in the past – making music on the go with it is a pleasure, and the latest version has a new live record feature utilising the DS's built-in mic. Recently placing fourth in the **www.r4revolutionds.co.uk** homebrew competition, the author has announced that NitroTracker has gone open source. Hopefully this will speed up the addition of some planned and much sought-after features, such as 4-channel Mod support and original Game Boy sound.

"Hopefully this will speed up the addition of some planned and sought-after features"

Nectarine Compo #5 is in full swing at the time of writing, and the rules are simple: Choose your favourite demoscene composer and remix their music. With the choice of source material being so vast, these updated classics should be interesting to hear. Stay tuned to **www.scenemusic.pl** to vote.

DEMO OF THE MONTH

***Porno Glam Deluxe* by Rebels**

Legendary crew Rebels have been entertaining us for over two decades now, from their classic Amiga demos in the late 80s all the way up to this present day Windows and OS X beauty. With *Porno Glam Deluxe*, the title says it all – think Boogie Nights, 70s disco and, er... only with a hip-hop soundtrack. With a theme encompassing stylised stars, guns, saxophones, hairy chests and naked women, this short demo won't win any prizes for depth and subtlety, but it bares the hallmark Rebels style and quality, and makes a welcome change from the usual cubes and lens flares. There are links to this and more great demos on this month's **cm** DVD.



The Rebels live up to their name with *Porno Glam...*



Is it hard to port music software to the Mac?

> Mac users are typically stereotyped as a rather smug bunch who believe both their hardware and operating system to be superior to that of PC owners. This may or may not be true, but what can't be denied is that, when it comes to having access to the largest quantity of music software, Windows users win.

This isn't necessarily a problem for Apple fans, as they're not exactly short of high-quality apps and plug-ins, and there are also some notable Mac exclusives – Logic, GarageBand and Digital Performer, to name just three. Nonetheless, at some time or another, most OS X users will have felt a pang of disappointment

"It's easy to understand why there's more PC software than Mac"

as they discover that the new plug-in they're reading about won't run on their computer.

It's easy to understand why there's more PC software than Mac: Windows is a much more popular operating system, so it follows that more programmers are using it, and more companies will choose to develop for it first because it represents a larger market for them to target. However, what's not so clear is why not all developers choose to port their software to the Mac, or why it often takes them so long to do so. After all, to maximise revenue, it makes sense that they should support both major operating systems, doesn't it?

We spoke to Eduard Müller, developer of the tracker Renoise. This was originally PC-only, but now runs on Mac and Linux. He notes that user interfaces can be a sticking point when it comes to porting software: "When, for example, writing an application that uses the default Windows GUI (ie, one that looks and behaves like usual Windows applications do), it's quite hard to replace/rewrite this GUI with something that's not running on Windows," he explains.

API daze

This point is backed up by Cockos's Justin Frankel, whose Reaper DAW took the same PC-to-Mac path: "The APIs [*Application Programming Interfaces*] to do many basic things can be different. The more complex APIs, such as those for the user interface, vary tremendously. A problem specific to OS X is that there are between three and ten different ways of accomplishing some of the same tasks, and there is very little aggregated documentation to describe the relative benefits/drawbacks to each. So you end up trying lots of different things to figure out how to do basic things."

One application that Mac users have been casting jealous glances at for years is Steinberg's WaveLab audio editor. This will finally become cross-platform as of the soon-to-be-released version 7. But why did it take so long?

Philippe Goutier, WaveLab's developer, tells us that, when it was originally conceived in 1995, there was "no real plan" to port it to Mac, and that, to finally get it working on Apple's machines, "80% of WaveLab has been rewritten or revisited". He continues: "The OS internals are not conceived in the same way – things like window handling, graphics, audio, CD burning and multitasking. Apart from the algorithms themselves, there are few things you can port from one platform to the other without work."

The devil is in the details

Of porting, Goutier candidly admits that he "did not expect the whole task to take so long", revealing that "what was not easy to evaluate is the enormous number of details to handle that are hidden here and there. Practically, you can't port a complex application from Windows to Mac (or the other way) without rewriting a big part of it from scratch. For audio plug-ins, this is much easier, but that's another story."

Let's take a look at that other story by considering LennarDigital's Sylenth1. Much to Mac owners' chagrin, this stellar soft synth was a PC exclusive upon its release, the reason being that it originally used the Windows-only SynthEdit programming environment to handle the graphics side of things.

Developer Lennard Addink explains that he gave up on SynthEdit because "it had some issues with several VST hosts that were hard to fix. That's why I moved away from SynthEdit and rewrote Sylenth1 using the VST and VSTGUI

Illustration by Jake

SDKs. These SDKs are written to support both Windows and OS X, so that allowed me to easily port the VST version of Sylenth1 to Mac."

However, this still left Addink having to create the all-important Mac AU version, and this wasn't entirely painless. "The AU [*programming*] interface is quite different from VST, so it took quite some time to make Sylenth1 AU-compatible," he says.

Aleksey Vaneev decided to start afresh when porting his Voxengo range of plug-ins to the Mac. "Porting is usually quite a problematic endeavour, because Mac programming is not totally the same thing as Windows programming," he says. "So, I decided to redo everything from scratch. Right now, I can say it all turned out quite well – we have cross-platform code that does not even rely on specific compiler implementation."

Upsetting the Apple-cart

What customers might think of as 'porting' can actually mean 'rewriting', then – even for plug-ins – and this is even truer if you want to support Apple's older machines. Lennard Addink says, "Sylenth1 uses fast SSE processor instructions that are not available on the PowerPC (G4/G5) Mac models. The PPC had its own instruction set called AltiVec, but it would be a lot of work to rewrite all SSE code to AltiVec. However, Apple has stopped producing their PPC line and switched to Intel-based Macs completely (which do support SSE), so making Sylenth1 compatible with the older PPC models would not be worth the trouble."

This is actually a key point, and one that's also made by Eduard Müller: "Porting an existing PC application to run on Intel Macs is easier than supporting Intel and the old PowerPC Macs. Of course, there are still PowerPCs on the market, but they are getting less and less important every year, so it might be worth skipping the support for them completely and concentrating on Intel Macs only."

This isn't going to be music to the ears of G4 and G5 owners, but taking this pragmatic approach should, in theory, mean that creating cross-platform apps and plug-ins in the future won't be such a headache. There's more good news, too, according to Müller: "Once an application runs on OS X and Windows, it's a breeze to port it to Linux as well. That's our experience at least. OS X and Linux share a lot of code because of their common history and core functionality. In our case, we only had to port the raw GUI parts and the audio/MIDI I/O part. Then Renoise more or less worked right away."

It seems that the developmental path from PC to Mac could be getting marginally smoother, then. When asked if there's anything Apple could do to further ease the process, Justin Frankel says, "The biggest thing would be to have some meta-documentation: having a list of things one might want to do, with the possible solutions and comparisons of why you might choose each, would be extremely helpful."

Ultimately, though, moving apps and plug-ins from PC to Mac will continue to be down to the will and skill of developers. As Philippe Goutier points out: "Basically speaking, Apple can't do too much to help with porting of applications without losing what makes [*Windows and OS X*] different." **cm**

Ins & outs

CM WEBSITE OVERHAULED!
It was only last issue that we were bigging up our hyperactive new Facebook page, and now we've got a swanky new website too. It's easier on the eye and just does more, er, stuff. Fire up your browser and check it out at **www.computermusic.co.uk**



FLOPPIES EJECTED
Sony have sounded the death knell for the 3.5" floppy disk by announcing that they'll be discontinuing them as of March 2011. To anyone still using a vintage Akai sampler, we say stockpile 'em while you can.



ROUND ONE... FIGHT!
Bookmakers Paddy Power recently made it possible to bet on the outcome of a *Super Street Fighter IV* match between Ryan Hart and Femi Adeboye, lending further legitimacy to gaming as a spectator sport.

FLASH DRIVE
We're not sure if Paddy Power will open a book on this one, but the tiff between Adobe and Apple continues to hot up, with the Photoshop pioneers responding to Steve Jobs' Flash-bashing with an ad campaign and a critical open letter.

FIVE YEARS YOUNG
YouTube's been around forever, hasn't it? While it might seem like a lifetime, it's actually been five long years since the launch of everyone's favourite source of funny animal videos, bootleg tunes, and 2 Girls 1 Cup reaction clips.

COURIER FAILS TO DELIVER
Microsoft's much rumoured Courier has been officially shelved. The promising device was said to feature dual screens connected by a hinge, with multitouch and stylus operation. Oh well, there's always the Zune, eh?

Busting jargon

Computer music terminology explained. This month: **Drum triggering**

Triggering is a process used with acoustic drums whereby a sample is fired off in sync with each drum hit. That sample can then be mixed with the miked drum, to reinforce it, or used entirely in place of the natural sound. Pop, rock and metal productions often use it, to get a more consistent and up-front sound. For instance, in heavy metal, the kick drum is often replaced with a fixed-velocity sample, so the kick remains loud and powerful even when the drummer is playing at top speed.

Triggering can be done in real time using dedicated hardware. Special trigger sensors are attached to the drums and hooked up to a hardware module that detects drum hits and then plays a relevant sample or generates a MIDI note. Hardware systems like this are still often used at live shows.

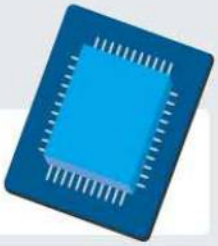
The other way to trigger drums is to record them as usual, with a mic on each drum, and then use triggering software. Some DAWs have functions to detect the transients that can help here, though there are dedicated plug-ins too, like WaveMachine Labs Drumagog and Slate Digital Trigger. Let's say you place one of these plug-ins on your snare drum track: it will attempt to detect when a hit has occured and generate a snare drum sound that can be blended with the dry sound, or replace it entirely. Alternatively, the plug-in can generate MIDI notes – you can record this to a MIDI track and trigger the sounds of your choice. The huge advantage of working in MIDI is that you can easily edit the timing of the drumming to improve dodgy fills or wayward beats.

Drum triggering is common in pro productions, but it's great for amateurs too, as you can get a good sound even if your recording setup isn't up to scratch.



Slate Digital Trigger is a brand new triggering plug-in – see our review on p104

System check



Weird and wonderful goings-on in the wider world of computing



The Eee keyboard might not be massively useful, but we can't help but feel strangely attracted to its retro, all-in-one form

ALL A BOARD

Asus' Eee brand has finally launched its long awaited Eee Keyboard, an all-in-one computer and keyboard combo that has us teary-eyed with nostalgic recollections of classic home computers such as the Commodore Amiga and Sinclair ZX Spectrum. The Eee Keyboard has some cool features such as UWB technology that's used to send HDMI content wirelessly to your TV screen, and a groovy touchscreen on the right hand side of the keyboard where you'd traditionally find a numeric keypad. Currently, the machine is only available in the US, and at $599 it's pretty expensive considering its modest Atom N270 CPU and measly 1GB of RAM. Still, we're sure the device will find its fans, not least among retro-loving children of the 80s.

eeepc.asus.com

MENTAL MICE

After last month's cool new mice (the silent JSCO Noiseless Mouse and the deadly Mad Catz Cyborg Rat 7), we thought that would be it for crazy pointing peripherals for a while. We were wrong: enter Yanko Design's "toe mouse" concept, which enables the user to use a foot rather than a hand to control their cursor. Intended to help those without the use of their arms to operate a computer, we can't help thinking that it would benefit musicians by enabling them to use a MIDI controller and mouse at the same time.

Another musician-friendly device that's popped up in our peripheral vision is the WarMouse Meta, which, while expensive at $80, has a ridiculous 18 buttons – surely enough for even the most shortcut-hungry computer musician.

warmouse.com
www.yankodesign.com

DESIGNED BY DNA

Thanks to boffins at the USA's Duke University, computer chips might be manufactured in a very different way in the future. The eggheads have demonstrated a technique that forces DNA to create shapes by itself, and while the technology is in its infancy – currently the patterns created don't actually do anything useful – the potential is there for circuitry that could self-assemble at virtually no cost.

Of course, there's always the danger when dealing with self-assembling machines that they'll eventually rise up to overthrow their oppressive human overlords, but if there's the chance of an increase in CPU speed, efficiency or value, then the risk of a robot apocalypse is one that we at *Computer Music* are fully prepared to accept.

www.duke.edu

Get with the programmers

The Retail Marketing Manager of the company behind Pro Tools and M-Audio speaks to **cm**



Avid

Dusty DiMercurio

cm Can you give a brief history of Avid?

DD "Avid was founded in 1987 and two years later introduced the industry's first digital nonlinear video editing system – or NLE – forever changing the way people edit moving video and film images. In 1995, Avid broadened its portfolio with the acquisition of Digidesign, best know for its invention of Pro Tools, which revolutionised the way composers, recording artists and sound engineers created and recorded music.

"Over time, Avid has expanded its solution portfolio through both innovation and the acquisition of leading companies such as M-Audio (2004), which allowed Avid to offer a broader range of complementary audio tools such as speakers, microphones, keyboards, digital DJ systems, and I/O interfaces; Sibelius (2006), which enabled Avid to extend its reach into the professional music composer and education markets with a leading notation software solution; and now Euphonix (2010)."

cm What's happening with the Avid brand name?

DD "In April 2009, we announced that we were joining our five disparate brands (Avid, Digidesign, M-Audio, Sibelius and Pinnacle) under the Avid brand. We did this to form one 'strong' unit that would enable us to better leverage innovation across our audio and video technology portfolio for all of our customers – from the enthusiast to the enterprise. This brought about some internal realignment to better support our efforts and led to some external changes – a new Avid logo, new website, new packaging/branding on Avid products, etc. All Digidesign products will now be branded Avid – for example, Avid Pro Tools. M-Audio products will remain branded the M-Audio product family by Avid. We're doing this for several reasons. The first being that the types of customers we serve with these products are a bit different than our traditional Digidesign and Avid products. Separately, the sales channels we serve these customers through have a long-standing relationship with the M-Audio name and we would like to continue to leverage the strength of that name."

> "All Digidesign products will now be branded Avid"

cm Will Pro Tools ever have VST/AU support? Why use RTAS?

DD "The feedback we hear from our customers is that they want a plug-in offering that is optimised, stable and cross-platform, with the longevity to guarantee session recall long into the future. To ensure the best plug-in experience for Pro Tools users, we're continuing to improve the efficiency, stability and capabilities of the RTAS engine, which is a top priority for our customers. VST is a strong platform that has wide acceptance. Pro Tools does support VST plug-ins via the FXpansion VST-to-RTAS adapter, and it's the type of open platform that we would consider supporting more deeply in the future."

cm What's next from Avid?

DD "We have a lot of exciting things to talk about in 2010. You'll continue to see us focused on becoming even more 'open' across all of our product lines to give our customers more flexibility and choice when it comes to workflows. We also remain committed to innovation and answering customers' requests for new features and solutions."

Cakewalk V-Studio 20

Cakewalk have released V-Studio 20, aimed primarily at guitarists and singer-songwriters seeking a mobile all-in-one recording solution.



Cakewalk's V-Studio 20 could be an ideal solution for guitarists – note the stereo mic pair at the top for recording ideas quickly

On the hardware side, V-Studio 20 comprises a bus-powered USB 2-in/2-out interface, a control surface (with eight channel faders, track/input selection buttons, mix knobs and transport controls) and a built-in stereo mic pair. There are two standard line-level inputs, a Hi-Z guitar/bass input and an XLR with phantom power for recording vocals and other sources via an external mic. The stereo output consist of left and right phono connections, and there are sockets for headphones, an expression pedal and a start/stop switch.

"V-Studio 20 matches hardware recording with the power, flexibility and control of a computer"
Cakewalk

Especially exciting for axe-wielders are the onboard Boss COSM effects, including compression/FX, overdrive/distortion, modulation and delay units. For vocal processing, there are built-in harmony and pitch correct effects, as well as room and hall reverbs. Also bundled is Cakewalk's Guitar Tracks software, for recording and editing up to 32 channels, with 11 effects, basic mastering and CD burning facilities.

Cakewalk's V-Studio 20 is out now for PC, priced £260. A Mac version is said to be coming in Q2 of 2010.

www.cakewalk.com

Soundware news



Loopmasters have added two more libraries to their Artist Series, the first of which is **A Guy Called Gerald – Deep Techno Sessions** (£35), featuring 1.2GB of loops, one-shots and instrument patches by the legend himself, for trance, techno and ambient styles. The second newbie in Loopmasters' Artist Series is **Bop – Minimal Drum & Bass** (£25), comprising nearly 600MB of 170bpm content created by the Russian Hospital Records producer. Also on a DnB tip comes **Drum & Bass Construktion Kit 01** (£20) from Zenhiser, featuring 374 beats, basslines, leads and FX.



Drumdrops extend their reggae-influenced series with **Drumdrops in Ska** (£35), which contains 750MB worth of early reggae riddims played by top Jamaican drummers on vintage kits, and all recorded through equally vintage analogue gear.

www.loopmasters.com

From SoniVox comes **Broadway Big Band** (£1750), a gargantuan multisampled collection of brass taken from Fable Sounds and made especially for Native Instruments Kontakt, weighing in at the 100GB mark.

www.timespace.com

Riemann Kollektion have unleashed their latest library, **Riemann Kollecktion 5 – Tech-House Beats** (£21), containing over 600MB of beats, bass, leads and FX (plus drum hits) in the 123-126bpm range.

www.soundstosample.com

From Native Instruments, we have the new Kore Soundpack **Paranormal Spectrums** (€69), containing 100 "dark and tension-filled" sounds designed for TV and film work, each with eight variations.

www.native-instruments.com

Steinberg have unveiled two new sample collections for their Sequel music creation software: **Alternative Rock** and **Jazzy Latin** (£14 each), each of which contains around 400MB of loops in construction kit format for its respective genre.

www.steinberg.net

News in brief

ARTURIA FIND THE ONE



French developers Arturia have introduced a novel new sales concept. The One, as the package is known, gives you unrestricted access to their VA synth collection and the Brass 2.0 modelled instrument for 15 days, after which time you can make an informed decision about which one to keep. Arturia's The One, for PC and Mac, is available now, priced £175.

www.arturia.com

IK PUT FORWARD NEW NOTION



IK Multimedia have joined forces with Notion Music to bring you Notion SLE for Miroslav Philharmonik. The new package comprises a special version of the Notion 3 scoring software that's said to "integrate perfectly with the Miroslav orchestral library". So while writing your latest score, the library will follow your articulation instructions and play back the appropriate patches. Notion SLE is out now, priced €83. Note that you must already own a copy of IK Multimedia's Miroslav Philharmonik to use Notion SLE.

www.ikmultimedia.com

LOOMER HAVE THE PROOF



Loomer have a new modular multieffects unit out called Sequent. It contains a beat looper, two filters, distortion, gate, delay and an auto panner, all of which can be routed in many ways. Each of the effects' parameters has a step sequencer and randomisation controls, too. Loomer's Sequent for PC, Mac and Linux is out now, priced £58.

www.loomer.co.uk

CM151 COMPETITION WINNERS

In CM151, our competition gave readers the chance to win a splendid D16 Total Bundle, featuring every single D16 plug-in. Now get ready to turn green with envy as we reveal that the two lucky winners are none other than... Anthony Sherrington and Tina Norden. Well done!

Now turn to p87 to find out how you could win a stonking pair of plug-ins courtesy of Softube and Adam Audio UK!



niko20's ReLoop is the developer's second music-making outing on Android



Amidio's iHolophone has some innovative ways to control patterns

App watch

New music-making apps for iPhone, iPod touch and Android

> First up is a nifty little app from 4pockets. If you've ever fancied a multitouch software version of a Tenori-On, then Aurora Sound Studio could well be the answer. The main screen features a 16x16 grid, with either drum sounds or notes (for instruments) running top to bottom and a timeline left to right, for layering up to 14 instruments in a single pattern. A note is input by hitting a button on the grid, and there are a variety of sounds onboard, including an editable synth, plus effects such as delay, filtering and loop repeat, which can be controlled by X/Y movements or automation during playback. Be sure to watch the online videos to see these features in action.

Aurora Sound Station for iPhone will be out in late May, priced £19.95. 4pockets are currently working on an iPad version, too.

www.4pockets.com

Amidio's latest app for iPhone/iPod touch is iHolophone, comprising a variety of sequenced beats and melodies that can be controlled by the user. There are 40 factory 'scenes' in total, comprising 160 sequencer patterns, and you can generate user scenes from 60 instruments, over 800 high-quality samples and 70 background pictures. Again, watching the online videos will give you far more of a clue about how this puppy works.



4pockets Aurora Sound Station brings Tenori-On-style music creation to iPhone

Amidio's iHolophone is in the iTunes App Store now, priced £2.39.

amidio.com

Music-making apps for Android are slowly trickling in, one being ReLoop by niko20. It's designed for loop-based sequencing and is said to work in a similar way to Ableton Live and Sony Acid, according to its developers. In basic terms, ReLoop enables you to load loops and one-shots, then arrange them on a timeline, with all samples timestretched to fit the the project. Other features include eight tracks, 44.1kHz quality sound, loop editing facilities, a mixer, real-time pitchshifting and WAV file export.

niko20's ReLoop is available in the Android Market right now, priced $3.99.

nikotwenty.webhop.com

Game overture

The latest goings-on in the world of videogame music production

> Inon Zur's award-winning music for the fantasy role-playing game *Dragon Age: Origins* will be performed by the Malmö Symphony Orchestra at the Joystick 3.0 symphonic videogame music concert in Sweden on May 21 2010. The Joystick concert series currently holds the world record for game music performance with 17,000 attending the first show in 2006. If you're lucky enough to be able to get there, you can buy tickets from the Malmö Symphony Orchestra website: **www.mso.se**.

"We are very pleased to invite the music from *Dragon Age: Origins* into our family of game music," said Joystick concert producer Orvar Säfström. "Inon Zur's compositions transcend the genre, by not only enhancing the game's scenes, but also by contributing unique and powerful elements to the overall atmosphere and storyline. Our audience is in for a real treat."

"Inon Zur's compositions transcend the genre, by contributing unique and powerful elements"

Dragon Age: Origins was recently honoured with Best Original Song (**I Am The One**) and nominated for Best Original Score at The Hollywood Music In Media Awards.

We welcome large-scale performances of game music – the well-known Video Games Live concert series managed to bounce back from some of its difficulties to begin touring again a few years ago, and more events seem to be springing up around Europe. We'd love to see some more UK-centric performances, and our fantasy is a gigantic event combining original hardware chiptune performances with orchestral arrangements. There's no reason why the raw power of the SID chip can't coexist with a live horn section.



Inon Zur's soundtrack to RPG *Dragon Age: Origins* has received the ultimate accolade of being performed by the Malmö Symphony Orchestra



Drive time

Mothboy

The London-based Ad Noiseam producer reveals the tools of his dark electro/hip-hop trade

ABLETON LIVE
"I have to admit that I was a bit primitive before using this program (I was actually using Sony's Acid v2.0 to sequence before). However, I write and sequence in Live, and it's stable enough (my PC laptop isn't tough enough to cope with applications like Cubase, etc). My beats aren't that complex, and I like being able to test ideas and loops before committing them to a track. I can do all that in Ableton Live."

SONY CREATIVE SOFTWARE SOUND FORGE PRO
"I am a complete sample kid, as I come from a hardware sampler background. But Sound Forge ticks the boxes for me when I'm editing tiny sections of easy listening vinyl, for example. I spend absolutely hours making banks of sounds and samples using it. Then I bung them into Kontakt and Bob's your uncle."

AUDIOMULCH SOFTWARE AUDIOMULCH
"This is a total guilty pleasure for me – I used it for years, but for some reason, I can't get the license to run on my new laptop. I made entire tracks out of it on my first couple of albums. Its like a DJ tool, really. Great for re-pitching loops. I still want to get version 2 of this at some point."

APPLIED ACOUSTICS SYSTEMS LOUNGE LIZARD
"Who doesn't love the sound of a Fender Rhodes? I've been told there are better Rhodes plug-ins available, but I find that quite hard to believe. There's lots of warmth in this AAS instrument. Weirdly, it's inspired me to learn to play piano properly, instead of just sampling a chord or note."

"Sound Forge ticks the boxes for me when I'm editing tiny sections of easy listening vinyl"

FXPANSION GURU
"I actually sold my Akai MPD16, only to discover this excellent software just a few months later. Now I really wish I hadn't sold that controller. As I said previously, I'm originally from a hardware background, and this particularly affects my approach to music-making when it comes to creating beats. Using Guru is like finding my old Ensoniq ASR-X sampler, so I can still layer pads and tap out my beats to swing nicely."

Mothboy's third album, *Bunny*, is available now on Ad Noiseam www.myspace.com/simonmothboy

COMPUTER MUSIC 10 years back

We travel back in time to see what this magazine was up to in August 2000

> In our 23rd issue, we marvelled at the new power afforded computer musicians by the release of CreamWare's Pulsar II soundcard (which cost the best part of a grand) and PowerSampler, the world's very first sampler on a soundcard. Both cards contained built-in DSP chips to take the strain off the relatively pitiful CPUs of the day. And to show how much of a big deal these products were at the time, we broke protocol and featured them on the cover.

Further illustration of how important DSP technology was back then (when high-end computers could only just run a complete mix with effects) was given in the third and final part of *Nathan McCree's Mixing Masterclass*. The man behind the *Tomb Raider* soundtrack advised recording your final mix to a DAT machine to avoid "overusing your computer's hard disk recording/playback capabilities", as well as providing a backup, in case your hard drive went into meltdown. He also kindly demonstrated the best places to stick egg trays in order to reduce sonic reflections.

"We gave *A brief history of computer music*, which stretched back to 1982"

Elsewhere in the mag, we gave *A brief history of computer music*, which stretched back to 1982 with the release of C-Lab's Supertrack for the Commodore 64, a predecessor of Emagic's Logic. **cm**



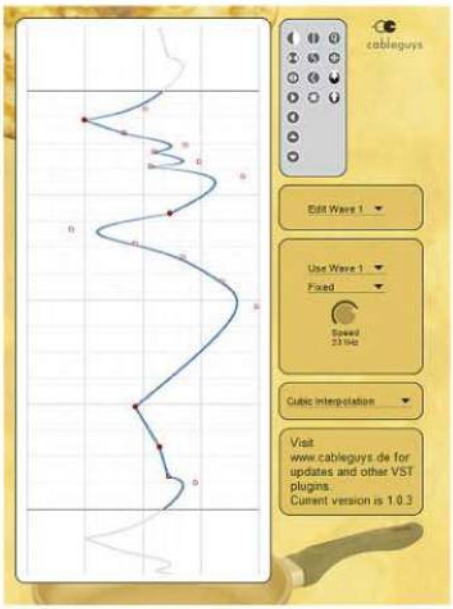
For the first time ever, cm23 put products on the cover, highlighting Creamware's latest releases

PanCake

For all your auto-panning needs and then some, look no further this excellent PC and Mac plug-in from Cableguys

Developer **Cableguys**
Format **PC/Mac VST**
Web **www.cableguys.de**

Cableguys PanCake is one of the most advanced panning plug-ins we've ever come across, but despite its sophistication, it's available as part of their Free VST Package, which you can find on this month's **cm** DVD. We caught up with one of the Cableguys, Jakob Rang, to find out more about what makes this effect tick.



So what inspired PanCake?
"Our current flagship product, FilterShaper 2, enables users to modulate the cutoff and resonance of its filters, as well as volume and pan, using complex curves. PanCake is a specialised version for users who just need pan modulation, so it has a more streamlined interface to do just this one job. We think that flexible panning effects are clearly underrepresented in the VST world. It was important for us to offer a precise yet flexible way of drawing the modulation curve, and to make it easy to use."

What challenges did you encounter creating the plug-in?
"We considered different panning algorithms, and did lots of tests for that. In the end, though, we used a pan law of '-3dB centre', but aside from that, all technical difficulties had been solved in our FilterShaper and VolumeShaper plug-ins. One thing that was particularly tricky was, when drawing the curve, keeping all the parameters – even the shape of the modulating waveform – in sync with the host."

"Waveforms can be easily drawn using soft or hard breakpoints, thus producing gentle transitions or sharp bends"

Do you have any good tips for getting the most out of the plug-in?
"You can draw up to ten different waveforms to modulate pan, and automate every parameter. You can also automate which waveform is used in which part of your song, and switch between them. Also, waveforms can be easily drawn using soft or hard breakpoints, thus producing gentle transitions or sharp bends in them. To learn how to do this, simply click the Cableguys logo from within the plug-in."

Do you have plans for developing more free plug-ins?
"Yes, we have some ideas, but nothing is set in stone as yet. For now, we're concentrating on developing our synthesiser, Curve, which will be released in the fourth quarter of this year and also introduce some new features that no other product has at the moment."

Thanks, Jakob. The current pre-release build of Curve is in the Cableguys' Free VST Package on this month's disc.

Next level

Payware developers elysia have released the filter section of their impressive mpressor "creative compressor" effect as a freeware plug-in. niveau filter is a simple effect with two knobs, one for frequency and another for gain. The unit also features a "frequency x10" button if you want to meddle with your sound's top end. The plug-in is available in AU, RTAS and VST formats for PC and Mac.
www.elysia.com

I love

We thought we'd heard the last of Ichiro Toda and his excellent PC VST Synth1, but recently the Nord Lead-inspired instrument has witnessed a flurry of updates, and version 1.11 is now available to download for free. The latest version includes a sub-oscillator, boasts a more accurate envelope, has improved unison detune and now works on machines without SSE2 processors.
www.geocities.jp/daichi1969/

It's nasty

Variety of Sound are back with a new freeware plug-in in the shape of NastyVCS. This PC VST channel strip effect emulates the dynamic and tone-shaping capabilities of high-end mixing consoles, and features crunchy pre-amp simulation, EQ and compression with external sidechain input. The plug-in even has a built-in phase alignment tool, which can also be used for colouring the sound.
varietyofsound.wordpress.com



Freeware Classic

UVI Workstation

Developer **Ultimate Sound Bank**
Format **PC VST, RTAS and standalone; Mac AU, VST and RTAS and standalone**
Web **www.uvisoundsource.com**

UVI Workstation is a freeware ROMpler designed to play back USB's range of sound libraries. Even if you're not interested in the payware libraries UVI Workstation is still well worth investigation by any freeware enthusiast. A couple of free sound packs are available from the UVI SoundSource site, but beyond that, UVI Workstation is quite a capable sampler with plenty of useful features.

"The instrument includes a built-in effects section and a full-on arpeggiator"

Each instance of the plug-in can host as many parts as your computer can handle, and these can be WAVs, REX2s or Apple Loops, which is very handy if your DAW doesn't support these formats – and even if it does, UVI Workstation is great because it enables quite sophisticated editing of tuning and volume envelope parameters, making it ideal for messing around with loops. The instrument also includes a comprehensive built-in effects section, with support for both insert and send effects, and a full-on arpeggiator; plus you can drag and drop files from the instrument's interface onto your DAW's audio tracks.

UVI Workstation would be the perfect free sampler, were it not for the fact that it isn't properly set up to load multiple patches within a part and define keyzones. However, you can work around this by loading different multisamples on each part, then using the low/high velocity and key values on each one. **cm**

COMPUTER MUSIC

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Swissonic MDR-4
Mobile digital audio recorder
24bit, sample rate: 44.1 /48kHz, record format: WAV (16/24bit) and MP3 (64/96/224/320kbps), 5 effects (delay, chorus, room, reverb, pitch shift), built-in speaker, 128 x 64 pixel LED display, 1/8" stereo line in, 1/8" external mic in, built-in stereo mic, 1/8" headphone out, Mini-B type USB connector, powered by PSU or 2 AA size batteries, incl. power supply unit, 1GB SD card and USB cable, dimensions WDH: 6,7 x 2,9 x 10,7cm.
€ 89.- £ 78.-
o. code 226599

M-Audio MicroTrack II
Mobile 24bit/96kHz recorder
Records WAV, BWF and MP3 to Compact Flash cards or Micro Drives, optimized gain adjustment, 48V phantom power, analog limiter, USB 2.0 connection, balanced line ins, built-in high-fidelity microphone preamps, SPDIF input, lithium-ion battery (recharge via USB).
€ 133.- £ 116.-
order code 184184

Tascam DR-07
Mobile digital audio recorder
Record and play MP3 (up to 320Kb/s) and WAV files (up to 24bit), 44.1/48kHz, built-in stereo mic, analog automatic level input control, analog limiter, stereo in for external mic, stereo line input, headphone and line-out (3.5mm TRS mini jack), USB 2.0, powered by AA size alkaline or NiMH batteries, incl. 2 GB SD card and windshield.
€ 148.- £ 130.-
order code 223287

Zoom H2 Bundle
Mobile mp3/WAV recorder
1-point stereo mic design, MS stereo technique, record 360° sound as 2ch or 4ch data, built-in USB interface with audio interface function, WAV 96/48/44.1kHz and MP3 up to 320kbps VBR, headphone out, uses SD cards (up to 4GB), perfect for interviews, podcasts, meetings and live recordings. Includes USB cable, stand, mic-stand adapter, power supply and 512MB SD card. **Bundle includes the t.bone HD660 headphones.**
€ 169.- £ 148.-
order code 137629

Boss Micro BR Set
4-track compact studio
Ultra portable, 32 V-tracks, loads and plays MP3 files, multi-FX on-board, dedicated guitar in, Time-Stretch and Center Cancel features, 293 rhythm patterns, built-in tuner and mic, USB port for data transfer, SD Card slot, 128MB card included, **incl. the t.bone HD660 stereo headphones and the t.bone ST40 stereo microphone.**
€ 173.- £ 151.-
order code 198217

Zoom Q3
Handy video audio recorder
Stereo condenser mic, true X/Y configuration, 2.4" LC display (320x240px), video resolution 640x480 at 30 frames per second, video format MPEG-4 SP, NTSC/PAL TV out, audio formats with video: 44.1/48kHz 16/24bit Linear PCM or MP3 up to 320kbps, without video u to 96kHz/24bit Linear PCM WAV, up to 1 hour video with 2 GB SD card, auto record level, includes TV cable, soft case, wind screen, 2GB SD card and 2 AA batteries.
€ 189.- £ 165.-
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Edirol R-09 HR 4GB SD Card Bundle
24bit/96kHz MP3/WAV recorder
Up to 320 kbps MP3 playback and recording, recording on SD or SDHC card (up to 8 Gbyte), built-in stereo condenser mic, OLED display, USB 2.0, stereo mic in, stereo line in, stereo headphone out, incl. power supply, 512MB SD card, USB cable, Cakewalk Pyro AudioCreator LE, wireless remote controller and a small table mounting plate. **Bundle incl. 4GB SD card.**
€ 279.- £ 244.-
o. code 207377

Sony PCM-M10
Portable 24bit/96kHz audio recorder
Built-in stereo microphone, internal speaker, cross-memory recording, internal 4GB flash memory + MicroSD/memory stick micro slot, limiter and low-cut filtre, 5s. pre-record buffer, manual or automatic recording level control, USB-2.0 connection, includes power supply, Soundforge Audio Studio LE, cable remote, 2 AA batteries and cable, finish: grey.
€ 325.- £ 284.-
o. code 238886

Zoom H4 N Bundle
Digital recorder
Perfect for interviews, podcasts, meetings and live recordings. 24bit/96kHz, mp3 up to 320kbps bitrate, two built-in stereo microphones switchable between 90° and 120°, requires 24V or 48V phantom power, USB port. Includes windscreen, USB cable, bag and Cubase LE4. **Bundle includes 2GB SD Card and the t.bone HD660 stereo headphones.**
€ 333.- £ 291.-
order code 227414

Olympus LS-11
Digital recorder
24bit/96kHz, 2 built-in mics, internal 8GB HDD, expandable to 32GB with SDHC Card, up to 23 hours record time, edit functions, PCM/WAV/WMA/mp3 record & playback, built-in stereo speaker, backlit display, SD/SDHC slot, USB, headphone out, silver metal housing. Weight: 165g (including batteries), connection for external power supply, includes wireless remote and Steinberg Cubase 4 LE.
€ 339.- £ 297.-
order code 234496

Zoom R16 Bundle
USB audio interface and DAW controller
16-track playback and 8-tracks recording, 24bit/48KHz PCM recording, internal stereo condenser mic, 8 mic ins, 2 outs, 8 balanced XLR / 1/4" TRS connections, internal effects, Mackie Control emulation via USB, works as USB storage, support for Win XP/Vista and MAC OS, incl. Steinberg Cubase LE4 and 1GB SD card. **Bundle incl. the t.bone MLS66 stereo headphones and 4GB SD card.**
€ 368.- £ 322.-
o. code 245233

Tascam DR-100
Mobile recorder
44.1/48kHz, records and plays MP3 and WAV files, 4 integrated condenser mics with different patterns, 2 XLR mic inputs with 48V phantom power, automatic level input control with limiter, stereo line input, headphone output, USB 2.0, powered by 2 AA batteries or NiMH accu, incl. 2GB SD card, BP-L2 accu, bag and windshield.
€ 399.- £ 349.-
order code 223927

Tascam 2488 NEO Bundle
24-track harddisk recorder
24bit/44.1kHz, 8 mic/line inputs (4 XLR with phantom power), internal FX processor, 16x CD-RW drive, new effects for mastering, 250 virtual tracks, high speed USB 2.0 connects to PC or Mac® for data backup and SMF/WAV file exchange, 80GB hard drive, **bundle incl. the t.bone HD-990D headphone and 5 Sony CDQ80N CD-Rs.**
€ 755.- £ 661.-
o. code 223374

Korg D3200
Digital multitrack recorder
16-track recording simultaneously, 32-track playback @ 48kHz/44.1kHz (16bit), 12/16 with 24bit, max. 272 tracks (incl. all virtual tracks), format 16/24 bits, MMC, MTC and MIDI CLOCK, session drums drum computer, tempo map, sync track, internal CD recorder, USB 2.0 port, internal signal processing 64bit (max. 69bit), 8 mic preamps and 12 1/4" TRS plugs, 1 Hi-Z input, SPDIF I/O (optical).
€ 888.- £ 777.-
order code 180671

Alesis HD 24
Digital audio recorder
24 tracks, 24bit/44.1 or 48kHz recording, 24 analog inputs & outputs, 3x ADAT optical I/O (24 channels), MIDI I/O, MTC out, 10 Base-T ethernet connector for computer back-ups in AIFF-format, wordclock, 19", **includes 40GB hard drive.**
€ 1279.- £ 1119.-
order code 147007

the t.mix Mix 1202
12-channel mixer
4 microphone inputs with 3-band EQ and 48V phantom power, 4 stereo inputs, 1 aux, 2-track I/O, balanced 1/4" TRS output, dimensions: 27,7 x 27,5 x 2,8/4,5cm, weight: 1,8kg.
€ 55.- £ 48.-
order code 207203

Phonic AM 440
Mixer
4 mono mic/line channels with 3-band EQ and low-cut, 48V phantom power, 4 stereo channels, 1 aux (pre-fade), 2-track I/O, RCA jack, ctrl-room out, headphone out, balanced master out, includes power supply.
€ 60.- £ 53.-
order code 196369

Phonic AM 120 MKII
1 mono mic/line, 2 stereo
€ 31.- £ 27.-
order code 113840

Alesis Multimix 4 USB
4-channel mixer with digital output
16bit, 44,1kHz signal on USB, 4 line level ins, 2 XLR ins with gains and switchable 48V phantom power, high impedance guitar input, 2 channel EQ on mic ins, multicolor LED metering, main and headphone outs with independent level controls, incl. power supply, dimensions WHD: 15,2 x 19,6 x 5cm, weight: 0,6kg.
€ 88.- £ 77.-
order code 235244

Mackie 802-VLZ3
8-channel mixer
XDR2 preamps, 2 mono mic/line ins, 2 stereo line ins, 1 mic/stereo line in, 1 stereo aux return, 1 aux send, 2 inserts, 3-band EQ, low cut filtre, PFL, 48V phantom power, internal powersupply, incl. software, dimensions HWD: 27,3 x 22,7 x 4,7cm, weight: 2,5kg.
€ 189.- £ 165.-
order code 209011

Alesis MultiMix 16 FireWire
16ch. mixer with FireWire interface
8 mic/line ins, 4 balanced stereo line ins, 3-band EQ per channel, 2 aux send/returns, 100 28bit FX programs, headphone out. FireWire interface: 18 ins, 2 outs, 24bit/48kHz, ASIO/WDM drivers for Win XP SP2, Core Audio drivers for Mac OS X, incl. Cubase LE.
€ 398.- £ 348.-
order code 186079

Mackie 1642 VLZ3
Compact 16-channel mixer
8x mono mic/line channels, 2x mic/line stereo channels, 2x stereo channels, 4x subgroups, 4x aux (2x pre/post switchable), XDR2 mic preamps, 60mm faders, 3-band parametric EQ (mono channels), 4-band EQ (stereo channels), 48V phantom power. Dimensions: 42.5 x 13.1 x 42.1cm (WxDxH). Weight: 8.3kg
€ 511.- £ 447.-
order code 112362

Mackie 1604 VLZ3
16-channel mixing desk
16x mono mic/line XLR/jack ins, 4x stereo aux returns, 6x aux sends, 16x channel inserts, 8x direct outs, 3-band EQ with parametric mids, 18dB low cut filter, PFL, XDR mic preamps, 48V phantom power, internal power supply, 4 subgroups, master insert, balanced jack outputs, includes rack kit. Dimensions: 44.5 x 12.9 x 44cm (HxWxD)
€ 759.- £ 664.-
order code 112364

Allen & Heath WZ³ 16:2 DX
16-channel mixer
16x mono ins with insert/direct out, pad, 100Hz HP and 4-Band-EQ with parametric mids, switchable 48V phantom power, 6x aux, 2x stereo aux returns, PFL, mute, phones, master insert and outs, mono out, A/B out, 2x Digitech FX processors, MIDI input, internal power supply.
€ 939.- £ 822.-
order code 132316

suitable flightcase
€ 179.- £ 157.-
order code 161855

Yamaha 01V96 VCM
Digital mixing console
24bit/96kHz, 24 analog inputs, 12x mic inputs, expandable to 40 channels, includes ADAT interface, 4 FX processors, parametric EQ, includes Studio Manager software.
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order code 161112

suitable flightcase
€ 188.- £ 165.-
order code 199056

Yamaha IM8 - 32 Set
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Akai LPK 25
USB MIDI controller keyboard
25 mini keys, arpeggiator, sustain button, octave up and down, tap tempo controls, 4 programmable memory banks, includes software editor for Mac and PC, plug-&-play USB connection on Mac and PC, requires no driver installation, dimensions HWD: 2,79 x 34,04 x 9,65cm, weight: 635g.



€46.- £40.-
order code 235491

M-Audio Oxygen 25 (3rd Gen)
MIDI/USB keyboard
25 velocity sensitive keys, 8 controller knobs, assignable buttons including 6 transport buttons, integrated USB/MIDI interface, for Windows XP/Vista 32bit and Mac OS X.



€75.- £66.-
order code 236609

Oxygen 49 (3rd Gen)
49 keys.
€98.- £86.-
order code 236606

M-Audio Axiom Pro 61
61 key MIDI/USB-Keyboard
Aftertouch, HyperControl technology, LCD display, 9 sliders, 8 rotary encoders, 8 trigger pads, 6 transport buttons, pitch bend and modulation wheels, 50 memory locations, MIDI I/O.



€349.- £305.-
order code 226657

Axiom Pro 49
49 keys
€322.- £282.-
order code 226655

Thomann SP-5500
Stage piano
88 hammer action keys, 559 sounds, 203 styles, 3 user styles, 100 songs, 64-note polyphony, accompainment control (start/stop, sync start/stop, fill-in A/B, fade), dual mode, split mode, DSP, transpose function, lesson function, pitch bend, headphone out, stereo aux I/O, MIDI I/O, USB port. Finish: Silver Grey



€377.- £330.-
order code 154087

Thomann SPWS-5500
Wooden stand for SP-5500
€46.- £40.-
order code 204071

Korg SP-170
Stage piano
88 natural weighted hammer action keys, 2x9W built-in speakers, 10 sounds, effects: reverb and chorus, key transpose and pitch control, 2 line/headphone outs, MIDI out, dimensions: 131 x 32.5 x 13.3cm, weight: 12,1kg.



Black
order code 242228
White
€468.- £410.-
order code 242231

Korg SP-250
Stage piano
60 notes polyphony, amplifier 2x 11W, 30 sounds, reverb and chorus effects, layer function with individual volume control, 2 headphone outs, damper, MIDI in/out, keyboard stand, music stand, sustain pedal and power supply included, dimensions WDH: 129,5 x 38 x 14cm, weight: 19kg.



€649.- £568.-
order code 189377

suitable flightcase
€185.- £162.-
order code 116660

Kurzweil SP2 XS
88-note digital stage piano
Weighted action keys, 64 voices, split and layering function, 4 keyboard zones, 64 Kurzweil presets (pianos, e-pianos, mallets, strings and voices), 60 rhythm patterns, metronome, 16 user set-ups, four freely assignable knobs, pitch and modulation wheels, effects, USB port, LED display, connection for expression pedal and footswitch, MIDI in/out/thru, internal stereo speaker, weight: 22kg.



€659.- £577.-
order code 210648

Yamaha P155
Stage Piano
88 graded hammer action keys, pure CFIII piano voice, 17 voices, polyphony 128 voices, dual and split mode, metronome, 2 headphone outs, 2x 12W, includes note stand, FC-4 pedal and PA301 power supply, weight: 18,6kg.



Black & ebony
order code 223258
Black & mahogany
€1135.- £993.-
order code 223244

Doepfer Dark Energy
Expander
Monophonic analog synthesizer with USB and MIDI interface, rugged black metal case with wooden side plates, vintage look knobs, USB connection, MIDI input, 4 CV outs, 1 gate output, includes external power supply, dimensions WDH: 18,5 x 14,5 x 6,5cm, weight: 1,2kg.



€375.- £328.-
order code 234455

Akai MPC 5000
MIDI production workstation
64-voice drum/phrase sampler with 64MB memory, 3-oscillator virtual analog synth engine with built-in arpeggiator, 8-track sequencer, >40 effects, master compressor and EQ, built-in hard disk drive, USB 2.0, CF Type-2 card slot, Chop-Shop 2.0, 12 Q-link controllers, 240 x 128 LCD, 1/4" jack and ADAT out, S/PDIF I/O, MIDI: 2in/4out, turntable phono in, combo mic/line in, sample library by Loopmasters.com.



€1469.- £1285.-
order code 209698

Novation Launchpad
Ableton Live/MIDI controller
Bi-directional communication, 64-button grid with colour-synced status feedbac, scene control switchable to control volume, sends, muting and more, up to 6 units may be operated simultaneously, USB bus-powered, large rubber grips, automap-enabled, includes Ableton Live 8 Launchpad version. Weight: 0.76kg



€166.- £145.-
order code 236641

Native Instruments Traktor Kontrol X1
USB bus-powered DJ controller
Instant recognition by Traktor, software controlled backlit buttons, fits perfectly alongside a standard club mixer, super-intuitive loop and cue control section, 8 knobs and 8 buttons, push encoders, expandable (connect two X1s to control four decks), incl. Traktor LE, Kore2 Player (incl. selection library) and MIDI templates for controlling other DJ and performance software.



€185.- £162.-
o. code 240169

Akai APC 20
Ableton Live USB controller
Exclusive bi-directional communication between the APC 20 and Ableton Live (no mapping required), USB plug-and-play, 40 triggers, 1 rotary control knob, 8 channel faders, 1 bus fader, compatible with PC and Mac, includes Ableton Live Lite Akai APC 20 edition.



€195.- £171.-
order code 243147

Akai APC 40
Ableton Live DAW controller
USB plug-and-play, 40 triggers, 16 rotary control knobs with LED, 8 channel fader, 1 bus fader and 1 cross fader, 2 footswitch connections for tap tempo, tempo nudge, record enable, solo/cue function, for PC/Mac, incl. Ableton Live Lite Akai APC40 Edition.



€398.- £348.-
order code 223229

Native Instruments Maschine
Groove production studio
Pad controller, 16 dynamic pads with aftertouch, 2 backlit displays, 11 rotary knobs, 41 buttons, USB-powered, MIDI I/O, pattern-based sequencer with 64 patterns per group, step sequence programming and realtime recording, drum grid and piano roll editors, sampler, >20 built-in effects, >5GB sounds, for PC/Mac.



€559.- £489.-
order code 223060

ESI DuaFire
24bit/96kHz FireWire audio interface
2 ins with level controls (1/4" jack), mic pre-amps with phantom power (XLR), 2 Hi-Z ins, 4 analogue outs, direct input monitoring with level control, headphone out, bus powered or by separate power supply, supports DirectWIRE 3.0, MME, ASIO 2.0, GSIF 2.0, DirectSound and Core Audio, incl. power supply and Steinberg Cubase LE 4.0.



€95.- £83.-
order code 206255

Tascam US-122MK2
24bit USB 2.0 audio MIDI interface
Supports 2 ins and outs, 2 XLR mic ins with 48V phantompower, enhanced highgrade mic preamps, 2 analog line ins (1 switchable for HI-Z guitar, bass in), MIDI I/O, 24bit/96kHz, latency-free monitoring with switchable mono function, USB 2.0, USB Bus powered, aluminium sidepanels, incl. Cubase LE4.



€129.- £113.-
order code 235648

M-Audio Fast Track Pro
USB audio interface
4x4 24bit/44,1kHz, in stereo up to 24bit/96kHz, USB powered, 2 mic/instrument preamps with switchable phantom power, 2 inserts, 2 balanced line outs, 4 additional RCA outs, S/PDIF coaxial I/O, S/PDIF out even for AC-3/DTS surround sound, MIDI I/O, compatible with both Mac and PC.



€135.- £118.-
order code 184360

Lexicon Omega Studio
USB audio interface
8x ins (up to 4 simultaneously), 2x ins with dbx microphone preamps, 24bit A/D converter, 48V phantom power, SP/DIF, MIDI in/out, headphone out for zero-latency monitoring, includes ProTracks Plus 32-track recording software and Lexicon Pantheon reverb plug-in.



€155.- £136.-
order code 166596

Tascam US-144MK2
24bit USB Audio/MIDI interface
2 mic ins XLR, 48V phantom power, 2 analog line ins (1 switchable for HI-Z guitar/bass input), MIDI I/O, S/PDIF digital I/O, 24bit 96kHz, latency-free monitoring with switchable mono-function, USB 2.0, USB bus powered, includes Cubase LE4.



€159.- £139.-
order code 235644

Line6 Pod Studio UX2
USB audio interface
2 mic/ins with preamp and phantom power, guitar/bass input, stereo line I/O, headphone out, Line 6 Software POD Farm with „FX Junkie" model pack, 18 guitar amp models, 5 bass amp models, 64 effects, 6 mic preamp models, 24 cabinets for guitar, 5 cabinets for bass, incl. Ableton Live Lite and Reason Adapted.



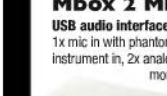
€177.- £155.-
order code 214446

Cakewalk UA-25 EX CW
USB audio interface
2 channels, 24bit/96kHz AD/DA, mic/guitar/line ins, 48V phantom power, USB powered, integrated limiter and analogue compressor, ground lift, headphone out, MIDI I/O, direct monitoring, compatible with Windows (XP/Vista) and Mac OSX 10.3.9 and higher.



€185.- £162.-
order code 235896

Digidesign Mbox 2 Mini
USB audio interface
1x mic in with phantom power, 2x analog line/instrument in, 2x analog out, latency-free monitoring, headphone out, Pro Tools LE software, 37x DigiRack and 7x Bomb Factory plug-ins, Pro Tools Ignition Pack.



€199.- £174.-
order code 108023

M-Audio ProFire 610
24bit/192kHz FireWire audio interface
2 preamps, integrated DSP mixer, master volume switch, stand alone operation, powered via FireWire bus or external power supply, 2 headphone outs, MIDI I/O, 2 XLR/TRS combo inputs, 8 line outs, 2 line ins, 2 FireWire ports, S/PDIF I/O, 48V phantom power, compatible with Mac and PC, supports ASIO, WDM, MME, DirectX, Core Audio and Core MIDI.



€244.- £214.-
order code 217030

Tascam US-1641
USB 2.0 audio interface
24bit/96kHz, 8x mic/line ins with phantom power and front level meters, 2x balanced line/instrument ins (front), 4x balanced line ins (rear), 4x line outs, monitor out, S/PDIF I/O (switchable to AES/EBU), MIDI I/O. Compatible with Win XP, Vista 32 and Mac OS X (10.4 or higher), includes Steinberg Cubase LE 4.



Dimensions: 19"/1U
€279.- £244.-
order code 138750

M-Audio Fast Track Ultra 8R
USB 2.0 audio interface
24bit/96kHz, with MX Core DSP, 8 insputs and 8 outputs, 8 Octane based mic preamps with 48V phantom power, 2 headphone outputs with volume control, 2 inserts, 2 instrument inputs, dimensions: 19"/1U.



€311.- £272.-
order code 207868

Presonus Firestudio Project
FireWire audio interface
24bit/96kHz, 8 XMAX Class A mic preamps, 8 analog mic/line ins, 2 instrument ins, 8 analog line outs, S/PDIF digital I/O, MIDI I/O, balanced send/return, zero latency monitoring with FireControl mixer/router, headphone output, 8 input level meters, includes recording software Presonus Studio One Artist, 19"/1U.



€375.- £328.-
order code 199889

Digidesign Mbox 2 Bundle
USB MIDI/audio interface
2x analog ins with with phantom power (XLR/jack), 2x analog outs (jack), SPDIF I/O, MIDI I/O, latency-free monitoring, USB powered, includes Pro Tools LE software (Win XP and Mac OS X), 37 DigiRack- & 7 Bomb Factory plug-ins, Pro Tools Ignition Pack. **Bundle includes the t.bone SC450 studio mic and 6m XLR mic cable.**



€389.- £340.-
order code 114106

M-Audio ProFire 2626
24bit/192kHz FireWire audio interface
26 analog/digital I/O, ideal for project studios, 8 preamps with Octane™ technology, flexible on-board DSP mixer, user-assignable master volume knob, standalone operation, critically acclaimed jitter elimination, Pro Tools M-Powered compatible, 8 analog mic/line jack in with phantom, 2 instrument ins, 8 analog outs, 2 ADAT I/O's.



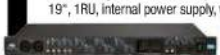
€399.- £349.-
order code 207107

Apogee Duet Bundle
FireWire audio interface
24bit/96kHz, 2 channels, Firewire 400 I/O, breakout cable with 2 XLR mic ins, 2 1/4" jack instrument ins, 2 1/4" jack monitor outs, multi-segment LED display input and output levels, multi-function controller knob, headphone out, Maestro software for advanced control and low latency mixing, compatible with any Core Audio compliant audio application, compatible with Mac OS X Core Audio. **Bundle incl. original Apogee carry case and 2GB USB stick.**



€419.- £367.-
o. code 209773

Focusrite Saffire PRO 40
24bit/96k FireWire audio interface
20 I/Os, 8 mic preamps, 8 analog I/Os (2 mic/line/instr. combo XLR, 6 mic/line combo XLR), ADAT I/O, 2 S/PDIF I/Os, 2 monitor outs, monitor switch, 2 separate headphone buses, MIDI I/O, zero-latency DSP mixer/router, incl. plugin suite, 19", 1RU, internal power supply, weight: 3kg.



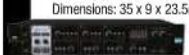
€422.- £369.-
order code 219725

MOTU Ultralite MKIII Hybrid
FireWire and USB audio interface
24bit/192kHz, 2 mic/instrument inps, 6 bal. ins and 10 outs (1/4" TRS), 48V phantom power, S/PDIF I/O, headphone out, CueMix FX, internal DSP, LCD display, suitable for use as a standalone mixer, compatible with Windows and Mac, supports WDM, ASIO and Core Audio, incl. AudioDesk software for Mac.



€468.- £410.-
order code 239141

Focusrite Liquid Saffire 56
FireWire audio interface
24bit/192kHz with Liquid preamps, 28x I/O, 8x XLR mic ins, 2x ADAT I/O, coax S/PDIF I/O, 8x analog ins (¼" balanced jack), 10x analog outs (¼" balanced jack), Word Clock, MIDI I/O, includes Focusrite VST/AU plug-ins. Dimensions: 35 x 9 x 23.5cm (19"/2U). Weight: 5kg



€649.- £568.-
order code 228525

RME Fireface 400
FireWire audio interface
24bit/192 kHz high performance FireWire audio interface, analog technology of ADI-8 converter, mic pre-amp technolgy of Quad and OctaMic (2 mic pre-amps), TotalMix technology of Hammerfall DSP series, very reliable drivers.



€829.- £725.-
order code 193883

Digidesign Digi 003 Rack+ Factory
24bit/96kHz FireWire interface
2RU, 18 simultaneous channels of audio I/O, 8 analog I/Os, 8 professional mic preamps, 48V phantom power, 8ch. optical ADAT I/O or 2ch. S/PDIF optical I/O, 2ch. S/PDIF digital I/O, MIDI I/O, BNC WordClock I/O, 2 headphone outs, incl. Pro Tools LE, Factory Plug-In Bundle and Pro Tools Ignition Pack 2.



€1035.- £906.-
order code 219882

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the t.bone Micscreen
Portable absorber/diffusor
Positioned behind any microphone, reduces the transmission of unwanted room reflections, echos and ambient noises, recommended for vocals, instruments, live and studio applications, quick and easy mounting on nearly every standard microphone stand.
order code 209023 — € 93.- £ 81.-

the t.bone SC140
True condenser microphone
18mm diaphragm, cardioid, frequency range 20Hz to 20kHz, with Low-Cut (-3dB @ 75Hz or 150Hz) and Pad (-10dB or -20dB), max. SPL: 130dB, incl. shockmount, windscreen and aluminium case.
order code 195305 — € 46.- £ 40.-
SC140 Stereo-Set
Matched pair with stereo bar.
order code 195307 — € 93.- £ 81.-

Sennheiser MD421U-2
Dynamic microphone
Cardioid polar pattern, 5 step bass filter, includes clamp.
order code 128331 — € 279.- £ 244.-

Rode NT5-MP
Condenser microphone stereo bundle
2 matched small diaphragm condenser microphones, 0.5" gold sputtered capsule, cardioid, 20Hz-20kHz, excellent for drum overheads, acoustic guitar and stereo live recordings. Including plastic case, microphone clips and wind screens.
order code 154595 — € 285.- £ 249.-

Neumann KM 184 Stereo-Set
Small diaphragm condenser mic bundle
2x KM184 condenser microphones with sequential serial numbers, cardioid, 20Hz-20kHz. Includes 2x WNS100 windshield, 2x SG 21/17 stand adapters and wooden box.
Finish: Silver o. code 153692
Finish: Black o. code 158648
€ 1077.- £ 942.-

the t.bone SC440 USB
USB condenser studio microphone
USB connection for direct access to Mac and PC (doesn't work with Windows Vista!), cardioid polar pattern, frequency range 20Hz to 18kHz, incl. plastic case
order code 197603 — € 55.- £ 48.-

the t.bone SC400
Large diaphragm studio microphone
1" gold membrane, frequency response: 30Hz- 20kHz, impedance: 200ohms, 6dB/100Hz low cut switch (requires phantom power), incl. shockmount and bag, finish: black.
order code 156266 — € 55.- £ 48.-

the t.bone SC450 Set
Studio large diaphragm microphone
Cardioid, external low cut and -10dB pad switch, impedance: 200 Ohms, requires 48V phantom power, frequency range 30Hz to 20kHz, dim.: 50,5 x 190mm, incl. shockmount and PVC case. **Bundle incl. the t.bone MS180 pop shield.**
order code 203194 — € 93.- £ 81.-
SC450 Stereo-Set, matched stereo pair in case, w/o pop shield.
order code 174363 — € 169.- £ 148.-

AKG Perception 220
Large diaphragm condenser mic
1" diaphragm, metal housing, cardioid polar pattern, frequency range: 20Hz - 20kHz, switchable 300Hz lo-cut filter, switchable -20dB pad, 135/155dB max SPL, incl. elastic holder and carrying case, dimensions: 53 x 165mm (diameter x length), weight: 525g.
order code 208310 — € 138.- £ 121.-

the t.bone SC1100 Set
Studio large diaphragm microphone
polar patterns cardioid, figure-8 & omni, low cut switch and -10dB pad, frequency range: 20Hz to 20kHz, incl. aluminium case and shockmount. **Bundle including the t.bone MS180 pop shield.**
order code 203865 — € 139.- £ 122.-

Rode NT1-A Complete Vocal Recording Solution
Large diaphragm microphone
20Hz-20kHz, 100Ω impedance, 132dB dynamic range, 137dB max SPL. Includes SM6 deluxe shockmount, 6m cable and Peter Freeman ‚Studio Secrets' tutorial DVD.
order code 235937 — € 179.- £ 157.-

sE Electronics sE 2200 A
Large diaphragm condenser mic
Gold plated 1" diaphram, 100Hz switchable high-pass filter, -10dB switchable pad, frequency response: 20Hz - 20KHz, sensitivity: 14.1mV/Pa -37 (±1.5dB), impedance: 200Ω, equivalent noise level: 17dB (A weighted), max SPL: 125dB (0.5% THD@1000Hz), requires +48V phantom power (±4V).
order code 182403 — € 185.- £ 162.-

the t.bone SCT800 Set
Studio tube microphone
12AT7 tube, frequency range 20Hz to 20kHz, impedance: 200Ω, incl. deluxe case, shockmount and external power supply. **Bundle incl. the t.bone MS180 pop shield.**
order code 203198 — € 188.- £ 165.-
SCT800 Stereo-Set, matched stereo pair without pop shield.
order code 174362 — € 377.- £ 330.-

Rode NT2-A MS-180 Bundle
Large diaphragm microphone
Polar pattern switchable between omni, figure eight and cardioid, 1" diaphragm, frequency range 20Hz to 20kHz, max. SPL 147dB, delivered with shockmount SM2. **Bundle incl. the t.bone MS180 popkiller.**
order code 223002 — € 285.- £ 249.-

AKG C214
1" large diaphragm microphone
Polar pattern cardioid, frequency range: 20Hz to 20kHz, switchable pad 20dB, requires phantom power 12 - 52V, XLR connector, dimensions: 16 x Ø 5,5cm, weight: 280g, incl. case, windshield and shockmount.
order code 211318 — € 333.- £ 291.-

Shure SM 7 B
Studio microphone
Dynamic studio microphone with cardioid polar pattern, 50Hz-20kHz, bass rolloff switch, mid-boost switch, 150?, shielded against broadband interference, fixed stand adapter, XLR connector, includes windscreen.
order code 129929 — € 398.- £ 348.-

EV RE20
Dynamic large diaphragm microphone
RE series, cardioid, switchable HP filter, variable D design, 150Ω, 45Hz-18kHz, includes clip and box, ideal for vocals, brass and bass drum. Length: 217mm. Diameter: 54mm. Weight: 737g
order code 128926 — € 459.- £ 402.-

Neumann TLM 102
Large diaphragm condenser microphone
Cardioid pattern, 20Hz-20kHz, 50Ω impedance, 12dB-A equivalent noise level, 144dB max SPL for THD 0.5%, nickel finish, includes SG2 stand mount swivel. Weight: 260g.
order code 237768 — € 539.- £ 472.-

Neumann TLM 103 Studio Set
Studio microphone
Large diaphragm cardioid microphone, pressure gradient transducer with with one-diaphragm capsule, transformerless circuitry, extremely low noise: 7dBA, high-quality professional equipment for limited budgets, finish: silver, incl. shockmount, delivered in a box.
order code 174067 — € 829.- £ 725.-

Neumann U87 Ai Set
The studio microphone classic
Variable large diaphragm microphone, pressure-gradient transducer with double membrane capsule, 3 directional characteristics (omni, cardioid and figure-8), switchable low frequency roll-off, switchable 10 dB pre-attenuation, frequency range: 20Hz - 20kHz, impedance 200 Ohm, finish: nickel. **Bundle including shockmount EA 87.**
order code 169705 — € 2333.- £ 2041.-

ART Tube MP
Tube microphone preamp
Hand selected 12AX7A tube, limiter, +48V phantom power, phase reverse, XLR and jack I/O, perfect for hard disc recording or as a tube DI.
order code 191529 — € 37.- £ 32.-

StudioProjects VTB1
Tube preamp
Incorporating true class A/B switching, the VTB1 is a totally discrete circuit, the tube drive is a variable drive to a 12AX7, that allows the user to blend as little, or as much of the tube drive they want, 48V phantom power, balanced outputs on XLR and 1/4", TRS insert, phase reverse, high pass filter, 5-segment LED metering.
order code 183260 — € 138.- £ 121.-

dbx 266 XL
Stereo compressor/limiter/gate
Patented OverEasy technology (attack & release times), XLR I/O, -10/+4db switch, stereo link, dbx sound.
order code 131808 — € 139.- £ 122.-
dbx 166 XL
2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.
order code 131035 — € 219.- £ 192.-

FMR Audio RNC 1773
Really nice compressor
Stereo compressor with two modes: normal for "effective" compression and super nice for transparent compression, controls: threshold, ratio, attack, release and gain, switches: bypass & super nice.
order code 179985 — € 169.- £ 148.-
RNLA 7239 Really nice levelling amplifier
10Hz - 100kHz 0.5dB @ 0dBu, clip point: +22.5dBu @ 3% THD.
order code 190166 — € 205.- £ 179.-

Presonus Digimax D8
8-channel microphone preamp
24bit/48 kHz digital output, 2 instrument inputs (1/4" TRS), 8 microphone inputs (XLR), 8 XMAX Class-A microphone preamps, pad switch (per channel), 48V phantom power, 8 analog direct outs, optical ADAT output, word clock input (BNC), 19", 1U.
order code 216155 — € 298.- £ 261.-

Focusrite OctoPre MkII
8-channel mic preamp with A/D
Integrated 8-channel 24bit/96kHz digital output, -10dB pads, 5-LED input metering and direct output on each channel, internal clocking and external via BNC, 8 inputs (2 mic/line/ instrument combo XLR, 6 mic/line combo XLR), 8 outputss jack, 2 ADAT outputs (dual LightPipe), sync-to-wordclock input, JetPLL Jitter-elimination, 19", 1U, weight: 3,6 kg.
order code 236376 — € 377.- £ 330.-

SPL GoldMike 9844
2-channel valve preamp
Discrete Class A solid state, 48V phantom power, phase reverse, pad function, flair presence enhancement, very clear and warm sound. Dimensions: 19"/2U
order code 123370 — € 425.- £ 372.-

Mindprint Envoice MKII Digital Edition
Valve microphone preamp
Mic/Line preamp, semi-parametric bass & treble, fully parametric mid, EQ, 19"/1U, incl. DI-MOD USB digital interface with USB.
order code 182221 — € 469.- £ 410.-

Avalon U5 Mono
Instrument DI preamp
Pure Class A circuit, low noise, +30dB variable gain, 6 tone presets (EQ), high frequency filter, speaker level input, signal LED, balanced mic & line outputs. Dimensions: 9.5"/2U
order code 156661 — € 509.- £ 445.-

Universal Audio Solo 610
Mono tube mic preamp
The all-tube SOLO/610 provides the silky vintage warmth of the original UA 610 console, gain, level, and impedance selection for maximum tonal variety, 48V phantom power, phase reverse, thru and mic/line level output, rugged construction steel chassis, weight: 4kg.
order code 190335 — € 679.- £ 594.-

Behringer ADA8000
8-channel AD/DA converter
8x mic preamps with phantom power, 24bit AD/DA, 44.1 & 48kHz, Wordclock or ADAT sync, ADAT I/O, ADAT in can be routed to line outs, mic and line in/outs are routed to ADAT out, excellent expansion for DDX3216 or any interface/mixer with ADAT I/O.
order code 164573 — € 189.- £ 165.-

Lexicon MX200
Stereo effekt processor
2 independent processors, 24bit converter, VST plug-in architecture with USB interface, MIDI interface, tap-delay bottom, legendary Lexicon algorythm like: halls, chambers, plates, delays, chorus, flanger, tremolo, rotary, etc., dbx dynamic algorythm, 2 simultaneous useable effects, analog and digital ins and outs, internal power supply, 19"/1U.
order code 180403 — € 188.- £ 165.-

tc Helicon Voice Works
The ultimative entertainer's machine!
Scale-based pitch correction & FX (3-band EQ with low cut, compressor/gate, reverb & delay), integrated mic preamp with 48V phantom power, balanced inputs and outputs, XLR/jack input, S/PDIF in/out, MIDI in/out/thru, footswitch input, dimensions: 19" rack/1U
order code 160186 — € 279.- £ 244.-

tc electronic Voice Live 2
Vocal multieffect pedal
Up to 8 voices or 4 doubled harmonies, reverb, tap delay, megaphon and distortion, compressor, De-esser and EQ, MIDI or MP3, LCD display, XLR, line in, aux in, headphone output, S/PDIF I/O coax, backup and audio streaming, dimensions: 35 x 7,6 x 21,6cm, weight: 2,3kg.
order code 225557 — € 709.- £ 620.-

Digidesign Eleven Rack
Guitar recording & FX system
Emulations of classic guitar amp tones, collection of sought-after classic stompbox tones, collection of studio-quality rackmount effects processors, cabinet emulations, microphone emulations, integrated FX loop, built-in tuner, tap-tempo, high-speed USB 2.0 connection, up to 8-channel simultaneous recording up to 24bit/96kHz, XLR mic in, AES/EBU, S/PDIF, MIDI I/O, includes ProTools 8 LE.
order code 236791 — € 777.- £ 680.-

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AKG K-121 Studio
Stereo headphones
Semi-open dynamic headphones, 55 Ohms rated impedance, 200mW maximum input power, frequency range 18Hz to 22,5kHz, 101dB/V sensitivity, self-adjusting headband and auto-shut-off feature, single side jack, incl. 3m cable with 3.5mm stereo mini-jack plug, 1/8" to 1/4" screw-on adapter, weight: 220g (without cable).
o. code 219545 € 81.- £ 71.-

Sony MDR-7506
Professional headphones
Closed back, 63 Watts, 106dB, 1/4" and 1/8" jack connectors, compact, designed for professional DJ and studio use.
order code 135709 € 115.- £ 101.-

AKG K271 MKII
Closed dynamic studio headphones
Circumaural design, 55Ω, max. input power 200mW, 16Hz - 28kHz,sensitivity 104dB/V, self-adjusting headband and auto-shut-off feature, cable lenght 3m, incl. 5m coiled cable and 1 pair velvet pads, weight: 240g, incl. gold plated 1/8" to 1/4" screw-on adapter.
order code 206851 € 145.- £ 127.-
5m extension cable
Stereo jack 6,3mm.
order code 153216 € 6.50 £ 5.68

Sennheiser HD25 C II
Professional DJ headphones
Dynamic, 70Ω impedance, 120dB SPL, 16Hz-22kHz (-3dB), closed system. Includes coiled cable with stereo mini-jack, 1/4" TRS adapter, additional velour ear pads, soft bag and Traktor 3 LE software. Weight: 140g
order code 117063 € 169.- £ 148.-

AKG K 701
High-end reference headphones
Revolutionary flat wire voice coil technology, dynamic, open back, impedance 62Ω, efficiency 105dB, frequency range 10Hz - 39.8kHz, max. input power 200mW, hard gold plated 1/4" jack plug, 3m cable, weight: 235g (not including cable).
order code 185476 € 199.- £ 174.-

M-Audio StudioPro 3
Active 3" desktop monitor system
2-way desktop reference monitor, 3.25" low frequency driver, 1" high frequency driver, 10W/Kanal, frequency response: 100Hz - 20kHz, magnetic shielding, bass boost switch, incl. stands, dimensions HWD: 20 x 14 x 15cm, weight: 4kg. **pair price!**
order code 186629 € 68.- £ 60.-

ESI nEar04 Classic
Active 4" studio monitors
Magnetically shielded, bi-amped, 20W bass + 20W treble, balanced/unbalanced ¼" jack inputs. Dimensions: 20.6 x 13.6 x 14.9cm. **Pair price!**
order code 232799 € 95.- £ 83.-

KRK RP5 Rokit G2
Active studio monitor
75W, 5" + 1" speaker, frequency response: 53Hz - 20kHz, magnetically shielded, dimensions HWD: 27,6 x 18,5 x 25cm, weight: 6,3kg. Unit price!
order code 213024 € 139.- £ 122.-
KRK RP6 Rokit G2
6" / 1", 1400W.
order code 213034 € 188.- £ 165.-

Yamaha HS50M
Active 2-way studio monitor
70W Bi-Amping bass reflex system, 5" woofer, 3/4" tweeter, frequency range 55Hz to 20kHz, inputs XLR and TRS, adjustable input level mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. Unit price!
order code 186461 € 139.- £ 122.-

Mackie MR5
Active nearfield monitor
5.25" woofer (100W), 1" tweeter (50W), frequency response: 60Hz - 20kHz, max. SPL per pair: 113 dB SPL @ 1m, XLR, jack (6,3mm) unbalanced and RCA, magnetically shielded, dimensions HWD: 29,2 x 19,7 x 26,6cm, weight: 6,5kg. **Unit price!**
order code 207239 € 169.- £ 148.-

M-Audio Studiophile BX5a Deluxe
Active nearfield monitors
70W, 5" woofer, 1" tweeter with waveguide, bi-amping, magnetically shielded, balanced XLR and balanced/unbalanced TRS inputs, volume control, dimensions HWD: 25 x 17,6 x 20cm. **Pair price!**
order code 207871 € 169.- £ 148.-

Alesis M1 Active 520
Active 2-way studio nearfield monitors
5" low frequency woofer and 1" silk dome tweeter, 75W, 1/4" TRS connector, volume control, hi, mid, and low-frequency EQ switches to accommodate user preference and sub-woofers. **Pair price!**
order code 182506 € 195.- £ 171.-

ESI nEar08 Classic
Active 8" studio bi-amp monitors
2-way bookshelf monitors, magnetic shielded, LF amplifier power: 70W, HF amplifier power: 70W, frequency response: 40Hz - 24kHz, 1 balanced input XLR, 1 balanced/unbalanced input TRS, dimensions HWD: 35,8 x 25,5 x 32,2cm, weight: 10kg/unit. **Pair price!**
order code 222139 € 215.- £ 188.-

KRK RP8 Rokit G2
Active studio monitor
140W, 8" woofer, 1" neodymium tweeter, frequency response: 45Hz - 20kHz, magnetically shielded, dimensions HWD: 38,1 x 26,5 x 33cm, weight: 15kg. **Price per unit!**
order code 213090 € 235.- £ 206.-

Genelec 8020BPM
Active 2-way studio monitor
Power switch, 66Hz-20kHz (±2.5dB), 105dB SPL peak @ 1m, 95dB SPL @ 1m, 105mm (4") high efficiency bass driver, 19mm (3/4") metal dome tweeter with Directivity Control Waveguide, 3kHz crossover, magnetically shielded, aluminium cabinet, includes wall bracket. Power per channel: 20W (bass), 20W (treble). Dimensions: 22.6 x 15.1 x 14.2mm. Weight: 3.7kg. **Unit price!**
o. code 235038 € 279.- £ 244.-

Adam A7 Special Edition
Active nearfield studio monitor
Finish: black piano lacquer, 6,5" Rohacell / kevlar sandwich woofer, A.R.T. tweeter, frequency range 46Hz to 35kHz, 100W (sin), 150W (rms), XLR and RCA input, dimensions: 18 x 33 x 28cm, weight: 8kg. **Unit price.**
order code 241073 € 379.- £ 332.-

Dynaudio BM5A
Active studio monitor
2-way bass reflex design, 6.7" woofer, 1" soft dome tweeter. 2x 50W, frequency response: 50Hz - 21kHz, dimensions HWD: 32 x 18.6 x 32cm, weight: 8,7kg.
order code 173581 € 449.- £ 393.-

Yamaha HS80M stand bundle
Active 2-way studio monitor package
120W bi-amped bass reflex speaker, 8" woofer, 1" tweeter, 42Hz-20kHz, XLR & jack input, mid EQ, room control, high trim, switchable low cut, magnetically shielded. **Bundle includes 2x HS80M and 1 pair of Millenium BS-500 nearfield stands.**
o. code 227555 € 499.- £ 437.-

Genelec 8040APM
Active 2-way studio monitor
48Hz - 20kHz free field frequency response (±2dB), 115dB SPL peak per pair with music material @ 1m, 165mm high efficiency bass driver, 19mm metal dome tweeter with DCW (Directivity Control Waveguide), 3kHz crossover, magnetically shielded aluminium construction, amp power per channel: 90W bass + 90W treble, dimensions: 35 x 23,7 x 22,3cm, weight: 8.6kg. Price per unit! € 749.-
order code 171716 £ 655.-

Event Opal
Active nearfield monitor
Frequency response: 35Hz - 22kHz, crossover frequency: 1600Hz, acoustic output - SPL @ 1m: peak (80Hz - 20kHz) 114dB, signal input: combo XLR, ¼" TRS (bal/unbal), low frequency transducer neodymium 7.1" 270W, high frequency transducer Neodymium 1" 100W, dimensions WHD: 29,5 x 45 x 27,3cm, weight: 21,2kg. **Unit price!**
order code 234475 € 1322.- £ 1157.-

Behringer DDM 4000
32bit digital DJ mixer
Beat-synchronized sampler, 4 multi-FX sections, 2 patented BPM counters, digital crossfader and MIDI, 4 phono/line stereo channels, 2 microphone inputs with gain, EQ, talk function and FX, 4 stereo channels with gain, programmable parametric 3-band EQ with kill function, fader curve control and flexible crossfader.
o. code 206918 € 315.- £ 276.-

Pioneer DJM 400
Professional DJ mixer
2 channels, mic/aux switch (to select 2 mic inputs or 1 stereo line input), fader start, crossfader curve adjustment, talkover (-20dB), peak level meter.
order code 191081 € 477.- £ 417.-

Allen & Heath XONE:42
4-channel DJ mixer
2 turntable ins (RCA phono RIAA), 2 line ins, X-FX send, 3-band EQ, 6dB total-kill EQ on all channels, internal switch-mode PSU, 2 headphone outs (1/4" and 3.5mm), VCA crossfader with curve control, VCF filter with independent I/O, resonance & frequency controls, USB 1.1 port (stereo I/O), XLR mic in with 2-band EQ and level control, finish: black
o. code 231622 € 649.- £ 568.-

Pioneer DJM-700
Professional 4-channel DJ club mixer
Crossfader assignment, fader start, 3-band EQ (-26dB to +6dB), talk over (-20dB), peak level meter, rotary potis for master output. Dimensions: 32 x 38.1 x 10.8cm (WxHxD). Weight: 7.5kg
Finish: Black
order code 118996
Finish: Silver
order code 119965 € 811.- £ 710.-

Allen & Heath XONE DX
DJ controller and mixer
4 channels with effects, 2 dual layer deck simulators, 20-channel USB 2.0 soundcard, 24bit/96kHz audio system, 168 individual MIDI messages available, ITCH incl. FX, looping and time-stretching, RIAA/phono inputs for external decks, mix outputs on RCA and balanced XLR, built-in hardware MIDI interface, high quality faders, weight: 6kg.
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Double CD player
Compatible with CD, CD-R and CD-RW, anti-shock, reloop, blue LCD display, jog wheel, pitch +/- 16%, pitch bend, dimensions WHD: 48,2 x 8,8 x 25,4 cm, weight: 6,2kg.
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Pioneer CDJ-400
MP3 single CD player
With ID3 tag & CD text, MIDI controlled via USB, jog wheel, scratch jog FX, ±6/10/16% pitch control, master tempo control, reverse play function, shock-proof memory, hot loop & beat loop for 10 cue/loop points per disc (maximum).
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suitable flightcase
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Denon DN-D4500
Twin CD player with MP3
permanent memory for up to 10 MP3-CDs, 2x 10 sec. shockproof, CD-R/RW rendition, CD text, 50mm jog wheels, loop, hotstart, stutter, -40% to +50% turntable hold over jog wheel, turntable brake, permanent memory for up to 300 tracks per drive, pitch control: ±16%, 2x S/PDIF. € 659.-
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DN-D4500 headphone bundle
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Professional single CD player
Compatible with MP3, AAC, WAV, AIFF and Tonium Pacemaker Data, 24bit/48kHz sound card as well as HID and MIDI control by USB, Wolfson DAC processor, quantized beat loop, slip mode, quick return scratch, advanced auto beat loop, plays audio from CD, CD-R, CD-RW or USB, frequency range: 4Hz - 20kHz, includes Rekordbox music database management software.
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Pioneer CDJ-2000
Professional multiformat single CD player
Plays Audio CD, CD-R, CD-RW, USB, SD, DVD-R, DVD-RW, USB sources and SD cards, includes Rekordbox software, quantized beat loop, compatible with MP3, AAC, WAV, AIFF and Tonium Pacemaker data, 24bit/48kHz soundcard, HID and MIDI controllable from USB, frequency range: 4Hz - 20kHz, dim.: 32 x 40,6 x 10,7cm, weight 3.9kg.
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Numark DMC2
DJ controller
Fader buttons, auto mix button, high-speed HID USB 2.0 interface, pitch fader, scratch jog wheels, synchronisation button, instant cue-point triggering, tactile illuminated rubber buttons, wide range of looping options. Dimensions: 19"/3U
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Numark Omni Control
Professional DJ hardware controller
Complete professional computer DJ package, hardware controller with integrated audio I/O, incl. Native Instruments Traktor 3 LE and MixMeister Fusion Live software, heavyweight, sturdy feel, extremely clean, high quality sound card, reliable knobs, faders, and buttons, supports MIDI over USB.
order code 220244 € 275.- £ 241.-

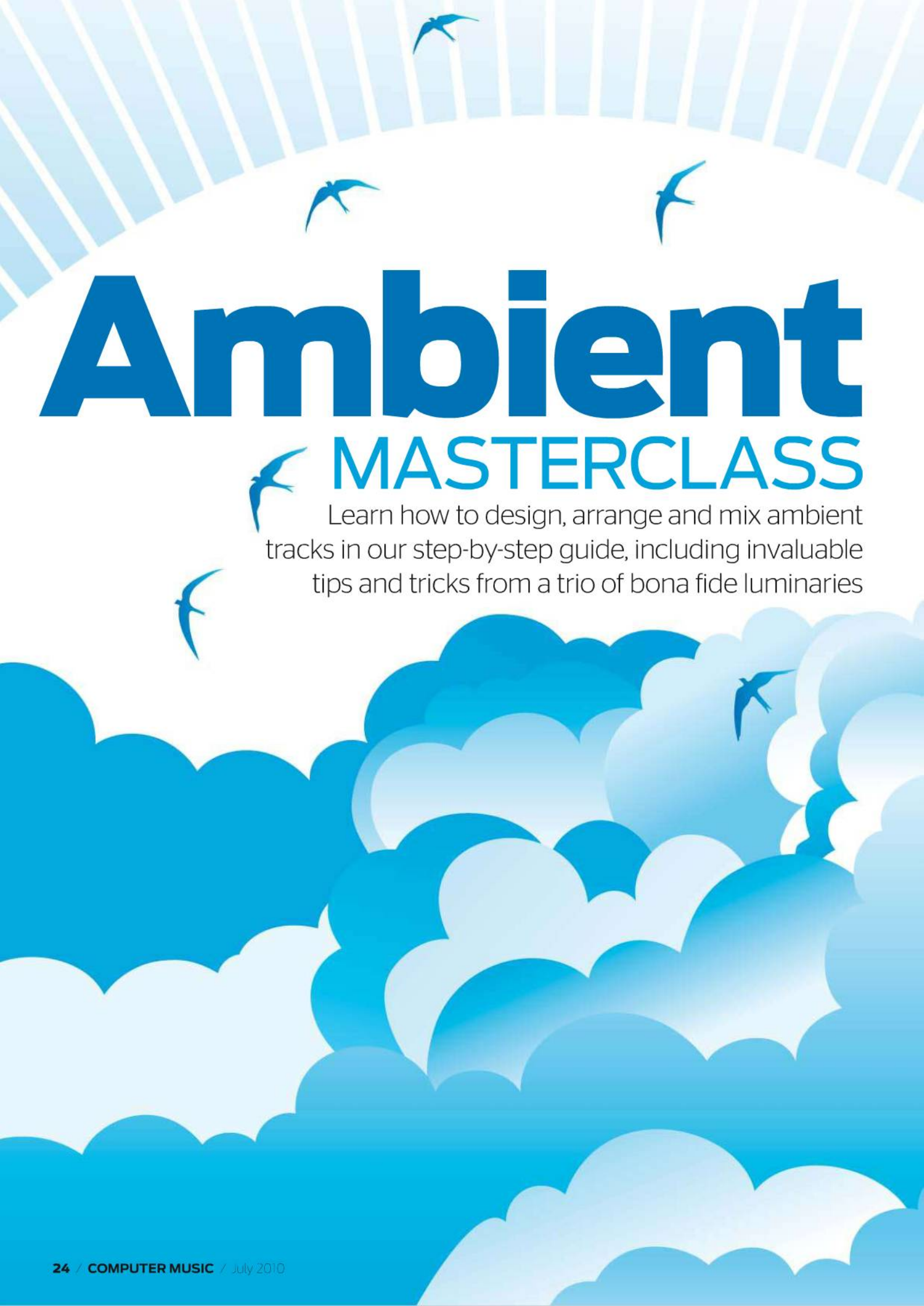
Native Instruments Traktor Scratch Duo
Professional DJ system
Control digital music files using turntables or CD decks, up to 2 decks simultaneously, controllable by CD player and MIDI controller, USB 2.0 audio interface, bus powered, 4x high-gain outputs, 4x inputs with phono preamps, 8x LEDs, 2x vinyls and 2x CDs.
order code 227391 € 325.- £ 284.-

Rane Serato Scratch Live
Scratch control interface
Complete bundle containing: USB interface, 2 CD's and 2 vinyls with time code, 4 RCA cables, USB cable, software, plays and controls audio files with the help of turntable or CD player, compatible with MP3, AIFF, WAV and Ogg Vorbis, adjustable latency (7-20ms), Mac and PC
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Vestax VCI-300
DJ MIDI controller
24bit, 4-channel soundcard (2x I/O), 1 stereo input, 1 mikrophone input, 2 stereo outputs (master/monitor), USB-connection (bus powered), 1 mikrophone input, 2 AUX-inputs, 1 headphone output, 2 master outs (cinch), dimensions WHD: 41 x 2,8 x 27,5cm, weight: 3,2kg, incl. Itch Software, power supply optional.
order code 212112 € 709.- £ 620.-

Ambient MASTERCLASS

Learn how to design, arrange and mix ambient tracks in our step-by-step guide, including invaluable tips and tricks from a trio of bona fide luminaries



> The term 'ambient music' was coined by Brian Eno in the mid-70s to describe his first forays into creating unobtrusive background music which can be, in his words, either "actively listened to with attention or as easily ignored, depending on the choice of the listener."

The origins of ambient music can be traced back to the early 20th century and the pioneers of the French modernist movement, such as Claude Debussy and Erik Satie. Many of Satie's solo piano compositions were designed not to focus the attention, but rather to provide background music for events – these works were labelled *Musique d'ameublement* ('furniture music').

Between the 1930s and 40s, the use of background music in the workplace became increasingly popular. Transmitting over electrical lines from a central office, the Muzak Holdings company were pioneers in creating and supplying music for the workplace, insisting that the service resulted in greater productivity.

Designed not to distract from work, the music produced by Muzak was deliberately bland, with strict limits placed on the permitted tempi and dynamics. Being so unobtrusive, it would tend to become part of the atmosphere of the workplace, only really being noticeable in otherwise quiet, confined spaces, such as elevators. Thus the word 'Muzak' became synonymous with 'elevator music'.

By the mid-20th century, avant garde composers had begun to challenge the very notion of what music was. John Cage – who admitted to having no ear for harmony – explored the use of mathematical formulae and chance in composition. Cage's best known work is perhaps *4'33"* – a three-movement piano composition in which no notes are played whatsoever. Rather than being seen as four minutes and 33 seconds of silence, however, the point of the work is that the listener becomes aware of the environment in which the piece is 'performed'.

Accidentally on purpose

By the 60s, many rock and jazz artists had started experimenting with unconventional studio recording techniques, often leading to lengthier, more improvised instrumental tracks for B-sides and albums.

With the rise of dance music culture, the late 80s and early 90s saw a resurgence of interest in ambient music. Dance music producers – typically well versed in synthesisers and studio effects, and now with access to affordable digital sampling – took to producing 'dubbier', more ambient-infused house music, designed for home listening and chillout rooms.

In this feature, we'll be looking at some of the ways in which ambient musicians commonly source, edit and process sounds, as well as how to approach composition and find inspiration. We're also lucky enough to have contributions from three genuine legends of modern ambient music: Garry Cobain of Future Sound of London and Amorphous Androgyenous, Geir Jenssen of Biosphere and Dr Alex Paterson of The Orb.

Let's get started...

cm DVD

ON THE DVD

Various audio samples and our Live project file are in **Tutorial Files**

Sound collage and field recording

The use of contrasting sound textures and elements is a one of the defining features of ambient music. By combining field recordings, 'found sounds' and synthetic components, ambient composers are able to build depth and space into recordings, while the use of real world samples not normally heard in a musical context can evoke memories or sensations and create familiar points of reference for the listener.

A field recording is simply the natural background sound of an environment, and can be a common starting point for an ambient composition. A familiar sounding recording, such as the seaside or rain against a window, may bring to mind early or poignant memories and can often aid in setting a tranquil scene for the listener. Ambient music doesn't have to be tranquil, though, and the sounds of industrial or metropolitan settings can also be employed to evoke very different feelings or otherwise create stark contrasts with the other elements within a track.

A portable DAT, flash recorder or smartphone with either a built-in or shotgun mic should be all that you need to make a fairly decent quality recording of any given environment. However, media such as cassette tape should never be forgotten, as a noisier, lower bandwidth recording can often provide a more interesting sound texture.

Box clever

Other useful sources of recordable sound environments include film, radio and television, and while the sound of mission control at NASA probably isn't something most of us hear on a day-to-day basis, these kinds of recordings can help engage our imaginations in other ways.

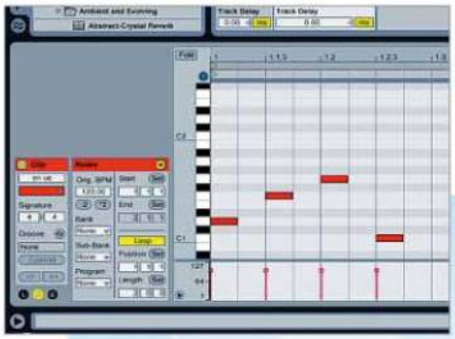
The way we process and work with recordings of environments can help take their effects further into more imaginative or even surreal territory. Adding deep, lengthy reverbs can have the effect of slowing down time and make a space feel much larger. Introducing echoes may also affect our sense of time, and can sometimes give a recording a disorientating feel, while filtering or scooping out large sections of a recording with EQ may create a sense that an environment is being heard from within a certain type of acoustic space.

Another useful effect when working with field recordings is the reverse function in your audio editor, which enables you to maintain the natural tone and space of your recording while disguising many of the more familiar sounds that might have been captured along with it.

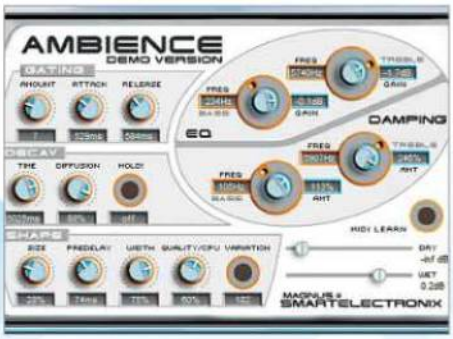
> Step by step: Ambient synthesis with Native Instruments FM8



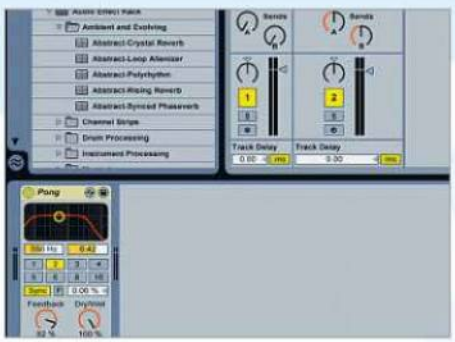
1 > Create a MIDI channel and load up Native Instruments FM8 (get the demo at **www.native-instruments.com**). For convenience, the lead sound we're going to be using is a preset: **En Nu Lekker Gaan Stapen!**. Select this from the Browser, then go to the Arpeggiator and set the **Global** switch to off, so that you get an unarpeggiated sound.



2 > Set the tempo to **54bpm** and create a new MIDI part for this track. We're going to make a simple, fairly innocuous two-bar melody in the key of C minor. Spontaneity is often vital for making lines like this work, so don't be afraid to record or sequence the first melody you tap out on your keyboard.



3 > The next thing to do is set up a reverb send channel. We're using Smartelectronix's free Ambience plug-in (it's in the **Software** folder on the disc) set to the **Topaz-Dreaming2** preset. We don't need to edit this preset much, so just set the **Decay Time** to **5025ms** and the **Dry** level all the way down to **-inf**.



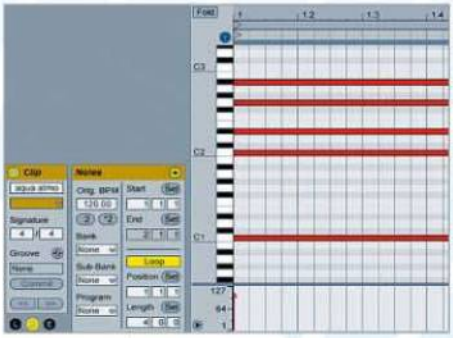
4 > We can also set up a delay channel. We're using Live's Ping Pong Delay with its **Pong** preset. Switch it to a 1/8 delay (the **2** button in Live), set the **Dry/Wet** level to **100%** and the filter to **1kHz** with a bandwidth of **6.88**. This takes a little low end off the delayed signal. Back at our FM8 track, set the **Send A** level to **-20db** and the **Send B** level to **-10.5db**.



5 > Upon playing back our melody, you might notice that the levels are a little erratic, with some notes coming in fairly loud and others fairly soft. This adds a nice natural variation to the sound, but we could do with controlling it a bit. Add a gentle Compressor to this channel – we're using Ableton's **1976** preset, but any compressor set to a ratio of around 4:1 will do the trick.



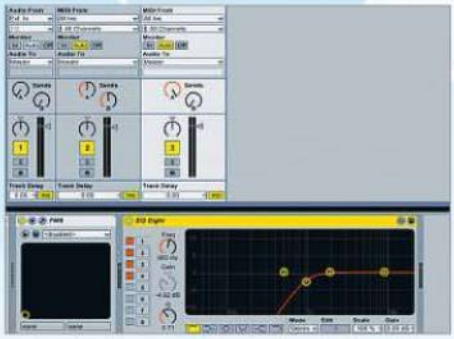
6 > Now we're going to create a pad ambience to provide a backdrop to the melody. Create a new MIDI track and load up another FM8. The preset we're using is **Aqua Atmo**. Again, we need to deactivate the arpeggiator by going into the Arpeggiator section and turning off the **Global** switch.



7 > Program a four-bar long, sustained chord. We're playing a C minor 7th starting on C2, with an additional C1 as the root note. Next we're going to use Live's Arpeggiator from the MIDI effects menu, set to the **Classic UpDown 8th** preset. Switch the **Style** to **Up**, the **Rate** to **1/24** and **Steps** to **0**. FM8's arpeggiator would also be fine for this.



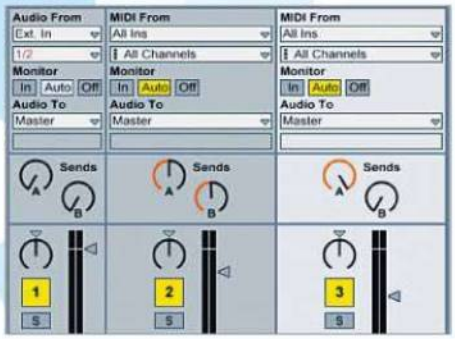
8 > Now we need to edit the FM8 preset a bit. Open the **Easy/Morph** window. Playing back your sequence, turn the amplitude envelope's **Sustain** and **Release** all the way up. Now, gradually turn the **Attack** up until the sound almost disappears, then bring it back a bit. The notes should start blurring into each other, not sounding much like a traditional arpeggio at all.



9 > This sound's got a lot of low-end to it, so we insert an EQ with a low-cut filter active at **983Hz**, and a **Q** setting of around **0.7**. We want to send 100% of the signal from this channel through the reverb channel we set up earlier, so turn the **Send A** level all the way up and set **Audio To** to **Sends Only**.



10 > Let's use a delay to help blur the notes a little more. We could just send this track to our delay channel, but we want to give it its own delay, so that we have a little more control and can feed it into the reverb. We're using the **Pong** preset again, under **Ping-Pong Delays**, only with a delay of a quarter-note (the **4** button in Live), **50% Dry/Wet** and very little filtering.



11 > We can think a bit about track levels now. The pad ambience wants to sit quite far back in the mix – this is the kind of element we can bring in and out in an arrangement to change the mood. We set this to around **-17dB**, with the melody line around **-7dB**.



12 > Next we're going to add a random, non-musical element to the mix. Create another MIDI track with another FM8 synth and load up the **Ambience Madness** preset from the **FM7 Factory** folder. This is a complex rhythmic effect patch. Create a MIDI track containing a single sustained note on C3.



13 > There's a little bit too much action in the sound as it is, so let's edit the preset a little. Go to the **Expert** window and select **D** from the FM Matrix. In the **Envelope** window, where you can see two spikes, just flatten the first one. We can also send this track to the reverb channel at around **-21dB**.



14 > Now we're going to use one of Live's Effects Racks – a self-contained chain of effects plug-ins. We're using **Abstract-Synced Phaseverb** from the **Ambient and Evolving** folder. This combines a reverb, a delay, a phaser and a Beat Repeat. All we need to do for our purposes is set the **Time** to **127**.



15 > Ambient isn't the kind of music that requires heavy compression or limiting, but with this kind of sparse instrumentation, a degree of control can help keep the musical parts in focus. We stick a Compressor on the mix buss, again using the **1976** preset, just to softly compress the mix by a few decibels.

Making beats and atmospheres from found sounds

Like field recordings, 'found sounds' are usually recordings taken from the environment, but they tend to be generated in a less passive way – more often involving striking a surface, moving an object around or dropping something. Found sounds are typically short and played in isolation – unlike field recordings, which may be many minutes long – and are often used in place of percussion.

Richard James (aka Aphex Twin) famously made use of found sounds on the track *Quoth*, from his *Polygon Window* album, which was composed mostly of samples that he made during an afternoon spent in a junkyard with a portable DAT recorder. More recently, the distinctive sounds of cigarette lighters being flicked and keys being jangled or dropped, etc, are often used as percussion in garage and dubstep productions.

Microphones themselves can be great sources of found sounds. Tapping, flicking or running a microphone over a surface can often yield surprisingly effective yet natural sounding clicks, thuds and shaker-like noises, which can be easily turned into experimental-sounding drum and percussion loops. The low-quality mics built into modern laptops and netbooks can, ironically, be incredibly effective for creating these kinds of sounds.

A game of two halves

Film and videogame sound effects departments tend to rely quite heavily on found sounds in their work, often combined with heavy digital processing and sample editing. The simple sound of a book being dropped on the floor can become a dark, thunderous roll when pitched down and pushed through a long reverb, while bottle tops, keys and coins have long provided source material for slightly nondescript metallic sounds, such as the sort of thing you might hear when picking up ammo or money in a game environment.

Unlike field recordings, it's usually preferable that a found sound isn't too recognisable, but instead sounds somewhat natural and realistic. A lighter can make a great percussion sound, but if you hear it as a lighter every time it plays in a drum loop, it can be somewhat distracting. Utilising techniques such as close-miking (whereby sounds are recorded right in front of the mic to avoid any natural ambience or room reflections) and chopping samples very tightly in an audio editor or using volume envelopes, can help a sound to lose some of its natural space and become less easily identifiable when used in a musical context.

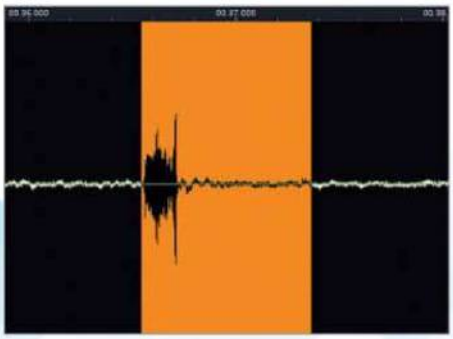
> Step by step: Constructing a beat using found sounds



1 > If your computer has a built-in mic, it can be used to capture found sounds from which to construct beats. Set your mic to record onto an audio track in your DAW or audio editor, then simply experiment with clicking your fingers, tapping the mic and rubbing the surface of the computer around the mic.



2 > Looking at our minute or so of audio in the waveform display, we notice that there's a DC offset. This will more likely be an issue with cheap/built-in mics, and can be diagnosed by checking whether or not the flat wave in silent sections is out of line with the zero line. Most audio editors offer a DC offset correction function to clean this up.



3 > Listen through your recording and copy and paste any samples you want to keep into new audio files, or, if using a DAW, cut the audio up and arrange the hits on another track. Simple thuds, clicks and shuffle sounds usually work well when constructing beats.



4 > Don't worry if the samples are a little noisy at this stage. The best way to program and edit them is to load them into a plug-in sampler in your DAW. Think of one sample as a bass drum, another as a snare or clap, and another as a hi-hat or shaker – even if the resemblance is questionable – and program a simple beat.



5 > Use the envelopes and filters in your sampler to clean the samples up. Playing the beat back, focus on each sample individually and use volume envelopes to create natural decays and releases on each one. You may want to add some attack time, too, to reshape a sound a little more creatively.



6 > You can also use filters and filter envelopes to clean sounds up, or for creative effects. A low-pass filter swept quickly from open to closed can be used to filter the noise out of a very noisy sample without losing any of the attack or bite of the target sound.

Ambient synthesis

Synths have played a central part in defining the modern ambient sound. Early analogue modular synths invited experimentation beyond the realms of melody, harmony and rhythm, opening musicians up to the possibility of exploring timbre as a focal point of composition.

Aside from enabling the creation of unusual sounds, however, a synth's strength can often be the purity and simplicity of its tone. Filtered saw and square waves can make highly expressive melodic instruments, without bringing a composition back down to earth in the same way an orchestral instrument would tend to.

Subtractive synths are often favoured by ambient composers for their immediacy and the impartiality of their sound. Simple sounds, such as sine waves, can be used effectively to add melodic elements without detracting from the underlying texture or risking timbres clashing.

FM and sample-based synthesis can be particularly useful when you want to put the timbre of the synth itself at the front of the mix, as both offer a variety of ways to build up rich, evolving harmonic textures. Regardless of the method used, much of the nature and character of a synth used atmospherically is achieved through processing and sequencing. See the walkthrough on the previous spread for more on ambient FM synthesis.

Shiver me timbres!

A basic synth timbre can be thought of as a simple starting point on the road to building a more interesting or encompassing sonic texture. In particular, the use of arpeggios and delays can be very effective in creating an atmosphere. Arpeggios can be used with plucked-type sounds to create cascading runs of notes, or with sounds that slowly fade in and out to create a sound texture from a blur of notes.

Experimenting with unusual chords is worthwhile when creating synth textures. Many modern sub-genres of ambient and chillout music utilise Indian or East Asian scales and chords in arpeggios to create a distinctive psychedelic feel, and using whole-tone scales can give your arpeggios a mystical quality.

Processing can also turn a simple synth patch, used as a lead line or chord sequence, into something much more cinematic – even orchestral. Vangelis' famous CS80 brass patch, used on the *Blade Runner* and *Chariots of Fire* soundtracks, is a relatively simple filtered sawtooth patch, but its cinematic quality is largely down to the use of delay and chorus effects to add layers, width and movement to the raw sound.

> Step by step: Generating atmospheric arpeggios



1 > Start with an initialised synth patch employing two slightly detuned saw waves, an open low-pass filter and a flat amplitude envelope. This should give you a simple, buzz-like sound texture to work from, with the detuned oscillators adding a little movement to the mix.



2 > If your synth plug-in or DAW has an arpeggiator, set it to **Up**, so that it plays an ascending arpeggio, and set it to do this over two or three octaves. If your synth or DAW doesn't have an arpeggiator, program a sequence of chordal notes on your MIDI track. Set the polyphony fairly high – at least 16 notes.



3 > Now bring the filter down and the resonance up a little to provide a smoother sound. You can use a filter envelope here, with longish **Attack**, **Decay** and **Release** settings, to build a sound that gradually opens up. Although it's not essential, this will tend to lead to a deeper sounding atmosphere.



4 > Now let's play back our arpeggio. If your synth or DAW has an arpeggiator, you might choose to simply record a chord onto the relevant MIDI track so that it loops continuously, otherwise just play your programmed arpeggio. Turn the **Sustain** down and gradually increase the **Attack** until the sound starts to disappear slightly.



5 > Just before the sound disappears completely, turn to the **Release** control and gradually raise it. You should find your arpeggio blurring as the sequence of notes begin to overlap each other, leaving us with a smooth, atmospheric sound.



6 > To add more depth and width we can use delay and chorus plug-ins. Set up a ping-pong delay with a delay time of around half a second and a fairly high **Feedback** setting. Then simply add a basic chorus preset to introduce a little more stereo width.

Mixing and arranging ambient music

One of the things that most sets ambient music apart from other modern genres is the feeling of space created by its various musical elements, which seem to run freely in time, as opposed to coming across as welded into any particular groove or structure.

Eno refers to this as "unlocked music", suggesting that parts should feel as if they drift in and out almost of their own accord, without seeming too synchronised or orchestrated.

There are many approaches to the unlocking of music. In some compositions, it may be largely accomplished through the use of ambience effects – for example, reverbs and delays can be used to blur the lines between individual notes and sections, helping break up the feeling of bars and divisions used in an arrangement.

Unlocking can also be portrayed in the way you mix and arrange your music. While dance music tends to introduce parts then drop them out, to a fairly rigid template/structure, ambient music can generally be arranged much more freely. Fading tracks in and out on the mixer manually can help you get away from an overly structured arrangement, creating the desired effect of tracks drifting in and out naturally.

Off the grid

Perhaps the best way to unlock music, however, is to take a more flexible approach to sequencing and recording. Loop-orientated software like Ableton Live is particularly well suited to ambient music, as it enables you to easily cycle loops of mixed length together.

Rather than sticking to a musical structure based on sections of four, eight and 16 bars, arrangements can have sections that loop at unusual points relative to one another. A loop of 23 bars against a loop of 12 bars, say, will result in a song that keeps changing over many minutes, as the position, or phase, of one track changes in relation to the other.

Another way to unlock your sequences is to eschew your DAW's quantise functions, and record parts in without a click track and without looking at the screen. You might choose to record a part for a number of bars, then loop it, or you might choose to record a part all the way through a track, from beginning to end.



A plug-in sampler is an endlessly useful tool for the ambient producer to have at their fingertips

Make it up as you go along

Improvisation is a particularly useful technique for ambient musicians, in terms of both sequencing and arranging. Try recording musical experiments from your keyboard as either MIDI or audio, but again, avoid click tracks or quantising, and let yourself play more freely. The timing imperfections in these lines can add to the organic feel of a track, and may even influence the timing and structure of other elements used alongside them.

You can also apply a random or improvised approach to programming musical sequences. Sometimes the most interesting melodies come about quite accidentally, and when trying to get away from obvious or contrived musical ideas, some ambient musicians actively avoid trying to compose musical passages by ear.

One approach is to quickly record the first notes (triggering a synth or sampler patch) that enter your head/fingers into your DAW, then roughly edit the data on the piano roll until it's vaguely in time. Sequencing like this will usually lead to unexpected, fairly hit-and-miss results, but can often result in musical lines that are more open to interpretation than the kind of things a musician would tend to play more consciously. These sequences can be worked on, edited and rearranged as much as you like, but the general idea is that this approach of starting with a random idea, then chipping away at it until it works, will often lead to interesting results, particularly when you're unable to find inspiration at the keyboard.



Brian Eno was instrumental in the development of modern ambient music and the inspirational Oblique Strategies card deck

© Wirelmage

Depth of field

Unlike in pop music, where the aim is often to fill out and maximise every available frequency band, a dominant sense of space and sparseness is typically more important in ambient compositions. This can be difficult to maintain, though, when using multiple instrument layers, as sounds tend to compete in the mix, so at worst, your otherwise subtle composition can take on a 'wall of sound' effect, as synths and sound textures collide and merge in the same space.

To avoid this, think of the mix as having a foreground, a middle ground and a background, then treat each layer differently to maintain that effect.

A foreground element will typically be full-sounding, with a broad frequency spread and full stereo width. To the listener, it will feel like it's up close. A middle ground element will lose some of the bass and treble, and its stereo field will become a little narrower. A background element will tend to have very little stereo width, as, in nature, a sound coming from the distance will hit both ears at similar levels/times. It will also be relatively lacking in top end, as the environment absorbs high frequencies first. This can be simulated with a spectral shift, using a flexible EQ plug-in. A high-shelf filter can be used to provide a gradual decline in the levels of higher frequencies.

> Step by step

Adding depth with processing



1 > A foreground element should have a full sound and a wide stereo image. To bring a sound into the foreground, set up an EQ with a low-shelf filter at around **80Hz** to bring the bass level up, and a high-shelf filter at around **6kHz** to add clarity and detail. Adjust the gains to taste.



2 > Widening the sound's stereo field will typically bring it even closer. QuikQuak's UpStereo and MDA's Stereo plug-ins are effective stereo wideners, ideal for bringing sounds forward in the mix, but watch that you don't overdo the effect and end up with sounds sitting 'outside' the speakers.



3 > A middle ground element can have its high and low ends taken down a little, and its stereo field narrowed. Use an EQ with high and low shelving filters, just as before, only this time use them to slightly tone down these regions rather than bring them out.



4 > Narrowing a sound's stereo field can help establish it as being further away in the mix. A very useful plug-in for doing this is a Mid-Side Encoder/Decoder, such as Voxengo's free MSED (**www.voxengo.com**). The width can be adjusted with the **Side Gain** control.



5 > A background element takes this a stage further, using frequency-dependent level reduction to simulate the way real-world environments absorb high frequencies. Some flexible EQs, such as Voxengo's CurveEQ, make it easy to draw this type of curve, otherwise you can use a high-shelf filter.



6 > Using a mid/side plug-in to reduce the stereo field is often preferable to simply mixing the left and right channels, which can result in unwanted phasing. By turning the **Side Gain** right down, only the information from the middle of the mix is left unchanged.

Sound collage

Sound collage is the art of editing, overlaying and manipulating sound recordings – often from numerous different sources and just as often musical as non-musical – into something cohesive that evokes a certain mood or atmosphere.

Many ambient composers approach all composition as sound collage, and as this often involves working with lengthy sound recordings lacking clearly defined tempos, it can be a great way to break away from quantised or highly structured arrangement, instead composing things a little more freely. In fact, sound collage doesn't have to be arranged in a DAW at all – many producers prefer the direct approach of splicing and layering audio along a single stereo channel in an audio editing app.

Whatever approach you choose, the first step will typically involve building up a varied library of samples and sound recordings, as finding two or more pieces of audio that work well together in the first place may involve quite a bit of trial and error. Your library might comprise short sections from other pieces of music, recordings from films or documentaries, or acoustic recordings you've made yourself. These needn't, however, be musical or thought of in a musical context. What's important is that something about the sound catches your interest.

Once you've started to build up a decent library of sound recordings, you can begin experimenting with them. It's generally a good idea to kick off with a sound that can hold your attention all by itself – this might be a musical or unmusical recording that you can edit into a loop.

The next step is to find something in your library that will work with it, which might involve flicking through hundreds of recordings. A good rule of thumb is to move on fairly quickly if two sounds don't work well together easily, although some producers prefer to work with a smaller pool of samples and instead focus on editing, processing and re-pitching those recordings to make them more congruent with each other.

By doing this frequently, whether the results lead to the creation of complete tracks or not, you'll build an additional library of these layered sound sketches, which is always on hand to have around for future compositions.

Ambient masters: **Garry Cobain**

The Future Sound of London's *Lifeforms* LP is broadly regarded as one of the greatest electronic albums of the 90s, taking the ambient sound in a whole new direction through their pioneering fusion of sound collage, cutting-edge digital processing and traditional instrumentation. Today, under their rock and psychedelia-infused Amorphous Androgynous guise, they continue to explore the boundaries of human and technological expression.

Garry Cobain, who, along with long-time collaborator, Brian Dougans, comprises FSOL, AA and many other Earthbeat Studios production aliases, gives us some insight into their approach to music, technology and composition, starting at the beginning, with where the inspiration comes from.

"With the sound itself," says Garry, "Brian and myself are slaves to sounds. We tend to try and refrain from getting intellectual as a starting point, preferring instead to push sound around/record/process whatever it is until something resonates and transports us somewhere where speech and thought become unnecessary. All of our music, whatever the style, revolves around this principle. We believe it corresponds to something far deeper than the brain or thought, but instead speaks to something more fundamental and resonant.

"*Lifeforms* really evolved around the collection of hundreds of hours of organic and synthetic snippets, 'recollaged' to the above effect," he recalls. "I guess things changed a bit around 1997, when we started developing our psychedelic potential, and started to apply our experience to sonifying the song and the lyric. This ultimately led to the formation of the Amorphous Androgynous in parallel to FSOL. At their centre they employ the same techniques, but to very different end points.

"I think our unspoken and non-intellectualised process of working has always been the same over the last 20 years, but I've never been able to verbalise it in this way before. What has changed, probably, are the actual frequencies that I respond to and the way they combine. A psychedelic dimension has opened up for me that now instructs a lot of my work. This has to do with a certain liberation of approach – a looseness with our use of the computer."

Machine head

Brian and Garry's production style frequently fuses and contrasts the sometimes sterile sounds of technology with identifiably human or real world elements. Although a self-described 'slave to sound' and, along with it, technology, Garry is always conscious of how easily expression can become blunted by the latter.

"It's fairly easy to get led by the inherent in-built strengths of a particular computer program, rather than imposing one's own particular vision for communication," Garry explains. "I do believe that, ultimately, making music is an opportunity to discover one's inner voice, one's individuality. So using technology as a tool is more important to me nowadays than merely being in a technology race to use new techniques first, and thus temporarily stimulate. Computers are great, though, when pitted into a battle or equilibrium with one's own voice. Without this discourse between the two polarities, I think it always lacks.

"Technology is used to filter everything nowadays. All experience. And while computer music is all too often associated with fairly obvious machine music, this is changing rapidly now, and computers will increasingly colourise, in very subtle ways, everything from production to editing, and the sonifying of all conventional instrumentation and recording, too. This, in fact, is the biggest revolution happening at the moment: the interaction between performer and computer – capturing performances and then editing/sonifying and collaging. I think music is at a critical juncture in that it can become an activation code for both spiritual and revolutionary freedom, or it can become a homogenised adrenalin feed, stimulating all the outer apparent senses but failing to connect to anything deeper and more fundamentally linked to the great questions of our existence."



Garry's ambient production tips

1 "Ambient music is as much a discovery of self as it is a discovery of sound. Ignore rules, don't get intellectual, immerse in a different centre – the heart centre – and explore and manipulate sound until it resonates and creates feeling there. If you keep this equilibrium between the outward sound and the inward response, then you will be led at every stage through the creative process to something that is deeply personal and original, the authenticity of which others will recognise and therefore enjoy or feel the merits of immersing in. It is this immersion that is the ultimate goal of great ambient music."

2 "Ambient music can be unsettling, can be contradictory. Don't be scared to express the full range of human emotion. It's a common mistake to simply use pleasant, relaxing sounds. Great, revolutionary ambient music can include any texture you like, as long as the sound transports you to a place that is deeply immersive and emotionally charged. Don't be afraid to balance light with dark, harsh with pleasant, harmonic with dissonant, rhythmic with arrhythmic. Great ambient music always has the opposite polarities to varying degrees. Play with them!"

3 "Don't let the technology lead you – it is a tool, be the master not the servant. Yes, delight in surprises, mistakes and the unexpected. Go down technological rabbit holes to see what can be discovered, but periodically bring the experiment back to your vision and try to impose that attitude onto the technology. That way, the innovation is perfectly poised between innovation of technology and innovation of the soul. Without the other, both of these are equally meaningless!"

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Ambient masters: **Biosphere**

Geir Jenssen, aka Biosphere, is a Norwegian ambient musician whose 1997 LP *Substrata* is widely considered a classic of the genre.

Attaining chart success with *Novelty Waves* – which featured in a 1995 Levis campaign – Geir has since received acclaim for his work in the ambient techno and arctic ambient styles.

"I find inspiration mostly in other people's art, especially their music," Geir begins. "I typically start working on something by choosing a recording – a symphony, a documentary, a film, etc – which I listen to very carefully, looking for samples. I never take the obvious stuff, though. I'm more into the hidden, quiet stuff that most people will probably ignore.

"Simple ideas can be kept interesting and engaging if you can avoid the most typical four-bar loops most software programs seem to invite you to make. I often edit my samples in software like Metasynth or Argeïphontes Lyre to make them more unpredictable and organic. Constantly-changing EQs and low-pass filters are also an important technique to keep the samples sounding organic.

"It's very important to listen to the music away from the studio," he continues. "My living room, where I listen to my record collection, is the best place for this, because I can easily hear if my music sounds good compared to my favourite records. A track is finished when I can listen to it again and again on repeat. Still, I often put the track away for a couple of weeks. If I can still listen to it on repeat, it's definitely finished."

Field manual

Aside from his work in more up-tempo styles of ambient music, Geir has released a number of truly ambient albums. *Cho Oyu 8201m – Field Recordings From Tibet*, released in 2006, is an album of recordings Geir – an active climber and mountaineer – made in 2001, when he climbed the Cho Oyu mountain in the Himalayas without oxygen. Some of these field recordings were also used as source material in his jazz-influenced, *Dropsonde* LP.

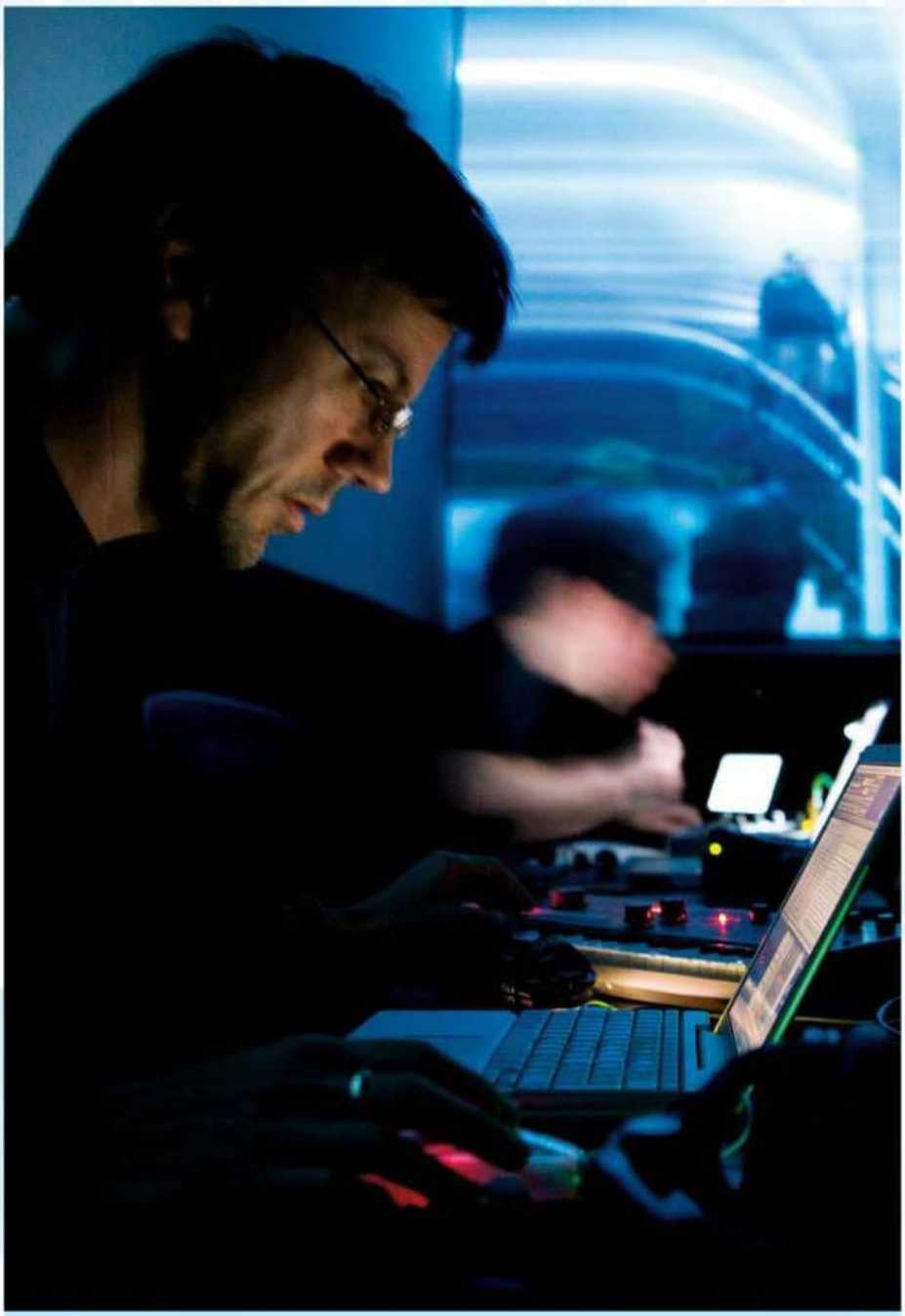
"Brian Eno's definition of ambient is music that's meant to be in the background, like a tapestry on a wall," Geir reflects. "I would like my music to be more like a painting on the same wall – ie, something that grabs the attention and makes people listen.

"A great piece of atmospheric music has a tendency to create certain images in my head, bring me to certain places, times, etc. Boring music is that which doesn't create any images except a guy sitting behind a laptop."

What's Geir's broader take on using technology to make atmospheric music?

"I've never bought a sample CD or downloaded any preset sounds," he laughs. "Using presets makes the music impersonal and boring. I always make my own sounds, because this gives the music a personality – a personality that other people can't buy.

"I've also been using the same software, with updates, since 1993, and feel that I can use it on autopilot – ie, I don't have to search the manual or an internet forum for help all the time. The software should be like a painter's palette: you should be able to mix colours without worrying about how to do it. Searching for technical help is such a waste of time when you feel inspired and want to create something."



Biosphere's ambient production tips

1 "While sample hunting is a process typically governed by what catches our attention or interests us in a particular recording or piece of music, you should try every once in a while sampling quiet – perhaps even unnoticeable – sections of audio, and see how they sound when taken out of the context of their original recordings. You might just find some highly inspiring samples in this way that others may have missed."

2 "Ambient music arrangements can be sparse. When using long samples, to maintain interest and keep things sounding organic, try programming smooth tonal changes into your recordings, using either an automated EQ or filter plug-in. This is to ensure that you draw the listener's attention to and from different features of them as the sample plays."

3 "We tend to get locked into a certain way of thinking and hearing our music in the confines of our studio or workspace. However, you should try to get in the habit of listening to your work away from the studio, in a relaxed and less critical environment, then you'll easily notice what works and what doesn't."

4 "An ambient composition may actually require very little in the way of processing or sequencing, so it's important that your samples and programmed sounds say as much as possible on their own. Therefore, try to avoid using other people's synth presets or samples."

Ambient masters: **Dr Alex Paterson**

The Orb are generally regarded as the originators of the ambient house sound. Founded in 1988 by Dr Alex Paterson and Jimmy Cauty of The KLF, The Orb's first two studio albums – *The Orb's Adventures Beyond the Ultraworld* and *U.F.Orb*, completed with Kris 'Thrash' Weston and Thomas Fehlmann, after Cauty left the group – are both considered defining works in the genre, with *U.F.Orb* even reaching number 1 in the UK album charts.

"Music is a way of life," states Dr Alex. "It's how we deal with life that controls our actions, that in turn is the inspiration to turn life into music... My purpose is to turn people onto music that's maybe not heard in the general music channels. This gives me a purpose in getting my tastes across to the whole wide world."



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Dr Alex's ambient production tips

1 "Just as you can start to sound like that other band you tried to copy, which isn't good, it's exactly the same in the studio: if there was a typical formula for starting, we'd quickly exhaust that and stop being interesting or relevant. I suppose, in a nutshell, the typical start is, 'How are you feeling today?'."

2 "Practice oblique strategies in all your dealings with technology." Oblique Strategies is a set of cards, each displaying a cryptic phrase intended to help solve a dilemma, created by Brian Eno and Peter Schmidt. Many relate directly to music composition while others are more general. An online set of Oblique Strategies can be found at **stoney.sb.org/eno/oblique.html**.

3 "Record and keep your mistakes." Many of the greatest pieces of electronic music have sprung from happy accidents. When everyone used hardware synths, accidents were more common – you might load the wrong soundbank for an arrangement and find all of your instruments mapped wrongly, for example. Therefore, it's imperative that you set aside some time to experiment with your DAW, and record anything and everything that happens.

4 "Don't be afraid of chaos whilst you play, guide your equipment towards it – but keep the monitor mute switch to hand to avoid frequent, expensive speaker cone replacements!"
Try using excessive resonance on synth presets and heavy feedback on delays and reverbs, to create sounds that swell and distort.

5 "Look for beauty in unlikely places and keep your trigger finger ready as you listen. Make a system that works for you when creating your sound palette. I like colour codes."
Ambient musicians take sounds from almost anywhere. When listening to your own recordings, or any other media, keep an audio editor to hand to record interesting sounds you pick up on.

6 "Remember, no matter how much you like all those coloured, flashing LEDs in the studio, they are the means, not the end. At the end of the day, what you make is only any use if it works for ears and brains."
Ambient music can be deceptively simple. Don't feel you need to build up rich, multi-layered arrangements every time – many ambient tunes consist of a little more than a synth track.

7 "Trash your presets folders and don't use your toys for what they were designed for! Remember, the sounds that come straight out of the computer were designed to sell the equipment to you, not to break new ground."

8 "Be careful what you wish for... We're rushing headlong into a place where music is everywhere, free and too easy to make without thinking about or charging for. What will be the incentive to make thoughtful music in the future?" **cm**

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BIG TICK AUDIO RHINOCM (PC/MAC)

Our exclusive FM synth, RhinoCM is guaranteed to give you the horn. As well as boasting a sound that's up there with the best on the market, it makes FM programming a much less daunting prospect than most of its rivals. To get started with this formidable beast, see the tutorial over the page. And look our for more coverage over the next few months, as there's far more to RhinoCM than we could hope to cover in three pages.

System requirements
PC **Windows 2000, VST host**
Mac **Intel CPU, OS X 10.4, AU/VST host**
Web **www.bigtickaudio.com**

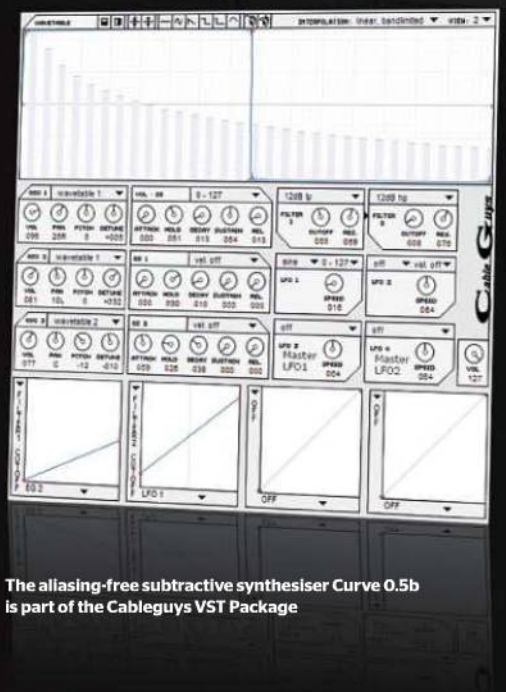


FM synthesis has a reputation for being complicated and fiddly, but RhinoCM makes it easy, approachable and fun - and equally importantly, it sounds incredible!

CABLEGUYS VST PACKAGE (PC/MAC)

Those crazy Cableguys are at it again with the latest version of their free plug-in pack. The VST Package includes free versions of FilterShaper 2 and VolumeShaper 2, which are limited to one instance per project and can only be set to the included presets, as well as PanCake and Curve 0.5b. For a closer look at PanCake, see *Freeware News* on p18.

System requirements
PC **1.5GHz CPU, Windows XP, VST host**
Mac **1.25GHz CPU, OS X 10.4, VST host**
Web **www.cableguys.de**



The aliasing-free subtractive synthesiser Curve 0.5b is part of the Cableguys VST Package

Demo software



Get started with our **BEGINNERS' GUIDES**

If you're new to computer music, our five *Beginners' Guides* will get you moving in the right direction. They're in the **CM Beginners** folder.

MAGIX VANDAL (PC)

A physically modelled amp for bass and guitar, Vandal is particularly suited to crunchy rock sounds at the heavier end of the spectrum. Note that this demo version is time-limited.

System requirements

PC **1.5GHz CPU, 512MB RAM, Windows XP, VST host**

Web **www.magix.com**

MICHEL ROUZIC PHOTOSOUNDER (PC/MAC)

A powerful sound design tool, Photosounder enables you to edit audio by converting it into images, then turning those images into new sounds. Crazy stuff! Photosounder is covered in depth in our *See the music* feature on p65, so fire it up and follow along. The demo version lacks the ability to save your work as audio, and regularly inserts silence into its output.

System requirements

PC **Windows 2000**

Mac **OS X 10.4**

Web **photosounder.com**

NUGEN AUDIO STEREOIZER 3 (PC/MAC)

A sophisticated stereo manipulation tool, Stereoizer 3 specialises in mono-to-stereo conversion and stereo enhancement. It's mono-compatible, and offers dynamic visual feedback, but be aware that the trial version is limited to 30 days of use.

System requirements

PC **1.4GHz CPU, 512MB RAM, Windows XP, VST host**

Mac **1.4GHz CPU, 512MB RAM, OS X 10.4, AU/VST host**

Web **www.nugenaudio.com**

U&I SOFTWARE METASYNTH (MAC)

A sound design studio suite, Metasynth enables you to paint sound, create abstract effects and sequence your creations together. The demo version is identical to the full version, except that you can't save your work to disc with it.

System requirements

Mac **OS X 10.4**

Web **www.uisoftware.com**



Analogue-style dynamics processing aplenty with the demo version of Voxengo Deft Compressor

VOXENGO DEFT COMPRESSOR (PC/MAC)

Yet another cool dynamics processor from Voxengo, Deft Compressor has a warm, clean sound and a 'vintage' mode for emulating the sound of analogue valve gear. The demo version's output is muted every 45 seconds.

System requirements

PC **2GHz CPU, 1GB RAM, Windows XP, VST host**

Mac **2GHz CPU, 1GB RAM, OS X 10.4.11, AU/VST host**

Web **www.voxengo.com**

XFER RECORDS NERVE (PC/MAC)

Created by dance music producers for dance music producers, Nerve is a powerful drum machine with an internal step sequencer and pre-calculated DSP effects. The demo version doesn't feature the full sound library, is save-disabled and limits you to 20 minute sessions.

System requirements

PC **512MB RAM, Windows XP, VST host**

Mac **512MB RAM, OS X 10.4, AU/VST host**

Web **www.xferrecords.com**

USING THE DVD INTERFACE

1 Put the DVD-ROM in your DVD drive, let it spin up, and wait for the interface to appear. If it doesn't autorun, browse to it in Explorer/Finder and double-click **Computer Music for OS X** or **PC**, as appropriate. Read the disclaimer and click **Accept** when you're done.
2 The main interface will open. Mouse over the links for each section to get a brief description of their contents, and click on your button of choice – in our case, **Software**...
3 An Explorer/Finder window will open, showing you the contents of that folder. Any executable files can be run directly from the DVD by double-clicking them. Demos are generally presented as installer applications, but check any Readme text files for additional installation information.

PROGRAMS & PLUG-INS

Most of the programs on the DVD-ROM are presented as installers – simply double-click the installer icon and the application does the rest. However, plug-ins are often presented as .dll (PC), .vst or .component (Mac) files. To 'plug' the plug-in into your VST/AU host, just copy the plug-in file into your VST or AU plug-ins folder, as appropriate.

SAMPLES

Every month we give you a wealth of royalty-free samples! You can use them in your music in any way you see fit, without having to pay a penny, even if you end up commercially releasing your work. The only thing you *can't* do is redistribute them as samples – eg, by making a sample CD with them. To install our samples, simply copy them to your hard drive.

>Exclusive full software!

Big Tick Audio RhinoCM

PC MAC

cm DVD
ON THE DVD
FULL SOFTWARE
RhinoCM is in the **Full Software** folder

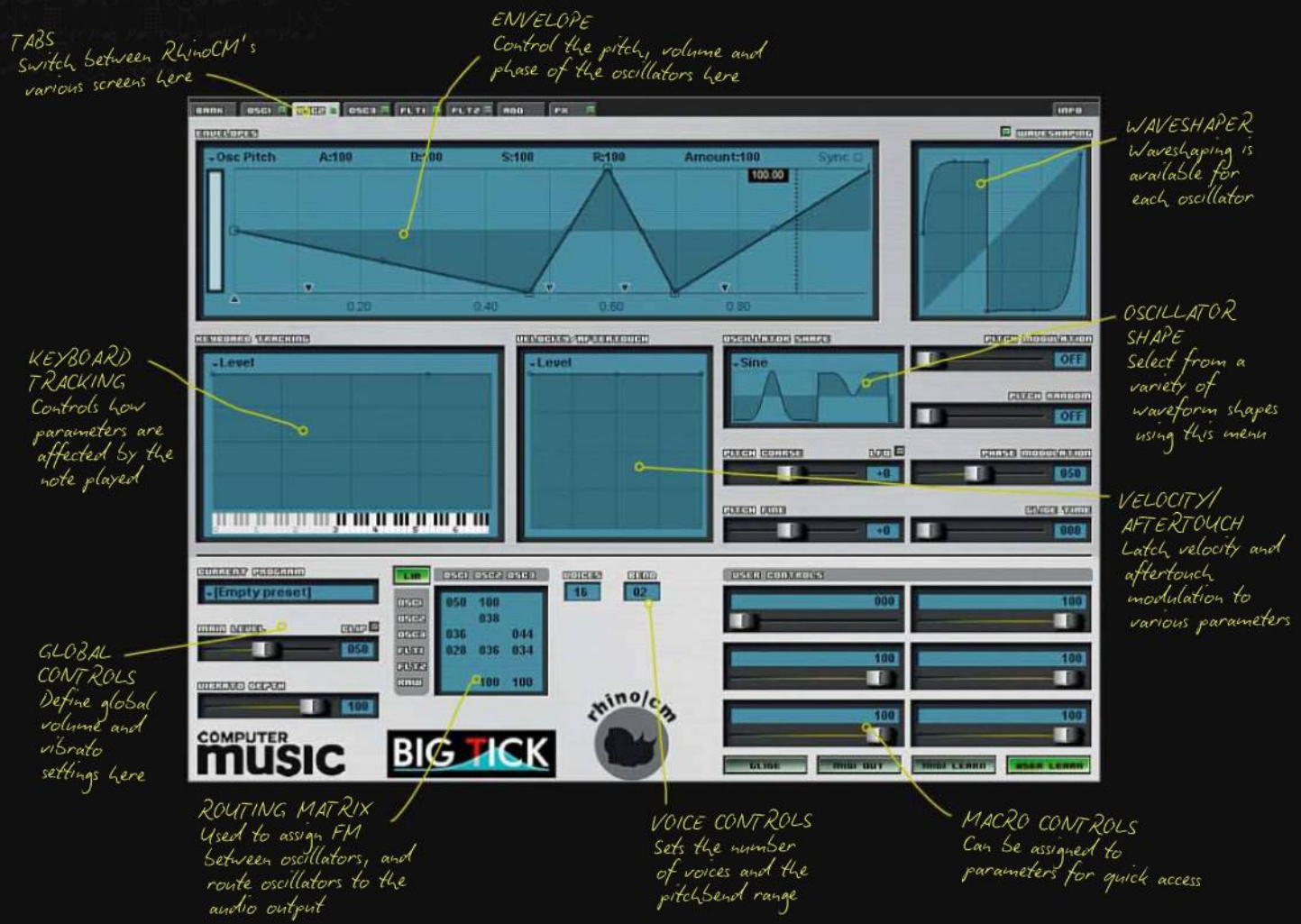
Stampede your tunes with this fabulous FM synthesiser, yours only with *Computer Music*. Here's how to get started...

> Synth lovers are in for a real treat this month, as we bring you a special **cm** version of a classic soft synth. Big Tick's RhinoCM is a feature-packed FM synthesiser capable of producing everything from chunky bass tones to lush electric piano patches and complex ambient soundscapes.

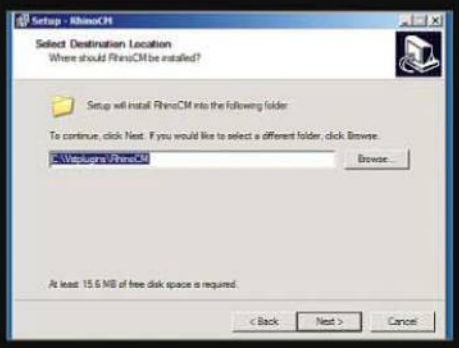
FM, or frequency modulation, synthesis enables you to generate much more complex tones than its subtractive cousin. By modulating the frequency of one waveform with that of another, it's possible to create more complex waveforms than your standard square or sawtooth, using nothing more than simple sine waves.

RhinoCM features a relatively user-friendly interface with large, flexible envelopes, a small but perfectly-formed routing matrix, handy macro controls, a built-in effects section, a choice of waveforms, and a waveshaper for each oscillator.

As well as its formidable FM capabilities, RhinoCM also boasts subtractive and additive synthesis in the form of dual filters and user-defined additive waveforms. It's really quite a powerhouse, but novices need not fear: in this tutorial, we'll take you through everything from installation and auditioning the supplied presets to programming FM sounds from scratch.



> Step by step
Installing and getting started with RhinoCM



1 > You'll find RhinoCM located in the **Software/PC Software/Full Software** or **Software/Mac Software/Full Software** folder. Run the installer and follow the on-screen prompts. PC users will be asked to choose a folder for installation – this should be located within your shared VST plug-ins folder.



2 > Once the installer has finished, load up your DAW and select RhinoCM from the list of plug-ins. Trigger a note and you'll hear a pure sine tone. Before we start using RhinoCM's full capabilities to create a sound from scratch, let's check out some presets. In the **Library** panel, select **Ambient»Soft»Alien Emission**.



3 > Play the sound back – pretty impressive for just two oscillators! RhinoCM excels at making these complex, lush sounds, as well as many others, as you'll discover if you explore the presets in the Library panel. Now let's make a new sound for ourselves. Right-click the currently selected preset in the Bank panel and select **Clear [(Empty Preset)]**.



4 > This returns the sound to the sine test tone from earlier. Click the **Osc1** tab at the top of the interface to access the oscillator's parameters. Traditionally, FM synthesis only uses sine waves, but RhinoCM enables you to pick from many different waveforms. Click where it says **Sine** in the Oscillator Shape panel to bring up the menu.



5 > Select **Effects»Industry Pad** from the menu. This oscillator shape is obviously a lot longer than a simple single-cycle waveform! RhinoCM also enables the creation of user-defined waveforms using an additive synthesis engine. For the moment, return the oscillator to **Single Cycle»Sine**.



6 > As we've said, FM synthesis enables the creation of complex harmonics using simple sine waves. Turn your attention to the routing matrix above the Big Tick logo. This unassuming little box is the real source of RhinoCM's power. Drag upwards in the **Osc 1**/**Osc 1** slot, and hear how the harmonics increase.



7 > Here, we're using Osc 1's level to modulate its frequency. In this matrix, the columns represent the carriers and the rows represent the modulators. Don't worry if this sounds confusing – all will soon become clear. Click the **Osc2** tab at the top of the GUI, and set this oscillator's shape to **Single Cycle»Sine** also.



8 > You won't be able to hear this oscillator yet, as it's output hasn't been activated in the routing matrix. Turn everything in the Matrix down to **0**, so that it disappears, then turn the **Raw** output of **Osc2** up to **100**. You'll hear a pure sine tone when you play a note.



9 > Now, gradually turn the **Osc 1** to **Osc 2** FM level up to **100**, as shown here. This won't create as many harmonics as using an oscillator to modulate itself, because the source of the modulation remains a constant sine tone, rather than becoming more complex as the modulation amount increases.

> Step by step

Installing and getting started with RhinoCM (continued)



10 > These harmonics are all very well, but everything's a bit static at the moment. By modulating the amplitude and pitch levels of the oscillators, we can get some much more interesting tones. Set the **Osc1** to **Osc1** modulation level to **50**, and select the **Osc1** tab at the top of the interface.



11 > Drag the decay/sustain envelope point down and to the right, so that it sits on **0** and **0.30** seconds. This gives the sound a quick burst of complex harmonics at the start, creating a classic FM bass tone. Grab the curvature control circles to adjust the shape of each curve. Drag the curve down slightly to get the same shape that we have here.



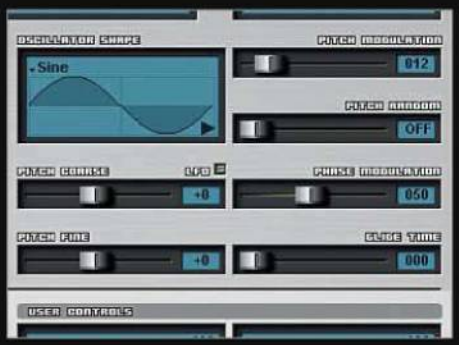
12 > So far, we've got a cool, punchy bass sound without using any of RhinoCM's filters. We can get even more involved sounds by modulating the pitch of the oscillators. Let's try something a little more interesting. Move the decay/sustain point up to the top of the envelope.



13 > Click the top left-hand corner of the envelope panel, then click where it says **Osc Level**. Select **Osc Pitch** to bring up the pitch modulation envelope. This won't have any effect until you turn up the **Pitch Modulation** amount over on the right-hand side of the interface. Set this to **36** semitones.



14 > You can now control the pitch over three octaves with the curve. Right-click the envelope and make sure the **Edit Curve** option is checked. Create new envelope points by right-clicking the envelope and selecting **Add Point**. Create a complex curve like the one shown here. Note that you can zoom in and out of the envelope viewing by dragging the display up and down.

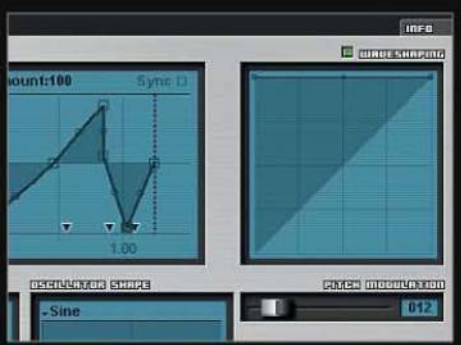


15 > Now when you trigger the synth, you'll get a complex rhythmic groove, all created with just two oscillators and no filtering. Play the sound back while looped over a bar and increase the **Pitch Modulation** amount as it plays. At **96** semitones you'll get horrific digital-noise style effects, and at **12** you'll get crunchy bass tones.

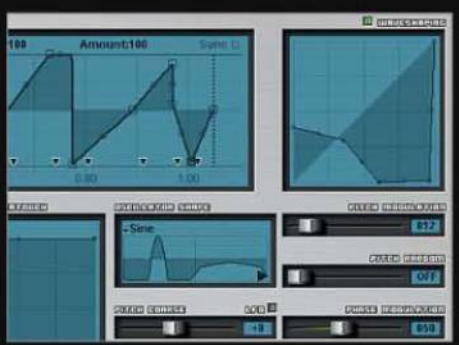
POWER TIP

>FM FX

Frequency Modulation synthesis is a powerful tool on its own, but that doesn't mean it doesn't benefit from some familiar effects. Click on RhinoCM's **FX** tab to reveal two insert effect slots, which can be used to jazz up the synth's sound. Each of these offers the choice of Stereo Delay, Cross Delay, Auto Pan, Rotary Speaker, Rich Chorus, Flanger, Rich Ensemble, Quad Phaser, Reverb and Overdrive. Each slot has save and load buttons, in case you come up with any settings that you're particularly pleased with, and the routing can be switched between serial and parallel by simply clicking the **Serial Mode** button.



16 > As we've seen, RhinoCM has a wide range of oscillator shapes onboard, and you can customise these preset waves using the built-in waveshaper. This is located at the top right-hand corner of the interface - click the button next to where it says **Waveshaper** to activate it.



17 > The waveshaper works like a simple envelope. Move the breakpoints and adjust the curve controls with the mouse, and right-click to add and delete points. The Oscillator Shape window gives visual feedback on your tamperings. The Waveshaper is independent of the waveform selection, so if you select another waveform, your waveshaping will still affect it. **cm**

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2167 cm samples

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SAMPLES
Your exclusive sounds are in the **Samples** folder

A cornucopia of multisamples, one-shots, loops and more is yours royalty-free with this exclusive collection of über-chilled sounds

Groove Criminals

2 Bass multisamples
3 Chord kits
55 FX
2 Keys multisamples
2 Pad multisamples
66 Percussive hits
40 Soundscapes
82 Stacked loops
2 String multisamples
2 Synth multisamples

To create their library of interesting textures, the Groove Criminals used a mixture of hardware and software, in terms of both sound sources and effects. For variety's sake, both dark and light ambient sounds are included, including some heavily effected percussive one-shots, enabling you to put together your own rhythmic bed.
www.groovecriminals.co.uk

Cyclick

150 Arp loops
108 Bass loops
6 Bass multisamples
194 Beat loops
44 Convolution samples
32 Pad loops
3 Pad multisamples
31 Instrument reverb samples
97 FX

This varied selection of samples from Cyclick includes noises recorded on an iPhone then heavily processed, sounds created on a variety of hardware and software synths, plus mangled textures created with the SIR convolution effect.

Alex Blanco

50 Analogue loops
192 Effected percussion hits
133 Loops
116 Processed acoustic guitar samples
93 Processed vocal samples

This versatile collection comprises riffs, pads and arpeggios, each of which are suitable for everything from blissed-out beach sessions to building society commercials! To top things off, there are also drums with tempo-based processing and some crazy, abstract vocals.
www.myspace.com/djalexblanco



Sample and video playback

cm videos are presented in MOV format, which means that you need QuickTime, QuickTime Alternative or VLC installed on your system to play them. Macs feature QuickTime as standard, and PC owners who don't have QuickTime installed can use VLC instead. VLC is an open-source media player that can handle pretty much any format you can throw at it – you'll find it in the VLC Media Player folder on the **cm** DVD. VLC is also recommended to Windows users who find that 24-bit samples won't play back in their Windows Media Player. For the latest version, go to: **www.videolan.org**

Producer Masterclass Video

Artist **Jayce Lewis**

Wlesh wunderkind Jayce is a real-life guitar hero, and in this exclusive video, he shows how recording professional-sounding multitracked guitar parts needn't be an epic mission, and demonstrates how to edit and compress them to perfection.



Web **www.myspace.com/jaycelewismusic**

HAVING PROBLEMS?

In the unlikely event that you have trouble with your disc, send an email to **support@futurenet.co.uk** and they'll help you out. Please do not phone us, as we don't give technical support over the telephone!

If you experience a problem with your software, you should first refer to the software manual. This is often delivered with the software itself or is sometimes placed on your hard drive when you run the Installer. If you find that you don't understand some of the features of the software, remember to read the manual first. Should you be unfortunate enough to run into any technical difficulties with the software, it is often best to get in touch with the developer of that software – they are probably better-equipped to offer you the support you need than we are.

BROKEN DISCS: If your disc is corrupt, cracked or otherwise inoperable, we'll send you a spanking new replacement within 28 days. Send the DVD to: Disc Department, Reader Support, Future Publishing, CMU153/July/10, Bath BA1 2BW. And don't forget to include your full name and postal address!

cm STUDIO

Our exclusive suite of applications, instruments and effects is on the DVD every month – it's quite literally all the software you need to make great music now!

APPLICATIONS

XT Software energyXT2.5 Core cm Edition (PC/Mac/Linux)
VST host and sequencer with modular routing

Outsim SynthMaker CM (PC)
Create your own VST synths and effects

INSTRUMENTS

PowerFX Hütkins CM (PC)
Sample-based electronica synth

Ummet Ozcan Genesis CM (PC)
Another amazing virtual analogue synth

Muon CMplay (PC/Mac)
Powerful ROMpler instrument

Dominator (PC)
Virtual analogue synth with a classic feature set

u-he ZebraCM (PC/Mac)
Amazing virtual analogue synth

LinPlug AlphaCM (PC/Mac)
Subtractive synth with ring and amp modulation

Homegrown Sounds Astralis CM (PC)
Modulation-heavy 'soundscape' synth

Homegrown Sounds Astralis Orgone CM (PC)
Flexible sample-based synth

XT Software EnergyCM (PC/Mac)
Analogue-style sequencer

FabFilter One 2.01 (PC)
Beautiful-sounding single-oscillator synth

Kotkas Paax 3 CM (PC)
Feature-packed soft sampler

Odo Synths Unknown 64 CM (PC)
C64 SID chip-emulating VSTi

Krakli CMorg (PC)
Vintage organ instrument

AlgoMusic ElectraBass Rack CM (PC)
Easy to use bass synth that's packed with presets

Humanoid Sound Systems Scanned Synth CM (PC)
Create abstract noises and haunting instruments

Muon CM-101 (PC)
Analogue-style VST synth

Muon SR-202 (PC)
16-pad VST drum machine

Muon CM-303 (PC)
Emulation of the classic Roland TB-303 synth

Muon DS-404 (PC)
Powerful 16-part multitimbral VST sampler

LinPlug CM-505 (PC/Mac)
Analogue drum synthesis made easy

MeldaProduction MDrummer 2 CM (PC)
Virtual drummer with varied sound sets

EFFECTS

KResearch KR-Delay cm Edition (PC/Mac)
Dual delay lines with filters and sync ability

KResearch KR-Reverb cm Edition (PC/Mac)
Easy to use, algorithmic reverb effect

START HERE
Get the cm Studio installed with our easy-to-follow PDF guides! They're on the DVD, in **The CM Studio/CM Studio Tutorials** folder

Blue Cat Audio FreqAnalyst CM (PC/Mac)
Sophisticated stereo spectral analyser

NuGen Audio Stereoizer CM (PC/Mac)
Useful mixing tool for control over your stereo spread

Sugar Bytes Artillery2 cm Edition (PC)
Multi-FX with internal sequencer

Image-Line CM Vocoder (PC)
Special cm version of FL Studio's FL Vocoder

Aixcoustic Creations Electri-Q CM (PC)
Sweet-sounding and flexible equalisation

Martin Eastwood Audio CompressiveCM (PC/Mac)
Compressor/limiter with sidechain input

Audio Damage Pulse Modulator (PC/Mac)
Wild, stompbox-esque modulation effect

Betabugz Audio Vascillator (PC)
Semi-modular feedback delay multi-effect

Image-Line CM WaveShaper (PC)
Flexible wave distortion effect

PSP Springverb (PC)
Authentic VST spring reverb effect

SimulAnalog Guitar Suite CM (PC)
Plug-ins modelled on classic guitar effects and amps

Ohm Force Ohmygod! (PC/Mac)
Crazy resonant/comb VST filter

Camel Audio CMFuzz (PC)
Quick and dirty distortion

Intelligent Devices MegaDelayMassCM (PC/Mac)
Sound design-orientated delay module

Sanford Phaser-CM (PC)
Phaser effect with advanced modulation abilities

Martin Eastwood Audio Duet (PC)
Easy-to-use double tracker



Exclusive to the cm Studio, LinPlug's AlphaCM is genuinely one of the finest free soft synths available today

Big sounds with FabFilter One CM

Learn how to create gargantuan tones with this easy-to-use single-oscillator synth

PC MAC

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FULL SOFTWARE
FabFilter One CM awaits you in the **CM Studio** folder



1 > FabFilter One CM is a pretty simple one-oscillator synth, but with a few tricks, it's possible to get some huge sounds out of it. For this tutorial, we're using Reaper as our DAW, which you can find in the **Library** section of the **Software** folder on the **cm** DVD. Run Reaper and load FabFilter One CM into it.



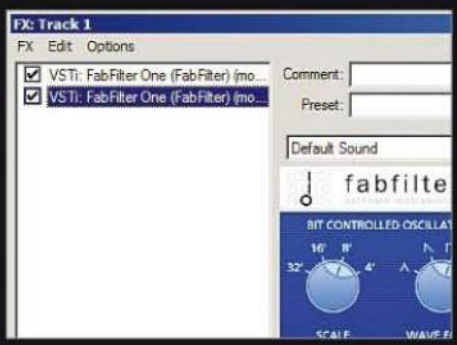
2 > A popular synth programming trick for getting a bigger sound out of a single oscillator is to use pulse width modulation. First, let's start by making the sound as pure as possible. Turn the **Release** knobs down to **0** and the filter cutoff **Frequency** up to **10**.



3 > In the Bit Controlled Oscillator panel, set the **Wave Form** to pulse, as we have here. Look over to the right-hand side of the interface, to the Pulse Width Modulation panel. We want FabFilter One CM's Modulation Generator (LFO) to control the width of the pulse wave, so set its mode to **MG**.



4 > Now when you play the sound, you'll hear the rhythmic movement of harmonics, as if you were using multiple detuned oscillators. Turn the **PW/PWM** knob in the Bit Controller Oscillator panel to two o'clock to increase this effect, and set the **Frequency** knob in the Modulation Generator panel to 10 o'clock.



5 > Thanks to Reaper's ability to host multiple VST instruments on a single MIDI track, it's possible to stack up multiple instances of FabFilter One CM to create a bigger sound. Right-click FabFilter One CM in the FX Chain and select **Copy Selected FX**. Next, right-click and select **Paste FX**.



6 > You now have two identical versions of FabFilter One CM being triggered by the same MIDI part. Select the second one in the list and turn its **Scale** knob in the Bit Controller Oscillator panel down to **32'**. With the two synths tuned a couple of octaves apart, we get a bigger sound.



7 > We can get a more interesting texture by differentiating the sounds. Select the first instance of the synth, and set the **MG** knob in the Filter panel to 3 o'clock, the cutoff **Frequency** to 1 o'clock, and, in the Modulation Generator panel, the **Frequency** to 12 o'clock and the **Wave Form** knob all the way to the right.



8 > Select the lower of the two synths and turn the filter cutoff **Frequency** to 12 o'clock. Create a copy of this synth and set its **Scale** to **16'**, **Wave Form** to sawtooth and filter cutoff **Frequency** to 3 o'clock. Some trickery was involved, but we undoubtedly have a massive sound from a single-oscillator synth!



9 > When creating sounds like this using Reaper's FX chains, don't worry about saving the patch for each instrument individually. By right-clicking the FX chain and selecting **Save FX Chain**, you can save all the instruments – and any effects you've used on them – together in one patch. Select **Add FX Chain** to recall it. **cm**

Reader music

The **cm** 'ship serve up another four tracks for the scrutiny of our expert producers and engineers

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For the chance to be featured in *Reader Music*, simply send us your track via the SoundCloud DropBox on our website (see the walkthrough below for instructions), along with a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. Be absolutely certain that no copyright samples have been used! The best tracks we receive each month will be reviewed here and featured on the **cm** DVD, so send yours our way today!

Rules:
1. Send no more than two tracks
2. Submit your track(s) via the SoundCloud DropBox on our website
3. The audio and MIDI files used must all be original and/or royalty- and copyright-free

MISSAWATANABE VS SPACETRAVELER
The Ability To Not Forget

Artist Martin Homola
Contact www.myspace.com/missawatanabevsspacetraveler



> Starting out like a sped-up jazz session, the mayhem and chaos spews over a DnB rhythm track for a couple of minutes, before morphing into a much slower, darker groove. Both sections are good in their own right, but the question has to be asked: do they belong in the same track? The downbeat section is a welcome relief from the madness and it does flow in time, but it's very different in feel, with a half-time tempo, leaving you with the impression that you're listening to a medley of two different songs. However, when the fast section comes back out of the slow one towards the end, the change is more fluent than before.

Whatever you think, there's some great programming throughout the piece. The drums in the fast part are way off the wall with pitchshifting snare fills and machine gun kick patterns that leave you punch-drunk by the end. The brass samples add nicely to the craziness and work well in context.

The bassline of the slow part is what gives the whole track that edgy darkness: a filtering, guttural sound that burrows along under radar. We definitely like the wild and free ethos that underpins the track.

What the artist says:

"I like to create a combination of musical styles in one track, along with tempo variations. The sounds are heavily processed, cut, sampled and arranged into my vision of musical creation."

Equipment used **Apple Mac Pro and Logic Pro 8, Celemony Melodyne, Future Audio Workshop Circle, Ueberschall Elastik, Native Instruments Kontakt, RME Fireface 400, M-Audio Oxygen 49, Yamaha HS 80M**

RUDEDOG
Stormy Beach

Artist Ross Michael
Contact soundcloud.com/ross-michael



> Built around a deadly synth hook, this track will probably sound quite familiar from the very first listen. At a classic house tempo of around 130bpm, the off-beat rhythm of the lead line constantly puts you onto the wrong foot – but in a good way, don't get us wrong! It's extremely lucky that the hook line is a winner, because it goes on continuously through the track without any respite beyond its creative filtering. As good as it is, though, no riff can be *that* good, and you do begin to tire of it towards the end of the track. What it really requires is for the lead to stop for a section and something else to take over for a while. The anticipation of the lead coming back could be as exciting as the arrival itself. What's more, the filtering 'beach' noises and percussion programming behind the lead line deserve to see the light of day, too, but instead, they're permanently relegated to the shadows.

Our only other criticism is that the pulsing bass is very light – the only thing bringing the low frequencies is the dominant kick. That said, it's so busy that, were it deeper, there's a danger it would get messy.

What The Artist Says:

"Stormy Beach was written with Miami South Beach in mind. It starts with a soft drum roll, before the kick enters and the head-nodding groove grabs you. The lead sound is dynamically filtered to create space in the track for other elements to breath."

Equipment used **Apple iMac and Logic Studio, M-Audio FireWire 1814, Akai MPK49, Nord Lead 3, FXpansion Orca and Guru, Sugar Bytes Effectrix, Arturia V collection, PSP VintageWarmer 2, Alesis M1 Active MkII monitors**

SOUNDCLOUD

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What's wrong with my mix?

Acclaimed producer, engineer and musician Mark Frith brings the benefit of his considerable experience to this month's featured reader demo

Producer Mark Frith



A multi-instrumentalist, and talented engineer/producer, Mark is just the man you want behind the controls of your session when you need results, as a wide range of high-profile artists will testify, from Futureheads and Electric Soft Parade to Clare Teal.

ALICE
Daddy Says It's Like A Teddy On LSD

Artist Thomas McConville
Contact soundcloud.com/tmcc-1



> This has to be one of the best song titles we've seen for a long while on these pages. *Daddy says...* is, to us, a psychological thriller soundtrack for a film yet to be made. Easy listening this ain't (Westlife won't be covering it, that's for sure), but amid the weirdness, there's a comforting drone, rather like the constant white noise of David Lynch's *Eraserhead* soundtrack. The drone buries dialogue, crazed laughter and other welling-up, spooky sounds, and accompanying it are some frenetic drum programming and a backwards loop.

It all ties together well, travelling in a linear fashion with no particularly big builds or drops, but it's punctuated by stops and starts throughout. The only element that becomes particularly tiring is that relentless reversed loop, which is panned over to the left. If it were occasional, it would be fine, but it's loud, brash and constant, and soon becomes annoying, distracting you from all the good things going on around it.

Apart from these points, the mix is good. There's a little congestion in the bottom end from the busy kick drum and low synths clashing, but it's nothing that a touch of EQ on the kick wouldn't sort out.

What the artist says:

"I listen to a lot of 60s psychedelic music and wanted to make a piece that had a sort of trippy sound. What started the track off was a sample of me clicking my fingers, recorded a few months before. It went through a few different stages before I settled on this final one."

Equipment used **Advent 9115 laptop, Microsoft Windows 7, Ableton Live 8**



3 > Click **Upload new artwork** and choose an image. Confirm that you agree to SoundCloud's **Terms of Use** towards the bottom of the screen, hit **Send Track** and you're done!

SUFFOCATING MINDS
Heal me

Artist Vincent Lemineur
Contact www.myspace.com/suffocatingminds



> Belgium – a country not exactly known for spawning famous musicians, except Plastic Bertrand... but maybe that's all about to change! With an unashamed nod to 80s synth pop and Depeche Mode in particular, this über-commercial song from Belgians Vincent Lemineur and Olivier Grégoire is interesting for its use of 80s synth sounds within a phat, modern mix.

To use a football cliché, this is a song of two halves: eight-bar intro and 16-bar verse and chorus wrapped around a middle lead section. It doesn't get much more straightforward than that. I was quite surprised to be hit with a solo section so early on, and as the lead synth solos over a chorus, the lack of musical variety might lose those with ADHD quite quickly. But it's hooky enough to be engaging for most of its near-perfect single length of 3m 40s. We get to the first chorus in under 50s, which is also great for hooking people in, but this could have been pop music by numbers were it not for the lack of a middle-eight change.

The vocal performance and sound are fabulous, with the distorted stereo slap delay making it wide and dark, especially in the chorus, and the whispered echoed backing vocal adds to the vibe. The empty verse enables the vocal to establish itself over the square beat and synth 'horn', but before that, the use of the very thin, high-passed synth melodies in the intro make the arrival of the verse impressively big. The chorus is a 'wall of synth' where the bass, strings and other sounds merge into one powerful force, carrying you down the descending modulation with an irresistible energy. The only weak point for me is the solo section, which is a fairly boring old-school sound playing a boring solo – a missed opportunity to make a modernist statement with an up-to-date sound, I think.

The quality of mixing here is excellent. The use of compression on pretty much everything glues it all together and gives a really big, warm tone that's well balanced and EQed all the way down to the bottom. With a bit more complexity to the arrangement, this could be a pop-tastic winner.

What the artist says:

"*Heal Me* was recorded five years ago on a system limited to ten tracks... perfect... I wanted it to be simple, with a combination of 80s fresh pop feeling but also bitterness. My fellow producer, Olivier Grégoire, aka DJ Kolombo, took the parts and boosted them amazingly with his magic touch."

Equipment used **PC, Guillemot soundcard, Alesis soundcard, Emagic Logic Audio 3.6, Steinberg Cubase SX3, various plug-ins, Roland MC-307, Yamaha CS6X, Ibanez bass, Zoom distortion stompbox**

cm Producer Masterclass

JAYCE LEWIS

Incorporating dance and tribal influences into his rock style, the self-taught Welsh multi-instrumentalist shows you how he creates his huge sound

cm DVD

ON THE DVD

Watch Jayce put his advice into action in our exclusive video tutorial!



The DIY ethic

> Rising rock star Jayce Lewis isn't your average axe-wielder. An accomplished multi-instrumentalist, he also produces his own tracks, combining a hard rock sound with dance and tribal percussion influences – Jayce scored a recording deal with EMI Records on the strength of his self-produced track *Icon*. Since then, the Welsh wonder has worked alongside legendary rock producers Martyn 'Ginge' Ford, Colin Richardson and Tue Madsen on his debut album, which is due to be released later this year.

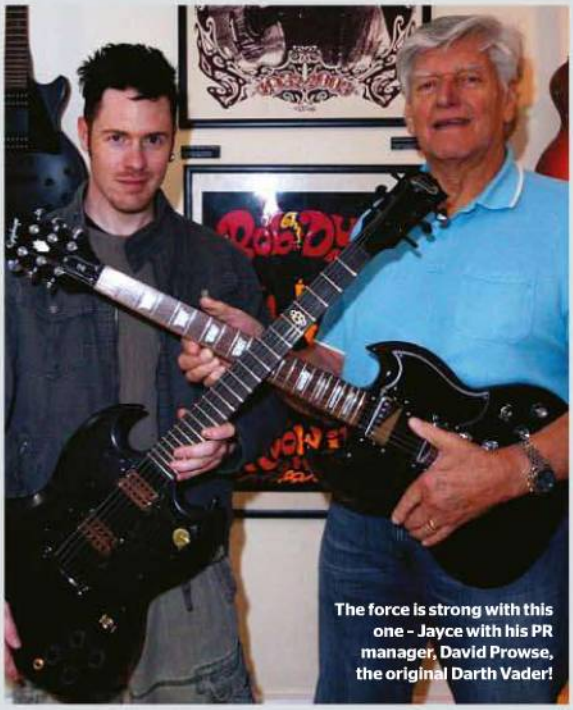
***Computer Music* caught up with Jayce to find out more about his approach to making music and how he gets his huge guitar sound. How did he first get involved in making music?**

"When I was younger, I watched Queen at Live Aid, and I was listening to Brian May's guitar... the sound of the guitar and the performance they put on was just absolutely awesome! I was transfixed by Brain May's guitar sound and his style of playing. I taught myself how to play guitar, learning songs by ear. There was no internet then, but I had a live video of Queen. When it got to Brian May's parts, I'd pause and watch where his hands were, trying to figure out exactly how he did the chords!

> "When you see what these big producers do and apply it to software, you can get results"

"When I was 19, I taught myself how to play drums, too. I was influenced by a band called Sepultura and I really started taking note of the drums from that point on. I was in and out of a couple of bands as a drummer, because they're hard to find around these areas. The last band I was in split up in 2008, where I had been be quite proactive on the production side of the music.

"I'm just a very inquisitive person – I'm fascinated with how to get these incredible tones and sounds. So, after the band split in 2008, I got back on the guitar and produced my first song, *Icon*, which led to the deal with EMI."



The force is strong with this one – Jayce with his PR manager, David Prowse, the original Darth Vader!

As a multi-instrumentalist, your composition and recording process must be quite involved. How does it work?

"I'll start on the guitar, just chucking some riffs out. Believe it or not, I record them into my mobile phone with the voice memo function. I'll play the mobile track back and start to layer it with another guitar line. As soon as I'm happy with what I've got, I'll demo it in Eifion Lloyd's studio, which is quite basic. I'm not looking for a massive production sound, but the techniques will be the same as those used in major studios: panning, layering and equalisation. At the end of the day, if you've got OK recording software and it enables you to multitrack, you can get a great sound! People are making recordings in their back yards that sound like they were done in a major studio. It's all about technique: when you see what big name producers do and apply it to your own software, you can get the same results. Knowledge of how to get the best out of your sound is the most important thing!"

In this tutorial, Jayce will show you how to record and process a blockbuster guitar sound. Make sure you check out the accompanying video on the **cm** DVD, in which the whole process described here is brought to life onscreen.

Web **www.myspace.com/jaycelewismusic**

> Step by step Multitracking a guitar part



1 > Before the recording session begins, Jayce and his engineer Eifion create a backing track. "Before we record the guitars, I need to lay down a drum beat, and we put in some guide guitars," Jayce explains. "This is just a standard two-track recording, which Eifion tidies up, so we can get it spot on. Then we've got something that I can play guitar to."



2 > When recording from a cabinet rather than using direct input, it's important to set up your microphones correctly. "Miking up a guitar cab is probably the most important part of multitracking a guitar," asserts Jayce. Here, the top left and bottom right speakers are miked up with Shure SM58s. They're pointed at the centre of the cone, a finger's width away from the mesh.



3 > Two mono tracks are created in Cubase, with one mic routed to each. Jayce records his parts from within the control room, rather than in the live room. This helps eliminate any unwanted noise from the guitar, and also protects Jayce's ears from the cranked cabinet's hefty output.

> Step by step Multitracking a guitar part (continued)



4 > Once Jayce has finished playing, the recorded tracks are both panned hard left. Another take is then recorded, this time with both tracks panned hard right. This gives a wide guitar sound, with two different mics in each ear creating a rich tone. However, this isn't enough for Jayce, who creates another four audio tracks...



5 > Another two takes are recorded, one panned hard left and the other hard right. In addition to the two takes recorded previously, this gives a total of eight guitar tracks – four on each side of the stereo image. Adding any more takes risks messing up the sound, rather than adding to it, but Jayce has a clever technique to share with us...



6 > "The beauty about layering guitars like this is that you can put different harmonics on top of it. I'm going to play a few strings up, which is going to be higher, and that's really going to make it sing," Jayce reveals. With four tracks of guitar recorded already, there's no need for overkill at this point: "I'm only going to record four tracks of this, because otherwise it's going to sound like chaos!"

Shock and DAW

Being a tech-savvy multi-instrumentalist, Jayce has an unusual approach to live work.

"Because I was a drummer myself, I didn't really like the idea of somebody else playing drums on stage for me. I looked at The Prodigy, who didn't used to have an on-stage drummer. I thought, 'What if we record my drums, trigger them up and really get into the science of the kick drum live: I want it to punish you, to blow the flesh off your bloody body!' I've got a producer called Warren Blackmore, who's a really clever guy that I've been developing the live act with as we go along. We have an audio interface that outputs eight stems. It's just like having a live band. You can mix it live to suit the acoustics of the venue. A lot of work goes into the pre-production. We use Sonar for the live show, which outputs video via HDMI to huge screens synced to the music. If that computer breaks down, though, it's game over! We use a high-spec custom-built PC that only uses about 2% of the CPU when we play the project back."

As well as using Cubase in the demo studio and Sonar live, Jayce's productions involve a couple of other DAWs, too...

"The album that I'm recording at the moment has all been done on Pro Tools 8 HD. We use a lot of SoundToys plug-ins as well – some of them are unbelievable! In particular, we use the SoundBlender a lot on my vocals.

"Much of my synth work is done in another studio in Penarth, and that's recorded into FL Studio, which Warren's been using since it came out. We used to just fire it up to record demos, but the synth sounds it's got now are amazing. Morphine, Toxic and Sawer in particular make my hair stand on end! We'll put sidechain compression on them, too, layered with 808 hits. We'll load the Cubase demo track into FL Studio, add the synths, export them, then get them loaded into Pro Tools, where we do the final version. A lot of the sounds in *Icon* come off the Access Virus PowerCore plug-in. I love that – there are some really good pads on there. I've used Propellerhead's Reason, too: the synths on the end of the track *Semper Fidelis* were all done in Reason."

Though he relies on real-life cabinets in the demo studio, Jayce isn't averse to using softare amp sims.

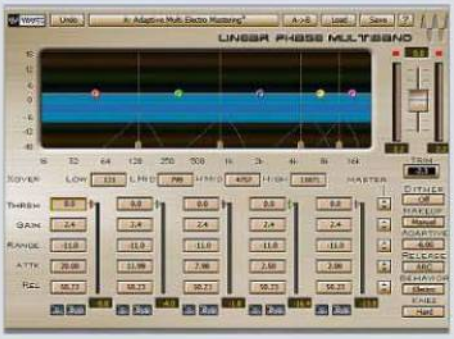
"For the final mixes, we'll use AmpliTube and Amp Farm – the technology is amazing, so soon you're just not going to need these cabs. A lot of my production is DI'd, so eventually we may as well just get a rack unit, DI that live and not have a cab at all! We also use IK's Ampeg SVX for bass – you can move the mics around and change the mic you're using. When it comes to basses, we'll clone the track, so the first version will have lots of bottom, but will have the mid and top taken out. The other version will just have mid and top but will be panned out wide. We'll use Ampeg SVX on both those cloned tracks. I've always loved bass that's thick and wide, that surrounds you."



One of Jayce's favourite plug-ins is the SoundBlender multi-effects unit, part of the superb SoundToys collection

> "We use a high-spec custom-built PC that only uses about 2% CPU when we play the project back"

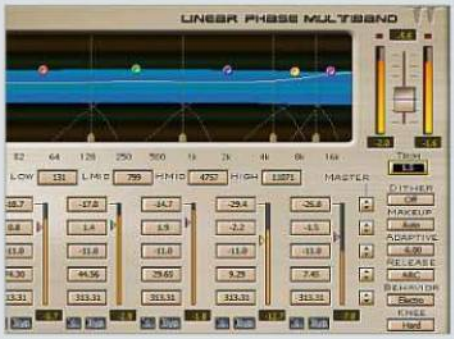
> Step by step Polishing the sound



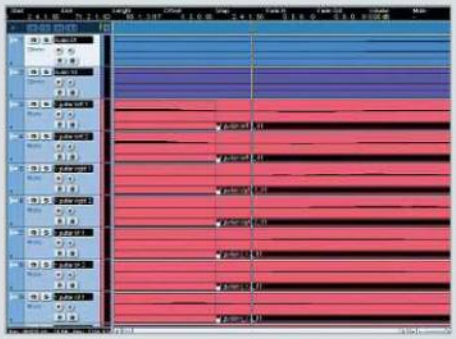
1 > To round off the demo, multiband compression is used. "The first eight guitars are grouped, then we add multiband compression to tone them up a little, control the bottom end and tighten it up a bit," explains Eifion. Waves LinMB linear phase multiband compressor is loaded onto the guitar bus, and the track is played back, so that the plug-in can detect the peak level of each band.



2 > The peak dB values for each band are entered into the threshold fields, then the master threshold knob it used to bring them all down simultaneously. The intention behind this is to achieve as flat a frequency range as possible.



3 > Once the threshold has been brought down to the desired level, the attack and release times are tweaked to get the best possible sound. The attacks are individually increased slightly to preserve the transients. Finally, the trim control is adjusted to bring the level of the track back up.



4 > "If you're doing triple-picking, like I am, you can clean up what you're doing by cutting where you stop playing so it sounds like a machine," advises Jayce. The first step in this process it to find the end of a note. The first eight tracks are all selected, and the end of the note is chopped as tightly as possible.



5 > The process is repeated, this time cutting as close to the start of the next note as possible. "Get aggressive with it, Eif!" enthuses Jayce. The same tracks are all selected and cut, isolating the space between the notes. This is then deleted to get as clean a sound as possible.



6 > Jayce and Eifion then go through the rest of the track, cutting out as much of the dead space as they can. "This gets done in all my tracks, to take out a lot of noise and really tighten things up... it's the best thing. I love it!" beams Jayce.

Rock-kit

Jayce and Eifion talk us through the kit used in this tutorial.

"The guitar was a Gibson Les Paul Custom," begins Jayce. "This is an amazing guitar, and probably the most popular model for rock and metal. I use two different amplifiers: the one I've used today is the Marshall JVM 410 and a Marshall cab, whereas in the studio, we use Peavey heads with Mesa/Boogie cabs, which is the best combination and gives the most crunching guitar sound ever. For the demo, we use omni-directional SM58's, but in the album studio, we use directional SM57s, as they're the best mics to use on guitar cabs."

Once the amplifier's output has been captured by the mics, it's run into Eifion's control room. "The direct feed from the amp is run into the Behringer SL3242FX desk," explains Eifion. "This is connected to the computer via a Creative Sound Blaster card. The sound then goes straight through Cubase into the UB2442FX desk, which is monitored via a pair of Behringer 2031A powered monitors. This is a demo studio, but you can get a good sound without having all the most expensive products. The soundcard and desks are pretty old, but it's all about technique!"

So what software does Eifion run on his PC?

"We've got Cubase SX3 and the Waves Mercury bundle. When Jayce demos something, we'll do all the cuts and whatnot, then I'll use T-RackS to master it, or at least sweeten it up! That or Wavelab 6, which is really good, too. For the drums, we record the acoustic kit, but it's actually going through an audio-to-MIDI interface, which is used to trigger Toontrack's EZdrummer. This gives us more control over the sound. The overheads are acoustically recorded, but we use quantising to get everything spot on, quantising the MIDI, then using time warp on the overheads to bring them into line." cm



The SM58 is Jayce's cab mic of choice when it comes to recording demos

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ON THE DVD
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RHYTHM AND STEALTH

We take a look behind the musical scenes of up-and-coming indie videogame *Frozen Synapse* and learn some tricks of the trade



Ever since 1971's *Galaxy Game* and *Computer Space*, the audio emitted by electronic games has fascinated and enthralled players around the world. As games have evolved, so have their musical scores, and with more independent games now being developed than ever before, there are plenty of opportunities for computer musicians of all kinds to get involved.

When people of a certain age think of videogame music, they tend to remember 8-bit classics like Koji Kondo's quirky *Super Mario Bros* theme or the heroic *Legend of Zelda* score. But Commodore 64 composers like Rob Hubbard, Tim Follin and Martin Galway are also often cited among the greats. The limited palette available to these early game musicians had huge creative and technical appeal – indeed, the rise of the chiptune scene in recent years has shown just how much affinity the public still has for raw square waves and blasts of noise.

However, the world of game music has changed entirely as gaming has become the massive industry we now know. In the old days, 'videogame musician' was a specialist job, often requiring programming abilities and an intimate familiarity with bespoke tracking software. Since the commercialisation of the CD-ROM format in the early 90s, games have been able to deploy high-quality streaming audio, meaning that soundtracks were suddenly up for grabs by all musicians, not just gaming specialists.

Reality check

This has ultimately been a good thing for game music. It's no longer stereotyped as bleepy rubbish, and we've seen a huge variety of different styles come into play in recent years. Soundtracks have encompassed everything from Gary Schyman's nerve-jangling *Bioshock* score to the pleasantly bonkers J-pop of the Katamari Damacy series. That's not to say that retro-style game scores have lost their appeal – they're very much back in fashion, in fact, with young Gameboy musician Sabrepulse scoring iPhone games, and multimedia pioneer Baiyon crafting blissful electronic beats for Q-Games' *PixelJunk* series.

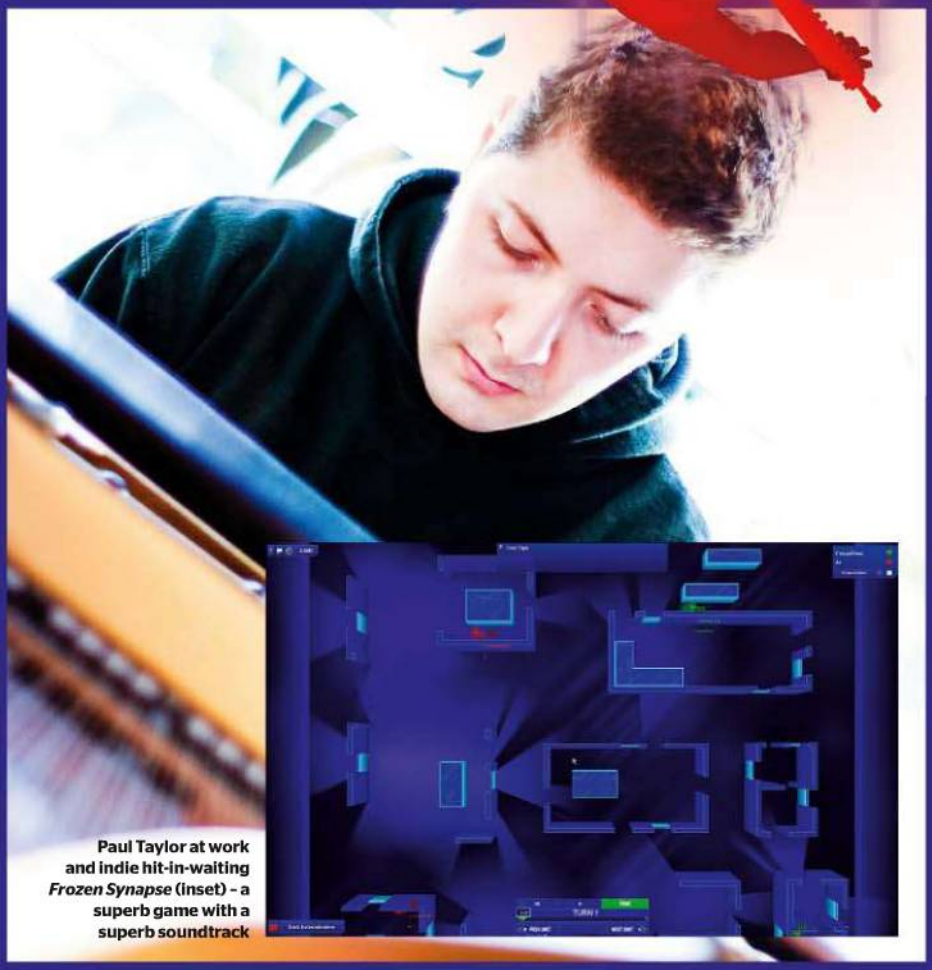
These days, it's up to musicians to engage with the games industry on their own terms. While experienced game composers will know the ins and outs of dynamic music systems and the specifics of writing stealth/action transitions, lack of knowledge of such things needn't be a barrier to entry. If your tracks are atmospheric and of a high standard, any one of the vast number of game developers, modders and indie creators out there looking for quality music could be interested in working with you.

Of course, achieving the high production standards required can sometimes be challenging on a small budget, but with some care and plenty of attention to detail, you can craft the perfect soundtrack accompaniment to an indie game experience in even the most modest of studios.

Composing for videogames

Paul Taylor (artist name nervous_testpilot) is the musician behind the soundtrack to new turn-based tactical title *Frozen Synapse*, from Oxford-based indie developers Mode 7 Games (**www.mode7games.com**). Although currently still in beta, *Frozen Synapse* is already attracting hugely favourable press attention, picking up plaudits from both mainstream gaming sites like Eurogamer and influential niche blogs like Rock Paper Shotgun.

Frozen Synapse's music is an intriguing blend of epic soundtrack moments and quirky electronic sound design, not to mention occasional bangin' beats. We caught up with Paul to find out more...



Paul Taylor at work and indie hit-in-waiting *Frozen Synapse* (inset) – a superb game with a superb soundtrack

How did you get started in music?

"When I was younger, I did some electronica and a bit of dance music," says Paul. "I did some gigs occasionally – my remit was to have the biggest possible impact on the audience, so I did things like jam with the amen break using a MIDI keytar over the top of *Runaway* by Del Shannon, pitched up to 200bpm. That was fun, but I didn't want to be doing that for the rest of my life!

"When I was at university, Ian Hardingham, one of my friends, asked me to work on an indie game he was making called *Determinance*. The soundtrack for that was recorded on some really basic kit: just an old Yamaha A4000 sampler and a few synths. I mixed it on some headphones I bought in Woolworths! Hardly high-class, but people liked it anyway."

How did things progress from there?

"After we'd had a bit of success with *Determinance*, we started talking about this really ambitious strategy game idea, and I knew we'd have to level up in terms of sound quality. I bought some great monitors – Mackie HR-824s – a really powerful PC and a huge load of software – that really made all the difference.

"I also wrote a lot of music outside the games industry – mostly dance stuff that I've released through Miika Kuisma's label Subtraxx. That was a good experience in terms of pushing my production level forwards. If you want to get anywhere, it's worth finishing as much high-quality music as you can – you really need the discipline to finish stuff."

Tell us about the *Frozen Synapse* soundtrack and the gear you used to make it.

"The game has a futuristic, almost-cyberpunky feel to it, so I went with some Vangelis-style big pads initially. But then you've got the tension and the darker side, as it's a strategy game, so for that, I got really into designing glitchy, atonal sounds and quite big, powerful basses.

"I've always used Ableton Live for everything – I find it massively intuitive, flexible and powerful. I'll often do a bit of sound design in one set, then bounce things down and import them into another as a loop – this helps with the massively complex tracks I'm doing at the moment and saves my CPU from exploding! I also use Freeze and Flatten a hell of a lot.

"In terms of plug-ins, I'm a big fan of EastWest sample libraries. I own most of them – Voices of Passion probably gets used the most, but I wish it had more content or they'd bring out a sequel. LennarDigital's Sylenth1, Novation's V-station, and NI's Absynth and FM8 are probably the synths I find myself reaching for most often, but that's probably due to laziness. The recent Kore Soundpacks have been great as well. I'd always rather go for something cheaper and spend time processing stuff myself than spend huge amounts of money on crazy libraries.

"Mainly, I just wish I had more time to spend on sound design, rather than any more kit or a more powerful system. I frequently find myself needing to make massive layers of things, especially for pads and bass sounds. That can be incredibly time-consuming."

You can get your hands on the Frozen Synapse soundtrack by preordering the game (which, incidentally, is excellent, even in its beta state) at **www.frozensynapse.com**.

Getting a foot in the door

What advice would Paul give to musicians looking to get into the games industry?

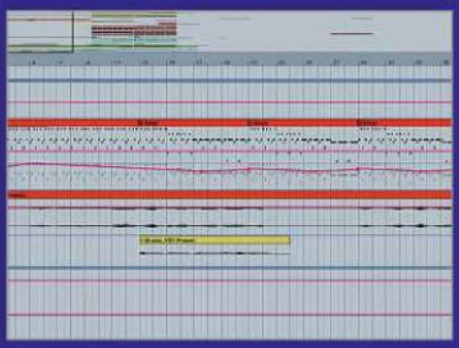
"It's massively competitive," he asserts. "You won't break into the big league unless you're a very high-level musician already – you'll be the kind of person who is probably already scoring small movies and so on. I'm definitely not up there, and I've been writing music for quite a long time!

"Even with indie games, it's incredibly tough to work for the cooler companies, so I'd recommend seeking out newer, smaller developers. Look for people who have some kind of a track record for finishing projects – check out sites like www.moddb.com to find mods and indie games in progress.

"Also, make sure your music is amazing," Paul continues. "You need to already be releasing music in some kind of commercial way, so you're aware of how people are responding to your stuff. I'd say the one thing that helped me the most is simply working hard on a load of tracks, getting them done and sending them off to labels for feedback. Make music! There's literally no down side – even if you make a load of music that nobody will sign and put it out for free, at least you're beginning to build an audience and starting to move forwards. Plus, you'll learn something every time you finish a track.

"Right now, I'd say focus on weirder stuff as well. There are millions of guys out there who can do the bombastic Hans Zimmer thing better than you, and there's actually quite a limited demand for that."

> Step by step Atmospheric moments



1 > Emotionally impactful moments are vital in any soundtrack. Here we're looking at part of Paul's accompaniment to one of the *Frozen Synapse* trailers: **www.youtube.com/watch?v=aXbsSLeINhg**. "I wanted to start off with something subtle," says Paul. "Here I'm using sine waves to introduce the track, then intertwining them with a string patch from EastWest RA."



2 > "As things progress, I drop in a few little Absynth textures here. I love very quiet background ambience: people like Burial and ambient artists like Biosphere are absolute masters of this. It just adds an extra sense of space to everything."



3 > "The intro to this piece is mostly orchestral, so I wanted to use a traditional choir swell and timpani roll. I'm using Symphonic Choirs and Stormdrum for this – it's just building up to the point where a lot of the heavier, more electronic elements come in."



4 > "Here's the drop! We timed this with a huge set of explosions in the trailer, so I knew it had to be pretty powerful. I made sure there was a little amplitude dip just before it, so it really slams in as much as possible."



5 > "The dubstep-style bass is probably the most important part of this section. I made a sine wave bass patch in V-station for the sub, then hard limited it to keep the dynamics under control. I used a lot of pitch sweeps to create a sense of motion."

POWER TIP

>Layering and processing

"As I get more into sound design, I'm realising that you basically just can't have enough layers! The bass patch in this track had a huge number of layers, and then was processed and resampled loads of times. This is something you'll find a lot of DnB producers doing: building up one sound that's incredible, then capturing weird little glitches that they've introduced with effects. I've also discovered the joy of sweeping notch filters and distortion!"



The organic/electronic mix featured on the *Ghost in the Shell* soundtrack had a big influence on Paul Taylor's videogame work

Leading the way

"Lead sounds are hugely important in soundtracks: they have to both convey a strong emotional melody and sit nicely with everything else," says Paul. "At the moment, I'm really getting into Native Instruments FM8, so for this track, I built a lead sound out of a huge load of bell and electric piano patches. Then I added a band-passed 'ooh' sample from Voices of Passion.

"When you're using vocal samples, as opposed to an actual session vocalist, sometimes it's actually better to go down the more robotic, sampled-sounding route. I wanted a more free-flowing vocal at the start, so I used a lot of key-switching and velocity variation, but then in the final section, I just stuck to a single sample. It's all about what sounds best and suits your theme.

"I'm a really big fan of the music from *Ghost in the Shell*: I love that traditional organic thing mixed with really over-the-top, dance-influenced production, so that was definitely something I had in mind when writing this piece. In that soundtrack, there are some very distinctive ethnic vocals that really bind everything together, and I definitely didn't want to copy that, so I went for smoother-sounding, almost operatic stuff. I'd really like to get a hold of the Vocaloid plug-ins and have a go with those, but they're a bit expensive for what you get, in my opinion.

"I always think lead sounds in general, even if they're not vocal, are about emulating the expressiveness of a human voice: you want those little quirks and turns in there. Anything too samey and you start getting that 'Panpipe Moods' effect – there's nothing worse than a plinky melody on a crap keyboard sound. A plinky melody on a good keyboard sound: now that's fine!"

Exciting sound design



1 > "This track is called *A Functioning God*, and it's used as the Eurogamer trailer (**www.eurogamer.net/videos/frozen-synapse-gameplay-capture**). Here's the glitchy pad (**GlitchPad.wav**), made using reFX Nexus, freezing and flattening it, then cutting it up and rearranging it. I ran it through loads of filters and reverb to slightly smooth the transitions. Note the filter automation."



2 > "Another highly processed loop from the same track (**GloopLoop.wav**). This was created by taking a drum loop, pitching it right down, roughing it up with some bit reduction, then using a tempo-synced LFO on a low-pass filter to get the 'wavy' effect. It's a really good idea to make a couple of highly-processed loops to run in the background – it can keep things moving along nicely."



3 > "I created this arp sound (**SharpArp.wav**) with V-Station, then ran it through a high-pass filter with a really short Ping Pong delay at the end. If you just leave arps running without processing them, they can sound a bit 'chiptune' – that's alright if you're going for a lo-fi sound, but I wanted to blend this one in a little bit more."



4 > "At the very end of this piece is a clip of me playing a piano that I recorded on a dictaphone, then mangled up with a load of filters. It's brilliant to get weird, grainy stuff like this in there – there's nothing more atmospheric than a really dirty, lo-fi sample."



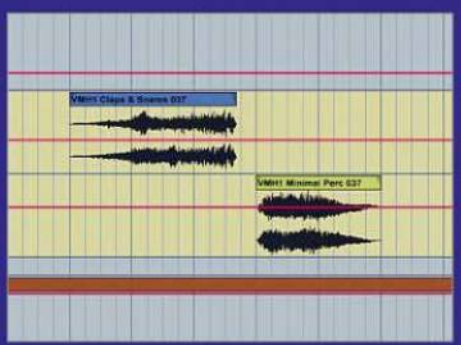
5 > "Here's a different track featuring two of my favourite Ableton Live devices: Erosion and Filter Delay. They're great for combining together and making weird noises. Here, I just got a sample of me whispering into a mic, pitched it around, reversed it, then sent it through these plug-ins. It ended up being quite atmospheric. Audio on the DVD: **Atmos.wav**."



6 > "*Nightpath* was one of the first pieces of concept music I did for the game. I had quite a bit of time to experiment, so there's a sample of me tearing up paper (**Tearing.wav**). This was filtered, run through an Auto Pan, then delay – it's quite raw, but I liked the noise from the mic. Whenever I have time to record raw samples, I tend to get good results – it's a throwback to my hardware sampler days!"



7 > "This one is just to show that things don't have to be super-complicated! It's a pad from Rapture with a really resonant low-pass filter on it. Ken Ishii uses a lot of big wobbly filters on pads like this, so it was sort of an homage to that Japanese electronica feel. This is a slightly older track: if I were doing this now, I would have used a lot more layers."



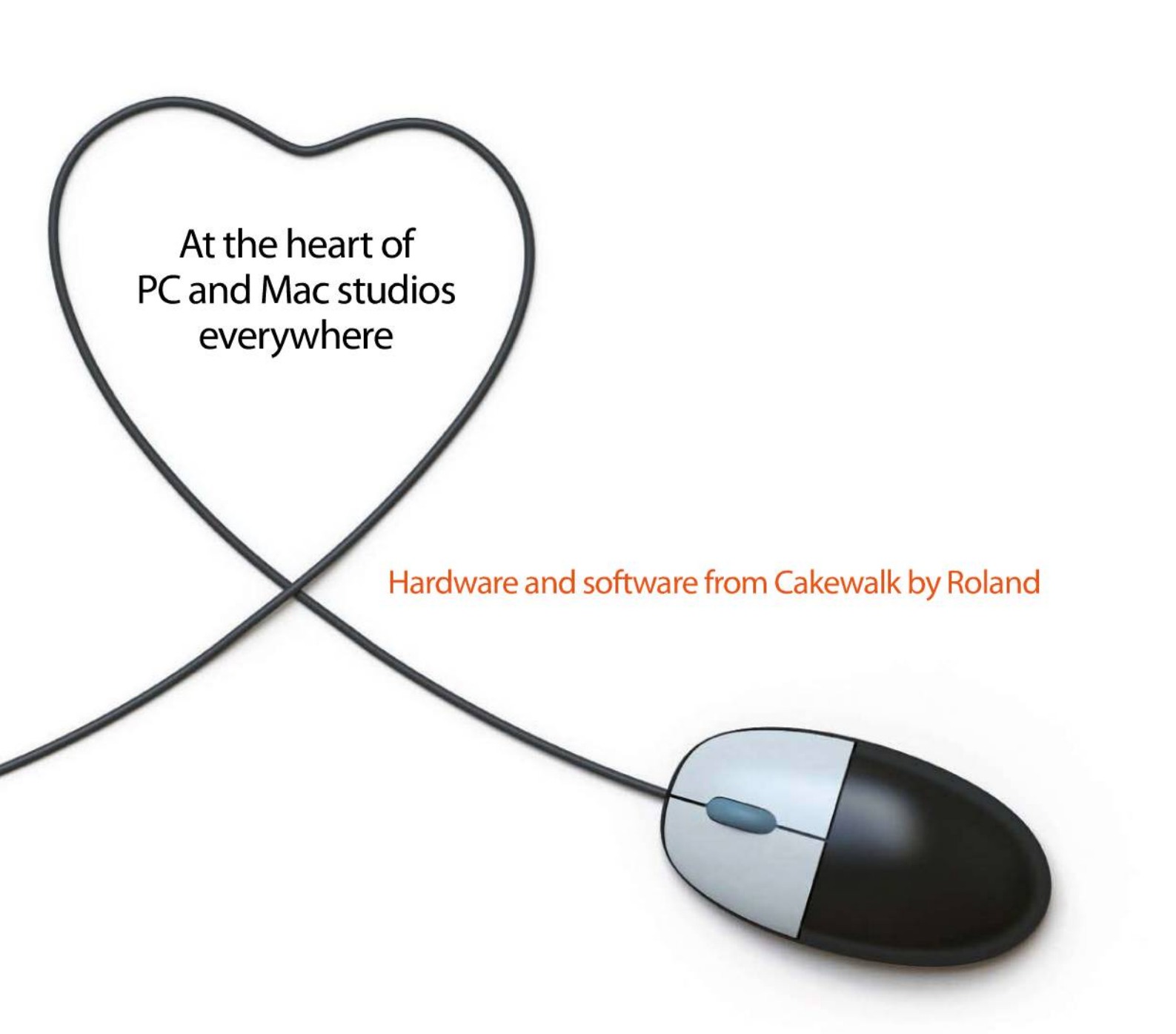
8 > "Here's a nice little technique I stole from electro house: put a little reversed snare before your main snare, and a weird little ping sound on top of it! That really helps to add a bit of colour to your main snare hit – things can get repetitive otherwise. I'm always playing around with snare layers and I thoroughly recommend it..." Audio: **RevPing.wav**.



9 > "Finally, here's a nice way of roughing things up: add a bit of Erosion's Wide Noise. It's a very weird plug-in, but it works. A lot of people think the sound of vinyl is just pitch warping and crackles, but band-passed noise has a big part to play: it instantly says 'lo-fi' to anyone listening, so it's always worth incorporating that on a few of your layers." Audio: **AbsynthNoise.wav**.

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> Step by step

Big sounds



1 > "You need to pack a punch if you want your soundtrack to compete with the big boys. For the in-game track, *Schism*, I wanted a huge drop, so I layered up many crash cymbals, metal hits, string stabs, brass stabs and reverbed kicks. There's also the sound of me smashing some pans together – it's good to have weird, weedier crashes on top to add a bit of sparkle." Audio on the DVD: **BigCrash.wav**.



2 > "I tend to boost some of the 'naughty frequencies' around 8-10kHz on things like crashes. These frequencies can be pretty nasty if you have too much of them – they're just pure harshness – but actually, you do want some of that abrasive quality when you're trying to have a big impact. It's all about balance, really."



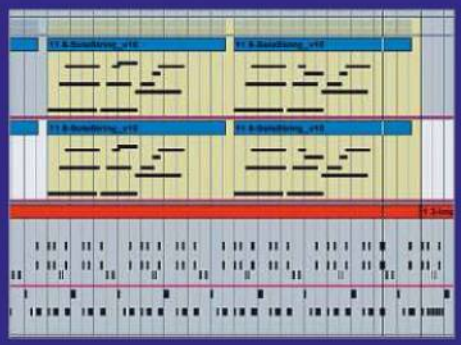
3 > "The bass part (**SchismBass.wav**) for this track consists of two layers: one fatter, subbier one, and another higher, buzzier one. This was a pretty simple bass tone but it has a lot of weight to it. I'm still waiting to see how things will turn out on people's smaller sound systems, because a lot of these tracks are pretty heavy! Might have to dial it down a bit when it comes to mastering..."



4 > "Something I'm using a lot in this track is reverb, which is sidechained with a kick drum: that's a trance technique. To do this, grab a kick sample, put it on every beat, send it to the sidechain input of a compressor so that the compressor activates with each kick, then just stick your reverb before it – the compressor will pull down the level of the reverb in a rhythmic pattern."



5 > "For the snare in this track (**SchismSnare.wav**), I used a couple of layers, one of which was a sort of 'pow' sample with a very long decay. This is something I should do more: it's great if you're layering a snare to have some short- and some long-decay samples in there: makes it a bit more splashy sounding and impactful."



6 > "I wanted a mysterious lead here, so I used a koto from EastWest RA layered with a string patch from SoloString, a freeware string simulator. I like mixing up expensive libraries with weird free stuff – it gives everything a bit more edge. I don't want someone to listen and go, 'Oh, that's a koto', or, 'That's a guitar'. Something weirder helps to make things sound nice and epic." Audio: **SchismLead.wav**.

POWER TIP

>Cinematic drums

"I just want to stop for a minute and talk a bit about big, boomy drums. If you listen to those drums they have on movie trailers, they're pretty much always all sub – they're right down there. If you do dance music, you're used to kicks and stuff being around 100-120Hz, but these things are peaking in ludicrous places like 80Hz and below. You'll need to get familiar with these daft drums if you're doing trailers and so on. And if you're clever, you can find a good sample, high-pass it slightly and add some sub underneath."



7 > "Here's a bit of an old-school DnB trick to create a big sound. I've grabbed a short sample of a distorted bass sound, then just looped it around in Live's Simpler and put a high-pass filter on it. I think we've got a bit too clinical with all the auto-smoothing and blending stuff that software can do nowadays – you want some nasty, digital, gritty loop points going on!"



8 > "Finally, I thought I'd mention those big 'action toms' you hear in a lot of film soundtracks. Again, this isn't really rocket science, it's just a load of toms layered together! I like to combine real drum samples with synth toms to beef things up a bit. Layer it up, add lots of compression, but be sure to preserve the transient peaks at the start of the samples by setting a proper attack time."

> Step by step

Game soundtrack mixing tricks



1 > "PSP VintageWarmer is something I use almost every time I need a deep, warm bass sound. You turn it on and it just provides instant fatness! I can't recommend it enough. You do sometimes need to tame the very low frequencies a bit, as it can get a bit out-of-hand." Audio on the DVD: **LowBass.wav**.



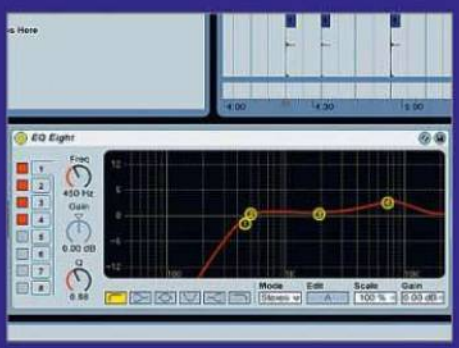
2 > "Sometimes I go for stupidly hard compression on snares. There's a trick you can do where you set a very slow attack and a very fast release – that means you preserve the entire first part of the snare, but really squash down on the tail of it."



3 > "You'll often want some 'techy' sounding drums running above your main ones: things like glitchy hats and snares. For this kind of thing, I tend to experiment with odd distortion, band-pass filters and delays: that keeps stuff out of the way and also makes it sound weird." Audio: **DistortyDrums.wav**.



4 > "Here's a similar thing: I've used a flanger on these drums to give them a really metallic quality. All of this stuff is really based around short delay times: you can create your own flanging effects with delay modulation as well, if you want more control over proceedings."



5 > "Distortion on pad sounds is a great trick. Notice that I've shelved this one at about 450Hz to get all of its low end content out of the way – I just wanted it to be a nice layer and not interfere with anything." Audio **AbsynthGroan.wav**.



6 > "This works brilliantly on lead sounds: use a delay that enables you to reverse its output. I've combined this with a bit of Live's Beat Repeat effect to create a kind of auto-glitching delay. Always look for these little things you can do to make sounds more colourful – it really makes a big difference."

In the mix

Paul wraps up with some further advice for budding videogame soundtrack producers.

"Firstly, you absolutely, 100% need to have the mix quality there," he insists. "Nobody is going to give you a second glance unless your mixes sound absolutely awesome. Even the lo-fi, bleepy music that people are putting in some games has a nice shiny mix to it, and is at least limited to sound loud enough to listen to.

"The only way, in my experience, to get a good mix is to use good monitors. I can't stress that enough.

"A/B your tracks with things that are similar. If you're making soundtrack-style breaks, then grab some of the recent games that have been done in that style and really analyse those mixes to death. You need to start comparing yourself to commercial material straight away. Something I like to do is roll off all the bass on a track below about 200Hz, do the same on my track, then A/B that while standing at different places in the rubbish room I use to mix in! If I stand in the horrible bass trap in the corner, and my mix sounds weedy, while the other one is blowing my head off with rumbly sub, then I have a good idea that there's a problem I need to fix.

"Good mix engineers will focus everything around a key element, so think about what you want to stand out most and craft your mix around that. Think about the function of each sound in the mix, then use comparison with other tracks to get your EQ settings right.

"I haven't really discussed how to make the music fit the game: I don't think that's something you can particularly teach. You have to really just get into the player's head and think what would work at different times. You may be using a dynamic music system like Wwise or Fmod, but really, I wouldn't worry about that too much until you get to the implementation stage. There's plenty of info and tutorials out there on how to use those things.

"I managed to get a route into writing music for games by building up my own company, so I'd say the key thing is to find a back door. Go and meet people – go to Develop and GDC and small conferences like State of Independence in York. Talk to game developers and buy them a beer! They're programmed to automatically ignore all musicians, but if you're persistent enough you'll at least make some worthwhile contacts." cm

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See the music

Follow our guide to the heady art of visual sound design and you'll never look at music in the same way again



> Prior to the computer music revolution, sound existed almost exclusively within the auditory domain. Sure, you had sheet music, guitar tablature, and so on, but these are instructions for musicians on how to play music – they're not related to sound itself.

The invention of the oscilloscope in the 1930s made it possible to view sound as waveforms, but computers really changed everything, and today we're all more than familiar with the waveform view present in most audio editors and DAWs. There are plenty of great visualisation tools available now, too, such as spectral analysers and stereo phase meters, and these can be a great help, as long as you understand what they're telling you. However, some have criticised the modern 'visual' approach to making music, saying that musicians are using their eyes to make sonic judgements instead of simply listening...

There's certainly much to be said for using your ears, but why not embrace the visual approach and instead push it to its limit? That's what this feature is all about. We'll kick it off with a bit of simple yet gratifying art-led composition in Ableton Live, before shooting off into the wacky world of spectrogram manipulation, where sound and vision essentially become one and the same thing. So much so, in fact, that you can take a sound, turn it into an image, edit it in Photoshop, then turn it back into sound again. Isn't modern technology wonderful?

While such techniques do make it easy to create bizarre and otherworldly output, visual sound design is not only about 'experimental' noises and avant-garde serialism. In our walkthroughs, we'll show you how to shape piano roll doodles into listenable music, and on the sound design front, how to draw a choir sound, create wicked FX swooshes, use Photoshop to create effects like chorus, reverb and vocoding, and more.

Without further ado, then, it's time to give your ears a rest as we show you how to see the music, maaan.

cm DVD

ON THE DVD

The tutorial files are on the DVD, as is the demo of Photosounder

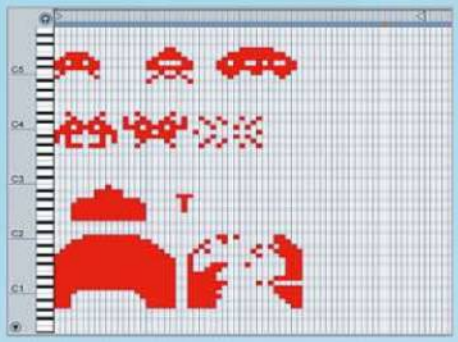
> Step by step Piano roll pixel art



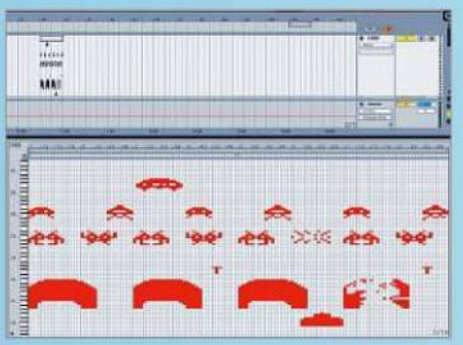
1 > There are some pretty wild, esoteric programs out there for visual sound design, but first let's consider what can be done using just the piano roll in your DAW. We're using Ableton Live, but almost any music app will do. Start off by making a fairly long MIDI clip – we're going for eight bars.



2 > Now open the clip's MIDI Note Editor, set 'snap to grid' to 16ths and adjust the horizontal and vertical zoom controls so that each cell of the grid is as close to a square as possible, and you can see a few bars at once (resizing the Live window may help). This is our canvas, and we'll colour in the 'pixels' by inserting notes, to build up an image.



3 > At this stage, we're not even thinking about how our work might sound – we just want it to look cool. Instead of making one big image, consider making many smaller ones that can be arranged, a bit like old school videogame sprites – our effort is inspired by a certain Taito classic! You could even design your own original power-ups, characters, etc, and 'shade' them using different velocity levels.



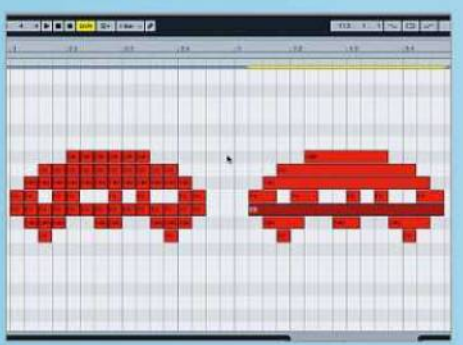
4 > Repetition is an integral part of most forms of music, so we copy and paste our sprites to 'arrange' them. Again, we're going purely by eye here, but we've lined them up on beats and bars to give some regularity to the rhythm. You can slide them up and down, too, to change their pitch.



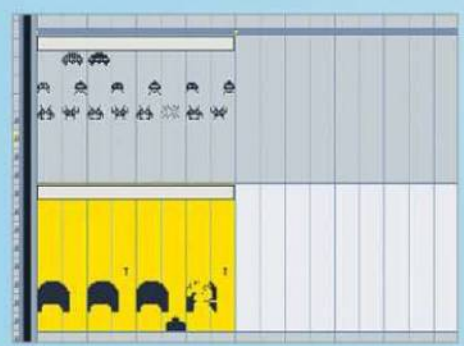
5 > It's time to take a listen, so add an instrument to the channel – pick one with which the polyphony count can be set quite high, as there can be a lot of notes being fired off at once. We're using a preset for Ableton's Sampler, and at this stage, the results are pretty cacophonous. Crank up the polyphony to ensure that notes aren't being cut off due to the high number of them being played.



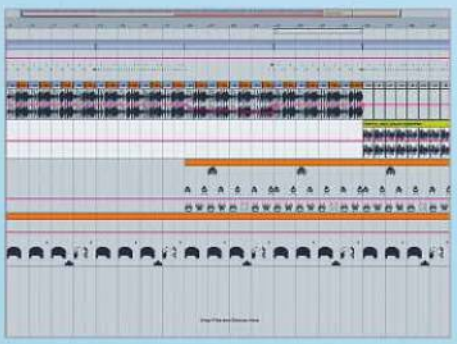
6 > To bring some semblance of musicality to the proceedings, we turn to Ableton Live's MIDI plug-ins and call up Scale's **C Minor** preset. This snaps all notes to the nearest one in the C minor scale, and many DAWs have a MIDI plug-in that can do this. If yours doesn't, you could resort to muting/deleting all notes that aren't in the desired key. Now it's sounding much more tuneful!



7 > There's a real staccato feel to our tune due to the constant barrage of 16th notes. To make it more flowing, you can change consecutive notes into sustained ones – the image above shows the same sprite 'before and after'. This has to be done by hand in Live, but many DAWs have a 'glue' function that makes it easy. It certainly pays to experiment with all of the note manipulation tools in your DAW.



8 > A tune is emerging from what was previously a rather scattershot collection of notes. Now you can start to split off different elements of the image to play through different instruments. We do this by duplicating the track, and selectively deleting (or muting) notes. in this case, we isolate the bassline from the rest of the sequence and load up a different sound for it to play through.



9 > Once you've got a tune appearing amidst the chaos, you might decide to forget about making pretty pictures and develop the track instead. You'll be wanting to bring in some beats, and the approach we've outlined works great for percussion. We've taken the easy option, though, and used some samples. The WAV and Ableton Live project for our tune are on the disc. (**Space Intruders.wav**)

A crash course in Photosounder

Now it's time to dive deep into visual sound design, and for this we'll call on the weird and wonderful Photosounder, which portrays sound as a spectrogram. This is an image in which the horizontal axis represents time and the vertical axis denotes frequency, like a piano roll, but for frequencies rather than notes. The volume of a frequency is shown by its brightness.

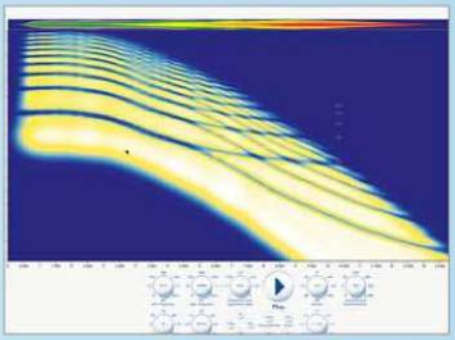
A spectrogram is just an image, so Photosounder provides some simple 'painting' tools. Let's take a crash course in how to use them. First select **File»New** to create a blank document, then select the **White paint spray** tool from the tool strip on the left. Set the **pixels Spray width** to **0.5**, then draw a horizontal line, as straight as you can, at about 200Hz. You can hold **H** while drawing to increase the resolution, use the mouse wheel to zoom and press **Cmnd/Ctrl+Z** to undo. Press the **Play** button and you'll hear a tone – it's a sine wave, the most fundamental of all sounds, and one that occupies one frequency only. In fact, any sound can be described as being made up of many sine waves of various frequencies and phases.

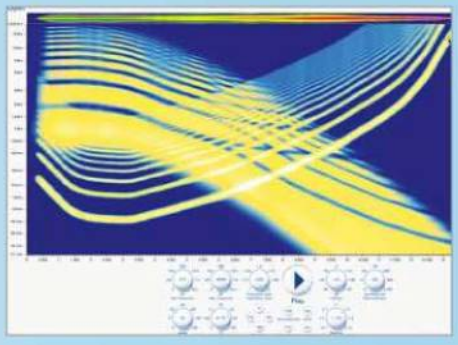
Now select the **Harmonics Modifier** – it looks like a big circle with three small ones above it. Draw another line and watch how Photosounder stacks extra sine waves at integer multiples of the root frequency – these are called harmonics. The result sounds like a sawtooth wave, which, as ardent synthesists know, contains all harmonics, both even and odd. Now use the **Rectangle** tool to erase certain harmonics – delete all the even ones and it'll sound like a square wave!

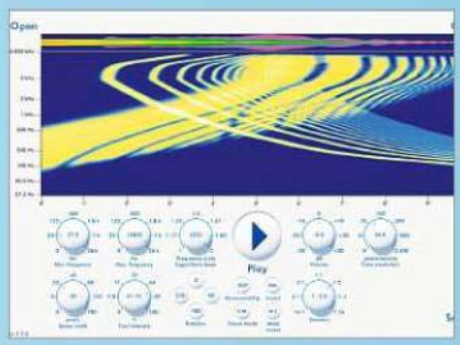
Increase the **pixels Spray width** to **20** and draw the line again – the lines are wider, spanning multiple neighbouring frequencies, giving an effect like unison detune on a synth, where many subtly out-of-tune voices play at once. If you want anything but the default 20 harmonics, edit the **spray_harmonics** parameter in the **Config.txt** file in the Photosounder program folder, then relaunch Photosounder.

With a wide brush, try drawing a vertical line instead – this sounds like white noise because noise is all frequencies playing back at once. If you draw a vertical line from, say, 500Hz to 2kHz, it's essentially filtered white noise.

> Step by step Massive phased swooshes





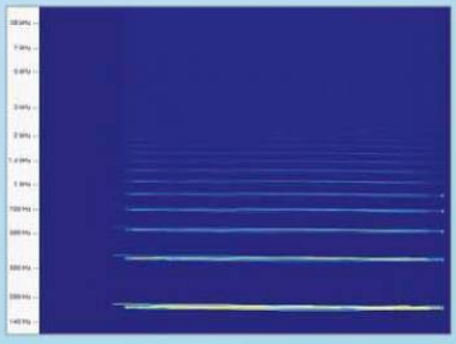


1 > Press **File»New** and set the **Pixels spray width** to **100** and **tool intensity** to **50%**. Use the **White paint spray tool** with **Harmonics modifier** enabled to draw a 'swoosh' starting at about 1kHz then dropping down as far as possible – it sounds like filtered white noise. Next, select the **Dark spray tool**, set the brush to be about 15-20 pixels wide, and cut a swathe through the noise sweep.

2 > The dark lines are heard as moving 'holes' in the frequency spectrum, basically like a phaser. We draw two sets of these notch curves – they start off following the same path but then diverge. To finish it off, we paint in a line starting at about 300Hz, dropping to 100Hz, then shooting up off the top. This uses a brush width of 15-20 pixels, giving more of a distinctly pitched 'riser'.

3 > Try playing with the **Rotation**, **pixels/second** (ie, timestretch/length) and frequency-related controls at the bottom. We've rotated our image 90 degrees, so that frequency becomes time and vice versa – freaky! You can save your creations as BMP images (good if you plan on revisiting them again in Photosounder) or in audio format. Our efforts are in the **Swooshes** folder on the disc.

> Step by step Painting a choir







1 > Now let's paint a 'choir' – for this, we've set **Spray_harmonics** to **100**, as explained in the crash course above. Hit **File»New**, and, with the **Harmonics Modifier** active, repeatedly draw a 0.5 pixel-wide line at 180Hz, as though you're sketching. The small pitch imperfections give the effect of many 'voices' singing at once. Increase the **pixels/second** knob to make the sound last longer.

2 > Disable the **Harmonics Modifier**, pick up the **Dark spray tool**, and draw over the region at around 2kHz using a brush width of **20** and intensity of **10%** – this dulls the harmonics, like EQ. Do the same to the very highest frequencies too, as they're a little fizzy. Finally, dull the lowest harmonic, to brighten the sound – note how Photosounder 'normalises' the brightness of the image as you paint.

3 > By accenting the harmonics, we can get different vocal timbres as the sound progresses. We use the **Flashlight** tool for this, as it brightens existing frequencies without adding new ones – the ones around the 2kHz notch seem to respond particularly well. Highlighting and dulling frequencies as we've been doing is basically the same thing as EQing and filtering. (**Painted Choir.wav**)

The man with the vision

It can be hard to know where to start with Photosounder, so to get some tips, we turned to the man who knows best: Photosounder author Michel Rouzic. But first, we have to ask: why make such an app at all?

"It came from a misconception I had as a child," he starts. "I saw spectrograms being used in a documentary on sampling, and wrongly assumed that they were being used for more than just visualisation. It was a bit of a shock when I later found out that sampling was mostly about slicing and EQ – it seemed so crude, as it is to sound processing what scissors are to image processing. Later, in my first year of college, I taught myself C programming and signal processing at home instead of attending classes. The driving idea was that if sounds could be turned into images and then back into sound, we could bring the power of image processing to do anything to sound. It also made sense because of how we perceive sound: we perceive frequencies at varying intensities over time, which is what spectrograms represent – we don't perceive the shape of waveforms."

Do you have any tips for getting the most out of Photosounder?

"My first tip would be, if you've opened a sound and it doesn't sound right to you, press the Lossless button. I get lots of e-mails about this, and it's hard to explain the difference between the lossless mode and the default mode and the limitations of each. Which brings me to my second tip: Please read the manual! It's short, it explains a lot of things you might need to know, and you'll probably learn about some useful function you wished was there but couldn't find. Thirdly, it can be confusing to get started with Photosounder without knowing what you can do with it. You might want to look at the demo videos on the Photosounder YouTube channel, as well as the various experiments detailed on Photosounder's website blog.

"Lastly, you can learn a lot by just loading up a sound in Photosounder and trying to figure out how it's made, how what you see relates to what you hear. Playing it back a few times slower helps a lot too. You may learn that some traditional effects are easily replicable graphically, that it's not that hard to draw human speech by hand and hear something intelligible, and you might even find that's it's easy to quickly draw a sound similar to the THX Deep Note. Except for the final chord, that is – that chord is hard to nail down!"

"James Brown's screams sound terrific played back 100 times slower!"

What are some of the most extreme uses for Photosounder?

"I was quite surprised to hear from someone who uses Photosounder a lot for mastering – I didn't consider that it was ready for such tasks. I was also quite stunned when a friend of mine showed me how to denoise sound using GIMP – when done right, it arguably rivals denoising algorithms found in audio software. As for what I've tried myself, I was taken aback by several of my experiments, most of which I've demoed either as videos or in my blog. I had no idea that extreme timestretching would sound this good, and the HAL 9000 video is just a random example of this, actually the first sound I tried this effect on. James Brown's screams sound pretty terrific when played back 100 times slower! Just like everything looks good in slow motion, everything sounds good in slow motion too."

What's next for Photosounder?

"At the moment, I'm working on v1.8.0, which should be out by the time this magazine is on sale. The most essential change comes from the new layer system, which allows for sophisticated operations that could only be done before with the help of Photoshop/GIMP, and includes blending modes not available in Photoshop that are quite necessary here, such as division or convolution. There's also a new basic form of support for stereo, and a lot of various new options.

"After that, I intend to work on creating a plain text protocol that will be used both for scripting/controlling Photosounder over TCP/IP, and for a native kind of file format for Photosounder projects. What I intend to make come out of it would be an open source VSTi plug-in that would communicate with Photosounder so that you could design a sound in Photosounder and, thanks to the VSTi, play it back using MIDI as an input."

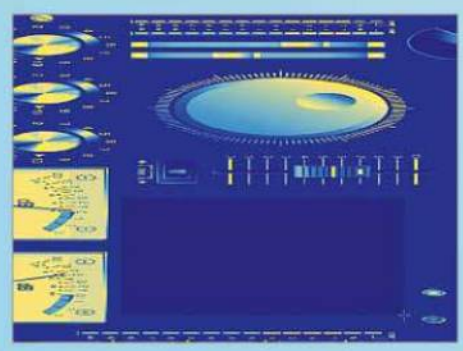
A non-commercial license for Photosounder is currently €45, while a commercial license is €99.

www.photosounder.com

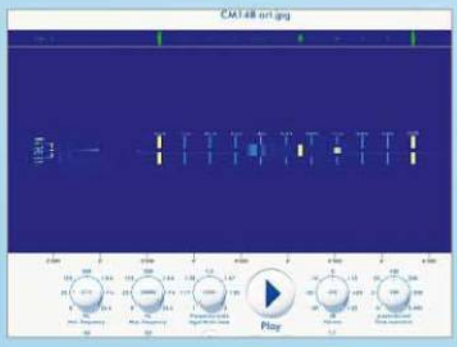
> Step by step Importing and editing images



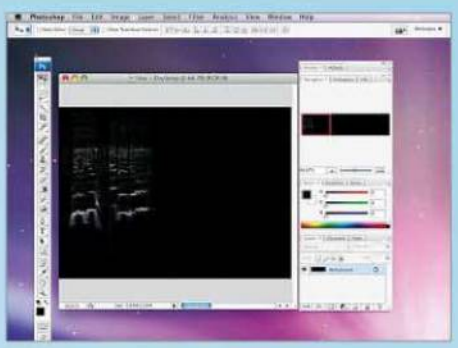
1 > One of the easiest ways to get instant gratification from Photosounder is to import graphics files and have the program play them back as audio. There's a collection of CM cover artworks on the disc in the **CM covers** folder – we've loaded up **CM148 art.jpg**. Hit **Space** and give it a listen! You can toggle the **V.M.** button to see the image in its original colours.



2 > We quite like the sound of this one at 90° **Rotation**. Because the image is composed from many individual 'components', these are manifested as individual sounds – watch the display as the cursor rolls by to learn how each element sounds. If there are any parts you don't want to hear, use the **Rectangle** tool with a **Tool intensity** of **100%** and drag it over them with the left mouse button.



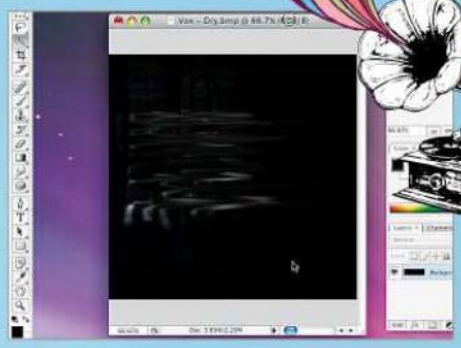
3 > Conversely, if you want to isolate a sound, simply use the right mouse button instead – we've singled out the rhythmic chirpings of the fader here. Note that its background is still quite bright, which results in, well, background noise. This can be remedied by manual editing with the paint tools or by turning down the **Gamma** knob. Our edited fader in BMP and WAV form is in the **CM covers** folder.



1 > One of the coolest things about Photosounder is that you can save sounds as images, edit them in a graphics program, then load them back in to hear the results. We're going to try this with Adobe Photoshop, but other programs work well too - GIMP is a popular free one (**www.gimp.org**). We start by opening **Vocal/Vox - Dry.bmp** in Photoshop - it's a WAV converted using Photosounder.



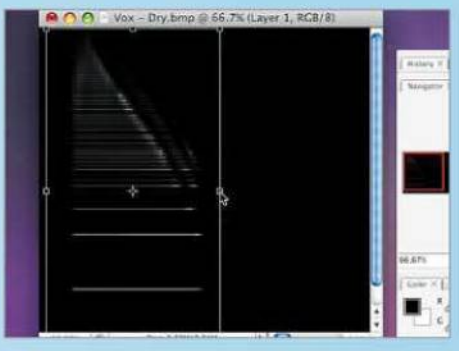
2 > It's easy to treat the sound by applying graphics filters, found in the **Filters** menu. For instance, Radial Blur gives a neat 'shifting' chorus/flange, while Paint Daubs gives more of a doubling effect. Photocopy, meanwhile, removes the original frequencies, leaving a 'shell' around them. Some of these work best when mixed with the original audio - see the examples in the **Vocal** folder.



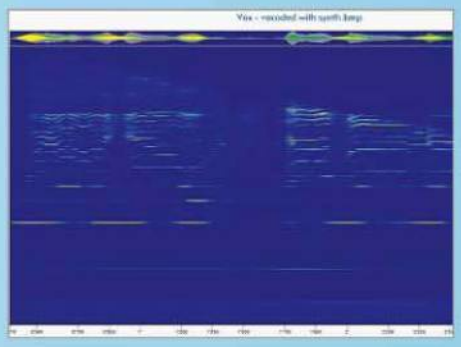
3 > Manual editing offers far more precision. Here, we've used Photoshop's Smudge Tool to blur across time (ie, from left to right), giving a weird freezing sound, whereby once a frequency comes into play, it's sustained, obliterating any following frequencies (**Vox - smudged.wav**). You can, of course, smudge the image in the frequency space, ie, vertically!



4 > By using the Smudge tool's Lighten mode, a much more natural reverb is created, because smearing the pixels doesn't wipe out the ones you push them over - they're blended together instead. To make the effect more surreal, we have the trails bend up and down, creating pitchbent reverb tails. (**Vox - Weird reverb.wav**)

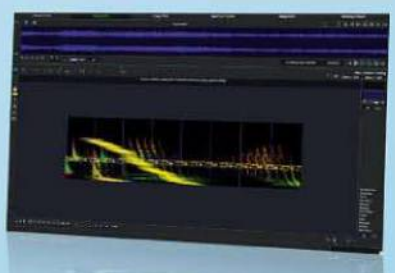


5 > High-quality vocoding is very easy to achieve. We start afresh, and open **Vocal/Vox - Dry.bmp** and **Resonant Synth Sweep.bmp**. For the latter, **Select All**, then **Copy** it. **Paste** it into the vocal image, and it should appear on a new layer. Use **Edit»Transform»Scale** to scale the synth horizontally so it covers the vocal. When moving it, hold **Shift** so you don't pitch it up or down by accident.



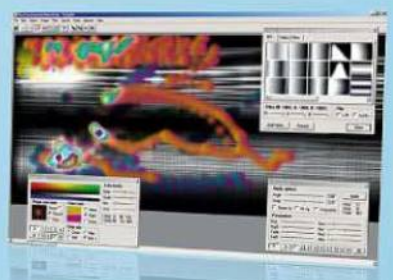
6 > Right-click the synth layer in the Layers panel and select **Blending Options**. Change the **Blend Mode** to **Multiply** and click **OK**. The synth layer works like a mask, only letting the vocal shine through in certain places. Now you can save out the file as a BMP and open it in Photosounder to have a listen. The resulting WAV, source BMP and layered Photoshop project file are all on the DVD.

Three recommended visual sound design programs



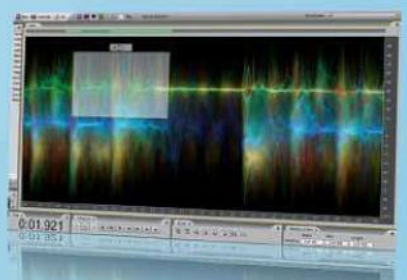
MetaSynth 5 – $599

The most well known visual sound design app, the Mac-only MetaSynth is not for the faint of heart, but persevere with its tricky interface and you'll be richly rewarded. It features six 'rooms', each with a different editing/mangling method. Image Synth is perhaps the most intriguing room, being a spectrogram that drives a synthesis engine.
www.uisoftware.com



Coagula – £Free

An "industrial-strength colour-note organ" for Windows, Coagula isn't the slickest music app ever, but it just might be the most psychedelic and colourful. It's worth a try in any case, since it'll cost you nowt. It can import images and export as sound or image, with editing options including paintbrushes and oddball filters.
hem.passagen.se/rasmuse/Coagula.htm



Adobe Audition 3 – £327

An audio editor cum DAW from the makers of Photoshop, this has some fantastic visualisation tools, such as the beautiful spectral, phase and pan views, which enable esoteric editing and application of effects. Photoshop users will also recognise the spectral views Healing Brush, for repairing audio - or mangling it, of course.
www.adobe.com cm

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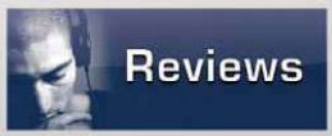
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At a crossroads

Building on last month's exploration of cross-track routing, we look at Renoise 2.5's automation capabilities

cm DVD
ON THE DVD
The Renoise project files and pad sound are in the **Tutorial Files** folder

> We're only just getting our heads around the new working methods opened up by cross-track routing in Renoise 2.5, but having lifted the lid off some of its new features last month, we're now going to cover some of the possibilities of cross-track automation.

In this tutorial, we're going to create a rich texture from a simple-sounding pad by using one LFO to synchronously control the parameters of Filter devices and panning controls over two separate tracks. To begin, we need to prepare the sound we're going to use...

Load **Pad1.wav** into the first Instrument Slot and click on the **Sample Editor** at the bottom of the Renoise interface. Choose the **PingPong** loop type and drag the loop-start flag past the crescendo point in the sample. Audition the sample and move the start and end flags until you have a smoothly looping sound. Now click the **Instrument Editor** and enable the Volume envelope by clicking the checkbox next to **Volume**. Change the length of the envelope from 71 to **100**, adjust the first node to **0%** at 0, the second node to **100%** at 50 and the third node to **0%** at 100 - the envelope should hopefully look a bit like a hill! Set **Sustain** to **On** and drag the sustain handle to the highest point on the curve. Now when we play our pad, the sound will fade in and stay loud until we release the note, at which point it will gently fade away.

Because we're working with slowly evolving pads, we want our song to play back nice and slowly, so set the **BPM** to its lowest value of **32**.

All files for this tutorial are located in the **Totally Trackers** folder on your **cm** DVD. Right, we have our basic sound, so let's get started...

>Step by step Cross-track automation in Renoise 2.5



1 > Press **Esc**ape to enter edit mode, input a three-note chord at the top of track 01 with our pad instrument and add three note off commands (**Caps Lock**) near the bottom. Using **Shift+F4**/**F5** to copy and paste, duplicate the notes from Track 01 to Track 02 and press **Shift+F12** to transpose them up an octave. (Continue or load **CM_trackers_tutorial_26a**)



2 > Under **Track DSPs**, add an **LFO** and a **Hydra** device to track 01. Set the **Destination** of the LFO to **Hydra** and **Input** and change the **Freq**uency to about **13.5 LPC**. You should now see the Hydra input level moving. Finally, add **Filter** devices to both tracks 01 and 02. (Continue or load **CM_trackers_tutorial_26b**)



3 > On track 01, set **Out 1** of the Hydra device to **Filter 3** and **Cutoff**, and set the **Min** level to around **0.21 kHz** and the **Max** level to around **3.62 kHz**. Note that the box next to Out 1 reads **CT**, standing for Current Track. Change the Filter 3 **Type** to **HP** (high-pass) and up the **Resonance** to taste. (Continue or load **CM_trackers_tutorial_26c**)



4 > Now set **Out 2** of the Hydra device to track **02**, **Filter 3** and **Cutoff**, **Min** level to around **14.35 kHz** and **Max** to around **0.95 kHz**. Change the Filter 3 **Type** to **HP** and, again, up the **Resonance** to suit. Note that setting **Min** higher than **Max** inverts the output of the Hydra values. (Continue or load **CM_trackers_tutorial_26d**)



5 > Set the **Out 3** of the Hydra device to **TrackVolPan** and **Panning**, and leave the **Min** and **Max** levels as they are. Set **Out 4** to track **02**, **TrackVolPan** and **Panning**, then invert the **Min** and **Max** levels, so that they read **50 R** and **50 L** respectively. (Continue or load **CM_trackers_tutorial_26e**)



6 > Finally, add a **Send** device to both tracks and leave the mode as **Mute Source**. On track S01, add a **Phaser** device and choose the **Athmost Phase 4** preset. This should add some extra movement to the sound. You may need to lower the output level of the send to compensate for the distortion brought on by those high resonance settings, though. **cm**

easy guide to...

Sharps and flats

For the third instalment in our exploration of the basic principals of melody, we look further into the major scale

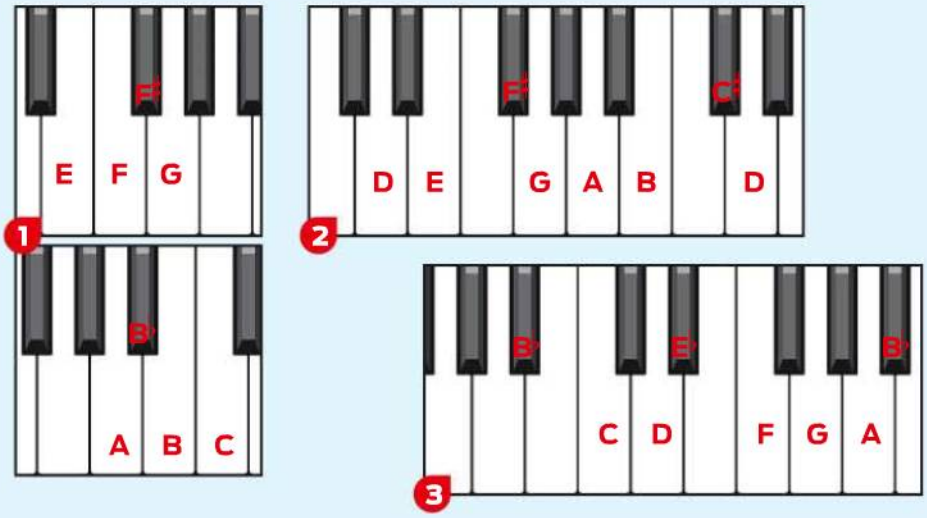
> We're trying to do a balancing act here – contemplating the musical materials required for constructing melodies (OK, tunes, then) and at the same time, introducing a little musicianship (familiarity with the language of music), as well as some practise with conventional notation. The main thrust of musicianship this time, though, is to extend our knowledge of major scales and begin to see how this knowledge might be used in practice. Oh yes, and to see what all that looks like in staff notation, too.

Very much in brief, we've looked at the interval structure of the major scale in terms of tones and semitones (US readers will have to translate into steps and half-steps here) and constructed three scales:

C D E F G A B C
G A B C D E F♯ G
F G A B♭ C D E F

Although the notes are different, the interval structure in every major scale is identical. In the G scale, we had to raise the F to F sharp in order to keep the semitone between the seventh and eighth notes. Likewise, in the F scale, we lowered the B to a B♭ to keep the other semitone between the third and fourth steps, with all other intervals being tones (see **Fig 1**).

In order to strengthen your grasp of how scales work, we strongly urge you to play these simple examples on a keyboard for yourself. One finger is OK – it's the understanding through doing that's important, rather than the desire to become a concert pianist...



1: How the sharps and flats relate to the notes around them 2: The D major scale needs two sharps 3: The B♭ Major Scale needs two flats

Sharpening up

Let's find another major scale with sharps. To turn the C scale into a G, we started on the fifth step (G!), then had to raise the new seventh step F to F♯. Since the G scale has the same pattern of intervals as C, we should be able to repeat the process. The fifth step of the G scale is D, so play up from D and you'll find you have to raise the new seventh step C to C♯, so the D major scale is:

D E F♯ G A B C♯ D

See **Fig 2**. Notice that we keep the F♯ from the previous scale, so this process results in a series of scales with ever increasing numbers of raised notes (sharps). Try to construct the next few for yourself, starting on A, E and B (we'll illustrate the full set next time).

Flat pack

Going in the opposite direction, we turned the C scale into an F scale by, er, starting on F, but then found we had to lower its fourth step B to B♭, so let's do that all over again, staring now on B♭! The new fourth step turns out to be E – so yes, it's now E♭:

B♭ C D E♭ F G A B♭

Now, let's take a look at **Fig 3**, and if you want to find some more scales that are made with flats for yourself, try starting on E♭, A♭ and D♭.

We should stress that all of these major scales will sound very similar (just a bit higher or lower), regardless of whether they use sharps or flats, as they all have the same pattern of tones and semitones relative to one another.

On the scales

It can be very useful to understand tunes in terms of what degrees of the scale they use – in other words, not simply thinking (for example), 'This tune is C C D G', but rather, 'This tune is in C and uses the first second and fifth notes of the scale'. These same notes could equally occur in either the F or G scales, but would probably sound quite different, precisely because they occur in a different part of the scale. If the notes were part of a song that you needed to put into a different key (perhaps because of an alternately-gendered vocalist), you can use awareness of the various degrees of the scale to effect the transposition effortlessly, so the same pattern (using first, second and fifth notes of the scale) in F would be F F G C, and in G, it would be G G A D.

All of this is merely scratching the surface, though. Next time, however, we'll start with a full list of all the major scales and see what we can do with them. **cm**

Staff notation

Both the F and G scales can be represented within the treble stave. Note that, in speech, we say 'B flat', but when we notate, we put the flat first. This flat (or sharp in the G scale) is an 'accidental' and its raising or lowering affects all of the subsequent notes in the bar (or measure) – ie, all of the notes to the right up to the bar line. Following each scale is a random selection of scale notes – see if you can read them, but don't forget the persistence of the sharp or flat. If you've understood the construction of the D and B♭ major scales introduced in the main text, see if you can notate them...



The F and G major scales, plus a note quiz to see if you've been paying attention...

Integral serialism



Our very own mad professor kicks off a two-part guide to one of the most cerebral compositional systems ever devised

rachMiel



rachMiel has spent the better part of a decade studying composition in America and Germany. A recovering atonalist, his musical influences range from Frank Zappa, Karlheinz Stockhausen and North Indian classical drumming to 60s pop, horror movie soundtracks, avant electronica and, above all, silence.

> I came of compositional age in the 70s, right at the tail end of the obsession with 12-tone serial music. And make no mistake about it: obsession it was! So much so that, for many years, to compose anything other than serial music was a sure-fire way to get excluded from 'serious' compositional circles, especially those that proliferated in academia. These days, we've come pretty much full circle – serialists are an endangered species regarded by most of their peers as curious relics of a bygone era.

Serialism is a set of techniques for employing numeric values to generate musical values: pitch, duration, volume, timbre, etc. 12-tone serialism uses the numbers 1-12, corresponding to the 12 pitches of the well-tempered chromatic scale: C, C♯, D, E♭, E, F, F♯, G, G♯, A, B♭, B. It then uses series (sets) comprising these 12 integers to determine pitch and other musical parameters in a piece. Integral serialism is an extreme version of serialism that uses series to determine *all* of a piece's parameters. Hence the term integral, as in complete.

Microstructuring

The generative series for a serial composition is a 12-tone row – think of it as the DNA from which the piece grows. There's only one hard rule for a 12-tone row: each of the 12 chromatic pitches must appear exactly once. Beyond that, the structure is up to the composer.

There are lots of ways to compose 12-tone rows; choose pitches by ear, or at random, à la John Cage's *I Ching* approach; create symmetric rows – eg, make the intervals of the first six pitches mirror those of the last six; generate sub-rows, such as three dovetailing four-note pitch sets; or compose an 'all-interval' row in which every interval from a minor second (one step) to a major seventh (11 steps) is present.

I used the all-interval row to the left (**Fig 1**) for the example piece, where the numbers at the top refer to the order of pitches within the chromatic scale: C=1, D♭=2, D=3, E♭=4, etc, and the numbers at the bottom are the intervals (in semitones) between adjacent pitches.

I used an all-interval row because I was drawn to its egalitarian nature, which I found very much in keeping with the egalitarianism of 12-tone music. This is in contrast to conventional major-minor tonality, which organises its pitches in strict harmonic hierarchy (scale).

Once I had my 12-tone pitch row, I used its numeric series (1, 3, 10, 7, etc) to generate similar 12-tone rows for note start times, durations, volumes, and timbres (which instrument in the ensemble plays which note). I then typed up the standard serial matrix of 48 variants (see **Serial Matrix.jpg** on the disc): 12 prime rows (the original transposed to start on each of the 12 chromatic pitches: C, C♯, D, E♭ and so on); 12 retrograde rows (primes backwards); 12 prime inverse rows (primes mirror-imaged, a minor third up becomes a minor third down); and 12 retrograde inverse rows (retrogrades mirror-imaged). **Fig 2** shows values for duration (1-12), pitch (C-B), and volume (39-127).

Macrostructuring

For the big picture, I began with the overall form and composed 12 sections, each with 12 notes (one unique permutation of the generative row). I used a row to create a scale of 12 tempos and assigned one to each section like so: 178bpm, 200, 320, 229, 114, 355, 160, 267, 100, 133, 89, 80.

I then created a pitch row based on the top numbers from the tone row above, with each pitch to be used as the centre of a section's pitch range – C2, C♯3, A4, E3, B♭6, F5, F♯8, D4, G♯6, G7, E♭6, B5 – in effect creating a single 12-note melody that spanned the entire piece. My purpose for all this macrostructural serialisation was to create arcs of musical logic or audible contours that would help guide the listener through the flow of the piece.

All that was left was to commit notes to paper (or a computer screen, in this case) and compose the actual piece! As you might imagine, this was a rather tedious task. Serialists can't just jot down a note when and where they feel like it. They must follow a very strict multipart plan: see what pitch is next in the row, what the note's prescribed starting time is, the duration, the volume, the instrument in the ensemble that plays it, etc. Yes there are some 'artistic' decisions to be made, but they are often quite subtle. Should I put this C♯ in octave 4 (C♯4) or octave 5 (C♯5)? Should the piano pedal be on here? Should the cellist bow this note or play it pizzicato? And so on.

But is there room for intuition, inspiration or musicality in the serial composition process? Yes! In fact, without these qualities, a serial piece might well end up sounding stiff and distant, like an academic exercise. Karlheinz Stockhausen, by far my favourite serial composer, played piano for a stage musician for five years before beginning his career as a serious avant garde composer. His ability to entertain listeners with sound is apparent even in his most esoteric serial compositions.

Join me for more on this topic next month.

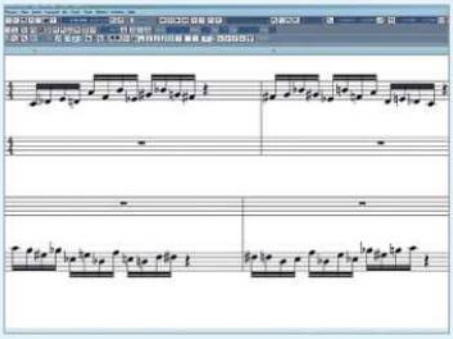


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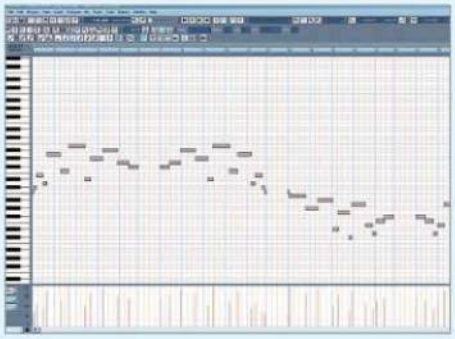
>Step by step Integral serialism



1 > To demonstrate integral serialism, I'll compose a short piece for six instruments. I begin by creating a piano reduction of the four main permutations of the piece's generative 12-tone row (as described on the previous page): prime, retrograde, prime inversion, and retrograde inversion. (Audio on the DVD: **piano_rows1.wav**; MIDI: **piano_rows1.mid**; image: **Step 1.png**).



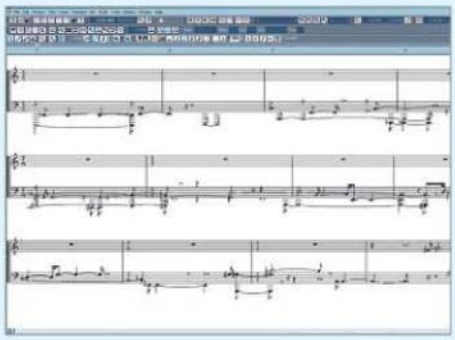
2 > I can create a legato melodic line out of each row by using its numeric series to determine note start times. For example, the prime row begins with 1, 2, 5, 3. Using a 16th-note as the unit beat, this yields a 16th-note, eighth-note, quarter-note tied to 16th- and dotted eighth-, as shown above and on the DVD. (Audio: **piano_rows2.wav**; MIDI: **piano_rows2.mid**; image: **Step 2.png**).



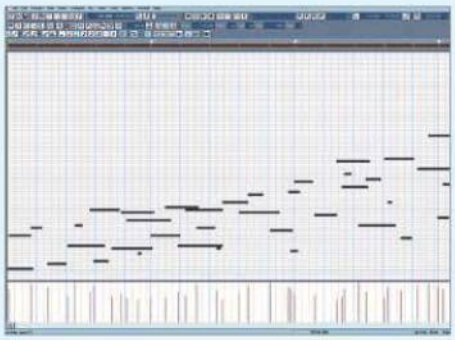
3 > I can now apply the series to the volumes of the individual notes in each row's melody. (Audio: **piano_rows3.wav**; MIDI: **piano_rows3.mid**; image: **Step 3.png**) Note how each successive step in the serialisation process – pitch, start times, volume – dramatically increases the 'otherworldliness' of the musical flow. It's a beautiful thing!



4 > Satisfied that my main materials were in ordnung, I compose the pitches and starting times of the actual piece. Seeing as this is 12-tone serialism, I go with 12 sections, each containing 12 notes. You can think of this piano reduction of the piece as a bare-bones skeleton to be musically fleshed out. (Audio: **piano_piece1.wav**; MIDI: **piano_piece1.mid**; image: **Step 4.png**).



5 > Next, the note durations. I choose to double the series values for these, in order to generate sufficient overlapping of notes to create a convincing musical flow. For example, the serial values of the first four notes 7, 6, 3, 5 yield durations of 14, 12, 6, 10 sixteenth notes. (Audio: **piano_piece2.wav**; MIDI: **piano_piece2.mid**; image: **Step 5.png**).



6 > Now for the volume of the notes. MIDI volume values go from 0 to 127, but those below 40 are too soft to be heard clearly, so I make my min-max volume range 39-127 and divide it into 12 equal steps (a 'chromatic' volume scale): 39, 47, 55, 63, etc. I find the results delightfully odd and bouncy. (Audio: **piano_piece3.wav**; MIDI: **piano_piece3.mid**; image: **Step 6.png**).

Experimentalists' corner: Is serial music devoid of emotion?

One of the harshest critiques levelled at serial music is that it can be cold, emotionless and inhuman. So, can it? Absolutely. Does it have to be? Absolutely not! Serialism is just a formalised approach to creating music, like classic western counterpoint, modal jazz harmony or Indian raga/tala. Any compositional approach can yield good or bad music, depending on the skills, talent and hard work of the composer.

That said, serialism is more of a challenge than most other approaches. It can be tough to have to pay such close attention to an abstract set of numbers while in the throes of inspiration! This is doubly true for integral serialism, which uses numbers to determine not just *some*, but pretty much *all* aspects of a piece. For me, this extra level of difficulty makes the payoff, a beautifully expressive piece of integral serial music, that much more remarkable.

Speaking of beauty, there's something in the sound of serial music – all 12 chromatic pitches in non-harmonic, non-metric patterns over the entire range of an instrument or ensemble – that is exquisitely beautiful. And utterly unique to the genre – you won't hear it anywhere else, in music or in nature. (And if you do try it, please share your results with me: rachmiel.org).cm

Dynamic waveshaping

Scot Solida remembers the wonders of wavesequencing and shows you how to recreate it in software

cm DVD
ON THE DVD
Grab Scot's patch for ZebraCM in the **Tutorial Files** folder on the disc

> My very first synthesiser, the Moog Rogue was rudimentary at best. However, even if I'd had the cash for a more advanced synth, I would still have run up against a brick wall eventually. You see, there wasn't much to alter the oscillators before they hit the filter section. The simple analogue waveforms provided remained relatively static.

It would be years before I could afford anything that freed me from the sonic shackles of the static waveform. There was, of course, the fabulous PPG Wave series, but they were far beyond the reach of the average musician. Eventually, a few manufacturers put out some synths that provided a bit more control over the raw waveforms. Sequential Circuit's Prophet VS introduced 'vector synthesis', with a joystick for crossfading between oscillators, but Korg took the technology and ran with it, producing the groundbreaking Wavestation. This instrument provided a way to arrange various sampled waveforms in a "wavesequence", crossfading from one wave into another in a preordained fashion. While many musos quickly exploited the rhythmic potential of wavesequencing, the technology was equally well equipped to produce deep, evolving sounds. Those that delved deeply enough were rewarded with a rich resource of ever-shifting timbres – such control at the oscillator level was a revelation.

There are a handful of instruments that provide some variation on wavesequencing, and I've covered that subject before. This month, however, I'd like to take a look at how we might create a similarly evolving tone using a very familiar (and free) subtractive synthesiser.

>Step by step Dynamic Waveshaping With ZebraCM



1 > I waited patiently for over a decade until I could afford a synth that offered dynamic waveshaping. **cm** readers, however, only need look to their cover DVD, where they'll find the superb ZebraCM from u-he in the **cm** Studio. Open it in your host of choice. We'll start with the default patch here.



2 > Currently, both oscillators are blazing away, producing a buzzy sound typical of an analogue synth. ZebraCM is extremely good at that sort of thing. However, it can also do some nifty things that wouldn't be possible with an old Minimoog. For the moment, it would be best if we only heard a single oscillator, so turn the **Vol**ume of Oscillator2 right down.



3 > Also, we should ditch the filter action, so look to the filter section and turn the **Cutoff** knob all the way up. We'll want to address the filter later, but at the moment, we don't want it interfering with what we hear. Next, look at the Envelope section. Crank the **Sustain** segment of Envelope 1 up all of the way.



4 > Now we can address one of the coolest features of ZebraCM. You see, instead of forcing us to switch between a handful of analogue waveforms, u-he have implemented a wave selection knob. It is, I needn't tell you, the one labelled **Wave**. Hold a note and give Oscillator1's Wave knob a slow twist.



5 > The oscillator shifts through a number of waveforms, ranging from simple analogue numbers to more complex timbres with more harmonics. We're going to tap into this feature to create a sound with some interest at the basic oscillator level. And it's easy to do! Right-click on the knob to the lower-left of the Wave knob and select **Env2** from the menu.



6 > Now our Wave knob will be modulated by Envelope 2 – not, however, before you increase the value of the knob you just assigned! Turn it up all the way. You should now hear the oscillator gradually move through some of the waveshapes. There's a lot of timbral variation with only a single oscillator, and all without any filtering or effects.

BUSTING JARGON

HARMONICS

Without harmonics, all we have is a sine wave. Any instrument's sound is comprised of its fundamental frequency (the root pitch) and a bunch of other ones at varying amplitudes. These other frequencies are called 'harmonics' and help define the character of a given sound. The simplest waveform is, therefore, the sine wave, with no harmonics. A square wave has more of them, while a sawtooth has more again.

PRO TIPS

THAT SYNCING FEELING

If you want your sound to evolve endlessly, it's important to free it from the tyranny of your host's tempo. Many software synths provide the ability to lock envelope generators and LFOs to the project's tempo, which is fine for rhythmic or pulsing tones, but such strict adherence to this structuring can often hobble an otherwise lively patch.

PRO TIPS

GO MODULAR

When following this month's walkthrough, those with modular instruments can slap a clipper, rectifier or effects module into the signal path right after the oscillator. Assuming the new module's parameters can be modulated via an envelope, LFO or other source, this can add a lot of interest to the sound.

FREE WAVESEQUENCING!

Those desirous of the Wavestation's many qualities can plump for Korg's dead-on virtual recreation of that particular synth. However, if you don't have the cash, Green Oak's free Crystal offers simple wavesquencing and Wusikstation CM is an even closer approximation. They're on your coverdisc, so give 'em a shot!

MANUAL MODULATION

Remember that you can tie your waveform selection knob to a MIDI controller through the instrument's MIDI Learn function. By doing this, you can use your DAW or sequencer's automation functions to provide control over the waveforms.

Scot Solida



Scot bought his first synth over a quarter of a century ago. A synthesist, sound designer and audio engineer of international repute, he's provided factory presets for many of the music software industry's most acclaimed synths, samplers and drum machines, not to mention the cm Studio. On rare occasions, he manages to find time to make records for Beta-lactam Ring Records under the name Christus and the Cosmonaughts.



7 > Let's take control over the waveform's travel. I want to create a kind of slow, evolving pad sound of the sort produced by the Prophet VS or Wavestation. With that in mind, turn Env2's **Attack** knob up to around **86** or **87**, the **Decay** up to **82** and the **Sustain** up to **92**. Give the **Release** knob a little nudge as well.



8 > The evolution between waves will be slower and more gradual. However, we need to give the **Wave** knob a little push up to **11.50**. That's certainly no Minimoog! If anything, it bears some resemblance to the old PPG. Now that you've got your Wave envelope set up, you might take a moment to adjust Envelope 1 for a slower **Attack** and **Release**.



9 > Reduce Env1's **Sustain** to around **66**. Now, I think it's time to get Oscillator2 in on the action. Turn the **Vol**ume of Oscillator2 back up to about **84** and it'll be layered with Oscillator1. It's already sounding most expressive! Right-click this oscillator's **Wave** knob and select **LFO1** as the modulation source. Turn the modulation amount up while you're at it.



10 > We won't hear the modulation right away, since LFO1's amount is tied to the mod wheel. Make sure that the LFO1 button is clicked in the LFO section and turn the **ModWhl** knob all the way down. Select a **Sync** value of **1/8**, then select **User** as the LFO **Waveform**. You might also select **Gate** as the **Restart** value.



11 > Once again, you're not going to hear the LFO's effect yet, because we haven't created a user waveform. This is done by clicking and dragging the little dots in the LFO waveform display. I've created a sort of 'skyline' pattern that will shift through our waveforms. Try to make something like mine. I've also elected to turn Oscillator2's **Wave** knob up to **14.30**.



12 > If you haven't already auditioned your sound, do so now. We can put some finishing touches on the thing by getting a little modulated filtering in there and slathering on some synchronised delays. You can also mix the levels of your oscillators to taste. As you can see, there's a lot of power in this technique! **cm**

The cm guide to iPad



Apple's "magical and revolutionary" tablet computer has huge potential as a music production platform. We step into the future...

> Depending on who's doing the telling, Apple's latest creation is either "magical and revolutionary" (quoting Steve Jobs) or a "big iPod touch" (quoting a lot of other people who aren't Steve Jobs). Yes, it is revolutionary, and is at the bleeding edge of a new type of computing experience. It's also rather stunted at birth, and won't even begin to replace a desktop or laptop computer.

For those readers who have been living under a rock for the last several months, the iPad is available in six flavours. Three have only Wi-Fi, and three have both Wi-Fi and a 3G radio stack for communicating on a cellular network. (At the time of writing, only the Wi-Fi version has been released, and only in the United States.) Other than that distinction, though, they differ only in the amount of flash memory available for application and data storage, from 16GB at the low end to 64GB for the top-of-the-line models.

The construction quality is on a par with most of Apple's recent offerings, with a curved aluminium back and a wide glass bezel surrounding the screen. It is somewhat heavier than one would expect, tipping the scales at around three quarters of a kilo. You might find it rather uncomfortable to, say, hold on your chest while reading or watching a movie over extended periods. With a protective case, it adds up to over a kilo – heavier than some netbooks. It's far too large your pocket, but it slips easily in a man-purse or messenger bag, and is much lighter than a full-sized laptop.

Touchy-feely

The screen is a 9.7" LED-backlit multitouch display. One pleasant discovery is that it is exceedingly high resolution – a typical computer monitor (as well as the displays in the iPhone and iPod Touch) runs at 96 DPI, but the iPad's display is nearly half again that, at 132 DPI. This results in a remarkably crisp visual experience that easily shows fine detail, and doesn't cause eyestrain, even after extended viewing.

The iPad has very limited I/O options, preferring to do its work over the network. It has a 3.5mm headphone jack on the top and a 30-pin dock connector on the bottom, and that's it. Any interfacing with the outside world needs to take place via one of those ports, or through the network. Most accessories for the iPhone and iPod Touch that utilise the dock connector will also work with the iPad, taking into consideration the fact that the iPad will obviously not fit in docks designed for the iPhone, thus ruling out the likes of Numark's iDJ iPhone/iPod DJ mixer.

The iPad runs on a custom processor that Apple calls the A4. It's essentially an ARM

> "Yes, it is revolutionary, and is at the bleeding edge of a new type of computing experience"

Cortex-A9 Snapdragon CPU, along with a GPU and a memory controller all on one die. In use, it feels quicker and more responsive than the iPhone 3GS and latest generation iPod touch – it's the successor to the CPU used in those products. It isn't remarkably faster, though, and on the CPU totem pole of currently available gear, it's near the bottom in terms of general power. This is only really noticeable when doing things on the iPad that have a direct comparison in the desktop environment, though, chiefly when web surfing – ie, pages render much slower than on traditional devices.

In general use, the iPad can suffer horribly when attempting to duplicate the things you would do on a laptop. It is in no way a replacement for a laptop, and shouldn't be considered as such. The web and email clients work fine, but the experience isn't remotely as pleasant as it would be on a more powerful machine; and anything that requires text entry using the onscreen keyboard is tedious. In general, the iPad is being sold as a device that can take the place of a laptop for more simple tasks, such as surfing the web, checking your email or jotting down notes, but we found that these were the things it was remarkably bad at doing, at least when compared to even a similarly priced laptop or netbook.

Taken to task

The lack of multi-tasking (a problem handily solved with the upcoming OS4 for the iPhone and iPad, which we've also tested in its current beta state) and the fact that the iPad's OS, like the iPhone and iPod touch, is entirely modal – with each application taking over the entire screen and running by itself – means that the normal habit of switching back and forth between AIM, your Twitter application, Mail and Safari is remarkably frustrating when you're used to having all these apps running simultaneously. As we say, with the release of iPhone OS4 for iPad later in the year, this isn't a deal-breaker. Without that, though, the iPad should be considered a one-app-at-a-time device. Even with multi-tasking, running several audio apps at a time is essentially impossible, as the machine doesn't really possess the CPU horsepower necessary to pull that off.

However, with all those caveats out of the way, the iPad really begins to shine when you boot up some of the purpose-built applications that take advantage of the new paradigm. The included YouTube application turns that entire site in to an eminently watchable experience, and we wasted many hours of our testing time following random paths through YouTube's massive archives. The eBay app (a free

Yonac's miniSynth Pro (below) is highly playable and sounds like a genuine analogue synth

If you want Tenori-On-like functionality on your iPad, collect3's Beatwave (right) might be just the solution you seek





download) turns eBay in to an entirely new site – one that's far more pleasant and even a bit fun. Watching movies, especially those from the iTunes Store, is a sublime experience, as the high-resolution screen is, as we say, amazing.

Which brings us to the question you want answered: is the iPad useful to musicians? In a word, absolutely. It can do everything an iPhone or iPod touch can do, and much, much more. If you've previously used one of those devices, all the apps you've already bought will show up in the iPad the first time you sync. Some (like Hexler's TouchOSC) are device-agnostic, and are able to run full screen on the iPad. Programs that don't have a specific iPad mode run in a small iPhone-sized window, which can be doubled in size at the expense of some resolution.

Touch and go

Just like the main applications, the music apps that work best on the iPad are the ones designed specifically for its paradigm. TouchOSC (**hexler.net**) is arguably the single most useful of these. Borrowing heavily from the JazzMutant Lemur concept, TouchOSC exists in three parts. First, the app itself, which can happily run on any iPhone OS device. The second part of the equation is the TouchOSC Editor, which runs on your PC or Mac, enabling you to make layouts. The third part is something that can listen to OSC messages and turn them into MIDI (such as the free PureData, Reaktor or OSCulator). TouchOSC is somewhat baffling at first, especially if you're not used to working with OSC, but once you master it, you can use it to create any number of purpose-specific MIDI control layouts. The combination of TouchOSC and the iPad is less than a third of the price of a Lemur, and duplicates most of its functionality – for us, this app alone makes the iPad worth the money, even if you don't use it for anything else.

Control in general is the iPad's strong suit. The upcoming midipad (**www.midipad.de**) app has complete templates for controlling most DAWs and has Live-specific features that will make it a favourite of Live users. It is somewhat more capable than an Akai APC40 or Novation Launchpad, as it has more-or-less the same feature set, but everything is dynamically named in real time on the iPad, so you can actually see what you're doing without looking at the computer. In this manner, it turns the iPad in to a comprehensive wireless control surface

> "Even in the anaemic Music category, there are already hundreds of applications"

for Live (or any other DAW that can utilise a MIDI control surface, for that matter) uses Bonjour for MIDI communication rather than OSC – thus it's much simpler to set up than TouchOSC but lacks TouchOSC's ludicrously extensive customisation. It's worth mentioning that you can probably get away with spilling a beer or two on an APC40 or Launchpad, but we doubt that the iPad would survive such an encounter.

Tribal gathering

The application in the music category that's garnered the most attention is Korg's iElectribe (**www.korg.com**). This is, to all intents and purposes, a complete Electribe-R in software. It looks, sounds and operates exactly like the hardware, right down to the backlit tubes. The only downfall is that it isn't possible to sync to external sources, thus limiting its usefulness.

There are many analogue-style synthesisers available for the iPad, and the best of these so far is miniSynth Pro (**yonac.com**), a much larger

Battery life

One aspect that merits some consideration is the battery life of the unit. As a musician, the iPad really serves a dual role. First, as a wireless instrument and control surface, and second as a musical sketchpad for flights or struggling through boring meetings. The battery in the iPad is built-in and cannot be swapped, so what you have is all you have. However, in our testing, it should be more than adequate for most purposes. From fully charged, playing Looptastic HD with a full complement of loops killed the unit in just under five hours. We were also able to watch a complete movie (in this case, *Sherlock Holmes*) rented from the iTunes store, and still have battery life left over. In our opinion, this is perfectly reasonable.



Pattern Music MXXIV (right) offers a fantastic range of sounds to play straight out of the box

It may not be a serious music-making tool, but Smule's Magic Piano (below) is great fun



Hexler's TouchOSC (below) performs like JazzMutant's Lemur, all at a fraction of the cost – and that's including the iPad!



and more feature-laden version of miniSynth, the most popular true synthesiser for the iPhone and iPod touch. Leaving aside the cost of the iPad itself, this really is a lot of synth for your money. It's a capable two-oscillator polysynth, and is perfectly usable, even in a professional situation, although the control layout is somewhat nonsensical.

'Appy days

One category in which the iPad's user interface and portability are truly advantageous is the sketchpad concept. While the iPad probably isn't powerful enough to run even a simple full-featured DAW (thus dashing the hopes of all those wishing for an iPad version of Ableton Live), there are many applications available that can create full songs, and with the extended battery life of the iPad, any plane ride short of a London-to-Tokyo red eye can now be that much more musical.

There are many apps that fit in to this full song category, and almost all of them are sample- or loop-based. Some, like Looptastic HD (**www.soundtrends.com**) or the free Beatwave (**collect3.com.au**), have in-app purchases to extend their capabilities and sound sets. Others, like the excellent – and free – PatternMusic MXXIV (**www.patternmusic.com**), have built-in sounds that cannot be replaced, but they can be edited to fit the creative needs of the user.

Beatwave uses a matrix-style sequencer several layers deep, not unlike the Yamaha Tenori-On or certain monome applications, while each sound source in PatternMusic has its own step sequencer. Looptastic HD enables you to import loops via a web interface, but has very limited sound-altering capabilities once you've loaded them in. All of these applications (and dozens of others) provide the basic means for songwriting and arrangement, and we imagine there will be more sophisticated offerings once developers begin to take advantage of the iPad's increased specs – both PatternMusic and Looptastic HD are ported from iPhone applications, and are thus not utilising all of the iPad's CPU and graphics power.

Child's play

A quick browse through the iPad Music category of the App Store reveals a ton of sample-playback instruments, from pianos and autoharps to dulcimers and the ubiquitous drum kit. Name an instrument and if there isn't an iPad app to play samples of it, there soon will be. The best of these is the incredibly popular Magic Piano from Smule (**www.smule.com**), the same developer that brought us the Ocarina application for the iPhone. While it's entertaining for a moment, like virtually every app in this category, it is essentially a toy and relatively useless in the context of even a reasonably competent computer musician.

One non-musical iPad must-have is Good.iWare's GoodReader (**www.goodiware.com**) PDF reading application. We've put our entire collection of PDF music software manuals on the iPad, enabling instant access, searching and viewing. This alone, in our opinion, makes the iPad worthwhile, as we no longer have to interrupt our workflow on the computer to look at a particular manual reference.

This is, of course, only the tip of a gigantic application iceberg. Even in the relatively anaemic Music category, there are already hundreds of applications, with more being added every day. All in all, then, the iPad is a very capable device, and there's enough variety in the available applications to make it easily fit into the workflow of almost any musician. While it has its downsides, we couldn't make a reasonable argument for *not* buying one. Even as a first generation device, it already has a strong lineage, a robust operating system and a huge reservoir of applications to draw from. Our verdict: the iPad is a must-purchase.

Audio interfaces

The iPad has one special semi-hidden feature that both the iPhone and iPod touch lack: it is able, via the Apple Camera Connection Kit, (which includes a 30-pin to USB adaptor) to run class-compliant USB audio devices and utilise their inputs and outputs, rather than using the headphone jack or internal speakers. There are some downsides to this trick: the audio interface must be fully USB 1.0 compliant, and the iPad can only access the first stereo pair of inputs and outputs. At the time of writing, we're told that this doesn't include MIDI – it's audio-only. Theoretically, any app that uses audio will be able to take advantage of this, thus enabling the use of the iPad in professional contexts.cm



Playing out

When asked if he uses any DJ software, Chris replies: "I've tried it, but for practical reasons, I'm using CDs. I can basically travel to a gig with a backpack, so if I'm flying somewhere, I can have enough CDs in my hand luggage to play for a week, if I have to. I don't want to use a laptop in a club situation – especially this one, which has all my music stuff on it. So I'd have to buy another one, but I still wouldn't feel comfortable, because it's dark and dirty, with lots of people who could spill a drink on it, which means you're buggered with a laptop. With CDs, at least a lot of the time you're using the club's equipment. I did a gig in a place called Supper Club the other night, and with the new Pioneers you can plug a hard drive in and search it for tracks, so when most clubs have those, I might do it. But I think you need an element of chance, because often it's the mistakes that make it really good. Computers are too good at cataloguing, but with CDs, I don't know where everything is, so I'll be looking through and something might pop up that will work that I wouldn't have thought of otherwise."

CHRIS COCO

The musician, DJ, broadcaster, journalist and all-round tastemaker talks about his career, DJ experiences and favourite software

> Chris Coco has DJed around the world, enjoyed stints on Radio 1 and played out live with Robbie Williams. His own chilled productions have enjoyed critical acclaim, too, and as he releases his new album, *Feel Free Live Good*, he explains how computer music making could save the industry. Well, sort of...

"I was basically a music fan – it's always made me feel good – so I tried to work out a way of making a living from my fandom," says Chris when asked why he wanted to work in the music industry in the first place. And as you can now label him as an international DJ, producer, radio presenter and onetime music magazine editor, you could say that he has very much achieved what he set out to do. As usual with these things, though, it all happened by chance...

"I was working in a bar when one day the guy who ran it said, 'I know you like music – do you want to have a go at DJing, because our DJ hasn't turned up?!'. I rushed home and got my records and started DJing as a result of that. I think I got an extra five quid for it, too!

"From that day, I started thinking – especially with the house music that was exploding at the time – 'Well, this is really simple and there's only a few elements in these tracks, so maybe I could started exploring how to make them'. My mates had little studios, so we'd go and play with drum machines and Cubase, then spend most of the time saying, 'It's not working' and rebooting.

"Before you could do things on laptops, I got into music making with very basic sequencing and an Akai sampler," Chris continues. "The production stuff was more of an indulgence at the time and DJing was the main thing, *and* I was also editing *DJ Mag*."

Chris spent the rest of the 80s and 90s making a name for himself within the burgeoning house, techno and ambient scenes, which were rapidly moving from the underground to the mainstream. Cast your mind back and remember all of those chilled compilations of the time – Chris was on most of them, or at least playing tracks from them around the globe.

Over the last 20 years, Chris has released tracks on Warp, Big Chill and Kismet Records. This decade has seen him present shows on Radio 1 (*The Blue Room* with Rob da Bank between 2005 and 2008), Radio 2 and Ministry Of Sound Radio. He's played in every continent ("apart from Antarctica!") and seemingly every major festival, including Glastonbury, Roskilde and Bestival. And throughout all that time, he's been developing his two distinct careers as a producer and DJ, although the two are, of course, intertwined.

"It all goes hand in hand," he says, "because you play a record out, really like what you hear and try to work out how they did it, then make something of your own. For example, I was recently listening to dubstep and thinking, 'This is amazing, how the hell did they get that bass?'. So I spent a bit of time trying to make something that wasn't a 20-year-old urbanite's version, but my take on it, if you see what I mean."

Coco pops

Chris' latest album, *Feel Free Live Good*, was produced on his laptop and features an array of plug-ins, alongside plenty of 'real' instrumentation. Chris says this mix of 'inside' and 'outside' was very deliberate...

"I did one track with StoneBridge in Stockholm, where we didn't play any external stuff," he states. "It was all samples, edits and moving blocks around, but while the technology inside the computer is amazing, I always try to get something in from the outside as well, just to give it some more space. Recently I've also been going back to the Pioneer CDJs – just to muck around with loops and tiny samples, because it gives everything a different feel. You can kind of end up doing too much in the computer, and sometimes that feeling comes across in the music, as if it's too enclosed. Having said that, sometimes the beauty and the danger with technology is you that you don't have a limit.

"With the album, I had some basic ideas and I'd get various friends in to contribute something," he continues. "I think if you are working on your own all the time, you can get very insular – you can go down one path for several days, but you need someone to tell you it's rubbish. I got various people in, like Eko, a Japanese friend who did a poem on one track. Nick, who's actually in the band, came along and played a bit of Spanish guitar on one track to give it a live element. So it was really just to make some music that reflected my character and style – it's quite broad, so you get some deep house, some chillout, some ambient, some techno, but hopefully it all fits together."

So with CDJs on one side, a laptop on the other, plus a raft of musical mates that can be relied upon to play, recite and sing, is there a

© Oz Owen



The future's bright for Chris Coco, spreading his creative talents across a variety of musical disciplines

typical way that a track gets put together?

"It depends," Chris replies. "With my own stuff, I'll either start mucking about with a beat or loop that I like and work from there, or I'll work with a guy called Sacha Puttnam, who's based in Cork. I'll go over there and we bash out a couple of ideas each day. We'll usually start with chord progression and take it somewhere else. I also have a little band called City Reverb, which is interesting, because it's much more traditional than my computer music – the three of us have to sit around playing real instruments together, write something, then record it. With my own stuff, it's much more open and I can go anywhere. When you compare the two methods, you realise how broad the solo producer's palette really is nowadays."

Soft furnishings

We know that Chris began making music with Cubase, but where did he go from there?

"I started using Logic at v1," Chris recalls. "It was because StoneBridge has always used Logic, so when I went to work with him, I tried to take the best of his ideas and ended up going over to Logic. I haven't got that many soft synths – I know some people have got millions, but I find it gets a bit confusing. AudioRealism's ABL2 is one of my favourites – it's like a little acid house machine. I do use Logic's suite, but there was a time when you'd listen to music and know it was done on Logic, so I try to mix it up a bit. I also use Reaktor – it's a crazy piece of software. I never got into my making my own Reaktor instruments – you have to be super techy to do that – but the ones that people have made and uploaded on the Native Instruments site are pretty good. I use the Ohm Force stuff as well – their Symptohm synth is really cool and is capable of making lots of gritty percussion sounds. And because it's quite hard to control, like a lot of their stuff, you can always seem to come up with something good."

> "I never got into my making my own Reaktor instruments – you have to be super techy to do that – but the ones that people have made and uploaded on the NI site are pretty good"

And when it comes to effects, Chris treats them very much as instruments in their own right, mostly because his tracks tend to come together on the fly...

"It's not like you write a song, then record it," he explains. "A lot of it is about exploring the sound as you go along. Electronic music is so much more than the melody or the part, it's about the sound, and because there is so much you can do with it – EQ, compress, add reverb or whatever – it can really change the direction of the track, so you're writing the track as you go along and using the effects as instruments.

"I use Altiverb a lot, which is convolution modelling. Audio Ease, the guys behind Altiverb, go to various places to capture the sound of the reverb, so nothing's a simulation. I use Bill Putnam's echo chamber Altiverb presets a lot. There are also models of some hardware, things like the Digitech Space Station, which is a piece of gear you could find, and it would be great to have a real one, but it'd probably cost you £800. They have plates, the Roland Space Echo and all sorts of great things. I use the Sound Toys stuff as well, which is really great for filters and delays. I'm also thinking of getting one of those PCI cards that have all the classic compressors, delays and channel strips. There are some Waves plug-ins that I'd like to get as well."

Labour of love

Chris still DJs all over the world as a second revenue stream – a necessity these days, given the way the industry is going. When conversation turns to that particular subject, he's refreshingly philosophical.

"Obviously I've spent a great deal of time discussing this with a lot of people and actually realised that it's always been really hard to earn a living making music," he states. "There was a period in the 80s and 90s – which we'll no doubt retrospectively see as a blip – when you could actually make a lot of money. But before that time, and now, it was and is very hard. But I've always been into the sort of music that comes out on a limited, 1000-copy run 7" single, music on the margins of popular music, so it's never made a lot of money. The main thing is that you have to love what you do and don't do it purely to make money."

But computer music making has cut down production costs drastically, as Chris explains:

"You can – as we have with this album – not spend so much on the actual production of the album, sell smaller amounts and still make a bit of money. I still think it's important to put it out on CD, though, and have it well produced and mastered, so we'll see what happens with this album.

"The way you do make money is with film and TV sync work," he continues, "but there are so many people doing that, which has also reduced its value. It's also usually the least likely track that gets used, so you can't set out and plan something. It's like I did a track called *Drifting* that was an extra track for a Japanese album release and that got used on a Toyota advert. Another one I did with A Man Called Adam entitled *Yachts*, which was used in *Sex In The City* and *Nip/Tuck*, plus some adverts in Spain and Poland. Again, we never expected that would do well."

Chris has high hopes for his new album, although he's realistic about how successful it can be ("We don't know if the model works anymore, but the great thing is that I'm not alone, as nobody knows!"). As for the future, Chris will be playing Bestival, The Big Chill and other festivals this summer, and his own ambitions simply run to "making another album, and making it even better." He also firmly believes that there will always be a role for some kind of filter in music consumption, as there's an ocean of music out there and people need guidance on where to dip in. His DJing is one such filter, but he's also returned to broadcasting with his weekly radio show, *Melodica*, which can be heard on his website. **cm**

www.chriscoco.com

Chris Coco's production tips

1 **"Layer your basses. I used about four basslines on this album, as I was studying dubstep. They all came from soft synths, particularly Logic's ES1."**

2 **"I used the Sony Oxford compressors to really push the bass sounds together and lift them. From dubstep, I noticed that everything is super compressed, and with the Oxford, you can really push it out there."**

3 **"Try to get some analogue-style warmth in there. I use the Oxford again, not actually compressing the mix much, but running it through a simulation of an SSL to give it more warmth."**

4 **"Use real ambient sounds and atmospheres. I use background effects, ones which you can hardly hear, but it is proper ambience and gives a track a lot of space."**

5 **"Add real guitar for realism. We recorded Nick playing in the kitchen with two mics – one on the body and one ambient – through a MOTU interface. I think I added some EQ and reverb in there, too."**



Chris' setup pretty much fits inside his laptop, enabling him to work wherever he happens to find himself in the world

Selected kit list

Apple Logic Studio
Audio Ease Altiverb
AudioRealism ABL2 and ADM
GForce Virtual String Machine
Native Instruments Reaktor 5
Ohm Force Symptohm and other plug-ins
Sony Oxford plug-ins
Sound Toys bundle
Togu Audio Line TAL-BassLine

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COMPUTER MUSIC

> competition

For this issue's bonanza giveaway, we've teamed up with Softube and their UK & Ireland distributors Adam Audio UK. There are two prize bundles to be won, each containing the native versions of their Trident A-Range EQ (9/10, **cm**151) and Tube-Tech CL 1B compressor (9/10, **cm**150). It goes without saying that these top-tier plug-ins really will bring the spectacular sound of analogue hardware to your DAW!

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To enter, send a text to **87474** containing: the keyword **SOFTUBE**, followed by a space, then **A**, **B** or **C**, then another space, then **your email address**. Or you can use the online form at **www.futurecompetitions.com/cm153** to enter the competition. Entries must be received between June 3 2010 and July 7 2010, and only UK residents aged 18+ may enter.

The question

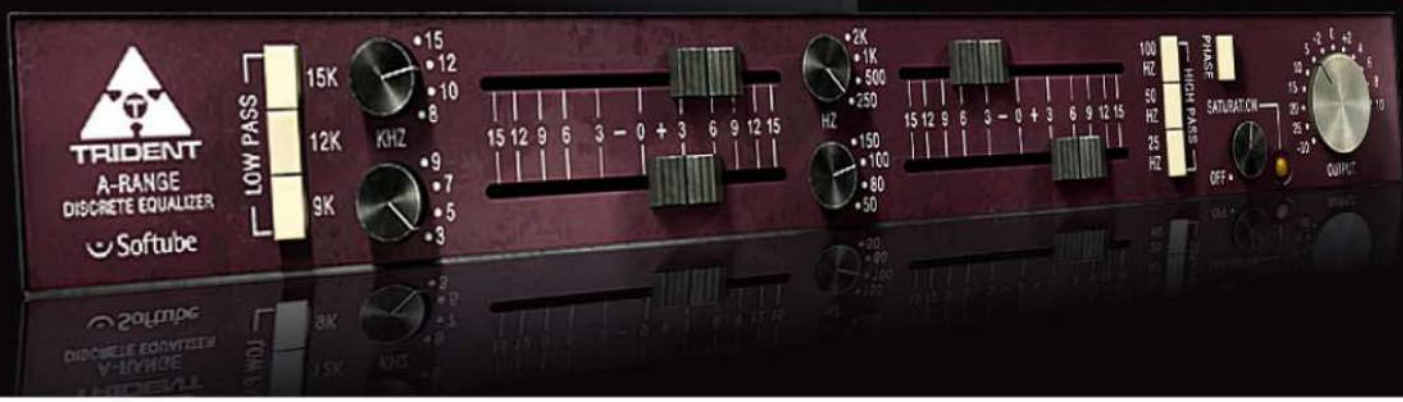
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cm/reviews

The latest computer music gear tested and rated!

90_ XFER RECORDS NERVE

A drum machine direct from the stable of Deadmau5 and wizard coder Steve Duda





96_ MAGIX VANDAL

This amp sim shuns vintage emulations and impulse responses in favour of custom tone and physical modelling



104_ SLATE DIGITAL TRIGGER PLATINUM

Arriving on the crest of a colossal wave of hype, is Slate Digital's debut really the Holy Grail of triggering?

This month

90___ Xfer Records Nerve
92___ FXpansion BFD Eco
94___ UA FATSO
95___ UA Manley Massive Passive
96___ Magix Vandal
98___ Toontrack EZmix
99___ Voxengo Deft Compressor
102___ NuGen Audio Stereoizer 3
104___ Slate Digital Trigger
105___ SPL DrumXchanger
106___ Mini Reviews
110___ **cm** Recommends

Our promise

We bring you honest, unbiased appraisals of the latest computer music products. Our experts apply the same stringent testing methods to all gear, no matter how much hype or expectation surrounds it.

What the ratings mean

1-4_ A seriously flawed product that should be avoided

5___ This product's problems outweigh its merits

6___ A decent product that's only held back by a few flaws

7___ Solid. Well worth considering

8___ Very good. A well-conceived and executed product.

9___ Excellent. First-rate and among the best you can buy

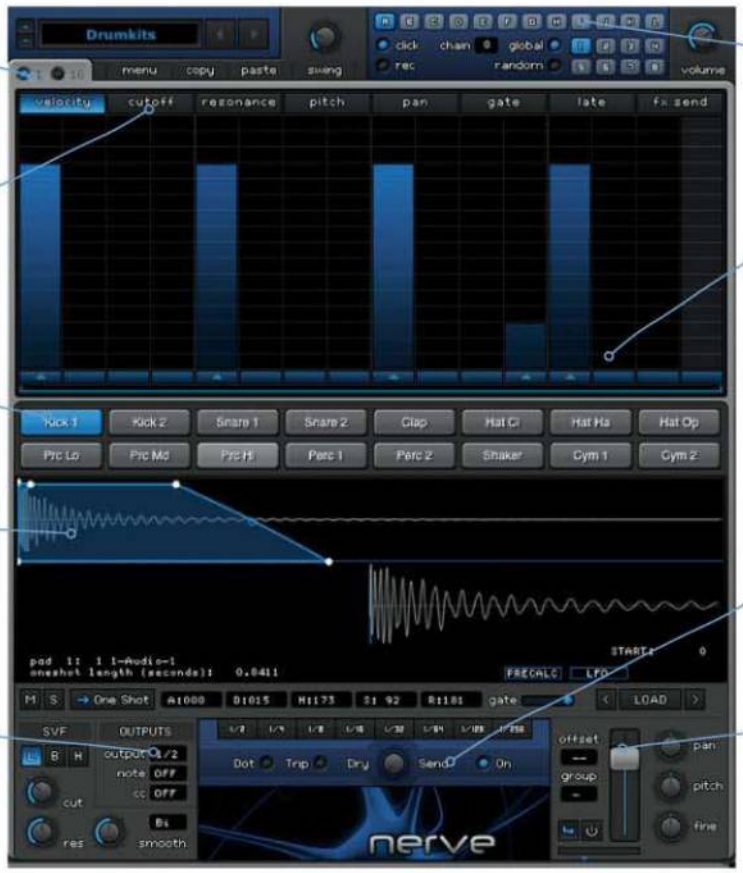
10___ Exceptional. It just doesn't get any better than this!

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Xfer Records
Nerve $199 PC MAC

cm DVD
ON THE DVD
Nerve audio demos, the manual and usable demo are all on the disc

The company fronted by Deadmau5 and coding whiz Steve Duda have released their debut plug-in, a forward-thinking drum machine

System requirements

PC 512MB RAM, Windows XP/Vista/7, 4GB drive space, VST host

Mac 512MB RAM, OS X 10.4, 4GB drive space, AU/VST host

> Following on from the success of last year's Deadmau5 sample pack, Xfer Records have launched into the software world proper with Nerve, a drum machine with a powerful effects section and sequencer, up to eight stereo outputs and, refreshingly, no authorisation codes or dongles to contend with.

On the face of it

Nerve's interface is divided into three main sections: the pattern editor, the pads and waveform section, and the mixing section. The pattern editor has two different views: '1' and '16'. When '1' is active, you program one parameter at a time, accessed via tabs such as Velocity, Cutoff, Pitch and Late (more on this in the boxout). '16' mode changes the view to the classic piano roll-style programmer. There are also keyboard shortcuts - eg, Alt-dragging introduces a per-step repeat that's ideal for glitchy stutters.

The system for loading and saving kits and patterns is pretty comprehensive - it's possible to load/save kits, complete patterns, individual pad patterns, the step sequencer automation data sans notes, grooves, MIDI note out mappings, and the whole lot as one FXP file. Confusingly, though, none of the kits have names referring to what they sound like, which is frustrating when seeking something specific.

Of course, it's possible to load sounds from your own collection of AIFFs and WAVs onto the pads, or from the Nerve library (via the Load button underneath the waveform). But, as there's no way to preview what you're about to load, it becomes a guessing game. Nerve's thorough sample editing capabilities do come to the rescue here, though, as it's possible to rapidly reshape any sound.

Padding it out

In the lower part of the GUI, you'll find the pad section and waveform editor - where Nerve really comes alive. There are 16 pads, each loaded with a sample or loop (see boxout for more on working with loops). Clicking on a pad will display its waveform, where you can adjust the amplitude envelope by dragging nodes. It's very straightforward, enabling you to, say, trim the snare or tighten up the kick quickly.

Clicking on the PreCalc button will take you

"Nerve is especially great for producers of house music"

to the effects section. The depths to which you can dig into sound shaping really can't be overstated, ranging from fairly typical effects like pitchshifting, standard pitching, ring modulation, bit-crushing and clipping, to more esoteric ones such as subharmonic synthesis, PWM and sine/square/saw/triangle resynthesis. You can create distorted, crunchy, lo-fi monsters from samples in seconds. Anyone familiar with Deadmau5's sample pack will know exactly what kind of swirls and bleeps to expect.

All of the effects are precalculated, meaning that they're applied directly to the sample data and thus take no toll whatsoever on your CPU. The downside is that you can't manipulate or automate their parameters. In use, we didn't find this much of a hindrance, as once you craft and carve your sample into its new form, you'll tend to leave it be. If you do feel that a sound is too static, each pad has an LFO that can control numerous parameters – it can even send out MIDI CCs for controlling other devices, too.

Finally, the mixer area offers options to adjust filter type, resonance and cutoff, set output routings, mute and solo, and other channel-style controls. There's an intuitive sidechain pumping function, too – click the 'arrow' button to select a pad source, set the Ratio slider and every pad with the function enabled will pump in response.

Right in the centre is the Repeater section, enabling triggerable stutters from 1/2 to 1/256 of a bar. Individual pads can be switched on and off, so only the parts you want to stutter will do so. However, it's not controllable via the sequencer, so it's more of a live tool.

The MIDI implementation isn't great. You can change the CC assignments by editing the nerve.cfg file in a text editor, or if your DAW supports it, map MIDI to automatable parameters. It would be great to have a standard MIDI Learn button on the GUI itself, though.

Once you've got some patterns together, you can use the Chain function to sequence them, or flip between them using host automation. You don't have to use the pattern functions, of course, as you can trigger the pads using MIDI.



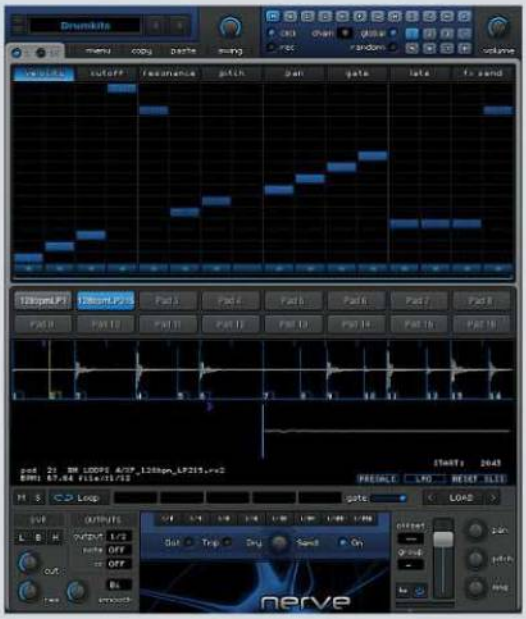
Here we see Nerve's classic '16' view and the comprehensive precalculated effects section

Different drummer

Nerve is a much deeper plug-in than its slim GUI would suggest – we recommend reading the manual to learn about its full feature set. It's true that it lacks many standard effects you might expect from a drum programming tool, such as reverb, delay, compression, but you've surely got plug-ins aplenty that can handle those tasks. It's the sound-sculpting tools that are the focus of Nerve, and they're both powerful and fun. Add to that the creative groove implementation, over 2GB of artist-created samples, the comprehensive LFO and the Repeater function and Nerve has a lot of bases covered.

It's especially great for producers of house music (and all its branches and offshoots) and if you already own Deadmau5's sample pack, you'll absolutely love it. In fact, for anyone who uses a lot of samples and loops, Nerve could well be the next level. **cm**

Contact via website
Web www.xferrecords.com



Drop in a REX loop and Nerve will automatically detect all of the slices, ready for rearranging

Nervous REX

The way in which Nerve deals with REX, REX2 files and loops in general is quite intuitive. Drag a loop or REX from your browser (Nerve doesn't have its own) and the plug-in will detect all the hit points and lay out up to 16 triggers that you can then rearrange, not unlike FL Studio's Slicer plug-in. This is really useful for extracting hats or claps from other material and reprogramming them to suit your project.

Furthermore, when you import a REX or REX2 file, Nerve will extract the swing information and apply it to the rhythm as automation on the Late tab. This operates like an offset delay for each step – perfect for introducing step-based swing or more esoteric grooves, as you wish.

Whether you've dialled in a groove yourself or extracted it from audio, you can save it as a preset to apply to other loops in the project, so that everything grooves together, or for recall on another session. This is a very useful feature that works like a charm when it comes to getting your rhythm parts bouncing and moving together.

Alternatively

Native Instruments Maschine
cm138 >> 9/10 >> £520
More versatile, even without the hardware, but a lot more expensive

FXpansion Guru
cm89 >> 10/10 >> £150
Similar in style, but a little dated and not as intuitive as Nerve

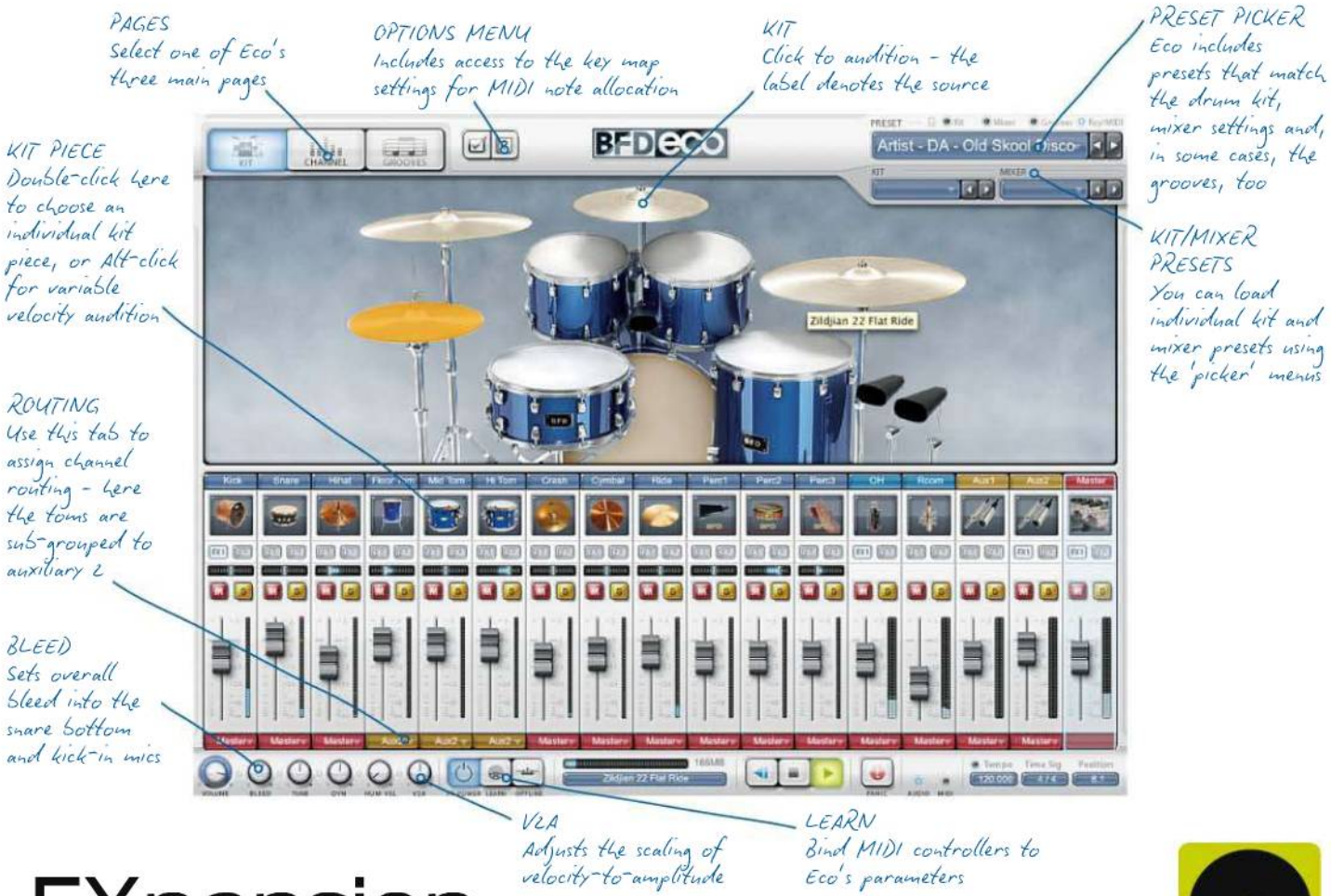
Verdict

For Great samples
Unique effects section
Intuitive interface
Easy sidechain compression built in

Against MIDI mapping not great
Could do with its own browser

Nerve isn't perfect, but the fundamentals are tight and it has some terrific features that make it stand out from the pack

8/10



FXpansion BFD Eco £100

PC MAC

cm DVD
ON THE DVD
Hear our audio clips and read the manual

BFD2 is a luxury drum instrument, but it can be overkill. Now there's a slimmed-down spin-off for those who prefer it lean and mean

System requirements

PC 1GB RAM, 5GB hard disk space, 7200RPM HD, Windows XP SP3/ Vista/7 (32-bit only)

Mac Intel CPU, 1GB RAM, OS X 10.5.7, 5GB hard disk space, 7200RPM HD

> If you're serious about in-the-box drum production, virtual instruments such as FXpansion's BFD2 and Toontrack's Superior Drummer 2.0 deliver the goods. But for many of us, their complexity and large hard drive footprint can be a turn-off. With this in mind, FXpansion have taken some of the best parts of BFD2 and molded them into a simmered down, more affordable package: BFD Eco.

Eco warrior

In this case, Eco means economy, so you get fewer drums, cymbals and features, and the quality of the library has been reduced to 16-bit. This results in a compact 5GB drive footprint. However, you're still looking at a 12-piece setup consisting of kick, snare, hi-hat, three toms, three cymbals and three percussion elements. With up to 24 velocity layers per piece, realism and playability haven't been forsaken.

BFD Eco uses the same playback engine as BFD2, but with a stripped-back interface, comprising the mixer in the lower half and one of three selectable displays at the top. The Kit view shows a drum set graphic where clicking on pieces gives a fixed-velocity audition. The Channel display covers each mixer channel's settings, including built-in effects (EQ and two others of your choice) and further options via an inspector panel. Inspector settings are available for all channels (except auxiliary and master) and include tuning, send levels (two auxiliaries, ambience and overhead), damping and various piece-specific options such as top/bottom balance for the snare, in/out balance for the kick and width/distance for the ambience channels. The final page is Groove, where you can access the MIDI groove library, drum track sequencer and groove modes/effects - see the boxout for further explanation.

As mentioned, the 17-channel mixer is always available at the bottom and there are 14 effects at hand, covering standard stuff like dynamics, reverbs (including a Breverb-based one courtesy of Overloud) and filters, as well as some that are less typical for a drum kit, such as flanging and bitcrushing. Check out the manual on the **cm** DVD for full details on the effects.

As expected, some of BFD2's more advanced features are omitted - layering of kit pieces and

"With plenty of processing options built in, you can do a lot of the basic mixing tasks within Eco"

sample import, for example. There are also a few other less immediately apparent changes: you don't get the second set of ambient mics; the bleed option is limited to one global control that adjusts kick bleed into the snare channel; and the library includes no hits played with brushes or rods. However, Eco is compatible with all of the BFD expansions, the only restrictions being the 24-velocity-layer limit and 16-bit rather than 24-bit resolution.

Beating off

So how does it sound? Eco includes five kicks, six snares, 12 toms, three hi-hats, 11 cymbals and six percussion sounds, all sourced from the main BFD2 library, and all excellent – the Slingerland snare and the Pearl Masterworks kick are particular highlights. With 11 hi-hat articulations and five snare articulations, you can produce very convincing drum parts. And with plenty of processing options built in, you can do a lot of the basic mixing tasks, such as EQ and compression, within Eco's interface.

Where Eco really scores points is with its style-labelled preset system. This enables you to load a complete style-specific preset (ie, kit and mixer settings), but you can also load just the kit or just the mixer settings, or even just one kit piece complete with its channel settings and plug-ins. You can thus build or modify kits by quickly loading sounds complete with ready-to-go processing. Once you're done, you can then save your custom kit as a preset.

Moving on from this, you get a bunch of 'artist' presets, many of which include a ready-allocated groove track. Once again, it's all about quick, easy results.

Gunning for glory

So, are there any downsides? First up, we found the fixed-velocity auditioning using the main kit graphic to be less than satisfactory. You can Alt-click the small channel icon for variable velocity previewing, but this is fiddly – the larger graphic is surely better suited to it.

By default, BFD Eco's 'anti-machine gun' mode is disabled, so repeatedly playing the same hits can sound robotic. Enabling the mode randomises the velocity layers used, but we found the results too inconsistent at times, sounding as if accents were being added. To be fair, EZdrummer's stock library suffers from similar issues, but it's a shame the feature can't be enabled per kit piece, to give, say, a rock solid kick drum, but more liveliness elsewhere.

Finally, it has to be said that you may find yourself wanting more choice, which means paying for expansion packs, so bear this in mind when weighing up the price. Even so, you get more kit pieces than Eco's main rival, EZdrummer, not to mention those tweakable built-in effects.

Overall, BFD Eco's interface won us over, with the split screen design making it easier to use than BFD2. In a similar vein, the simple drum track system sidesteps the complexities of BFD2's grid-style groove programmer. All in all, BFD Eco is a surprisingly powerful drum instrument given its price point, and is backed up by a great add-on library, but power users will still prefer the more option-rich BFD2. **cm**



A few of Eco's effects in action – here we can see EQ, Comp Chan (channel compressor) and Drive



Peruse the supplied grooves and chain them in the sequencer to make a song

Get into the groove

Eco's Grooves page combines a MIDI groove browser, with a simple single-track drum sequencer. Like most drum instruments, you can use this to choose grooves from the library, then drag-and-drop them as MIDI data into your host. Alternatively, you can add grooves to the built-in drum track, creating a preset-based sequence within Eco. Note that when doing this, you can't modify the MIDI on a note-by-note basis, although you can trim, drag, copy and paste the patterns. Finally, it's possible to select a single groove in the browser and have Eco play it in sync with your host (single mode) and this is good if you fancy spinning through some patterns with your DAW track playing.

So far, so good, but beyond this, you also get four 'groove effects': Quantize, Humanize, Simplify and Swing. These enable you to quickly adjust the grooves, and if you drag-and-drop the effected grooves into your host, the MIDI data is modified accordingly. We found this great for quickly piecing together variations on drum parts.

One slight annoyance is that Eco's tempo always syncs to the host, which means you can't audition grooves in the browser at their original tempo without continually tinkering with the host tempo setting.

Alternatively

Toontrack EZdrummer
cm102 >> 9/10 >> £99
Simpler than Eco, this popular drum ROMpler sounds excellent

Sonoma KitCore Deluxe 2
cm139 >> 8/10 >> $99
If you crave grooves, this has over 3000 by famous drummers

Verdict

For
- Easy kit, mixer and channel presets
- Excellent split-screen interface
- Expandable through BFD add-ons
- Usable groove presets
- Competitive price

Against
- Auditioning not ideal
- Occasionally inconsistent round robin

Eco offers a sensible combination of ease of use and flexibility, all with BFD's famously good sound

8/10

Contact Sonic8, 08701 657456
Web www.fxpansion.com

Universal Audio FATSO $299 PC MAC

ON THE DVD

Hear FATSOs Jr. and Sr. and read all about them in the manual

A heavyweight contender from the analogue processing world makes its digital debut, intent on fattening your mixes

> Empirical Labs' EL7 FATSO – Full Analogue Tape Simulator and Optimiser – is a 1U rack processor designed to reproduce the sonic characteristics of tape, transformers and valves. However, its transfer to the software domain has enabled UA (and original designer EL's Dave Derr) to extend the capabilities, providing two plug-ins: FATSO Jr., which is a replica of the original unit, and an extended effort, FATSO Sr.

FATSO comprises four effects: harmonic generation with soft clip, high-frequency saturation/limiting (Warmth), transformer and tape head emulation (Tranny), and compression. The former creates some second- (octave) but mostly third-order harmonics (octave plus a fifth), and helps articulate low frequencies and add mid-range bite.

Things get more interesting with the Warmth section, which replicates the treble saturation of analogue tape, creating, amongst other things, momentary high-frequency reduction for transients. Tranny pursues the low frequency saturation of transformer input and output stages, adding mid-range clarity and helping bring out bass sounds where the fundamental frequency is inaudible (on small speakers, say). Finally, FATSO Jr. has three compressor modes (Tracking, General Purpose and Bus) that can work in conjunction with the limiter mode (Spank), which can be used on its own, too. Each mode is basically a preset with fixed attack, release and ratio, and is heavily influenced by the classics emulated in EL's Distressor.

So FATSO, so what?

We found that FATSO Jr. acts just like the hardware. This even goes as far as the selection buttons (Comp, Warmth and Tranny) that cycle round their options with each push. Levels are adjusted against a fixed threshold using the input control. FATSO also exhibits interrelated behaviour, whereby input level/compression options affect clipping, harmonic generation and warmth. Here, we found the indicators for compression, warmth and distortion helpful.



So, what's FATSO Jr. good for? Unsurprisingly, fattening snares and adding low-mid punch to kicks proved successful. For that big, squashed room/overhead drum sound, there are plenty of options, including taming the cymbals with the warmth control. Note that each compressor has very distinctive behaviour – check out the PDF manual for full details.

Beyond this, we naturally drifted towards bass guitar, acoustic guitar and also piano, enjoying FATSO's ability to round out sounds by combining compression and saturation. We even stuck it across a whole mix to add glue and edge. However, we wouldn't recommend using it on too many sounds – each mono instance racked up 26% DSP of our UAD-2 Solo (note that Jr. and Sr. have the same DSP hit), so we were limited to a maximum of three mono instances.

Overall, you should buy FATSO for its sonic footprint (carefully transferred from a proven hardware unit) and its excellent custom upgrade, FATSO Sr. However, the hardware-style mode switching feels clumsy in the software domain, and having two versions (Jr. and Sr.) seems like an unnecessary gimmick. **cm**

Contact Source Distribution, 020 8962 5080
Web www.uaudio.com

Senior moment

FATSO Sr. loads with a 2U interface. The top half is the same as Jr., with the bottom half harbouring extra controls. There's compressor threshold with attack and release options, and a high-pass filter for the compressor sidechain. When the threshold is set to 5, it's the same as FATSO Jr., and you cycle the other parameters round their values (four settings each) using the buttons. With no LEDs lit, they're effectively in bypass, so you just get the default values of the Jr. unit. You also get a Tranny Level knob (again, 5 is the same as the Jr.) and an LF saturation indicator LED.

These controls – and the attack/release in particular – make FATSO Sr. far more flexible and we found it capable of far more extreme results. Since it's basically the Jr. with under-the-hood controls exposed, the DSP hit is the same. In fact, we have to wonder why UA didn't just make one FATSO plug-in with the extra options in a fold-down panel.

System requirements

PC 256MB RAM, Windows XP/Vista (32-/64-bit), UAD-2 card, VST/RTAS host

Mac 256MB RAM, OS X 10.4/10.5, UAD-2 card, AU/VST/RTAS host

Alternatively

Wave Arts Tube Saturator
cm148 >> 8/10 >> $100
Realistic analogue distortion and EQ, but very CPU-hungry

VirSyn VTape
cm123 >> 8/10 >> €169
Bundle including tape plug-in with adjustable bias, wow and hiss

Verdict

For
- Great hardware faithfully recreated
- Highly useful for drum processing
- Clever Warmth control
- FATSO Sr. offers far more flexibility

Against
- Large DSP hit
- Having two versions seems unnecessary
- Hardware-style button behaviour

FATSO can bring something special to your mixes, although it shouldn't be mistaken for a workhorse compressor

8/10

cm DVD
ON THE DVD
Hear MMP doing its thing on acoustic piano/guitar and read the manual

Universal Audio PC MAC
Manley Massive Passive $299

Yet another piece of sturdy analogue hardware replicated in software form for the DSP-powered UAD-2 platform

COMPUTER MUSIC PERFORMANCE Award



> Manley Labs do nothing by halves, and their Massive Passive (aka Massivo) is an amazing piece of engineering that takes a Pultec-style passive EQ as its starting point and runs with it. The result is a stereo 4-band passive EQ (in a parallel configuration) with high- and low-pass filters, an all-valve gain make-up stage and transformer-balanced outputs.

Each band can be switched to cut or boost (20dB maximum in bell mode) and can work as either a bell or shelf – both can be modified using the bandwidth. Frequency selection is notched (11 frequencies per band), and there's considerable frequency overlap across bands. The parallel EQ design means that if you EQ the same or similar frequencies in two bands (for example), the gain doesn't 'double up'.

This brings us neatly to the bandwidth/gain interaction. In a typical 'constant bandwidth' EQ, gain levels may influence bandwidth, but not vice versa. With this unit, the bandwidth *does* affect the gain, and you'll only get the maximum 20dB gain when the bandwidth is at its narrowest. At its widest setting, gain will max out at 6dB (2dB for the 22Hz to 1kHz band).

In shelf mode, adjusting the bandwidth takes the slope from a typical shelf to a shape with a reverse bell around the frequency point (called a shelving overshoot). So, boosting in shelf mode with maximum bandwidth produces a marked bell dip (6dB) at the designated frequency.

Passive aggressive

While we wouldn't call the Massive Passive surgical, it's still very powerful, particularly with narrow bandwidths. In use, we particularly liked the bell shape for boosting low and low-mid frequencies and combining these with the high-pass filter worked well on bass guitar and acoustic guitar. Similarly, for top end sparkle the bell shape delivers a classic Pultec-style lift.

What's most surprising is the shelf. The bandwidth control turns this from a gentle, broad enhancer to a more extreme beast altogether, and boosting with maximum bandwidth gives a big scoop with a steep shelf just above. This is great for adding 'air' when set to 16, 12 or even 8.2kHz, but the sharpness can be very obvious at lower frequencies.

In practical terms, there's plenty to commend. Firstly, the cut/boost design means you can seek out undesirable frequencies in 'boost' then simply flip the switch to 'cut' to remove them. Also, the band overlap means you can use two bands to create a smooth, broad lift or cut.

We compared UAD's emulation to the one in Focusrite's Liquid Mix version, called the Huge Tube. On a single band basis, they sound very similar, but the Liquid Mix lacks the parallel topology, so with two or more bands, the UAD behaves much more like the original hardware.

Finally, it's worth saying that one stereo instance used 60% of our UAD-2 Solo card – certainly a consideration. And we did also experience some bass 'thuds' when using high gain and switching frequencies. Overall, though, this is an excellent software version of a superb piece of hardware. **cm**

Contact Source Distribution, 020 8962 5080
Web www.uaudio.com

Obey your master

As well as modelling the standard Massive Passive, Universal Audio have also included the Massive Passive Mastering Version as an extra plug-in. This hardware variation came about in response to demands for a more easily recallable and stereo-friendly unit. So, they added notched bandwidth and gain controls. Just like the original, gain is dependent on bandwidth, so one notch is not a fixed amount of gain, but the notches do help in like-for-like recall situations.

So why the need for a software version? Well, Manley made some other changes. First up, the maximum gain was reduced to 11dB, allowing for more accurate settings. Next, the filters are at different frequencies (12, 16, 23, 30 and 39Hz high-pass; 15, 20, 27, 40 and 56kHz low-pass) and offer a slightly flatter shape up to the knee point. Finally, the master gain trims offer less gain overall (-2.5dB to +2.5dB) and are also properly detented in 0.5dB steps.

System requirements

PC 256MB RAM, Windows XP/Vista (32-/64-bit), UAD-2 card, VST/RTAS host

Mac 256MB RAM, OS X 10.4/10.5, UAD-2 card, AU/VST/RTAS host

Alternatively

Focusrite Liquid Mix
cm104 >> 10/10 >> £380
A DSP-powered system that mimics passive EQs and more besides

AnalogInTheBox Mammoth EQ
N/A >> N/A >> €15
This EQ for Nebula is purportedly 'inspired' by the Massive Passive

Verdict

For Sounds excellent
Powerful shelving bandwidth feature
Tailored filters for two versions
Bell and shelf on each band
Includes mastering version

Against Big DSP hit
Can 'thud' when changing settings

Perhaps the most impressive EQ yet from Universal Audio, albeit at the expense of a sizeable strain on your UAD-2 card

8/10



Magix Vandal £155

PC MAC

cm DVD ON THE DVD

Hear Vandal rockin' hard, read the manual and try the demo for yourself

New territory for the Sampliduds, as they enter not just the saturated amp sim arena but the Mac market, too. Is it another Magix moment?

System requirements

PC P4/Athlon 1.5GHz, 512MB RAM (1GB for Vista), Windows XP/Vista/7, VST host

Mac Intel CPU, OS X 10.4, AU/VST host

> The Vandal guitar/bass amp simulator first saw the light of day as one of the included plug-ins contained within Magix's Samplitude DAW for PC. Now it's available as a separate product, and what's more, it's available for Mac, too – a first for Magix. Like most amp simulators, it provides a variety of virtual amps, cabs, miking configurations and effects. Unlike many of them, though, it uses physical modelling rather than impulse responses to calculate the behaviours of the speaker, cabinet, recording space and microphones.

Axing lyrical

Installation is via a single disc, and a download version is also available from the Vandal website (the boxed version includes Samplitude Silver for PC). There's no standalone version: Vandal is a VST/AU plug-in, with a single-screen interface.

The positioning of components in the UI follows the route of your signal. The strip at the top is where I/O levels can be set, presets loaded and MIDI control managed. Each patch in Vandal comprises four complete setups (aka scenes) and these are intended for creating variations for use throughout a song – eg, to bring in a delay effect during a solo, or switch to a clean sound and so on. Annoyingly, however, there's a digital click when you switch presets – it's not loud, but it's noticeable. Hopefully this problem will be cured in an update.

There are about 80 presets, and as well as a bunch of generic ones, there are folders for some that mimic real amps (US Hotrod Stereo, Brit800 Lead, etc) and thinly-disguised song-mimicking patches (eg, Smoking Under Water). Many of the presets feature multiple scenes, too.

The amp section is where Vandal starts to diverge from most of its competitors. It's not based on any real hardware, and in fact, there's 'just' one guitar and one bass amp. Magix's philosophy is that, owing to the flexibility of the two amps, you'll be able to dial in a tone for any occasion, and there is indeed plenty of variety to be had. You can choose your preamp model (Modern High Gain, British, Classic), select a channel (Clean, Crunch, Lead) decide on Class A or A/B power amp and dial it all in with typical amp-style controls. The Voicing section's Freq and Curve controls introduce an EQ curve

"Sound-wise, Vandal's strengths mainly lie on the 'crunch-to-metal' tonal continuum"

throughout the amp circuitry, giving dramatic tonal variations. The bass amp has different controls and includes an opto-compressor – see the manual on the disc for details.

Any guitar or bass player will tell you that the subjective playing 'feel' of an amp is a crucial factor for inspiration. In our tests, we deemed that Vandal often felt slightly closer to a real amp than two of its esteemed competitors, Guitar Rig 4 and Amplitube 3. Sound-wise, its strengths mainly lie on the 'crunch-to-metal' tonal continuum.

Clean sounds, such as the Funk Auto Wah and Jazz Combo Room presets, didn't especially impress – both GR4 and Amplitube do these kinds of sounds better, we reckon. The rich, complex and abstract guitar effects that GR4 can provide (and which some people find useful on a variety of sounds, not just guitars) aren't Vandal's department either, which is fair enough. On the bass side, we found it fairly easy to dial up usable tones for many styles.

Pedalling progress?

As for stompboxes, you can use up to four at once, and there's a fair range to choose from. They all have neat retro GUIs, too, with Magix promising more pedals in future updates. There are four overdrive/gain pedals, which cater for the sounds that Vandal is best at, from bluesy crunch to 'scooped' metal tones.

Moving on, there are three modulation pedals for guitar and one for bass; two types of delay (digital and a bucket-brigade emulation); three compressors, including one for bass; volume pedal; wah-wah; auto-wah; and two EQs. The stompboxes are a bit of a mixed bag – we found the guitar compressor to be a decent enough replacement for something like an MXR Dynacomp, for example, whereas the Phaser/Tremolo seemed tonally quite limited.

The studio effects at the end of the signal chain don't particularly distinguish themselves. Furthermore, you can only use two at once, so hard luck if you want overall compression, reverb and EQ, which is a perfectly standard combo. There are no filters on the delays either, meaning they can build up and sound muddy.



Flipping through Vandal bass presets – note the bass amp head across the central section of the interface



Advanced options include enclosure damping, which can be used to temper boomy tones

Housing benefits

The speaker, cabinet, room and mic are the physically-modelled components of Vandal, and are thus potentially its most interesting assets. As well as 12 speaker types ranging from 10" to 15" cones in numerous sonic flavours, Vandal offers a small choice of cabs: five guitar, two bass. This leads to a lot of possible combinations, including artificial ones like placing 15" speakers in a 12" cab. With the advanced settings, you can vary speaker distortion (something that straight-up impulse responses can't replicate), set the balance between speaker/enclosure and tweak the cabinet's damping, all to get a tighter, less boomy sound.

Not unusually, the microphone setup consists of two mics, but for each, you have only a choice of condenser or one of two dynamics. Still, obtaining infinite variations of sound is easy enough with Vandal – it's just a matter of tweaking the controls to vary the axis/distance and set pan, mic phase and levels. Room size is variable and so is degree of damping of sound, and these parameters have subtle and realistic effects on the sound. We compared Vandal's cab/mic/room simulation to that of AmpliTube 3, and we'd say that AmpliTube generally came across as a touch more 'in your face', but Vandal reminded us more of a real rig.

MIDI control was badly flawed in the initial release version of Vandal that we tested, but Magix are well aware of the issues and are working on a fix – in fact, they let us try a work-in-progress beta and it was indeed much more well behaved, and also had some neat new features, such as mic delay knobs.

Light as a feather

One very attractive facet of Vandal is that it's easy on your CPU. We thought Overloud's TH1 amp sim was a lightweight, but Vandal is even more so, and in comparing the two with similar amp/effects configurations, we could run around 50-60% more instances of Vandal before our computer choked. Impressive! Also appealing is the simplicity of the GUI, with pretty much everything laid out right in front of you.

Vandal is a young product, but it already provides a good deal of tonal inspiration for recording. It's not for those who crave the look and feel of a big range of classic amps, but what it does provide is a highly realistic playing experience that should appeal to many of the axe-wielding population. **cm**

Contact Unity Audio, 01440 785843
Web www.vandalamps.com

Alternatively

NI Guitar Rig 4 Pro
cm147 >> 8/10 >>€179
The big new feature for v4 is the Control Room with mic blending

IK Multimedia AmpliTube 3
cm151 >> 9/10 >> €318
Zillions of modelled classics and a great sound with this stalwart sim

Verdict

For	Highly realistic playing feel
	Bass amp included too
	Great rock, blues and metal tones
	Simple, clear interface
	Extremely CPU-friendly
Against	No standalone version
	Rack effects are a bit basic
	A few bugs and quirks at present

Vandal isn't feature-heavy, nor is it covered in faux Marshall logos, but it's got it where it counts, with impressively real amp tones

8/10

Toontrack EZmix £45 PC MAC

cm DVD
ON THE DVD
Hear EZmix jazzing up a snare, guitar and beats, and read the manual

For the inexperienced or time-strapped, a professional mix can prove elusive. Will EZmix change all that?

> Making music using a computer is an increasingly popular activity, but if you want your tunes to sound professional, you need to delve into the often complex art of mixing. Grasping the basics of fundamental mix effects like equalisers (EQ), compressors and reverbs can be hard enough, but learning how to use them to make a great mix can take years. However, for those who like it quick and easy, Toontrack claim to have the answer in EZmix.

The idea is that instead of using chains of effects plug-ins, you place EZmix on each channel in your mix (guitar, keyboards, vocals, snare drum, etc). Under the hood, EZmix uses its own effects to process the sound, the exact chain depending on the preset. The 16 underlying effects come from Overloud, developers of TH1 and Breverb – check out the manual on the disc for the full effects list.

There are just over 200 presets (see boxout for more info), including 89 general purpose ones (EQ, compression, delay, etc), 60 that are drum-specific (kick, snare, drum bus, etc), as well as 15 for vocals and 11 for guitars. Broadly speaking, the presets are aimed at rock music.

The sound can be adjusted with the three faders. The rightmost fader always works as a volume control, but what the other two faders (Shape and Blend) do changes from preset to preset, as indicated in the info box. This shows the effects chain of the preset (eg, EQ, chorus, limiter) and details on which of them the Shape and Blend faders will affect. Shape might dial in compression and boost the treble, for example.

EZ does it

In use, it's all pretty 'EZ'. We found ourselves spinning through every preset in an instrument category to find something appropriate, then tweaking as best we could. At times, this was fine – at others, we wished for deeper control.

Overall, the effects do sound pretty good, with solid compression, reverb and chorusing.



The distortion and bit-crusher sound excellent on drum loops, and there are some cool multieffects presets in there, including a couple of 'telephone' options. Unsurprisingly, the drum presets work very well with Toontrack's EZdrummer, although we discovered that the default output levels from Superior Drummer 2.0 weren't loud enough to trigger some of the gated presets properly, and there's no input level control to remedy this.

Clearly, EZmix is intended to make complex processing more accessible and quicker to achieve, and this it does well. While you still need a decent ear to get the best from it, it's far harder to make a mess of things than it is with conventional plug-in chains. It's also handy for anyone who needs to mix in a hurry or make rough mixes on the move (it's light on CPU, too – great for laptops). However, if you can't find the effect you want, or you want to adjust EZmix beyond the limits of its trio of faders, there's a chance you'll either end up frustrated or reach for other plug-ins to achieve your goal. **cm**

Contact Time+Space, 01837 55200
Web www.toontrack.com

COMPUTER MUSIC INNOVATION Award

System requirements

PC P4/Athlon CPU, 512MB RAM, Windows XP (SP3)/Vista/7 (32-/64-bit), VST/RTAS host

Mac G5/Intel CPU, 512MB RAM, OS X 10.4.11 (32-bit hosts only under 10.6), AU/VST/RTAS host

Alternatively

Luxonix LFX-310
N/A >>N/A >> Free
A multi-effects plug-in that can run up to three effects simultaneously

u-he Uhbik
cm139 >> 10/10 >> $237
Excellent effects bundle that will complement and bolster your DAW's built-in ones

Verdict

For Good effects
Quick search option
Small screen footprint
Pairs up nicely with EZdrummer

Against Could do with more presets
You may want more editing options
No input level control or metering

If your focus is on making tunes rather than production techniques, EZmix could be a time- and sanity-saving investment

7/10

In search of...

EZmix features a dead simple preset management system that's always visible on the left-hand side of the screen. This includes columns for Genre (Pop, Rock and so on), Instrument (Drums, Guitar, All, etc), Type (Reverb, Master, Insert, etc) and Producer. All of the columns can be sorted alphabeticall and resized horizontally, and you can add or remove them to taste.

However, the real strength in the preset system lies in the free text search located at the top. This is the key to using EZmix effectively, and once you've found the right sort of presets, you can still sort them by column (alphabetically, for example). You can also tag the presets that you like and bring them up in a separate favourites list. This includes the same sorting options as the main list, but also enables you to duplicate, rename and save modified presets, enabling you to build up your own set of custom presets.

Voxengo PC MAC Deft Compressor $100

cm DVD ON THE DVD
Hear Deft Compressor at work, read the manual and try out the demo

Another compressor from Voxengo, this time featuring a slinky sigmoid attack/release curve

> Voxengo main man Aleksey Vaneev has been fortifying his plug-in empire for years now, presenting a selection of affordable but well thought-out and great-sounding processors. His latest is the Deft Compressor, and this time the emphasis is less on heavy colouration (like Crunchessor) or transparent mix glue (à la PolySquasher) and more about clean, fast bus/track compression.

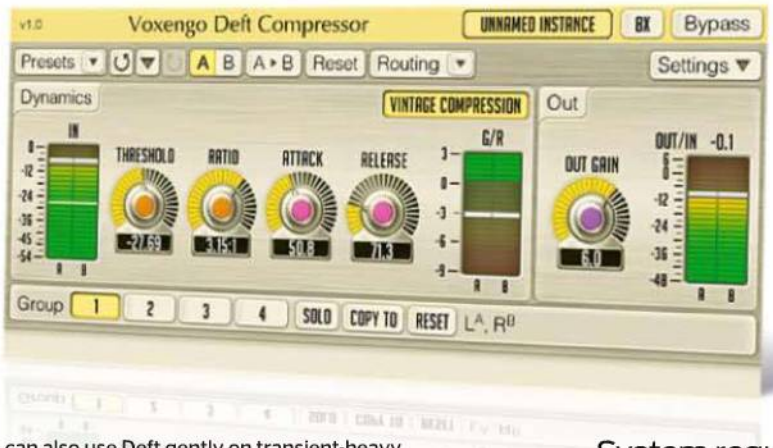
Deft's controls are very simple: Threshold, Ratio, Attack and Release. Ratio goes up to 20:1, but three quarters of the dial covers ratios from 1:1 to 5:1, for greater accuracy in this region. Attack ranges from 0.1ms to 300ms, and Release from 1ms to 2s (note that there's no auto release option), so we're not talking super-fast 1176-style attack, though it's pretty swift on the release.

Makeup gain is automatic, and there's a manual output level as well. A Vintage Compression switch adds a small amount of saturation and if you need more, you can also drive the output gain. Key to Deft Compressor is its novel S-curve approach to the attack and release stages – see the boxout for more on this.

Ideal standard

One appealing feature of Voxengo plug-ins is their standardised interface and routing. This allows for flexible processing (M/S, 5.1 and dual mono) and you'll also find excellent speed and hold options for the metering, various global control settings (including mouse wheel precision), GUI colour options, and undo/redo with a history dropdown. For improved sonics, you've also got 1x, 2x, 4x and 8x oversampling options – you'll notice the CPU usage creep up as you increase these.

So how does it sound? Well, it's a game of two halves. You can set very short attack and release times and use Deft to punish kick and snare transients or create pumping compression on drum kit room mics. But in all honesty, there are probably better compressors for this task. You can also use Deft gently on transient-heavy sounds to add snap and punch – combined with the vintage mode, this can really fatten them up.



However, where Deft excels is in subtly handling high and low frequencies – particularly the latter. It's not that it's completely transparent, but we found it to be excellent on bass guitar, acoustic guitar, vocals and, to some degree, acoustic piano. It basically lets you 'bring up' these sounds when set to quick (though not the very quickest) release times, but without the associated distortion. The results are slightly coloured, at times reminiscent of an optical compressor, but always musical. With wide-ranging release times, you need to be accurate with your settings, but the interface is easy to use and offers plenty of visual feedback.

Overall, Deft Compressor is an interesting concept not least because it isn't trying to mimic an existing compressor design. At $100, they're hardly giving it away, but if you're looking for an alternative tool that's musical and simple to use, it's worth taking this one for a test drive. **cm**

Contact via website
Web www.voxengo.com

Ahead of the curve

A compressor can have linear attack and release behaviour, but useful though this is, history has shown us that analogue compressors are highly desirable for their non-linear behaviour. Optical compressors are a good example, as they often exhibit slow initial attack, and there are plenty of other crazy designs out there, such as dbx's 'over easy' circuit or the famous UREI 1176's multi-stage release, to name just two.

Deft Compressor has an attack and release shape based on a sigmoid or 'S' curve. This results in a kind of three-stage behaviour with a slow onset accelerating to a mid-point, then decelerating towards the end. The idea is that this gives warm colouration without too much distortion in lower frequencies, and this is precisely what we found when putting Deft to use. You don't get such a sudden 'drop', and this seemingly helps reduce distortion, especially with faster release times.

System requirements

PC 2GHz dual-core CPU, 1GB RAM, Windows XP/Vista/7 (32-/64-bit), VST host

Mac PPC/Intel CPU, 1GB RAM, OS X 10.4.11, AU/VST host

Alternatively

Stillwell Audio Bombardier
cm152 >> 9/10 >> $59
Affordable, flexible and wonderfully smooth bus-style compressor

Softube Tube-Tech CL 1B
cm150 >> 9/10 >> £320
Pricey, but you get what you pay for with this ace opto compressor

Verdict

For
- Musical-sounding compressor
- Copes well with bass frequencies
- Can be used to fatten transients
- Useful Voxengo interface features
- Oversampling option

Against
- No auto release
- Has to be set carefully for best results

It's not a do-it-all compressor, but Deft is different enough to make it attractive as an addition to your dynamics toolbox

8/10

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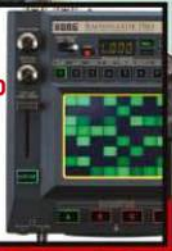


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NuGen Audio Stereoizer 3 $99

PC MAC

ON THE DVD

Audio examples, the manual and the demo are all on your cm DVD

Never mind the quality – feel the width! But what if you could have both? That's what this stereo enhancer claims to offer

> A glance at Stereoizer 3 reveals that NuGen Audio have been very busy: they've basically rewritten the entire plug-in, taking their stereoisin' game to the next level. The aim is the same, however: to make mono sounds stereo, or stereo sounds, er, stereo-er.

Stereoizer 3's interface relates closely to the audio. An arc-shaped display represents both the stereo width and frequency ranges of the plug-in's two main processes. Shining through this is an analyser that indicates frequency content and deviation from the stereo centre.

Stereoizer 3 employs two width-inducing algorithms, IID and ITD, and this is the most significant change. The first, inter-aural intensity difference, concerns relative level differences between left and right channels – when a sound is louder in one channel than the other, it seems to come more from that direction. So in simple terms, IID creates a stereo effect by applying frequency-dependent panning.

By contrast, inter-aural time difference (ITD) adds stereo width by creating left/right timing differences. On the arc display, the IID width is set by moving a 'radius' line from centre to left, and there's a line that moves the other way for ITD width. Moreover, both effects have shiftable upper and lower frequency boundaries.

Beyond this, Stereoizer 3 retains the standard linear width adjustment of previous versions. There's also overall left/right output balance (with L/R solo), stereo image meter, automatic gain control, phase shift and a mono button for checking mono compatibility. Finally, similar to Stereoizer v2, there's an LFO for modulating both IID and ITD algorithms, but this time you get full control over it – see boxout for more.

While it may sound a bit scientific, Stereoizer 3 is easy to get to grips with and the option to bypass IID and ITD means you'll soon grasp their 'sound'. We found that IID produced a subtler, more rounded effect, whereas ITD is wider.

We tried Stereoizer 3 on a range of mono and stereo sources, including synth bass, drum loops, live drums, piano, acoustic guitar, synth pads and vocals. The results were great, and definitely better than with v2. Also, the analysis display offers useful feedback on the dynamic nature of the effected stereo signal.



COMPUTER MUSIC PERFORMANCE Award

Wideboy

The option to restrict the range of affected frequencies is very powerful, enabling tricks such as widening only the treble content of signal. And for more aggressive band-pass-style processing, there's IID's Focus option.

Unlike most stereo enhancers we've tried, the sound doesn't become either phasey or grainy, but remains smooth and rich. Stereoising mono sounds in particular can be a tricky business that quickly leads to phase cancellation or unwanted flanging/chorusing artifacts. NuGen's approach minimises these issues, giving you two distinct types of very usable enhancement. Overall, we're enormously impressed with the new interface and sound of Stereoizer 3. **cm**

Contact info@nugenaudio.com
Web www.nugenaudio.com

Beyond stereo

Stereoizer 3 has some funky additional features to play with. You can modulate the IID and ITD effects with a choice of LFO shapes and free or tempo-synced timing. There are also some extra functions for IID (Resolution, Focus and Invert) and ITD (Acuity and Fill), plus you can link IID and ITD, so their settings change in a relative way. See the manual on the disc for full descriptions of all of Stereoizer's functions.

From a sonic perspective, IID's Focus option has quite an impact. We found it enabled much steeper boundary frequencies and so resulted in a far tighter, more targeted effect. Also significant is Resolution (also an option found on v2), as this affects the density of the effect. High settings give smoother and more usable results. Most significant for ITD is the Acuity setting – we found it could affect where transients appear in the stereo field, and setting it required some trial and error.

System requirements

PC Pentium 1.4GHz, 512MB RAM, Windows XP/Vista/7, VST host

Mac G4 1.4GHz/Intel Core Duo 1.66GHz, 512MB RAM, OS X 10.4, AU/VST host

Alternatively

MeldaProduction MStereoProcessor
N/A >> N/A >> €74
This multiband design includes frequency-specific enhancement

Voxengo Stereo Touch
N/A >> N/A >> Free
Nifty delay-based plug-in with high- and low-pass filters

Verdict

For Two enhancement processes
Great interface
Useful analysis display
Dynamic modulation for creative effects
Helpful auto-gain feature
Output balance and metering

Against Nothing major

A terrific new interface and an even better sound make Stereoizer 3 perfect for enhancing mono or stereo sound sources

9/10



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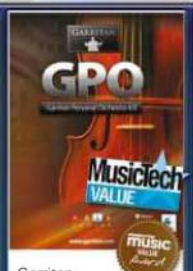
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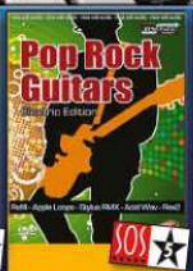
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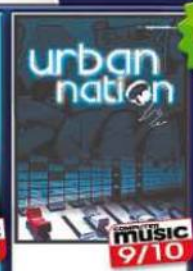
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Slate Digital PC MAC Trigger Platinum £255

cmDVD ON THE DVD

Hear Trigger in action, and read about all its features in the manual

You wait an age for a new drum replacement plug-in, then, like buses, two have come along at once! Trigger's up first...

> Slate Digital's debut product is Trigger, a drum replacement plug-in. You feed drum parts (ie, from multitrack recordings) into it and it outputs 'triggered' audio, or a blend of the dry/wet signals. For a fuller explanation of drum triggering, see *Busting Jargon* on p13.

Before you can dial in the triggering settings, you need to load up a sound. We're reviewing the Platinum edition of Trigger here, which is currently the only version (the EX edition should be out by the time you read this), and it comes with more than 30 kicks, eight banks of toms and 45 snares, accessible via the instrument browser. The samples offer direct mics, stereo overheads, room mics, and some reverbed sounds too. They're all fantastic quality – we actually had trouble finding any we didn't like!

The bundled samples feature 'articulation modes', which can give a harder or softer overall sound. Up to six sounds can be layered, each with volume, tune, pan, amplitude envelope, etc. There are dynamics and velocity response curves too. Trigger imports WAV/AIFF and can output MIDI, so you could use it to drive a drum instrument like Battery, BFD2, etc.

Trigger happy

The upper part of Trigger's interface shows the incoming audio level in blue, with orange flags whenever a trigger point is generated. The display also houses controls for the high-pass filter, Leakage Suppression (see boxout) and dry/wet mix. Getting Trigger to track the input is easy. First adjust the input level, then increase the Detail dial until the line representing it is just above the 'noise floor'. The Sensitivity knob is set according to the playing intricacy, while the Retrigger control can help alleviate flamming.

Trigger offers a Live mode with 2ms latency (potentially for stage use with a laptop, or for studio monitoring when recording) and Accurate, at 11ms. Live mode is comparable to a high-quality hardware drum module (eg, ddrum), while for mixing, Accurate mode claims to align the samples to be precisely in phase with the original audio.



We tested Trigger using a variety of material, from rock drumming to hard-to-track material involving double strokes around the entire kit. We also recorded some deliberately variable, inconsistent parts – this kind of playing is a prime candidate for being triggered to MIDI so that the timing can be corrected, but it can be a challenge to trigger properly in the first place.

Amazingly, Trigger handled everything we threw at it – even soft ghost notes amid busy tom fills were picked up thanks to the superb Leakage Suppression feature. Once dialled in properly, mistriggers were very occasional, and nothing that a little automation or MIDI editing couldn't fix. The Accurate mode really works too, maximising coherency and tightness when the samples are blended with the audio.

We have to say that Slate's offering beats anything else we've tried, raising the bar considerably for all would-be competitors. **cm**

Contact sales@studioxchange.co.uk
Web www.slatedigital.com

COMPUTER MUSIC EDITOR'S CHOICE Award

COMPUTER MUSIC PERFORMANCE Award

Bleeding edge technology

When recording drums, it's inevitable that hits from all around the kit will bleed into every mic to some degree. This can play havoc with drum replacement, as a loud tom hit might inadvertently trigger a snare drum sample, for example.

To combat this, Trigger has an innovative feature dubbed Leakage Suppression. To use it, you send the drum channel to be triggered (eg, snare) to Trigger's left input, and the channels that are leaking onto it (eg, toms, hi-hat) to the right – now trigger can exclude the leaking hits from the triggering process. In use, this can vastly improve tracking, especially on complex snare parts when there's a lot going on elsewhere. Trigger is thus able to track ghost notes more accurately, ensuring that the life is not sucked out of a performance.

Setting up the routing can be fiddly, but you only have to do it once per song, and you can always make a template for it.

System requirements

PC Intel/AMD CPU with SSE2, 1GB RAM, Windows XP/Vista/7 (32/64), 2.4GB HD space, VST/RTAS host, iLok

Mac G5/Intel CPU, 1GB RAM, OS X 10.4 or later, 2.4GB HD space VST/AU/RTAS host, iLok

Alternatively

Avid Pro Tools 8
cm136 >> 9/10 >> £Varies
This DAW's 'tab to transient' feature has long been used for triggering

WaveMachine Labs Drumagog 4 Pro
cm88 >> 8/10 >> £290
Slightly long in the tooth but still decent, with v5 coming soon

Verdict

For Amazingly accurate triggering
Brilliant Leakage Suppression function
Bundled samples are top class
Phase-accurate replacement
Dead easy to use
Live and Accurate modes

Against Nothing!

Trigger is the new gold standard in drum replacement software. It's easy to use, triggers like a dream, and sounds terrific

10/10

SPL PC MAC

DrumXchanger £299

Another challenger enters the drum replacement arena, but is this one a genuine contender or a pretender to the throne?

> On the surface, SPL's DrumXchanger seems the same as Slate Digital's Trigger, being a phase-accurate drum replacement plug-in with a sampler section and multi-velocity sampled drum kits (1GB of them, in this case). It differs, though, in that it has two transient-shaping stages (see boxout) and high- and low-pass filters for the dry, triggered and global output levels, as well as an editor for creating velocity-based presets from multiple audio files.

At the time of writing, SPL have yet to release a manual for DrumXchanger. Thankfully, the handsome GUI is quite easy to grasp. The first step is to load your samples, and the four kits range from what we'd call a contemporary studio sound to a gnarlier, looser one. The sounds are surprisingly raw – it seems the idea is to apply your own mix treatments to bring them to life, as you would when mixing acoustic drums. You can always load your own sounds, if you require something more 'production ready'.

The detection for the drum replacement is dialled in by setting a green arrow on both transient and level meters, and placing a red arrow at the incoming level you want to trigger rimshots. To facilitate more precise triggering, there's a tunable band-pass filter.

You can use the Dynamics knob to compress the variances of the replaced performance, and there's a dry/wet control. The triggered samples can be tuned, and it's possible to duck the original drums using the generated triggering, to keep the ambience from a mic but replace the initial 'thwack' with a sample, for example. Now let's cut to the chase and try DrumXchanger out on the same material that we fed into Trigger...

We managed to get our kick triggering pretty well without any fuss. But once we moved onto snare and toms, we were in trouble. It was next to impossible to track a snare performance across different types of beats without extra hits being added in at odd moments, triggered by crosstalk from other drums, or parts being totally missed. Keying the triggering from the Transient Designer stage of the original sound made little difference, even when combined with the sidechain and filter functions.



Musical exchanges

We had particular trouble with highly dynamic parts; for example, setting the sensitivity high enough to pick up ghost notes on the snare would result in the toms tripping the triggering mechanism instead – 'drum exchanger', indeed! It's true that you can achieve reasonable drum replacement with a solid performance of simple beats, but fills still sometimes fail to track correctly, and if there's a mixture of subdivisions, DrumXchanger just can't keep up. The fact that we tested it back to back with Slate Digital's Trigger only highlighted the problems further.

To sum up, while SPL's Transient Designer is superb at what it does, it seems that basing a drum triggering plug-in around it just doesn't cut the mustard. Back to the drawing board... **cm**

Contact info@audiopros.eu
Web www.spl.info

Transient lifestyle

DrumXchanger has two transient-shaping sections built in: one operates on the dry, mic'ed sound and the other on the samples. They're essentially identical to the standalone SPL Transient Designer plug-in, and in fact, SPL have bundled in that very plug-in, which is worth £189 on its own.

In case you're unfamiliar, SPL's Transient Designer lets you boost or cut the attack and sustain elements of a signal. Whether you use the TD plug-in or DrumXchanger, it's a great audio tool in its own right, especially if you're planning to blend the samples with the mic track. You could, for example, remove the decay of a rattling snare and sharpen its attack, or do the opposite to make a fat, resonant tone. Overly resonant kicks and toms, meanwhile, can benefit greatly from sustain suppression. It's unfortunate to say that the TD sections and the bonus plug-in are the best things about DrumXchanger.

System requirements

PC VST/RTAS host, 1GB hard drive space, iLok

Mac VST/AU/RTAS host, 1GB hard drive space, iLok

Alternatively

Slate Digital Trigger
cm153 >> 10/10 >> £255
Reviewed opposite, this one is the best in the business, we reckon

Wave Machine Labs Drumagog 4 Pro
cm88 >> 8/10 >> £290
Five years old now, but still not too shabby. v5 is imminent, too.

Verdict

For
Ducking function
Transient Designer functionality
Velocity-based sampler creator/editor
Phase-accurate

Against
Poor triggering
Sounds aren't 'ready mixed'
No manual (yet)

Drum triggering software isn't subjective: it either works or it doesn't. Unfortunately, DrumXchanger just isn't up to the task.

5/10

cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Native Instruments
Alicia's Keys £85

Format DVD, Kontakt 4 library
Contact 2twenty2, 0845 299 4222
Web www.native-instruments.com



NI's latest keyboard instrument is their most high-profile endorsement to date. Developed in collaboration with Alicia and her engineer Ann Mincieli (and with Thomas Skarbye programming) the result is an instrument based on her own Yamaha C3 Neo, and one she's using in the studio and live.

So, what's the score? You've got just one main piano instrument here, but it's accompanied by six tabbed pages with features ranging from algorithmic and convolution reverbs to attack/release behaviour and sympathetic resonance settings. Both sustain and sostenuto pedals are catered for, and if you have a continuous sustain pedal, there's a simulated half-pedalling option. One of the nicest features is simple fader control for mechanical noise, including pedal, key and even microphone hiss.

The pink interface may not appeal to everyone, and the sound lacks some of the natural room character associated with classical piano instruments; however, that clearly wasn't the remit. Alicia's Keys delivers an excellently 'produced' piano sound, with plenty of tone and behaviour-shaping flexibility, all from a fairly compact 7GB drive footprint.

8/10

ProjectSAM
True Strike £320



Format Kontakt 3/4 Library
Contact Time+Space, 01837 55200
Web www.timespace.com

True Strike and its sequel are well-established 'turn to' orchestral percussion libraries for soundtrack and TV work, and they've recently been repackaged in Kontakt Library format.

True Strike now features a custom interface with two-band EQ, delay, ADSR and active articulation readout. The 16GB library has seven categories – timpani, kits, drums and toms, cymbals and gongs, melodic, miscellaneous and small percussion – and each is available from close (2-3 metres), stage (7m) and far (15m) mic positions. It's obvious why True Strike has proved so popular, as the consistency is excellent. Its reputation is further cemented by an excellent array of playing articulations (mapped across the keyboard, accessed via the sustain pedal or, in more complex patches, keyswitching). One example is the timpani roll with optional 'release hit' keyswitch. Further highlights include timpani and suspended cymbal rolls of various lengths, multiple bass drum hits and some excellent body percussion.

True Strike is not groundbreaking, and it's worth saying that even the close mic sample set is quite 'roomy'. However, if you crave that classy Hollywood percussion sound, it delivers it – big time.

9/10

Line 6
MIDI Mobilizer £59

Format iPhone/iPod touch
Contact via website
Web www.line6.com

Line 6 join the iPhone party not with an app but a piece of hardware: the MIDI Mobilizer is a MIDI interface for iPhone and iPod Touch. It's got an iPhone connector on one end, and 5-pin DIN MIDI in/out coming out of the other. Let's cut to the chase – it's not possible to plug this in and play existing apps from a MIDI keyboard. Developers will have to rewrite their apps to take advantage of the device, and there are a few caveats involved in this due to Apple's developer restrictions.

For now, there's only one compatible app: Line 6's free MIDI Memo. It has a huge Play button and a slider to enable record. There's a menu to access previous recordings and an Info page to edit their names and send them via email. MIDI Memo does what it claims, recording and playing back MIDI with aplomb, but nothing more. Why not include a metronome, looping, MIDI file import and layering of recordings? OK, the hardware itself is what you pay for here, and it's high-quality, but it's disappointing that Line 6 haven't given more of an incentive to actually buy it by making a decent app available upon its launch.



7/10

Gleetchplug
Berna €11

Format Mac
Contact sales@gleetchplug.com
Web www.gleetchplug.com



Before Moog and Buchla created the first synths, electronic musicians crafted sounds using tape machines and laboratory test equipment, most of which was never intended for music-making. It was a difficult but often enlightening path. Signal generators generated simple waveforms, while ring modulators, filters, tape echoes and spring reverb tanks were called into action. 'Sequencing' was done by means of splicing bits of tape together – truly time-consuming stuff!

Gleetchplug offer us a taste of these archaic practices with Berna, a standalone vintage electronic music studio for Mac – think of it as Reason for fans of the Radiophonic Workshop. It consists of nine virtual test oscillators; a number of filters; ring, dynamic and amplitude modulators; tone burst generator; noise generator and a beat oscillator. Tape echo and plate reverb are in tow, as is a wicked frequency shifter. Four reel-to-reel decks are used to play samples/loops and record Berna's output. An eight-channel mixer offers level, pan and sends for echo and reverb, with signals routed via an EMS-style matrix. Any setup can be saved and recalled, but Berna won't recall the files that were loaded into the tape players.

So why would you want to go to the same efforts as our electronic ancestors to produce a few burbling beeps and buzzes? Because it's a blast – that's why! Berna is pure joy for anyone who revels in the sci-fi sounds of the 50s and 60s. It sounds fantastic, too, and will almost certainly lead you to strange new territories.

8/10

MusicLab
RealLPC €198

Format VST/AU/DXi instrument
Contact via website
Web www.bestservice.de



MusicLab's latest sampled guitar instrument comes from a Gibson Les Paul Custom. Like RealStrat, it's a single-guitar instrument, with the focus on flexibility. You get get 15 plectrum positions, simulating movement of the hand between the front and rear pickups. Further sound adjustments include basic EQ and levels (pick, fret and release) and control of alternative sounds including mute, strumming and harmonics. You'll also find five round robin options, with a maximum of ten alternates.

In use, RealLPC operates in two ways. Firstly, using one of five modes – solo, harmony, chords, bass & chord, and bass & pick – you can play it from a MIDI keyboard or sequencer to create lead lines, power chords, standard chords and bass-note-plus-chord combinations. Each mode has its own set of articulations and features, and by far the most flexible is solo mode. This includes 30 articulations and playing styles such as bend, trill and slide up, and less common ones like scrapes and volume pot swells.

RealLPC has a library of 1250 rhythm patterns that you can audition from the floating 'pattern manager' window and then drop into your host sequencer. The patterns can then be used to play parts via any of RealLPC's five modes – you simply supply the notes.

Because it's sampled from a DI'd electric guitar, RealLPC only comes alive when coupled with an amplifier plug in (IK's basic but decent Amplitube 2 Duo is bundled with it). Beyond this, we also found using the many articulations difficult at first. However, with features like hammer on, legato and velocity-dependent articulations, not to mention the full array of keyswitching techniques, there's plenty of incentive to put the time in and get to grips with it. Overall, RealLPC is an excellent product and a logical progression from the MusicLab team.

9/10

Soundware round-up

Prime Loops DOWNLOAD
Wonky Beats £18



Contact via website
Web www.primeloops.com
Format WAV, Apple Loops, Live, FL Studio, REX2, ReFill, Stylus RMX, GarageBand

Wonky is definitely the name of the game here, with Wonky Beats offering 120 lo-fi, crushed, compressed-to-blazes beats, cruising at hip-hop and dub-friendly tempos. Lovingly crafted using custom hits made with classic synths such as the Roland Juno-106 and Korg Mono/Poly, each loop offers some of the most unusual, loping grooves you'll hear anywhere. You could even buy this just to extract the weird and undeniably off-centre grooves! Add to that the unique but somewhat niche sounds and fans of Prefuse 73 and Flying Lotus will find endless use for these rhythms.

8/10

Producer Loops DOWNLOAD
Dubstep Constructions Vol 2 £20

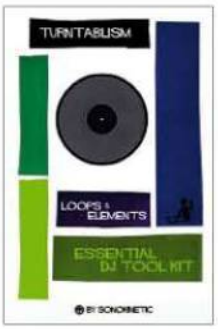


Contact Producer Loops, 0845 094 3077
Web www.producerloops.com
Format WAV, REX2, Acid, ReFill, Apple Loops

This pack features ten construction kits, all at the practically mandatory dubstep tempo of 140bpm. Each kit features a demo mix and all mix elements presented as stems. Aside from the basslines, a lot of the programming is fairly standard stuff, and wouldn't take more than a few seconds to recreate with your own samples. This wouldn't be a problem if the production values were sky high, but that's not the case either – it all sounds a bit 'Dubstep-R-Us' and rarely excites or inspires. This pack isn't unusable, but you'd expend quite some effort breathing life into it, and it's not as good as Vol 1 in the series either.

5/10

Sonokinetic DOWNLOAD
Turntablism €30



Contact via website
Web www.sonokinetic.com
Format WAV, REX, Apple Loops, EXS24, Kontakt

Here we have a 3GB+ collection of scratched samples at 80, 90, 100, 110 and 120bpm. There are over 500 of these, covering scratched beats, vocal samples and instrumentals, Turntablism is surprisingly comprehensive. It also provides unscratched samples of 80 famous speeches, 50 George Bush quotes and 17 high-quality vinyl crackle sound effects, so you can get practising on your own original turntable compositions.

We have to admit that we were initially sceptical about this pack, expecting cheesy 'DJ'-style effects, but Turntablism proved us wrong. It's full of high-quality loops and FX from talented turntablists, and it's keenly priced too.

8/10



Goldbaby
When Alien Drum Robots Attack! $39

Contact info@goldbaby.co.nz
Web www.goldbaby.co.nz
Format Battery, Guru, EXS24, REX, WAV

Firm favourites of **cm**, Goldbaby strike again with another prolific collection of samples. Described by the brazen babes as a 'drum and FX tool box', this pack is jammed full of high-quality one-shots, kits and loops. There's also a collection of 'Rise and Fall' FX and layering tools such as transient snaps to give your snares more bite, and vinyl crackle to make your kicks sizzle. All of the samples here sound warm and huge, a testament to both the sound sources (vintage drum machines, samplers and synths) and the high-quality processing they underwent.

Don't be put off by the retro sci-fi terminology and artwork – this package will stretch right across genres like hip-hop, dubstep and DnB, as well as being perfect for house and techno. To top it off, each pack comes with a PDF of pictures of the equipment used to make the samples. This is a hugely versatile, premium quality pack at a great price.

9/10

Sounds of Revolution
Minimal Techno Revolution Vol 1 €80



Contact info@mutekki-media.de
Web www.sounds-of-revolution.com
Format WAV, REX, Apple Loops, EXS24, Kontakt

Minimal Techno Revolution comprises a huge library of one-shots and loops, totalling over 2000 samples. Each folder is meticulously filed, with subfolders making it easy to find the sound you need. Every sound is upfront, tight and powerful, and what's more, it's easy to get inspired and start working on ideas right away. One of the best things about the included loops is how they don't try and take over a project – they're EQ'ed to sit tightly without intruding. The kicks are fantastic, offering weight and power. If you can't find something you like in this package, you're in the wrong business.

9/10

Sony Sound Series DOWNLOAD

What It Is! '70s Analog Funk £44



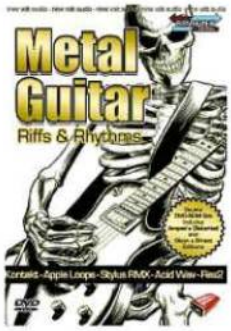
Contact via website
Web www.soundstosample.com
Format Acidized WAV

This pack is a true band-style sample set in construction kit format, featuring 15 kits built around a core band of drums, bass, guitar, keys and percussion, the sessions were tracked to 2-inch tape. Parts are presented as loops (two beats to eight bars in length) and sonically, the set is spot on, and the playing fluid and funky. Particularly nice are the real clavinet and lovely, solid electric basses, and some tracks also include horns and scat vocals. The authentic playing, vibe and sound really make this pack stand out.

9/10

Nine Volt Audio

Metal Guitar: Riffs & Rhythms £95



Contact Time+Space, 01837 55200
Web www.timespace.com
Format Acid WAV, Stylus RMX, Apple Loops, REX2, Kontakt

Here we have 293 unique double-tracked parts at 15 chromatic intervals (4395 loops) both DI'ed and distorted, totalling over 7GB. The audio files are in time-malleable formats, so you can adjust the tempos – to the trained ear, the results of this aren't totally realistic, but it's acceptable. Musically, the set is very genre-specific, as you'd hope. Track construction is quick and the clean DI versions mean you can ditch their (slightly polite) amp sound in favour of your own.

7/10

PowerFX DOWNLOAD

Fairlight CMI Legacy $69



Contact support@powerfx.com
Web www.powerfx.com
Format Reason ReFill

Fairlight CMI Legacy features the sounds of all 33 original 8-inch discs for the now-antiquated CMI II computer-powered music system. These vary from the obvious (drums, basses, pianos and keyboards) to the less obvious (effects, animals and weather), plus a couple of famous orchestra hits too. PowerFX have even added some extra sounds, taking the total to over 2000.

Samples from the original instrument are mono (44.1kHz, 16-bit) and sound very much of their time. However, from these, PowerFX have created a bunch of patches (Redrum, NN-XT, and Combinator) as well as some 80s-influenced sounds (SubTractor and Thor), so it all adds up to a surprisingly desirable, flavour-filled package.

8/10

Electronisounds $35 DOWNLOAD

Downtempo Spirals



Contact junebug@electronisounds.com
Web www.electronisounds.com
Format WAV

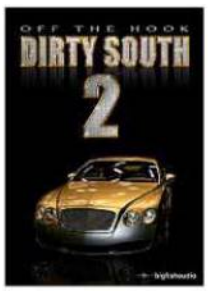
The remit for Downtempo Spirals is basically anything under 100bpm. You get over 3000 samples (around 2.5GB), comprising single hits, loops and multisamples, arranged across 190 folders.

DS is the work of five producers, with the majority coming from Junebug, JTEKK and Rhythm Lab. Sounds are mainly grouped by producer, but that doesn't stop the set from feeling very disorganised. Overall, there are indeed some good sounds included, but you'll have to wade through the rest to find them, which will require some patience.

6/10

Big Fish Audio

Off The Hook – Dirty South 2 £65



Contact Time+Space, 01837 55200
Web www.timespace.com
Format Acidized WAV, Apple Loops, REX, Stylus RMX

Dirty South 2 revisits the Southern-influenced crunk style, this time featuring 41 construction kits plus bonus loops and hits (50 and 185 respectively). Tempos are mostly in the 70-to-90bpm range, with loops typically two or four bars long. DS2 is at its best in the beats department, serving up plenty of crisp, pre-processed sounds. Kits include all individual drum hits and often two separate beats loops. Also great are the bonus loops. Beyond this, sounds vary from the excellent to less inspired and the pack could really do with more sonic variety. It's not bad but this is by no means an essential release.

7/10

Toontrack DOWNLOAD

Songwriter's Drumpack £15



Contact Time+Space, 01837 55200
Web www.timespace.com
Format MIDI for EZ/Superior Drummer

This is a pack of MIDI grooves recorded by a real drummer. It offers 11 songs' worth of grooves (450 in total) across five categories: ballad, half-time, mid-tempo, up-tempo and shuffle. Tempos range from 42 to 190bpm, though grooves should work well beyond their original tempos. Songs are broken down into sections with a number of variations for each. We found this made song construction very easy, and coupled with drummer Ricard Nettermalm's tight but expressive playing, your tracks will no doubt sound excellent with him backing you up. More songs would be nice, but for the asking price, we really shouldn't complain!

9/10

cm/recommends

The best new gear from the last three issues...



Native Instruments
Traktor Kontrol X1 £175

Rating 10/10
Reviewed cm150
Contact via website
Web www.native-instruments.com

What is it? A controller primarily for use with NI's Traktor software, the X1 has clearly been designed by those who understand the needs of digital DJs. There are no gimmicky platters and nary a fader to be found – instead, you get controls for applying effects, juggling loops and operating the transport.
Verdict "The X1 is a supremely well designed piece of kit that'll delight Traktor-wielding DJs."



Acoustica
Mixcraft 5 £69

Rating 9/10
Reviewed cm151
Contact Et Cetera, 01706 285650
Web www.acoustica.com

What is it? An entry-level DAW for Windows, Mixcraft is ideal for PC users who secretly covet the Mac's GarageBand app. We liked previous versions of Mixcraft, but we reckon it's come of age with v5. New features include automation, send tracks, video tracks, a mixer, notation editor and new plug-ins like AAS's great Lounge Lizard Session electric piano.
Verdict "A lot of solid and sensible tweaks have made Mixcraft one to seriously consider, and it represents great value for money."



SoundToys $495
SoundToys V4

Rating 10/10
Reviewed cm152
Contact via website
Web www.soundtoys.com

What is it? A 'self-titled' bundle of high-quality effects from SoundToys. Alongside the established modulation and delay effects are two newcomers: Decapitator, a superb analogue saturation emulation with five 'flavours', each modelled on different hardware, and PanMan, a novel autopanner with some unusual features that make it stand out from the crowd.
Verdict "If you've toyed with the idea of picking up this terrific bundle, then now's the perfect time to take the plunge."

What we've been using this month



Ronan Macdonald
Editor

It's ReBirth! ON MY PHONE! The Props' straight-port iPhone masterstroke is a milestone in mobile music technology, and the software itself is just as addictive and inspirational as ever.



Lee du-Caine
Deputy Editor

I've always wanted my own custom guitar amp, and now I've got one in the form of the rip-roaring Magix Vandal. A few twists on its (presumably physically-modelled knobs) and I'm off!



Tim Cant
Multimedia Editor

Having missed Shrove Tuesday earlier this year, I was excited to hear that Cableguys were giving away PanCake for free on their website. Despite not actually being edible, it's still a treat!



Craig Hitchings
Production Assistant

I've been living in harmony with my bandmate thanks to MeldaProduction's MMultiBandHarmonizer, as she likes nothing more than to push her vocal *chords* to the max. Ahem.

PRIME LOOPS

WE'RE IN THE MIX

Prime Loops provide award-winning sound libraries, fresh in-tune with the evolving music scene. We are an extremely passionate team of engineers, sound designers & DJs, hailing from London, UK



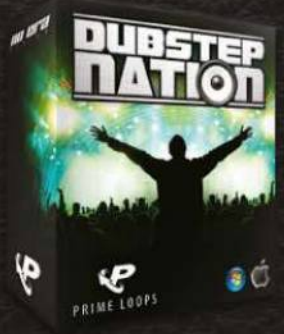
FINGALICKIN' GOOD!

If you roll deeper than the rest, "Fingalickin' Hip Hop Grooves" is here to fill your pockets with the heaviest hip hop beats from the brighter side of the street. Grab your shades and get ready to be blinded by the paparazzi when you step outside with this suitcase full of explosive jams.

You crave beats with phat snares and claps, epic synths, gated chords and string stabs with deep basslines moving your waistline? "Fingalickin' Hip Hop Grooves" gives you all the flavours you're looking for!

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£17.95



DUBSTEP NATION

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WONKY BEATS

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Q&A

Searching for that next bit of kit? Trying to get your current setup to play nice? Or do you have a hankering to find out how your favourite artist gets their signature sound? Send your questions to **cmhelp@futurenet.co.uk**

The equaliser

Question **I am using Logic Pro 9, which comes with its own EQ and filter plug-ins. Is there any advantage to owning a third-party EQ, and if so, what would you recommend? I like the idea of having a built-in spectrum analyser, much like the standard Logic Channel EQ.**

Darren Healey

Answer Logic's EQs are a capable bunch, and many of the Logic-using producers we talk to are perfectly happy to use them without resorting to third-party plug-ins.

EQ plug-ins tend to come in two varieties: 'digital' ones that aim for flexibility and transparency, and 'analogue' ones that mimic the colourful sound and limited range of operation that you get with analogue hardware EQs. Logic's are of the digital variety, so if they're already delivering the flexibility and accuracy you're after, you may not need any further digital EQ plug-ins – the sonic differences between the third-party ones can be quite subtle, and in many cases you can get just as good results using your Logic plug-ins. The area in which you might find that other such plug-ins have a significant advantage over the Logic ones is workflow, as well as how quick and easy it is to dial in a good sound. A couple of digital EQs that we highly recommend taking for a test drive are DMG Audio's EQuality and FabFilter's Pro-Q.



DMG Audio's EQuality (above) and FabFilter's Pro-Q (right) are notable for their sound quality, ease of use and great visual feedback

There are plenty of analogue-style EQs around that you could also try out, for adding some extra colouration to your sonic palette. PSP Audioware's sQuad bundle springs to mind – it's a set of six EQ plug-ins combining emulations of classic analogue equalisers with some of PSP's own EQ designs. Download the demo at **www.pspaudioware.com**.

Finally, there are EQs that genuinely offer something original and out of the ordinary. For example, Voxengo's GlissEQ is a dynamic EQ, meaning that the amount of gain applied by its EQ bands depends on the level of the input signal, thus the processing is never 'static'. This will give different results to a standard EQ, which can be best experienced by trying out the demo **www.voxengo.com**. You'll be pleased to hear that this one also features a spectral analyser.

Another novel EQ is 112dB's Redline Equaliser, which offers variable curve shapes (some of which mimic analogue units), adjustable phase (from linear, to normal on through to 'extreme'!), dynamic EQ, harmonic distortion, automatic gain compensation and lots more.

Control freak

COMPUTER MUSIC QUESTION OF THE MONTH

Question **I recently bought a Waldorf Blofeld. It's a fantastic synth, but it doesn't include a VST editor to help simplify integration into my DAW. It does, however, include a MIDI implementation chart in the manual. I want to automate parameters like filter cutoff frequency from Ableton Live. How is this done?**

Jan O'Sullivan

COMPUTER MUSIC QUESTION OF THE MONTH

Loopmasters

The writer of our *Question of the Month* will receive their choice of two Artist Series sample libraries courtesy of Loopmasters. www.loopmasters.com





Without question, the Event Opals shown here are a top quality set of monitors, but we'd still recommend that you try out as many different speakers as you can when the time comes to reach for that credit card

Answer Automating parameters via MIDI is relatively easy in Live and can be done using the Envelopes section of the MIDI clips editor. See the tutorial *Editing synth parameters via MIDI in Ableton Live* for a straightforward guide to using Live's MIDI continuous controller (CC) functionality.

Opal fruits

Question **I own a pair of Behringer Truth B2031As, but I am thinking of reaching deep into my pockets and buying Event Opals. In your honest opinion, do you think that getting the Opals will significantly help my productions? I produce trance, have a well treated room and am already very familiar with my B2031As.**

Michael Pittas

Answer The Event Opals are terrific monitors, as, at £1277 each, you'd sure hope they would be. They're in a totally different league to the humble Truths, and while it's impossible to guarantee that they'll improve your productions, we'd be surprised if they didn't, and you'll no doubt find them more enjoyable and productive to work with. However, since you say you're very familiar with your Behringers, it may take a little while to get used to the sound of new monitors.

While the Opals are undoubtedly good, we'd strongly suggest that you take a listen to several different monitors before investing such a sizeable amount of money – it might be the case that you just don't like the Event Opals. Monitor preference is a very personal thing, after all.

Consider, too, that a pair of smaller monitors with a subwoofer may enable you to find a more appropriate position for the speakers, which is vital to a good monitoring experience. A pair of Genelec 8020Bs (£315.72 each) and a 7050B subwooofer (£836.80) would give you superb quality monitoring.

Speak to a local dealer to arrange a listening session, so that you can hear some of the monitors you're interested in, and take down some CDs of music that you're familiar with. Remember that you're listening for an accurate, warts-and-all reproduction, not the 'nicest' sound or heaviest bass. Once you've narrowed down your selection, the dealer may even be happy to let you take several sets of the speakers home to try out – you may find that they don't sound the same in your own listening environment. If it's not possible to do that, at least discuss the option of returning the speakers if you go for a set of monitors and decide within days that they're just not for you.

Don't forget that the output of your computer is dependent on the quality of your audio interface – if you're going to go to the expense of spending so much on monitors, you don't want to skimp elsewhere. You can spend hundreds on an interface, but if you don't need

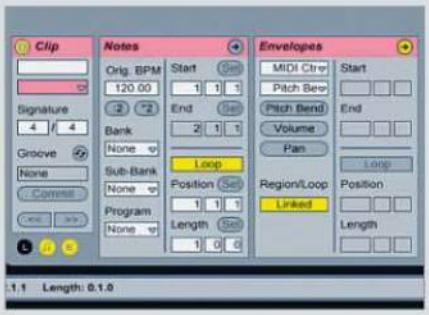
"It might be the case that you just don't like the Event Opals. Monitor preference is a very personal thing, after all"

> Step by step

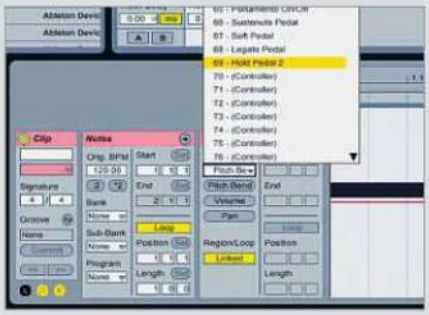
Editing synth parameters via MIDI in Ableton Live



1 > Before you start, make sure that your synth is connected properly to your MIDI interface and enabled in the **MIDI Sync** tab of Live's **Preferences** as a **Track** output. Create a MIDI clip on a new MIDI channel. Set the **MIDI To** destination on this to the interface's MIDI out. Sequence a few notes to ensure that your synth is correctly receiving the MIDI information.



2 > To bring up the Envelopes panel, click the small **E** button below the Clip panel. The Envelopes panel has shortcuts to the **Pitch Bend**, **Volume** and **Pan** MIDI CCs. When you click them, the MIDI CC changes in the menu directly above the shortcuts.



3 > To select a different MIDI CC, click the aforementioned menu. If you want to edit the filter cutoff frequency on a Waldorf Blofeld synth, select MIDI CC **69 – Hold Pedal 2**. You can now create an automation envelope in the window to the right by double-clicking to create and delete nodes.

> Step by step

Reversing audio in Logic



1 > Load up Logic and locate the folder **Tutorial Files»Q&A** on the **cm** DVD. Drag the **Drum.wav** sample onto your desktop, and from there onto a fresh audio track in Logic. Copy the sample onto all four beats of a bar, just as we have here.



2 > Double-click the last kick, and its waveform will appear at the bottom of the screen. Select **Functions» Reverse**, and a warning will be displayed informing you that you're about to edit the audio destructively. Click **Process** and the kicks – all of them – will be reversed.



3 > Press **Cmnd+Z** to undo this process. If you just want to reverse one of the samples, simply create a copy of the sample using the Finder. Drag this new version of the sample onto the audio track, double-click it and select **Functions»Reverse** in the audio editor. Voilà – the sample is reversed and the others remain as they were.



Even with the best monitors in the world, a quality interface, such as the Focusrite Saffire 6 USB (above), is vital for mixing your productions

tons of features and connections, the Focusrite Saffire 6 USB has great digital-to-analogue converters and an RRP of just £139. Also, remember that you'll need a pair of solid speaker stands that bring the monitors' tweeters up to ear height. Atacama make no-nonsense stands that won't break the bank, so check them out.

Stick it in reverse

Question **I use Logic a lot in my music production. The one thing I have yet to find how to do is reverse audio. I know I'm probably just doing something wrong. Other audio programs have a reverse audio button, but I can't seem to find that in Logic?**

Mark Loera

Answer Don't worry – it's certainly possible to reverse audio in Logic. The only complication is that this process uses destructive editing. So, if you're using the same piece of audio more than once in your project, all of them will be reversed when you apply the process to just one of them. For a step-by-step walkthrough guide to getting around this potential problem and accessing Logic's audio editing functions, see *Reversing audio in Logic*, left.

Getting mashed

Question **I'm considering creating a mash-up of my favourite tunes and wondered if you might be able to clarify the legality of this for me. I have found many such mash-ups on SoundCloud, where people have mixed samples together and created 'original' versions from them. Is it simply the case that I have to document all of the samples I use and recognise the original artist, or are there some other legal hoops to jump through first before uploading the track to SoundCloud? If I'm not making any money whatsoever from the track, does this make it OK?**

Gary Todd

Answer Reproducing copyright material is against the law, whether you credit the original artist or not, and regardless of whether or not you make any cash out of it. The owner of the infringed copyright would be well within their rights to request that you take the mash-ups down and/or ask you to pay a licence fee.

So, the short answer is, no, legally you're certainly not allowed to put unauthorised mash-ups on the internet. However, the large number of them on SoundCloud and other sites would suggest that you won't suffer serious repercussions if you do so non-commercially.

That said, we recommend in the strongest possible terms that you don't reproduce copyright material without authorisation, and point out that for legal advice on this matter you should consult a qualified legal advisor.

Axe to grind

Question **I'm making music again after a 20-year layoff. My musical arsenal consists of a Fender Stratocaster, my laptop and the cm Studio. However, as I'm a guitarist, I have no wish to program a sequencer with a piano roll! I've looking for a sequencer that can be programmed with guitar tablature. Are you aware of any DAWs that have them, or any plug-ins that will do the job?**

Les Marquis

Answer Notion Music's Progression application enables you to compose using tab or notation, and will play back what you compose using multisampled instrument patches and amp simulations. Progression

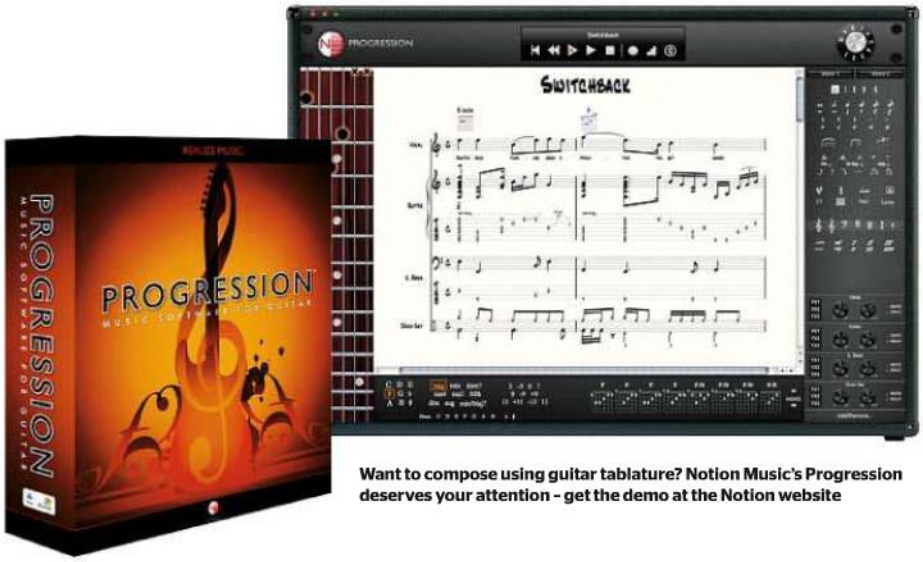
"I have found many mash-ups on SoundCloud where people have mixed samples and created 'original' versions"

enables you to use your library of plug-ins from the **cm** Studio, too, and will export audio and MIDI that you can then use in other DAWs. At £65, it's also quite reasonably priced, and you can download the demo version to try before you buy at **www.notionmusic.com**.

Can it

Question **I'm looking to buy a pair of headphones to use when I want to do some work on the move. I would like to be able to use it on the train and then in hotels mostly. I don't really mind how they look but I don't want a pair that leak too badly, as I don't want to disturb the people around me. Nothing will be as good as studio monitors, but is there a pair of earphones that do a decent enough job until I get back home to add the final touches? I have a budget of up to £300, but the closer to £200 the better.**

Josh Lorenz



Want to compose using guitar tablature? Notion Music's Progression deserves your attention – get the demo at the Notion website

Question How do I make a bass sound like Empire of the Sun's *We are the People (Sub Focus Remix)*? Matthew McGuinness



1 > For this sound, we're going to use Native Instruments Massive – it's a powerful synth that Sub Focus frequently uses to create his incendiary bass noises. Load the synth in your DAW and select **File»New Sound** from the instrument's interface. This will create a fresh patch for you to start from.



2 > This new patch uses a single active saw oscillator. We want to use a couple of oscillators for this sound, so activate oscillator 2 by clicking the power button at the top left hand corner of the Osc 2 panel. We want this oscillator to play a fifth interval, so set the semitone detune in the **Pitch** field to **7.00**.



3 > Now we need some funky LFO filter action. Set the mode of Filter 1 to **Lowpass 2**. Drag the modulation handle from 5 LFO in the central window to the first slot under the **Cutoff** knob in the Filter 1 panel. Turn the **Resonance** level down to minimum.



4 > Drag upwards on the modulation handle so that you get the same modulation amount around the Cutoff knob as we have here. Click **5 LFO** to bring up the LFO's control panel. Drag the **Xfade** curve fader all the way up, so that you're using a pure sine modulation shape.



5 > Turn up the **Rate** knob, so that the LFO beats in time with the rest of your project. Now you can either use the **Sync** mode to automate the **Ratio**, or otherwise modulate the **Rate** knob from an automation lane within your DAW to change the rhythm of the filter modulation over time. This will make your riff much more interesting.



6 > Select the **4 Env** modulation source and turn the **Sustain** level up to maximum. Open the **Osc** panel and turn the **Rate** knob up to around 1 o'clock. Next select the **Voicing** tab and set **Unisono** to **3**. Activate **Pitch Cutoff** Unisono Spread and turn up the amount, as shown. Finally change the play mode to **Monophon**.

Answer If you want to make music on the move, a decent pair of headphones can be a great help. However, before we get down to the nitty gritty, it's worth noting that you'll only get the best out of your investment if you're using an audio interface with a decent headphone output. Many laptops have terrible quality headphone outs that will have a detrimental effect on your monitoring experience, no matter what headphones you use. If you don't already have a mobile audio interface, we suggest investing in something like the Native Instruments Audio 2 DJ, which provides excellent, compact headphone monitoring for £85 and features two discrete 1/4" jack outputs.

If you're interested in headphones you can use on public transport, we highly recommend going for closed-back pair. Open-backed headphones can actually give you better reproduction, but they will leak like crazy, and will likely irritate your fellow passengers. We suggest the Sennheiser HD 25 II. These are a popular choice with DJs – they're small and light, but are also relatively hard wearing and offer good isolation from background noise. They have an RRP of £199, but can be snapped up online for around £150. Alternatively, you could try the Beyerdynamic DT 770 range, which are also closed-back – custom design your own pair from €210 at **beyerdynamic.de**.

If you're really concerned about quality and don't mind restricting your headphone use to hotel rooms, the excellent Sennheiser HD-650 are a good investment. They're comfortable over long periods of usage, and boast incredible clarity and depth of sound. They do leak a lot of noise, though, so you'd have to carry an alternative for use on public transport. The 650s have an RRP of £390, but If you shop around, you can find them in the £250 to £300 price range.



For great sound quality when making music on the go, Sennheiser's HD-650s do the trick

Question How do I make filthy dubstep wobble noises with the **cm** Studio?

Eric Knutson



1 > There are many synths in the **cm** Studio, but the most flexible one for making big, bad virtual analogue sounds is ZebraCM. Load it into your DAW and turn oscillator2's **Vol**ume level all the way down – we're going to start with just a single oscillator. While you're at it, set the first oscillator's voice mode from Dual to **Single**.



2 > Set oscillator1's **Wave** knob to **2.00** to select a square shape. In the Filter section, right-click the modulation source knob that currently says Env2 and change it to **LFO2**. Set its level to **52.00**, and adjust the filter Cutoff to **36.00**. Turn the **Res**onance up to **12.50**, and change the filter mode from LP Xcite to **LP Allround**.



3 > In the modulation panel, select **LFO2** and change the **Restart** mode from Free to **Gate**. Change the **Waveform** of the LFO from Sine to **Saw Up**. You can now sweep or automate the **Rate** knob to dynamically change the rhythm of the LFO2-to-filter-cutoff automation.



4 > In your DAW, insert CM Fuzz into the ZebraCM mixer channel. (Mac users, download CamelCrusher from **www.camelaudio.com**.) Turn off the Filter and Compressor sections, and copy the Distortion and Master settings shown here, for a chunky, distorted sound without too many nasty high frequencies.



5 > This simple sound is based around a square wave. To use more complex waveforms, sweep the **Wave** knob over to the right. These waveforms don't have the raw power of the square, but have more interesting textures. For instance, a setting of **10.00** will give you a spongy timbre with a crunchy top end.



6 > Set the **Wave** knob back to **2.00**. Another cool way to get nasty top-end frequencies is to use ZebraCM's Sync feature. Activate this by clicking the **Sync** button, and turn up the knob below it to **24.00**. To get more from these nasty high-end sounds, turn the filter **Cutoff** up a bit, so you can hear them more clearly.

Question How do I make an Oscar Mulero-style drum pattern in Logic 9?

Jack Willcock



1 > The key to Mulero's awesome drum soundscapes is the use of processing, especially reverb. Using Logic 9's native effects and drum machine instrument, Ultrabeat, we can get a similar effect fairly easily. Start by creating a new project. On a software instrument track, add a **Multi Output** version of Ultrabeat.



2 > It's important to pick the multiple output version of the instrument, because we want to process the different drum sounds individually. From the list of presets, select **01 Drum Kits»Vintage 08 Kit**. This gives us a set of fairly generic techno sounds to play with that can be customised using Ultrabeat's extensive editing capabilities, if necessary.



3 > Before we start programming our beat, we need to do something very important: set up a send channel. We're going to put a reverb effect on this, which we'll use to add different amounts of ambience to each channel. To create a send channel, click the **+** icon on the left-hand side of the mixer.



4 > You'll be presented with a dialog to create a new auxiliary channel. Set the **Number** of channels to **1**, the **Format** to **Stereo** and the **Input** to **Bus 1**. This tells Logic that we want to use this as a channel we can route other channels to. Click the **Create** button and the new channel will appear in the mixer.



5 > Change the name of this track from Aux 1 to **Reverb**. Click on one of the Insert slots on this channel. Select **Reverb»Averb** from the list. Copy the settings we've used here. If you're using Logic Studio, rather than Logic Express, you could also try Space Designer, which is capable of much more realistic and sophisticated reverb effects.



6 > Create an empty MIDI region on Ultrabeat's MIDI channel, and copy the beat that we've used here. It's a pretty simple rhythm, and while it sounds okay on its own, it isn't anything special. We can make it much more involving and sonically 'bigger' using send and insert effects, but first we need to route the sounds used to different outputs.



7 > Bring up Ultrabeat's interface. When playing back the beat, you'll see which of the sounds are being triggered, as their corresponding MIDI keys light up on Ultrabeat's interface. To set the routing for a sound, click the output column on the left, where it says **Main**. Route Kick 1 to **1-2**, Claps to **5-6**, and Cabasa to **7-8**.



8 > Click the **+** button on the Ultrabeat channel in the mixer three times to bring up the first three auxiliary channels. Upon playback, you'll see that each sound comes through a different channel. To route each channel to the reverb send, click the first slot in the Sends section of the mixer and select **Bus»Bus 1 (Reverb)**.



9 > Route all three channels to the reverb and copy the send levels we have here. For the final touch, click the first Insert on the kick's channel and select **Distortion»Clip Distortion**. Copy the settings shown here to rough up the kick slightly, which will give you a much more bangin', techno feel. **cm**

KICK DRUMS

Almost every genre has them, whether they come from a real kit, a drum machine or a sampler. Here we show you how to make better bass drums

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> The kick (aka bass) drum plays a fundamental part in most modern music, so getting yours sounding as good as possible is very important indeed. Many of the professional producers we talk to work on the kick drum sound before sorting anything else out, which just goes to show how essential it is. If this primary component of your track isn't working, you're going to have a tough time getting everything else sounding right around it in the mix, so it's worth taking the time and effort to find out just what makes kicks tick.

It's not just electronic and dance music that require top notch kick drums as a key component of their sounds: these days, many rock producers will use drum replacement and mixing techniques to get the most polished kick sounds possible. In fact, you'll find reviews of two drum replacement plug-ins – Slate Trigger and SPL Drum Xchanger – on pp104-105 of this very issue. This type of software enables producers to swap out a weak kick drum in a recording for a punchy one of their choice.

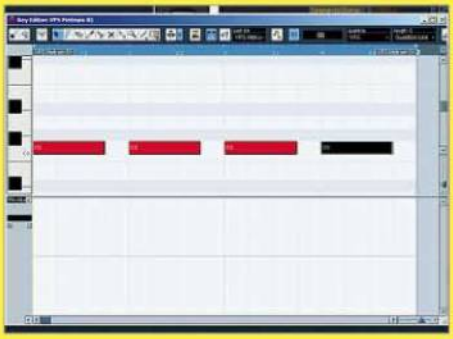
In the past, producers had to rely on drum machines such as the Roland TR-909, Linn Electronics LinnDrum, and drum samplers such as the Akai MPC2000. Retro drum sounds are still popular, despite the fact that we're now spoilt for choice when it comes to creating kick drum sounds. As well as endless sample packs featuring hundreds of them, there are drum machine instruments like D16 Group Nepheton and Drumazon, and Propellerhead ReBirth; virtual

"It's not just electronic and dance music that require top notch kick drums"

drummers such as EZdrummer, BFD and Superior; and even dedicated kick drum instruments, such as Vengeance-Sound Metrum.

In this tutorial, we'll look at how you can use some of these tools to get the best kick drum sounds possible, from synthesising them from scratch to combining multiple kicks to create something more than the sum of its parts. We'll also look at ways in which you can improve the sound of your kicks using effects processing, and bestow plenty of miscellaneous kick-boosting tips and tricks along the way. Right, let's kick it!

> Step by step
Exploring kick drums with Metrum



1 > Vengeance-Sound's VPS: Metrum (**www.vengeance-sound.com**) is designed specifically for making kick drum sounds, but the fundamental techniques used here can be applied to other instruments. Load up Metrum in your DAW. The default sound uses just the oscillator to create a basic kick. Program a 4/4 MIDI pattern to trigger the sound.



2 > Click the **Amp Env** button to bring up the amplifier envelope. Metrum's flexible multipoint envelope is a lot more sophisticated than your average ADSR, enabling you to get a much more nuanced and controlled sound. This sound actually fades in over the course of 1.50ms. Drag the first envelope point at 1.50ms to the left, and notice how this makes the initial transient more apparent.



3 > Set the first envelope point to 0ms. Reducing the fade at the start of the sound enables more of the kick's high frequencies to be heard, which is what gives the sound its prominent attack. Currently the kick's defining characteristics are that it's short, punchy and rather synthetic-sounding. Let's make it a little more organic using Metrum's sample layers...



4 > Leave the first envelope's time at 0ms for the moment, and click the **Library** button. This brings up Metrum's list of presets. We don't want to load a full preset, just a sample layer, so select the **Attack Presets** menu, followed by the **Commerse Attacks** folder, and drag **Comkick 10** onto the L1 slot on the right.



5 > Play the kick back and listen to how much more realistic it sounds. To hear the Comkick 10 attack sample on its own, solo it by clicking the **S** checkbox. Just adding this small top layer to the sound gives it a whole new dimension. Unsolo the layer.



6 > Even though this sound is quite small and short, it can still do with a bit of tightening up. Select the **Amp Env** screen. By default this envelope has its sustain level set to maximum. Copy the amplitude curve we've used here, where the sustain level is zero and the decay time is short. This makes the attack layer much shorter and punchier.



7 > The attack is a little on the loud side, but you can remedy this by turning the **Vol**ume knob in the Layer1 panel down slightly. There are plenty of other controls that can be tweaked here, including filters and tuning, but this layer is pretty much where we want it to be already.



8 > The kick is still short and punchy. Let's make it a bit longer. Select the Oscillator layer again. To make the kick longer, drag the final envelope point out to the right at far as possible. This will give you a sustained, 808-style kick drum tone that's ideal for hip-hop.



9 > Sustained bass tones likes this sound great when played chromatically. To be able to do this, select the MIDI panel and click the **All** box in the **MIDI Note Pitch** section. You can now play the kick up and down the keyboard. You'll probably find that this sound works better if you turn down the Layer 1 sample to the level we have here.

Schleis to meet you



Dance music producer Manuel Schleis is the man behind Metrum and the hugely popular Vengeance series of sample libraries. The drum hits contained in these packs, particularly the kick drums, have become a mainstay of producers in all kinds of genres. **cm** caught up with Manuel to find out the secret of his success.

Why have Vengeance kick drum sounds proved so popular?
"I think it's because they're ready to use," says Manuel. "We compress, EQ and limit the sounds so that they're club compatible to a certain degree. Some people who are producing softer music may find them too loud, but for banging club tracks, that's exactly what's needed."

What makes a good kick drum sound?
"I think it's the dirt! I don't like 100% clean, synthesised kicks, straight out of an Access Virus or any other synth. That's why we add dirt: all kind of noise, artefacts, cymbals, vinyl samples, small reverbs, percussion, etc. Even the rustling of cloth or recorded mouth percussion during the kick's attack phase."

How long does it take to create a kick sound for a track or a library?
"It depends – I couldn't give you a figure in minutes! Sometimes you have luck and you'll find some body and attack sounds that work together at once; other times you'll try dozens of combinations and it doesn't sound right. There's a lot of trial of error involved, but you can speed up the process with experience and routine. After a few years you know in advance what sounds could work together and what won't."

What advice do you have for people who don't have very good monitoring when it comes to working with kick drums?
"That's difficult, since a good room is a requirement when working with low frequencies. However, it's more important to know how your room behaves in certain frequencies, rather than having the perfect room. A very long time ago, I used egg boxes on the walls and ceiling! This may have been an imperfect (and ugly!) solution, but I knew the sound and characteristics of the room, so I could work quite well in it."

What about frequency analysis?
"Frequency analysers can help you to work in imperfect rooms, since they display what the ear may not hear. When working all day in studio, the ears can get tired – at this stage, the analyser can be a great help. My favourite analyser is the hardware RTW PortaMonitor, which also has a great stereo analyser. There are many freeware solutions, too – what's important is that you can read them, not what they cost."

What inspired you to create Metrum?
"I always wanted to have more flexibility with the kick sound until the end of a production. With Metrum, you can change the sound of the kick at any time – for example, if you need to change the track's bassline, you can adjust the kick to fit."

What is it about Metrum that makes it particularly useful for producers?
"It's an all-in-one kick drum solution: you have influence over the tune, the pitch envelope of the body, the attack sounds and their volumes, the transients, the automated parameters and effects. You can play the kick chromatically via MIDI, and there's a sophisticated modulation matrix, too. The biggest plus is that you can store all these settings in a single preset, and build your own personal kick library, as well as using the huge library that comes with Metrum."
You can find out more about Manuel's work at **www.vengeance-sound.com**

Producer of many Vengeance dance sample packs and creator of the Metrum kick synth, Manual Schleis

> Step by step Synthesising kick drums



1 > It's possible to create basic kick sounds with pretty much any virtual analogue synth. Here we're going to use Native Instruments' Massive, which is ideal because it has flexible envelopes and great modulation capabilities. Open the synth in your DAW and select **File»New Sound** from the interface, and set **4 Env** to the same short attack and decay times as we have here.



2 > Set the first oscillator's wavetable to **Sine-Square 1**, and turn the **Wt-position** knob all the way round to the left. Drag the **1 Env** modulation handle into the slot under oscillator 1's tuning amount and set the range to **36 semitones**. Copy our settings here for 1 Env. This quickly sweeps the oscillator down three octaves.



3 > This gives us an extremely basic sine kick, which we can make a little less synthetic sounding with the addition of some noise. Use **2 Env** with these settings to modulate the Amp. This gives a very quick burst of noise at the start of the sound to liven up the attack. For the final touch, add some subtle **Classic Tube** distortion via the **FX1** panel.

> Step by step
Parallel processing for balance



1 > Parallel compression is useful for getting the right balance between a kick's attack and body. Live is particularly adept at this kind of processing thanks to its handy effects racks. Start by dragging **808BD_T7D7_Orig.wav** from the **Tutorial Files**/**CM Focus** folder on the DVD onto your desktop, then into a sampler plug-in. This kick is taken from Goldbaby's Tape 808 sample pack: **www.goldbaby.co.nz**.



2 > The Roland TR-808 kick is a kick drum sound truly in a league of its down. The 808 drum machine featured a Decay knob for the sound that could be used to give it a long, tone-based tail, and the sound is often played chromatically. We want to boost the volume of the tail, so insert a compressor plug-in.



3 > Turn the compressor's **Threshold** level down to **-32.6dB**, and set the **Ratio** to **11.6**. The effect attenuates the volume of the attack and makes the body louder, but at the expense of a certain amount of attack. We can remedy this by mixing in some of the unprocessed sound.



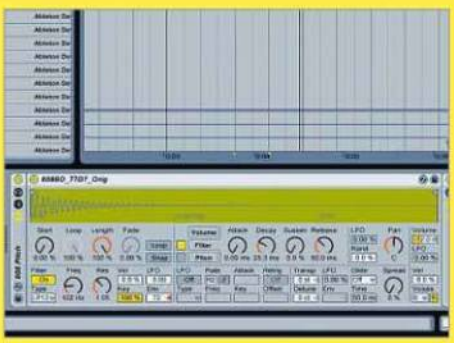
4 > In Ableton Live, right-click the Compressor and select **Group**. This places it in an Audio Effect rack. Click the **Show/Hide Chain List** button on the left hand side of the rack. This expands the rack, so you can see the separate effect chains. Currently there's just one, which has our Compressor on it.



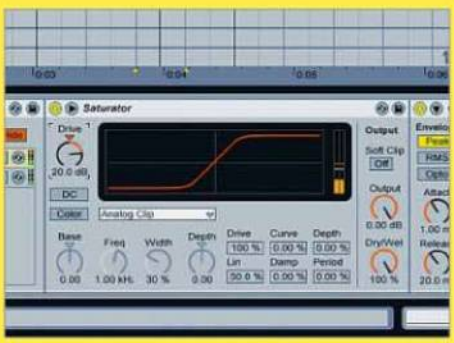
5 > Right-click the list of effects chains and select **Create Chain** to generate a new one with no effects on it. Adding another chain will boost the volume of the output signal, but because Live's Simpler instrument is set to **-12dB** by default, this isn't an issue, as it's already quite quiet. However, if using this technique on an audio track, you'll probably find you need to turn each chain down by a few dB.



6 > For the maximum overall volume, place a Limiter effect after the Audio Effects rack. We can afford to turn this up quite a way without totally destroying the attack of our parallel processed kick, so turn the **Gain** knob all the way up to **24dB**.



7 > You will notice that all this compression and limiting brings up the level of noise at the output significantly. We can deal with this by filtering the audio at the source. Activate Simpler's filter, then set the **Freq**uency to **102Hz** and the **Res**onance to **1.05**. Turn the **Env**elope amount all the way up, and copy the envelope settings that we have used here.



8 > If you don't mind sacrificing some of the body's dynamics for a fuller sound, you can add Live's Saturator effect before the Compressor in the Audio Effect rack. A **Drive** level of more than 20dB will give an obviously distorted tone, but settings of 20dB or less will just add to the fullness of the sound's body.

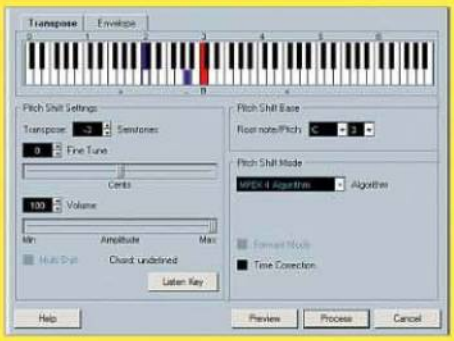


9 > If you don't want such a sustained sound, you can turn down the **Sustain** and **Decay** level of the Sampler's Volume envelope. Hold **Ctrl**/**Cmnd** while you turn the knob to adjust the settings more slowly – ideal for getting the perfect feel to your kick.

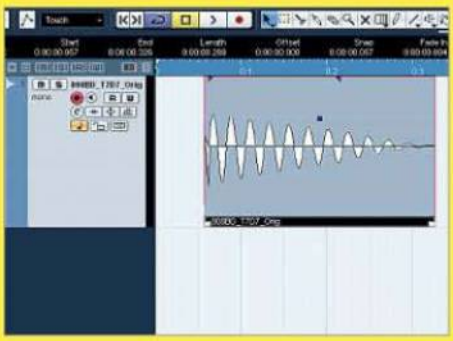
> Step by step Layering kick drums



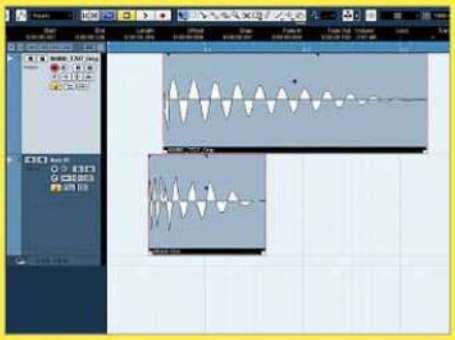
1 > Let's apply some of the tricks we've learned from using Metrum and Live to create our own unique kick sound from two individual samples. You can use any DAW for this – we're opting for Cubase. We're going to use **808BD_T7D7_Orig.wav** again, so start by dragging it onto a new audio track.



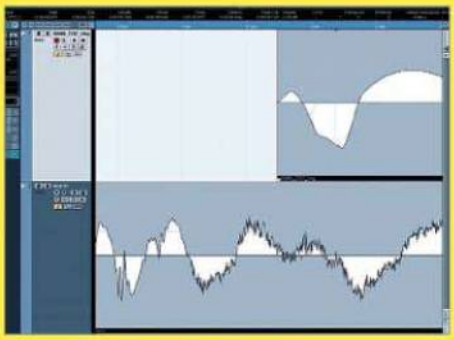
2 > We want to make a kick with the full body of the typical 808 sound, but a more aggressive attack. Fade in the attack of the 808 sample slightly – three quarters of the way through the second cycle should do it. Let's make the kick a little lower pitched – pitch it down three semitones with time correction turned off, so the sound is resampled rather than pitchshifted.



3 > Shorten the 808 kick so that it only plays for about 0.3 seconds, and have it fade out after the first 0.2 seconds. This will give you a subby but quite short kick sound. Next we need to give it a more aggressive attack. Drag the **Attack Kick.wav** sample from the **CM Focus** folder on the DVD to your hard disk.



4 > Drag **Attack Kick.wav** onto a new audio track. Shorten and fade it as we have here. This gives us a short attack phase that we can use with the 808's body. The next thing we need to do is line up our two kicks. The positioning of this sound is extremely important, as even movements of a few milliseconds can result in a quite different effect.



5 > Here's the exact positioning you're aiming for. The attack phase should start 13ms before the body. A little time spent fine-tuning the placement of the sound can pay great dividends, so dive in with your DAW's zoom functions and get as anal as you dare.



6 > The careful fading and positioning of these sounds has given us a fairly cohesive-sounding kick, which we can enhance with the addition of some processing. Create an auxiliary bus in your DAW and route both audio tracks to it. The first effect we add is a soft clipper, which saturates the sound and gets rid of any errant peaks.



7 > Next we add a compressor, which subtly boosts the volume a bit more. This is followed by an EQ, with a 10dB boost at 77Hz, which gives the kick a rather boomy bottom end. Note that if you're after a more realistic kick sound, less drastic EQ would be advised.



8 > This radical EQing boosts the volume level, so we put a limiter on the end of the device chain to control it. Try A/Bing the effects to hear how much more cohesive and glued together the two kick samples sound when they're turned on.



9 > We recommend grouping the two samples together, so that they can be moved as one. If you want to make your composite kick drum available for use in other projects, simply bounce it down as audio and add it to your collection. **cm**

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COMPUTER MUSIC

Next issue

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All magazine and disc contents subject to change

MAMA FESTIVALS & *CLASSIC* ROCK PRESENT

HIGH VOLTAGE

FESTIVAL

SATURDAY 24 JULY 2010

MAIN STAGE

ZZ TOP

FOREIGNER

GARY MOORE

THE ANSWER

THE UNION

SUNDAY 25 JULY 2010

MAIN STAGE

ELP

DOWN OUTZ

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Verdict

For: Very, quiet and stays cool
Powerful, overclocked i7 CPU
Stylish looks

Against: Not much!

COMPUTER music *Computer Music Magazine December 2009 issue*

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NEW

intel CORE i7 inside

★★★★★

Processor Rating

Scan 3XS Power DAW

- Intel® Core™ i7 Processor (2.80GHz, 8MB Cache)
- Gigabyte GA-P55-UD4 Intel® P55
- 625W Enermax MODU82+ Modular Quad
- Thermalright Venomous X CPU Cooler
- 2x2Gb Corsair XMS3, DDR3 PC3-10666
- 512MB Gainward G 210 800MHz
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