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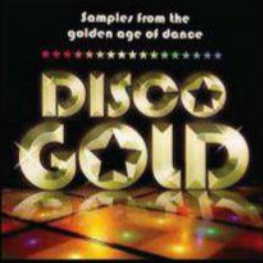
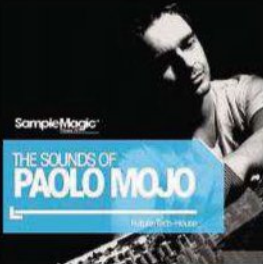
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welcome

From The Beatles to Lady Gaga, pop has (almost) always been at the cutting edge of music technology and production technique, both influencing and influenced by other genres of the time. Today, pop is perhaps more varied than ever before, weaving styles as varied as dance music, R&B, dubstep, hip-hop and even DnB into

"Stow your preconceptions in the studio cupboard"

its deceptively intricate tapestry. Love it or hate, you can't deny its current diversity.

It's a common misconception - among those who haven't tried it, at least - that pop music is essentially

mindless and easy to produce. As this issue's cover feature sets out to prove, however, that simply couldn't be further from the truth.

Most pop music is ephemeral in nature, but that doesn't mean it's in any way compromised in terms of production quality. Those polished, shiny, larger-than-life chart-toppers are put together to the very highest standards by incredibly talented, culturally aware producers who know exactly which musical and lyrical buttons to push in order to turn their listeners on and get under their skin.

Wanna join them? Stow your preconceptions in the studio cupboard and turn to p24.

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.

SUBSCRIBE AND SAVE! SEE P19

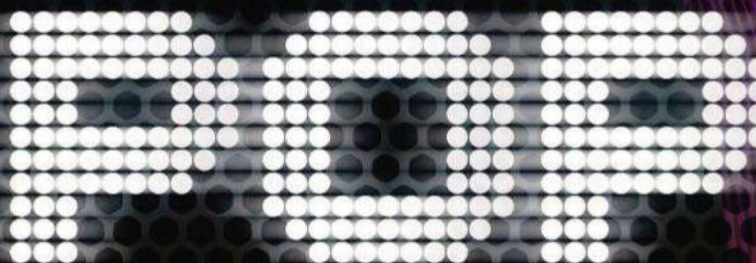
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ISSUE 162 MARCH 2011

cm/contents

THE ULTIMATE GUIDE TO



PRODUCTION

The pop industry can be lucrative, but to succeed you need to get things right - and who better to explain than production big-wigs Future Cut? **p24**



PAGE 63

Tutorials

48__ PRODUCER MASTERCLASS

Serial remixers The Nextmen talk funk

80__ TOTALLY TRACKERS

Using effects commands

53__ KEEPING IT REAL

Make plug-ins sound like the real thing with these programming tricks

63__ SOFTWARE XOX-BOX REVIVAL

We explore the top emulations for classic genre-defining Roland sounds

68__ GOING WITH THE GRAIN

Break a sound into hundreds of bits, then rearrange them any way you like. Intrigued? You should be...

75__ ALL THE SMALL THINGS

Big isn't always better, especially when it comes to music production

81__ THE EASY GUIDE

Delve into the blues with minor jazz progressions

82__ OFF THE DIAL

Control the mind with brain entrainment signals

84__ SOUND ESSENTIALS

Scot Solida's gone all 80s - why not join him?

116__ Q&A

Readers' production problems solved

122__ cm FOCUS

Think past wailing guitars and focus on fat beats with our guide to distortion



PAGE 86

86__ THE cm INTERVIEW

Nu-skool breakbeat pioneer Tipper makes his tracks in the jungle - and that's not the most surprising thing...



We reveal clever ways to use distortion subtly on page 122



Synapse Audio return to the soft synth scene with Dune

Reviews

94___ SYNAPSE AUDIO DUNE

Solid synth muscle with a polished sound

96___ WALDORF PPG WAVE 3.V

Nearly a decade on, this emulation gets updated. Was it worth the wait?

98___ TONE2 ELECTRIX

A powerful do-it-all synth with an insane number of synthesis methods

100___ MADRONA LABS AALTO

An unusual semimodular synth from a new company

102___ VENGEANCE-SOUND PHILTA XL

A tasty filter plug-in that is a must for hungry dance overlords. Yum!

104___ IZOTOPE NECTAR

Get your vocals sounding sweet with this complete production toolkit

106___ UNIVERSAL AUDIO STUDER A800

Analogue tape recording might be dead, but you can still have its phat sound

108___ MINI REVIEWS

Round-up of sample packs, new apps and much more

112___ cm RECOMMENDS

The music-making gear that's knocked our socks off



WIN!
ROP PAPER
SYNTHS AND
EFFECTS
PAGE 91

Essential cm

6___ INBOX

8___ NEWS

12___ THE BURNING QUESTION

18___ FREWARE NEWS

19___ SUBSCRIBE

115___ BACK ISSUES

130___ NEXT ISSUE

cm DVD CONTENTS

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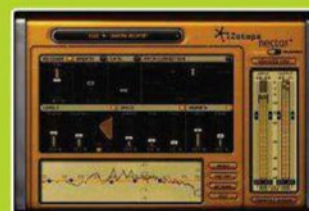
P38 Philta CM is yours for nowt with this issue - so install it and get filtering!

38___ FULL SOFTWARE

We're filter-happy this issue: Vengeance-Sound have provided a special CM edition of their new plug-in Philta XL, plus Togu Audio Line TAL-Filter III is also present and correct

39___ DEMO SOFTWARE

Try before you buy with demos of iZotope Nectar, Madrona Labs Aalto, Synapse Audio Dune, Tone2 ElectraX and Little Endian SpectrumWorx 2



P39 Anyone who works with vocals should try iZotope Nectar

40___ PHILTA CM

Vengeance-Sound have given us a corker with Philta CM. We explain how to get started



P43 The Nextmen want to show you how they produce tracks and demos

43___ SAMPLES AND VIDEO

Inspired by our pop production guide? Then get cracking with 1996 24-bit pop samples. Plus, party-heads The Nextmen give us a glimpse of what they get up to in the studio



P44 ZebraCM is just the starting point for this issue's cm Studio Session

44___ cm STUDIO SESSION

It's a full-on plug-in orgy as we persuade ZebraCM, CompressiveCM and Reverberate CM to work together to create oddball sounds

46___ READER MUSIC

We go all Simon Cowell on four reader demos

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

cm/inbox



Want to air your opinion? Catch us at cminbox@futurenet.co.uk

Message of the month

I was spurred into action by your offhand response to Mr Renberg's point about touchscreen operation (**cm160**). You were a little closed-minded in your response, and your comment about "clunky workarounds" doesn't sound like the sort of computer musician I've ever met. As someone who has spent days repatching synths in an effort to get just the right sound, a lot of workarounds are "clunky", but sometimes just what's needed.

You're skirting dangerously into Apple Fanboy territory with your insistence on cramming in more and more iApps each month, while ignoring the already available tech such as other tablet PCs. There are available gadgets that allow recording on the fly using touchscreen tech and as such have the spectrum of plug-ins and DAW software available to them.

The writer of our *Message of the Month* will receive u-he's superb Uhbik effects bundle for Mac and PC, worth \$149!

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As nice as Apple apps are, and as good as it is to see developers putting more creative tools in the hands of would-be producers, I would rather see you being impartial and retaining some semblance of journalistic integrity than turn into drooling sycophants the minute someone brings out a 909 app. And being a little less dismissive of your readers would be lovely. Mr R's was the third letter of the month where you just brushed off someone's opinions (see also the letters on backup and piracy).

Does someone there need a hug?

Mike Jackson

I wasn't *dismissing* touchscreen PCs in my response to Mr Renberg, but simply stating that there isn't really any scope for serious editorial coverage of them, given that, at this point, they're essentially Windows PCs with poorly supported touchscreen operation bolted on. iOS (and Android, of course), on the other hand, is a fully realised touchscreen platform that's quickly established itself as an important part of the computer music universe. I'm not sure where your accusation of impartiality comes from, but as a flick through any recent issue will reveal, iOS is still very much a 'secondary' element of the magazine. **RM**

Piece of cake

Regarding your excellent article on the new Sonar X1 (**cm160**): After a bit of research into X1 (and reading the **cm** feature), I decided to go out on a limb and purchase a copy. This turned out to be a first-class decision, as X1 seems to be the real deal.

The GUI is just a joy to work with. You can put this window

there, throw that one over here, down a bit, up a bit - then save it as a reference screen. You get the idea. As GUIs go (and I know many), this is probably the most customisable. It looks smart, it looks professional, and it has an air of heritage. Menus are intuitive and icons more 'global'. And this is before we get to the synths, which are superb, and the fact that the ACT feature makes all my twiddlers and sliders a doddle to sync.



Sonar X1 is without doubt Cakewalk's finest effort yet

The software does seem to tick most of the boxes for being a one-stop solution, particularly with the new Pro Channel.

Maybe X1 could be a really serious contender for a bigger slice of the European DAW cake(walk)! (Sorry.)

**Malcolm Williamson,
Manchester**

It certainly could. Sonar X1 is an amazing, beautifully designed DAW that every PC musician needs to try. Here's hoping Cakewalk release a demo version soon. RM

A question of taste

First of all, I'd like to applaud your magazine. I've been a subscriber now for three years and I've loved every issue.

While reading your *Super*

synth me feature in **cm160**, I began to wonder what exactly 'analogue warmth' really is. Recently, I was given, as part of a notation assignment at university, the stems for a Bob Marley track. One of my classmates noted that the hum of what we assumed was a reel-to-reel tape recorder on one of the recordings gave the track a "lovely analogue warmth". To me, this wasn't the case - it became an almost annoying distraction and something that I would view today as unwanted in a recording. I would almost certainly re-record the part.

As my classmate and I are both in our early 20s, and both have grown up in the digital era, I wondered how much of this analogue warmth he really found pleasurable and how

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Kristian Nielsen wonders whether it's true that Reason, Live and other DAWs all have their own individual sound

much of it was behaviour he had learned from older generations of music producers who had real experience with analogue gear.

While you may think that the issue of learned behaviour would be more suited to a different publication, it led me to think: Are the analogue plug ins we use today really faithful recreations of hardware from a bygone era, or are they the sonic result of the developers nostalgia?

DJ BMC, Kent

Analogue warmth comes from physical sources such as circuitry, tape saturation and so on. Electrical interference such as hum isn't classed in the same category, and generally isn't a desirable thing - I'd probably re-record the part too! Today's analogue emulating plug-ins, meanwhile, are certainly

"When people claim that 'Logic gives my mixes more air', should I actually believe them?"

intended to be faithful recreations of old hardware, whether the inspiration behind their invention is nostalgia or commercial interest. RM

Sound wars

There is a question that has been on my mind for quite a while, that I hope you can help me answer. I've heard that some DAWs have better sound engines than others, resulting in a better mix (or at least resulting in making a good mix easier to achieve).

A few years back, I was a Reason user, and most fellow Reason producers have been bashed for the Reason 'sound',

because DAWs like Logic and Pro Tools have a better 'sound engine'. I've been an Ableton user for four years, but I've started to wonder if switching to, say, Logic would end up giving my tracks a better sound.

I've always had the opinion that a digital render of either a sample or plug-in will be the same from DAW to DAW - after all, it's all about 1s and 0s, right? I can go with the fact that some DAWs might have better native plug-ins than others, but when people claim that, "Logic automatically gives my mixes more air and made the treble way more pleasant", should I actually believe them?

Kristian Nielsen, Denmark

With no processing (plug-ins, timestretching, EQ, sonically 'colouring' mixers, etc) applied and equivalent settings such as pan law, all DAWs will render audio from the same source at any given bit-depth and sample rate identically. It is, as you say, all about 0s and 1s. RM

Special case

I wanted to scream when I saw your announcement about subscribing to **cm Specials**. And no, not in joy!

Why would I want to subscribe to an edition about a piece of software I don't own, or to an edition, like the recent *Producers*, that is a compendium of articles that I've already received in my monthly subscription? Why can't I simply order special editions online according to my interest?

DF Tweedie, Escondido, USA

Individual cm Specials are already available for order online at www.myfavourite-magazines.co.uk, so you can indeed buy only the ones you want, should a full subscription not appeal. RM



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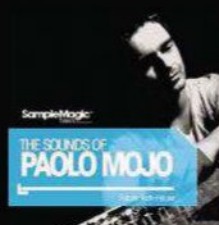
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SMP02 PAOLO MOJO FUTURE-TECH HOUSE

Second in the brand new Sample Magic Presents series featuring the talents of future tech-house uberproducer and world renowned DJ talent Paolo Mojo.

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NEW RELEASES > COMMENT > INDUSTRY HAPPENINGS

Steinberg Cubase 6

A major update to a classic DAW, as well as all-new Neve emulation plug-ins and HALion Sonic 1.5



Left to right: New for Cubase 6 are LoopMash v2, a swipe-based take comping system, and VST Amp Rack, here showing off the mic setup screen

> Steinberg took advantage of January's Winter NAMM Show to show off several tantalising releases. The biggie is the arrival of version 6 of ubiquitous DAW Cubase.

Those who work with recorded drums will be cheered at the prospect of Cubase 6's new multitrack drum-editing features. A new "straightforward and intelligent" transient-detection algorithm picks out the hits across multiple tracks. You can then quantise the audio (whilst preserving phase coherency) and even convert the detected hitpoints to MIDI, for drum-replacement purposes. On the recording front, Cubase now has a multitake comping tool that looks to us like the one in DAWs such as Logic and Pro Tools. There's Track Edit Groups too, which lets you edit multiple tracks at once – we're not entirely sure how it differs from Folder Tracks or straight-up multiselection, but we'll find out in our review next issue.

Those more at home with MIDI will be interested in the Key Editor's Note Expression function – instead of using controller lanes, each note has its own controller 'clip' that pops up when you select it, and the controller data moves around with the notes. So, if you have a note with pitchbend at the start, the pitchbend will move with the note. This ties in with VST 3.5, which allows for controller

data to work polyphonically; eg, Steinberg suggest that you could have a chord with different filter sweeps on each note.

Aiming to please grizzled monsters of rock is VST Amp Rack, a guitar amp and effects suite. This comes with seven amp models, 16 stomp boxes, six speaker cabinets and two mic types. On the instruments front, LoopMash has been updated to version 2.

Other niceties include a spruced up interface, a Key Editor inspector that puts functions like transposing and quantising within easy reach, improved Quick Control assignment, and scaling tools for controller and automation data. Under the hood, Cubase is now compatible with 64-bit OS X, there are new timestretching algorithms and global project compatibility is improved.

You can get your hands on Cubase 6 right now for £508, with Cubase Artist 6 at £253. Upgrades are available, naturally.

We were sort of expecting Cubase 6 at NAMM, but the announcement of Steinberg's new Rupert Neve Designs Portico EQ and Compressor plug-ins was more of a surprise. These "highly sophisticated" VST3/AU effects bring renowned audio gear engineer Rupert Neve's Portico all-analogue hardware units into the digital realm. Making this possible is VCM (Virtual Circuitry Modelling)

technology from Yamaha, Steinberg's parent company.

The RND Portico 5033 EQ has five bands of fully parametric filters, each with gain, centre-frequency and Q controls. High- and low-shelf filters plus a trim control and global bypass switch are also on hand. The RND Portico 5043 compressor has threshold, ratio, attack, release and gain controls, with feed-forward and feedback modes allowing users to "switch between an aggressive and subtle compression response".

The Rupert Neve Designs plug-ins will be available for Windows and Mac in VST and AU formats. Pricing and a release date were yet to be announced as we went to press.

Finally, HALion Sonic – Steinberg's VSTi workstation – has been updated to version 1.5, with its library featuring 1.2GB of new brass and woodwind instrument programs. More effects – including 28 legacy effects from HALion 3 and four new distortion modes – plus General MIDI support bolster it further, while tweaks addressing issues such as audio streaming and loading speed should ensure a "consistent, smooth performance". HALion Sonic 1.5 also offers 64-bit Mac OS X support. It's a free update – get it at the Steinberg site.

www.steinberg.net

Nano technology

Korg release updated versions of their hit nanoSeries



From top to bottom, the version 2 nanoPad, nanoKontrol and nanoKey. They look all-white to us!

> Production maestros Korg have refreshed their nanoSeries line of ultra-slim MIDI controllers, which comprises three units: the nanoKey2, the nanoPad2 and the nanoKontrol2.

The nanoKey keyboard was the thorn among the roses in the original nanoSeries lineup - the cheap feel and inconsistent response of the laptop-style keys let it down.

"Three compact and convenient USB MIDI controller models offering serious features"

Korg

Korg seem to have addressed this with the nanoKey2, as while its 25 velocity-sensitive keys are still in the low-travel laptop style, they're "modelled after a MacBook".

The nanoPad2 has bumped up its drum pad count up from 12 to 16, is now able to record gestures on its X-Y pad and features an arpeggiator and chord triggers. Lastly, the nanoKontrol2, which can control DAWs and other music software, is home to eight faders instead of nine and is said to present a more logical layout for its other knobs and buttons.

All of the nanoSeries2 units are USB-powered and just under 13 inches in length. Expect their prices to be in the same ballpark as the original models.

www.korg.co.uk

Mixdown



A synth deluge prompts our Deputy Editor to round up his thoughts on reviews

> A few months back, we were having a discussion in the **cm** offices about how the once fertile soft synth market seemed to have dried up somewhat. But as it turns out, patience has rewarded us, as we've got reviews of four of the buggers in this very issue, with Audio Damage Phosphor and Cableguys Curve lined up for next month.

We're sometimes asked why we don't run head-to-head round-ups, and when situations like the current synth glut present themselves, we can find ourselves pondering the very same point.

While round-ups can make sense when presented as a special feature, I don't feel that it would be fair for them to replace our individual, focused reviews. First off, the differences between modern music software products are increasingly

"We're sometimes asked why we don't run head-to-head round-ups"

subjective, unlike, say, a decade ago when it was obvious that some sounded and worked much better than others. Nowadays, it's pretty rare to find a product that's not at least good. For that reason, our reviews are more about pointing out the pros and cons of a particular product, what type of users and genres it's best suited to, any problems you should be aware of, etc.

While we do dish out scores that reflect how well we think the product will resonate with the majority of users, there's always going to be room for some personal interpretation. For instance, while I think our 8/10 rating for Dune is fair, I do personally prefer it to ElectraX, which we rated higher overall with a 9/10. Dune might not be as much of a jaw-dropper or as universally useful, but it just clicks with me in a way that ElectraX doesn't - it's more my kind of synth.

There are logistical factors to take into account too. **cm** reviews are often assigned to specific writers because they specialise in a relevant area. For instance, the PPG Wave 3.V review was handled by a guy who has the real hardware, while the far more contemporary ElectraX was assessed by a professional dance producer by using it on real-world projects. If we did shootout-style round-ups, such specialist insights could be lost, because we'd obviously have to get the same writer to do the lot.

Close to the edit

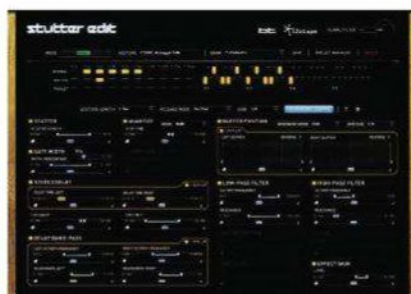
BT's stutter edit trickery encapsulated in a p-p-p-plug-in

> iZotope have teamed up with electronic music maestro BT - Brian Transeau to his mum - to unleash real-time audio manipulation effect Stutter Edit.

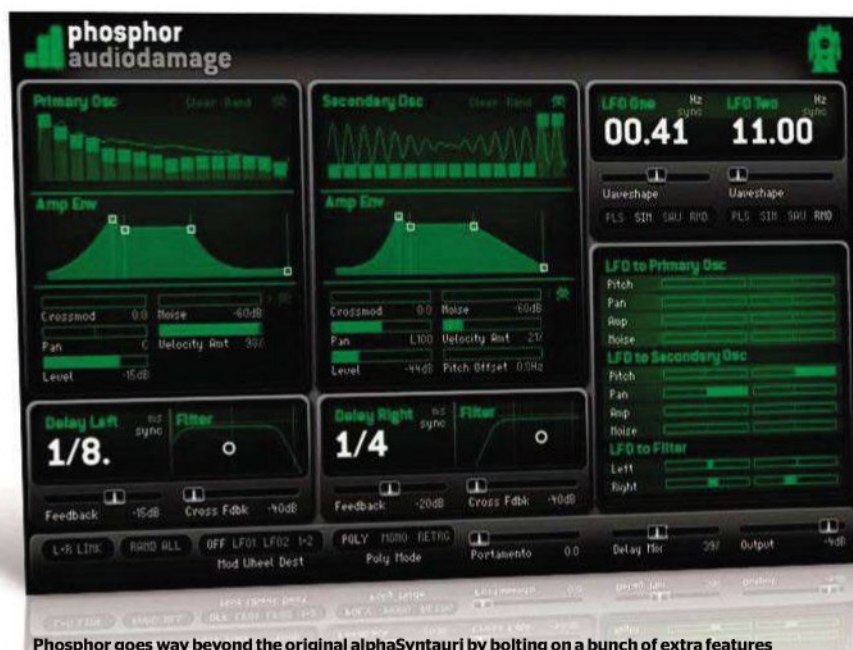
Stutter Edit slices up audio and sequences the fragments into rhythmic effects triggered via MIDI notes. Users can also call on gate, pan, digital distortion, delays, filters and noise sweep modules. Stutter Edit is designed to be used live, and features an "elegant" MIDI control scheme.

Stutter Edit is available for PC and Mac in VST, AU and RTAS formats, and costs \$249.

www.izotope.com



"Stutter Edit exists because I wanted to step on stage and improvise the rhythmic effects that sometimes took me days to create," sayeth BT



Phosphor goes way beyond the original alphaSyntauri by bolting on a bunch of extra features

Full of additives

An emulation of a forgotten digital synth from the 80s

> Plug-in maniacs Audio Damage have released Phosphor, a virtual instrument modelled on vintage digital additive synth alphaSyntauri. The real thing debuted way back in 1980 and consisted of a keyboard and a bunch of cards that you plugged into an equally ancient Apple II computer, which was then used to edit patches via a software editor. Ah, the good old days of computer music!

Phosphor features two 16-partial additive oscillators each with their own amplitude envelope. Audio Damage have brought the synth into the 21st century with the addition of full velocity control, a more extensive modulation routing system, tempo-synced

LFOs, two monophonic modes and two delays with filtering.

Each set of partials can emulate the gritty sound of the original by running in 'lo-fi' mode, while a 'modern' mode provides alias-free sines. Similarly, the noise generator can mimic the alphaSyntauri's digital shift-register noise or produce pure white noise.

Phosphor is billed as "a much more sophisticated and capable synth than the original, [with] the ability to recreate the classic sounds of the early days of digital synthesis". It's available in VST/AU formats for PC and Mac and costs \$59.

www.audiodamage.com

SynthMaker 2

> Outsims have updated their Windows-only graphical programming tool SynthMaker. Version 2's biggest new feature is multisample support, which aims to take the hassle out of putting together sample-based creations.

Other changes include an updated, "fresher" GUI, a refined filter bar, support for Wiimote input and several new modules "to make life easier". Version 2 also sees several less obvious tweaks such as enhancements to standalone executable support, new code component functions and a leap forward in host compatibility, with improvements to Cubase particularly noted by Outsims.



Make your own synths and effects with SynthMaker's slick graphical interface

If you fancy having a go, SynthMaker 2 is available for Windows, starting from £95.

www.synthmaker.co.uk

Damaged



Chris Randall is dazzled by the music gear industry's glitziest trade show, NAMM

> While I've been working in the music industry for nearly 25 years now, and actively creating tools for music-making for a decade, before this January, I'd never been to NAMM. I'd tried to go a few times, but something always got in the way: family obligations, a snowstorm or something of that sort. This year, though, I finally made it. Mainly because the convention is just up the road, and there was almost no way to avoid it.

I'll say this much: there is a vast difference between reading all the news feeds of NAMM-related press releases and actually walking the show floor, playing with the new instruments and software, and talking to the people that made them. Mainly because when you're at home with your RSS reader, you're not getting elbowed out of the way by some 50-year-old hair metal sideman, and you don't get the audio equivalent of a

"NAMM is a level playing field where the gear and the software does the talking"

South African vuvuzela-wielding football crowd blaring in your ear the whole time. NAMM is loud, and full of people you'd really rather not have anywhere near you. Ever. Most of these people are drummers.

But, despite all of the chaos, going to the show is an amazing experience. Not all music production companies are represented there, but most of the important and groundbreaking ones are, and you have the opportunity to get an explanation of a new product or make a feature request with the man who actually designed the thing. Gigantic companies like Casio have huge, futuristic booths with nobody in them, and little boutique startups like Teenage Engineering have four square metres of floor space and a constant crowd around them. NAMM is a level playing field where the gear and the software does the talking, and it certainly makes one thoroughly understand that in the music-making industry, a good idea is worth way more than a good presentation.

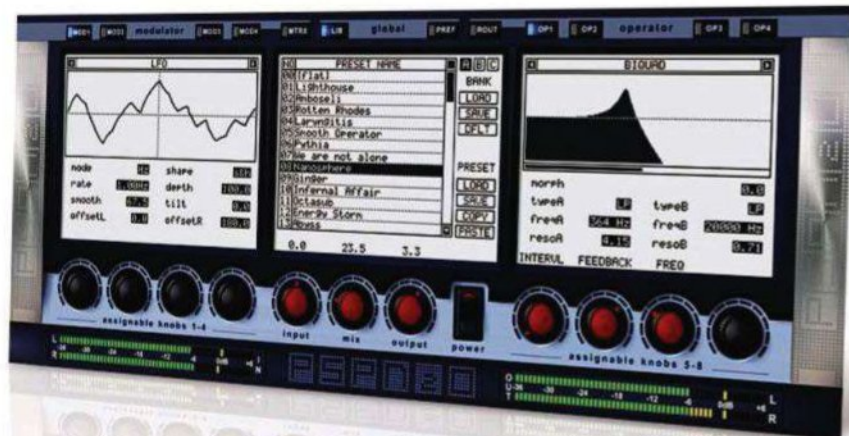
Chris Randall is the co-owner of Audio Damage Inc, and proprietor of the Analog Industries blog, on which he regularly pulls no punches.

www.audiodamage.com
www.analogindustries.com
 Twitter@Chris_Randall



Nitro boosted

PSP Audioware release Nitro sequel N2O



N2O leaves Nitro in the dust with its modular multieffect concept

> PSP Audioware build on the concept of their classic multimode filter Nitro with its successor, the new semimodular multieffect plug-in N2O, which the company bill as offering "unparalleled flexibility and total sound creation freedom". Features not seen before include new processing modules and extended modulation capabilities, while the internal DSP gubbins have been rewritten from scratch to allow N2O to make the most of modern CPUs. The GUI has also been overhauled.

N2O features numerous sound-processing modules including morphing resonant and formant filters, EQ, delay, reverb, pitchshifter, compressor/expander, bitcrusher, distortion, full-wave rectifier. Up to four modules can be used at once, with a routing page for connecting them up in a multitude of crafty configurations. You can have four modulation sources too, each being an LFO, envelope detector, ADSR

or step sequencer. There are eight assignable knobs (with a MIDI learn option), and a limiter that borrows algorithms from PSP's slick Xenon plug-in. Simplified modulation setup, animated response plots, sidechain input and 192 presets are some of the other goodies you can look forward to.

N2O is out now for Windows and OS X in VST, AU and RTAS formats, with its price tag coming in at \$179.

www.pspaudioware.com

"With new modules and extended modulation features, N2O explores new sonic areas"

PSP Audioware

Trackers & Demoscene



A SunVox update, a tracker DJing program, and a sad farewell to an old friend

> There are GUI improvements, themes and more in the new release of the lightweight-yet-powerful SunVox tracker. This latest version (1.6) adds an OGG Vorbis player and a spectrum analyser, plus multitasking and iTunes sharing for iOS devices. It's free for download at www.warmplace.ru/soft/sunvox or you can get it for a few quid on the App Store.

Next up is a brand-new web toy called ChipdiscoDJ. Written by modest chip wizard Brendan Ratliff (aka Syphus), ChipdiscoDJ is the Traktor for tracker

"With tempo matching, pitchshifting and cue mixing, you can mix tracker tunes to your heart's content"

music. Complete with tempo matching, pitchshifting and cue-mixing, you can mix tracker tunes to your heart's content. More features are being implemented as we type, and Syphus tells us he's even planning a web-based tracker! Go here to use or download: crayolon.net/chipdisco.

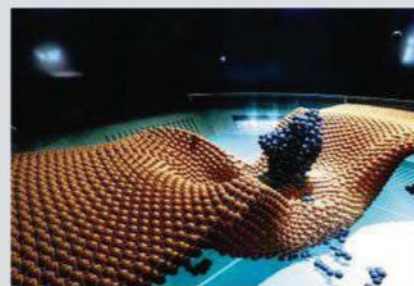
Sadly, the United Trackers website - once a meeting place for tracker musicians the world over - is closing down. No explanation has been given.

DEMO OF THE MONTH

fr-063: Magellan by Farbrausch

Scooping first place at Germany's The Ultimate Meeting, this production of supreme design, physics/graphics wizardry and funky music from supergroup Farbrausch shows us just why they remain the demoscene heavyweight champions. Warning: Quad-core CPU highly recommended!

The first round of voting for the best demo of 2010 is at awards.scene.org, with winners announced at The Gathering on 22 April. See links to 2010's top demos plus this month's goodies on the **cm** DVD.



No demo is complete without a bunch of shiny balls

cm Special: Reason

> Calling all Reason users! Our brand-new **cm Special - Reason: The Expert Guide** - is your secret to making better tracks. Featuring 100% brand spanking new tutorials, the *Special* is stuffed with in-depth guides to Reason 5's top new features, masterclasses that'll get you working like a pro with any version of Reason, and tips and tricks revealing the methods behind today's cutting-edge sounds. Plus an exclusive ReFill on the DVD!

If this sounds like your thing, don't delay - supplies are strictly limited. Turn to p88 for stockists and on sale dates, or buy one online at the website below.

www.myfavouritemagazines.co.uk





Could an app store benefit the music software industry?

> It's easy to get drawn in by the hyperbole when Apple announce something new, but when it comes to setting trends, their track record is pretty good. So, now that the company have opened their Mac App Store – an OS X version of their mobile software marketplace – several questions have come to the fore. The most obvious of these is how the Mac App Store will affect the way we buy our music-making software, but it's also worth considering whether it could influence software design and price. Then there's the potential for it to have a wider impact: could it pave the way for a portal elsewhere that only contains music software?

"This could render the Mac App Store almost irrelevant for serious producers"

The significance of the new store's arrival has already been hotly debated by bloggers, with one suggesting that it could even encourage developers of Windows music-making software to switch their focus to OS X. However, while buying software through the Store has some advantages – easy payment/installing/updating,

the ability to reinstall everything on a different machine (the Store knows which apps you own) and an end to fiddly copy protection systems – one of the big sticking points is that, because of the way they install, plug-ins aren't allowed in.

Immediately, this means that the Mac App Store can't be a one-stop shop for most OS X musicians, and could render it almost irrelevant for serious producers. However, it might yet lead to the development of a different type of product.

Make some noise

As White Noise Audio, David Wallin has released both iOS apps and Mac/PC plug-ins, so he has a foot in both development camps. Like many, he feels that the arrival of the Mac App Store may trigger the creation of more 'hobbyist' music-making software.

"My guess is that apps will tend to be more casual, since that's what has succeeded on iOS," says Wallin. "For developers, the benefits are in the Store itself. They get access to a huge audience, their apps are more easily discovered, and they get all the standard shopping cart benefits at no additional cost. This includes things like gifting, wish lists, reviews and recommendations, which should all help sales. End users get extra peace of mind, since there are stricter rules about what kinds of apps are

approved. These rules are mostly aimed at keeping out software that can make a user's system unstable or software that violates a user's privacy."

We're already starting to see examples of this more casual approach – UVI Grand Piano, for example, is a standalone sampled piano that's designed to appeal to the person who just wants to sit and play rather than record anything. What, though, of the pricing issue? Are Mac App Store prices likely to be comparable to those in the mobile equivalent? Apple have set the bar pretty low by making GarageBand available for £8.99, but it remains to be seen whether this will be a benchmark figure.

An existing role-model

"On iOS the lower pricing has typically been offset by the potential to reach a larger audience, reduced piracy thanks to Apple's tight control over hardware and software, and the ease of the shopping experience (finally, it is easier to download an application legally than it is to pirate it)," explains David Wallin. "However, there have been some reports that the Mac App Store has already been cracked. Also, Apple has left it up to app developers to implement their own copy protection checks. Combined with the more open nature of OS X, this may mean that it is harder to stop piracy on the Mac than it is on iOS. Hopefully Apple can come up with some tighter controls around this."

So, the Mac App Store isn't going to change the way we buy our software overnight, but could it inspire someone else to create a music-making software-only store? In the video games world, there is a precedent in the shape of Steam, a download platform run by a company called Valve that sells PC and Mac games direct to customers. It also offers community features. Paul Taylor, a musician who's a developer at Mode 7 games, has good things to say about it.

"Valve have established Steam as a key brand: that's probably their greatest triumph," says Taylor. "Every PC gamer knows that games on there will have a certain level of quality, and they go straight to Steam to look for new releases."

"In terms of the benefits for developers, being on Steam brings your game to a mainstream audience. If you're on that front page, you're getting huge exposure: as I write this, there are well over two million people logged in. Most indie games will rarely have a marketing reach approaching that."

"Here at Mode 7, we're shortly to launch Frozen Synapse, which will be our first title on Steam. So far, Valve have been very supportive in terms of discussing how we can best integrate with their systems. There's a lot of secondary stuff like friends lists and achievements that games can utilise."

This is all well and good, but music software is a different (and, it has to be said, a much smaller) kind of business. This being the case, Taylor is cautious when it comes to discussing the viability of an app store for music makers.

"If a music software developer was to do this, they would need it to be totally compelling," he says. "They'd have to have a lot of content on there, and they'd need at least one exclusive 'killer app'. At the moment, the state of buying music software online is dreadful. Companies are still relying on worthless, inane hardware-based copy protection, which means that some kind of physical component is almost always essential. That needs to go! Secondly, companies need to be more open about selling their content digitally - I can't believe that I still need to have DVDs shipped to my house in this day and age!"

Taylor does concede that some musicians might not be willing to download multi-gigabyte ROMplers, though as he points out, plenty of people torrent massive files. So, there would also be a bandwidth issue to consider.

The perfect storm

"I think if someone could crack all of the factors, they could do something truly amazing and make a lot of money," Taylor concludes. "But it's not an easy proposition - Steam has a very powerful infrastructure behind everything; there are a lot of technical challenges so it would need a large amount of upfront investment. The market for music software isn't anything like as large as the games market, so it might be difficult to get hold of the capital."

Setting it up might not be easy or without risk, but in the long-term, an app store for musicians might work both for developers and musicians. As David Wallin points out, there might even be the potential to access it from within your DAW.

"If one of the big-name studio apps were to create a plug-in store integrated into the app, it would be a huge success. Imagine if you were working on a song and you could search for a new plug-in instrument or sample pack, buy it and have it download and install itself automatically in the background. It would be far more convenient for musicians than having to mess with folders, credit cards and store accounts for each plug-in developer, etc. It's also better for developers since it makes your offerings discoverable by everyone."

Sounds great: now all we need is for someone to go and build it. **cm**

Ins & outs

OH. MY. GOD.

Spectrasonics' Eric Persing wowed NAMM Show-goers with his OMG-1. This one-off maple-encased piece of awesomeness comprises a Moog Little Phatty, two iPod touches, two iPads, an Akai LPK 25 and an Mac mini.



APP HAPPY

As you can read to the left, Apple's Mac App Store is now open for business. We're enjoying the free SoundCloud app (it comes with its own big red recording button), and iDrum (£11.99) is worth a look too. Oh, and Angry Birds, obviously.

RECORD DELIVERY

Sony and Universal are finally making new singles available to buy as soon as they're released to radio. The previous system, which saw fans having to wait six weeks before being able to pay for songs that were on constant rotation, obviously only fuelled piracy...

POWERCORE NO MORE

Here's some bad news for users of TC Electronic's PowerCore DSP platform: development on the system has ceased. The products will still be supported, though, and TC are giving customers the option to crossgrade to a UAD-2 system.

MAKE THE T-PAIN STOP

Having given iOS users the chance to Auto-Tune themselves, T-Pain now has his sights set on the toy market with the voice-changing I Am T-Pain Mic. Even he admits that he's "milking this thing" - we say it's time to put this particular cash cow out to grass.

OUT OF (DUB)STEP

Britney Spears may have scored a worldwide hit with *Hold It Against Me*, but are we the only ones to think the incongruous dubstep breakdown in the middle sounds like it's wobbled in from a completely different song?



Busting jargon



Computer music terminology explained. This month: **Unison**

When you hear multiple instruments all playing the same note, they're said to be playing in unison. Think of a violin section all playing the same thing - it sounds far lushier than if a single violinist played it because of slight timing/pitch variances from player to player.

Many synthesisers offer a 'unison' feature, and its origins lie in old monophonic analogue synths. While these synths had only a few oscillators, you could slightly detune them, with the result being a thicker, fatter sound.

As time went on, synths became polyphonic, which meant that chords could be played using a separate 'voice' for each note. However, users still wanted the monophonic unison mode so it was implemented as a feature, ganging all the voices together to play the same note at once for a rich tone.

Fast-forward to the 90s and, thanks to digital technology (which is less restricted in the number of voices that can be used), it was possible to play unison patches polyphonically, so each note in a chord could itself be made up of several detuned voices. Phew! Virtual analogue synths such as Access's Virus and Roland's JP-8080 were famous for

producing some massive sounds and lush pads.

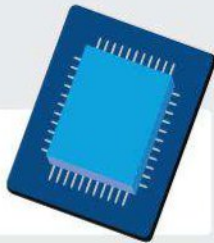
These days, unison features on soft synths are commonplace; you're typically able to control the amount of detuning and the panning width for individual voices. Some synths, such as Synapse's Dune, extend the concept further by enabling you to apply different types of modulation to each unison voice.

If the synth you're using doesn't have a unison mode but does have two or more oscillators, you can mimic the effect by turning on several voices and detuning them manually until your overall sound has the requisite amount of fatness.

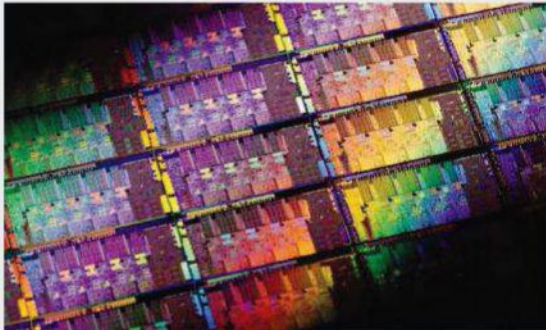


Synapse Audio's Dune takes the unison concept further with voice-specific modulation features

System check



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



A gratuitous 'chip shot' of Intel's latest. Pretty, ain't it?

FRESH CHIPS

It's been all go on the PC chip front recently, with Intel showing off their second-generation Intel Core processor micro-architecture at this year's CES. The new chips still use the Core i3, i5 and i7 brand names, but they feature major advances over the previous generation including "advanced vector extensions" (AVX), which help accelerate certain types of repetitive operations, said to give a boost to applications like media conversion. Elsewhere, computers featuring AMD's Fusion APU (a combination of CPU and GPU on a single chip) have started to materialise. AMD have also just announced their new Fusion-based Embedded G-Series platform; this can be used in a range of devices from set-top boxes to small form-factor PCs.

www.amd.com
www.intel.com

ARMED AND DANGEROUS

This might not initially sound like big news to those who aren't au fait with the world of chipsets and operating systems, but believe us: it is. Microsoft have demonstrated a full version of Windows running on an ARM chipset at this year's CES in Las Vegas. So, in the future you should be able to find a proper version of Windows in tiny devices, thanks to ARM's ability to run an entire OS on a single chip. The catch is that x86 chipset software won't be compatible with Windows for ARM, and Microsoft have made clear that they're not going to incorporate an x86 emulation into ARM versions of their software. So, you won't be able to run all your favourite Windows software on an ARM-powered, Window-based device unless developers make an ARM-compatible version. However, Windows' future as a mobile computing platform just got a whole lot brighter.

www.microsoft.com
www.arm.com

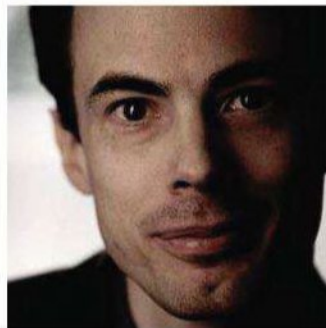
HIGH FIVE

Yet more chip news, with rumours abounding of the new chip that will power Apple's iOS devices. The successor to the A4 chip - A5, we guess - will apparently move to dual-core SGX543 graphics, a technology that offers roughly four times the power of the existing single-core version. This would make Retina Display-style high pixel density a possibility on the next-gen iPad. In related rumours, developers delving around in the code for the new beta version of iOS have found what are most likely iPad FaceTime, PhotoBooth and Camera icons - exciting news for Apple addicts craving a camera-equipped iPad.

www.apple.com

Get with the programmers

The founder of the company behind the new Dune synth and numerous classics talks to **cm**



Synapse Audio Richard Hoffman

cm How and why was Synapse Audio first formed?

RH Originally it was formed for Orion, the first purely virtual studio for Windows. After the release of some freeware tools and synths in the late 90s (most notably the TS-404 synthesiser) together with Rasmus Schultz [co-programmer, designer and artist], it became apparent that there was enough interest in those tools to get our own website. So, one thing naturally led to another.

cm Why has Synapse Audio been so quiet in recent years?

RH There were two reasons. For one, I was busy finishing my PhD thesis; second, I had lost interest and inspiration. Making music software is both art and science. It's perhaps not as creative a task as making

music, but it's still impossible to do without having a certain spark - that's a necessity to develop innovative software.

cm What was your inspiration for Dune? Does the music-making world need more synths?

RH It surely needs more quality synths. The vast majority of soft synths sound alike and share the same features. Only few soft- and hardware synths offer a unique sound and innovative features. Those inspired Dune the most.

cm Some of your other synths are quite old now. Do people still buy/use them?

RH Most of the old ones have been phased out already. From the current line of synths, the Hydra is the oldest, yet it is surprisingly popular still. Perhaps because it is based on the Junglist, which always has been a popular synth as well.

cm What's happening with Orion these days?

RH Contrary to what most people think, Orion's development is alive and kicking. The next version is just about finished, scheduled for release in Q1 of this year.

"Contrary to what people think, Orion is alive and kicking"

In a nutshell, Orion 8 offers an improved workflow, a better mixer and new instruments and effects.

The sound quality of the new stuff is much, much higher than the old stuff (most of which dates back to 2000).

Ultimately, my goal is to help the

producer shape a unique sound - something as unique as, say, a Neve hardware console can offer. When/if it comes to Mac, I can't tell you yet. It depends on many factors, including how the reception of Orion 8 is. It will be a lot of work for sure!

cm What's next from Synapse Audio?

RH Other than Orion 8, what's planned next is an overhaul of the Toxic FM synth. It only needs a few touches to be ten times better and more capable than it is now. Besides, it is currently Windows only and needs to be ported to Mac OS X.

As well as that, Dune 2 is in the pipeline, of course, and there's another secret project I cannot talk about yet. There is a lot going on at Synapse in 2011 for sure!

Sonic recharge

➤ Plug-in pushers Sonic Charge have issued an update to drum synth **µTonic** – that's MicroTonic in non-geek speak. Version 3 features a host of new functions, including a Morph slider that allows you to "interpolate all eight drum patches simultaneously between two end-points", a Matrix editor for editing the pattern steps of all the patches at once, an 'Edit all channels' button for global parameter adjustments and also MIDI Program Change support.

Other additions include choke groups (useful for hi-hats), pitchbend support for transposing patterns in real time, drag and drop of patterns into your DAW, and a sleek new interface.

MicroTonic is available for Windows and Mac in VST and AU formats. It costs \$119.

The busy bees at Sonic Charge have also released Bitspeak. This one is an effect – a

"Sporting over 20 new features and a brand-new look, MicroTonic is as good as new again"

Sonic Charge



Version 3 of drum synth MicroTonic has several new features to help make your percussion programming easier and more exciting

real-time pitch-excited linear prediction codec, to be precise. Bitspeak uses voice compression technology to produce "a broad range of sounds, from cheap speaking toys to high-end vocoder and talk box effects". In simpler terms, it analyses audio, extracts parameters such as pitch and volume and then resynthesises it using an oscillator, noise and filter arrangement.

Bitspeak is available in VST/AU formats for PC and Mac and it costs \$35.

www.soniccharge.com

Soundware news

➤ Utah Saints have hopped into bed with Loopmasters to produce **Utah Saints: Electro House and Indie Dance** (£35). It's a 975MB pack filled with 225 loops and 238 single-shots, plus 50 synth, drum, bass and FX patches to "ignite your music".

Dubstep dandy High Rankin has lent his sounds to **High Rankin Dubstep Tearout** (£25), which features 567MB of "punchy drum hits, nasty bass one shots and a nice range of pads and risers".

Dub and reggae producers should check out **Prince Fatty Crucial Dub** (£35). It's home to over 800 24-bit samples that will give your dub, reggae, roots and dubstep tracks that "upbeat, positive and organic funk" vibe.

Muteki Media's **Abstract and Weird** (£17) pack provides "abstract, crazy and out of the ordinary sounds" that you could use as "accompanying" loops, FX atmospheric sounds, one-shots or whatever you fancy.

www.loopmasters.com

Anyone looking for "funky, laidback grooves" will be interested in Zero-G's latest sample

pack, **The Paradise Sessions: Soulful Latin & Lounge House** (£61). Comprising 35 construction kits plus extra drum loops and piano/guitar phrases, the pack is stuffed with 1.3GB of 24-bit "mellow, soulful" goodness.

www.timespace.com



Get glitchy with Sony's **Blip** (£25), which contains "minimal glitches, dubby echoes, isolationist beds, electroacoustic events, field recordings and more". There are 471MB of 16-bit samples ranging from birds and camera sounds to ambient bells.

House/techno heads will appreciate **Paolo Mojo Future-Tech House** (£30). With all samples at 128bpm, the pack provides 170+ "floor-rocking" drum loops, 25 bass loops, 44 "melodic inspiration lines" (music loops), 32 vox and FX loops plus 54 drum hits to slot into your recordings.

Diginoiz's **Triple Shaker Sensation** (£21) contains over 390 shaker loops for hip-hop, urban and pop productions, with each provided at 85, 90 and 95bpm.

www.samplemagic.com

News in brief

NUMERO TRES

Five12 have updated their novel sequencing and plug-in environment Numerology. Highlights include new generative sequencing options, a preset playlist, a Humanise function and audio and MIDI recording for every part. The biggest new feature, however, is that it now works as an AU plug-in as well as a standalone app. Numerology 3 is Standard is \$129, while the Pro edition is \$199. five12.com



MIXING IN THE BOX

If you've no other choice but to mix on headphones, Focusrite's new USB audio interface could be of interest. The "pocket-sized" VRM Box offers just a headphone output and S/PDIF digital input. The selling point is the VRM (Virtual Reference Monitoring) technology: select a mixing space (living room, studio, etc), pick a model of monitor speaker, and strap on your headphones – you'll hear the mix as though you were sat in your chosen room, in front of the speakers. That's the promise, anyway. It costs £80. www.focusrite.com

IN THE AIR TONIGHT

Starr Labs have announced a wireless MIDI controller, airPad. Built to control Ableton Live, the compact unit has 16 programmable LED-illuminated touch-sensitive pads, eight pots, an X-Y pad and four-way navigation control buttons. It can broadcast MIDI over a range of up to 300ft. Pricing and availability were unconfirmed at the time of going to press. www.starrrlabs.com



COMPETITION WINNERS

In cm160, our competition gave you the chance to win a MeldaProduction Total Bundle, containing all of the company's effects. We can now reveal that the lucky winners are Simon Nicola and Keith Blackaby. Well done, all!

Don't be too downhearted if you didn't win, though – just flick to p91 for your chance to win a mighty Rob Papen eXplorer bundle!



Lay down vocal ideas on the move with TC-Helicon's VoiceJam

App watch

New music-making apps for iPhone/iPod Touch/iPad

> TC Helicon's vocal processing products are popular with singers around the world, so when the company announced that they were releasing an iOS app, there was always going to be a lot of interest.

VoiceJam doesn't boast any effects, oddly, but it does feature a six-slot looper that enables you to record your vocal (or other) ideas. Undo, reverse and 'double' features are included, and using the Performance Recorder, you can capture complete songs. These can be uploaded directly to SoundCloud.

VoiceJam is a Universal app for iPhone, iPod touch and iPad and costs £2.99.

www.tc-helicon.com

IK Multimedia have expanded their AmpliTube iOS range by announcing a dedicated Fender version. This contains five amp models ('65 Deluxe Reverb, Super-Sonic, '65 Twin Reverb, '59 Bassman LTD and Pro Junior) and six stompboxes (Fender Tape Echo, Compressor, Fender Blender, Fender Phaser, Overdrive and Noise Filter) from the famous guitar company: mix and match them to create the tone you're looking for.

IK have also revealed that that they're

IK Multimedia are clearly serious about iOS apps - they've even got Fender on board for their latest effort

working with other guitar amp manufacturers to create more Mac/PC and iOS AmpliTube apps in the future.

AmpliTube Fender for iPhone and iPod touch should be available by the time you read this priced at \$14.99

www.ikmultimedia.com

Staying on the guitar theme, just as we went to press Studio Devil announced Guitar Amp - it's an app that brings the company's tube amp modelling skills to the iPhone, iPod touch and iPad. It's a no-nonsense affair, with three amp styles, three cabs, and Gain, Bass, Treble and Level knobs. It costs £2.99.

www.studiodevil.com



Game overture

It's time for more indie gaming goodness as we take a look at a forthcoming title

> Brian Provinciano's *Retro City Rampage* (for that is its full title) is a 2D open-world action game that's coming to XBLA and WiiWare this year.

It's essentially a pastiche of almost every NES game you can think of, framed in a hugely complex *Grand Theft Auto 1*-style extravaganza. You'll experience many different parodies of classic titles, so it's fitting that the soundtrack should be comprised of a huge variety of chiptune offerings from artists like Freaky DNA, Virt and Norrin Radd.

Freaky DNA, aka Leonard J. Paul, speaks a little about his work on the *Retro City Rampage* site:

"For *RCR*, I've been experimenting with different ideas and trying out different styles in the NES format. It's a really challenging thing to try to make things sound cool with just a couple of pulse waves, a triangle wave,

"It's a pastiche of almost every NES game you can think of, framed in a complex *Grand Theft Auto 1*-style extravaganza"

a noise channel plus a really lo-fi sampled sound channel. My main method is to jam some stuff out on my acoustic guitar and then use the open-source OpenMPT to program the notes in individually."

We'd like to give full props to Brian for putting in so much effort to organise such a great soundtrack. There's a mixtape on the site to download - we thoroughly recommend checking it out at www.retrocityrampage.com.

If you're feeling inspired, there's a remix competition in progress: you could win a boxed faux-NES *Retro City Rampage* cartridge case! Sweet.



Blops, blips, beeps and bloops abound in the chip-fuelled soundtrack for *Retro City Rampage*. It's bleepin' brilliant!

COMPUTER music 10 years back

We hit rewind to see what concerned the computer musician in April 2001

> "Who needs Pro Tools?" was the question posed in **cm32's** cover feature, and while the game has recently changed considerably as far as Avid's DAW platform is concerned - you can use version 9 with third-party audio interfaces - it's one that's still being asked today. Thankfully, unlike when we ran this article, you no longer need to remortgage your house to get a workable Pro Tools system up and running.

Over in the reviews section we carried a write-up of reFX's The BassLine, an

"PCI cards that offered audio I/O and onboard synths would soon be a thing of the past"

emulation of Roland's TB-303 synth. Even then we had to ask whether another clone of said instrument was really necessary, but when you consider how many have come since - and the fact that we've got a feature on xOx-box emulations on p63 of this very issue - the answer was probably yes.

Finally, if you were looking for prescience, you could find it in our then Reviews Editor's *Mixdown* column, where he speculated that 'soundcards' - ie, PCI cards that offered audio I/O and onboard synths - would soon be a thing of the past. He was right, of course, because pretty soon we were generating all our sounds in software and leaving our cards (and external interfaces) to deal exclusively with audio input and output.



You may find this hard to believe, but that lifelike cover image is entirely computer-generated



Drive time

Steve Lawler

We prised this superstar DJ away from the decks just long enough to find out what software he uses

ABLETON LIVE

"I use Ableton Live as a slave in the background of Logic on most of the singles and remixes that I make. It's a really cool program for chopping up loops and messing around with noise to create intricate sounds. I create a lot of my soundscape here - those sounds and noises that sit quietly in the background of a track to give it some depth and mood."

SPECTRASONICS TRILIAN

"This is the ultimate bass module - a one-stop shop for every kind of bass sound you could ever want or need to use. Trilian also includes the classic - and now discontinued - Trilogy bass module. I like the way that I can envelope the bass to really squeeze it tight and produce a beautiful compressed warm bass. In my opinion, Trilian is a must for every studio."

SONIC CHARGE MICROTONIC

"This is a powerful little tool for coming up with techy rhythms and randomisations. If you're playing around with it and it drops something very strange on you, you can then dissect it and take away just the small intricate sounds/parts that you want. After that, you can add onboard FX and move the sound pattern around to create some very

interesting ideas. MicroTonic has a unique sound - very synthetic and futuristic. It's a must for any techno or dubstep producer."

NATIVE INSTRUMENTS REAKTOR

"You still can't beat this modular synth for out-there sounds. When you're searching for something to make your weird and wonderful, glitched-up, futuristic leads, this is the place to go. Reaktor is a monster

"MicroTonic has a unique sound - very synthetic and futuristic. It's a must for any techno producer"

of a plug-in, and it contains so much to do and fuck with."

NATIVE INSTRUMENTS MASCHINE

"I like using Maschine because it reminds me of the old Akai samplers. It's a nice way to play around and create some interesting drum programming. I always appreciate having something in my studio that allows me to get hands-on with tasks like the programming of drums."

Steve Lawler's Loopmasters sample pack is out now - see page 109.
www.djstevelawler.com

AAS Player / Swatches

Applied Acoustics Systems are the latest commercial developer to release a freeware player, along with a bank of free sounds. Colour us excited!

Developer Applied Acoustics Systems
Format PC VST, Mac AU/VST
Web www.applied-acoustics.com

Following in the footsteps of Native Instruments and UltimateSoundBank, Applied Acoustics Systems are the latest name developer to jump on the freeware player bandwagon with their AAS Player plug-in. This straightforward instrument does very little aside from allowing you to load up banks of sounds (including the free Swatches bank), and play them via MIDI. What exactly goes on under the hood of the AAS Player is left very much left to the imagination.

To find out more about what's up with AAS Player, we caught up with Applied Acoustics Systems' Eric Thibeault.

For starters, what inspired the creation of AAS Player?

"We wanted to reach a maximum number of users. Now that we've released AAS Player, our Sound Bank Series patches are no longer exclusive to Ultra Analog VA-1 and String Studio VS-1 users. Users can get a taste of the AAS instruments without committing themselves to a big investment. Banks are sold for \$39 each and ship with the free AAS Player plug-in. That's our lowest entry point ever."

That's all very well, but we want to know about the free stuff! Where are Swatches' sounds from, and do AAS have plans to provide further free sounds?

"Swatches is a compilation/sampler of our current Sound Bank Series titles. At the moment it contains 40 presets picked straight from Analog Essentials, Ultra FX, Starlight, Journeys, and Entangled Species. Our plan is to keep on

"Users can get a taste of AAS instruments without committing themselves to a big investment"



AAS Player contains Swatches (40 free presets cherry-picked from the company's commercial offerings), plus the option to buy Sound Bank patches for \$39 each

updating Swatches with new material as we release more sound bank titles."

How do you create content for AAS Player?

"So far we have had good success with the service of external sound designers. They create presets on our instruments - Ultra Analog VA-1 and String Studio VS-1 for instance - then export and send us the file. We usually ask for some adjustments, and do the final packaging."

It's a little unusual that the users can't adjust the parameters of the sounds!

"It is indeed - correct! To be frank, we were ourselves skeptical about the concept at first,

"We were sceptical about the concept at first, but we were quite surprised with the resulting experience"

but we were quite surprised with the resulting experience. The immediacy and ease of use coupled with the quality sounds provides a truly immersive sonic experience. There are no plans at the moment to provide parameters but we'll see what the future holds."

Swatches includes some great arpeggiator, pad and effect patches, and despite the lack of editable parameters it's still definitely worth downloading if you're after some quality new noises. **cm**

FREE ADVICE

RESAMPLING

It's not possible to alter the filter or amplitude envelopes, or change the effect settings of AAS Player's patches. This can be an annoyance if you're trying to work its sounds into your mix, but there are creative ways in which you can work around these limitations. The easiest way to make the sounds snappier or smoother in the absence of ADSR controls is to bounce the part to audio. Your DAW's editing and fade controls can then be used to bring the sounds in as slowly or abruptly as you want them to be. Likewise, you can use an automated filter effect to get the filter curve you require, should the instrument's preset curves not be quite right for what you're trying to achieve.

Third time lucky

After last month's awesome TAL-Filter II, we didn't think we'd be hearing much from Togu Audio Line for a while. How wrong we were: they've already brought out another new plug-in. TAL-Reverb III is a straightforward plate reverb effect that includes a single algorithm along with an EQ section and stereo controls. It's available as a PC VST and Mac AU and VST, and while it doesn't have a wealth of features, its no-nonsense, unfussy approach makes it worth investigating. kunz.corrupt.ch

Vesco value

vescoFx have released a Mac version of their Haas technique-based stereo effect. freeHaas is now available as a Mac VST in addition to the PC VST version. Haas technique is fairly simple - delay one side of a stereo image to create a wider stereo effect - and freeHaas is a correspondingly simple effect. All you need to do is pick either the left or right input signal, dial in a delay time and set the mix level to get things going. For easy mono-to-stereo effects, it's quite a useful tool. www.vescofx.com

Tocca chance on me

After a VST host for live use? Look no further than Tocca-Music's VSTplayer, which boasts a surprisingly slick interface and the ability to load up to eight VST instrument plug-ins and three VST effects at the same time. The software includes settings for sustain pedal, modulation and master volume, and its MIDI learn capabilities means you can use your MIDI controller to adjust the volume and pan of each instrument individually. VSTplayer is for PC only. www.tocca-music.com

Hazardous material

Freeware fiend b.serrano has released Radium onto an unsuspecting public, but don't worry about trying to get your hands on a Hazmat suit - this is a virtual analogue synth rather than the real-life radioactive element. It's in PC VST format and is a 16-voice polyphonic soft synth with two oscillators, one sub oscillator, FM capabilities, multimode filter, syncable LFOs, 32-stage envelope, arpeggiator, MIDI lean and built in auto-pan, delay and chorus effects. bserrano.free.fr

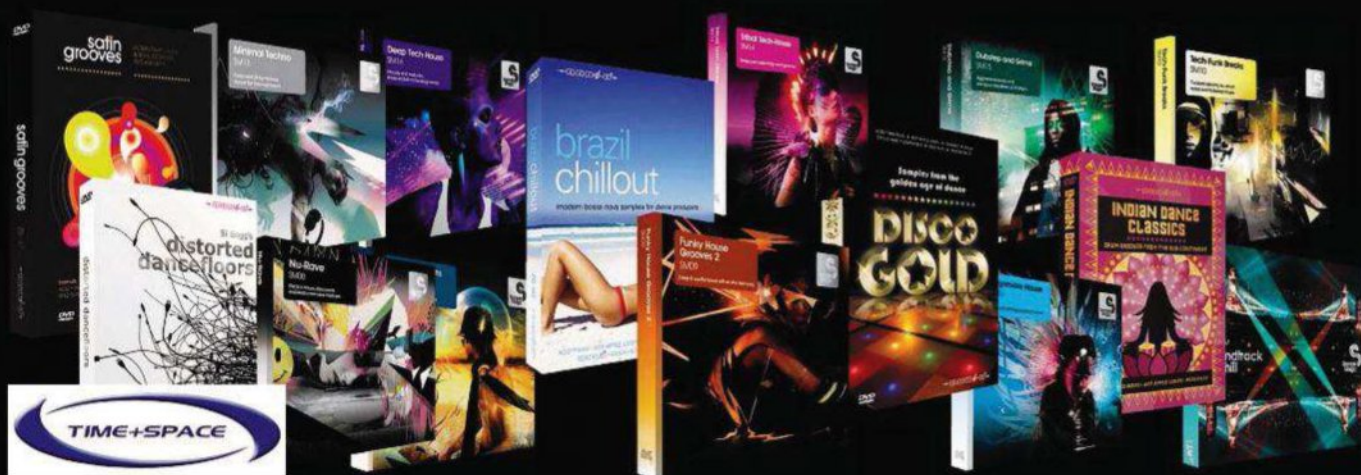
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will be emailed to you within 14 days of subscribing. You will then be able to download your pack in Apple Loops, WAV or REX format.

(Please note that the REX pack does not include the Zero-G products Dark Skies, Urban Legend or Vocal Factory).

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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.

€ 82.-
€ 69.-

order code 226599

Zoom H1 Bundle

Mobile digital audio recorder

24bit/96kHz linear PCM, real X-Y mic arrangement, built-in monitor speaker, auto recording level, lo-cut filter, timestamp, track mark function, A/D and D/A conversion, 128 times oversampling, recording media: micro SD memory card and micro SDHC memory card (up to 16GB), USB 2.0, incl. 2GB micro SD card. Bundle incl. the t.bone HP-66 headphone and 2m USB cable.

€ 98.-
€ 82.-

order code 253718

Tascam DR-07

Mobile digital audio recorder

Record and play mp3 (up to 320kbps) and WAV files (up to 24bit), 44.1/48kHz, built-in stereo mic, analogue automatic level input control, analog limiter, stereo in for external mic, stereo line input, headphone/line out (stereo mini-jack), USB 2.0, powered via AA alkaline or NiMH batteries, includes 2GB SD Card and windshield.

€ 133.-
€ 112.-

order code 223287

Zoom H2 4GB Bundle

Mobile recorder

24bit/96kHz, USB interface, record 360° sound as 2-channel data or 4-channel data simultaneously, mic/line input, headphone output, perfect for interviews, podcasts, meetings and live recording. Incl. USB cable, stand, power supply, windshield and 1GB SD card. Bundle includes additional 4GB SD card.

€ 175.-
€ 147.-

order code 203048

Zoom Q3 Bundle

Handy video/audio recorder

Stereo condenser mic, true X/Y configuration, 360° sound as 2-channel data or 4-channel data simultaneously, 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, auto record level. Includes TV cable, soft case, wind screen, 2GB SD card and 2x AA batteries. Bundle includes the t.bone HD-800 Deluxe stereo headphones.

€ 175.-
€ 147.-

o. code 239144

Olympus LS-5

Portable digital recorder

24bit/96kHz, WAV, WMA, MP3 and PCM recording, built-in microphone, large backlit display, 2GB internal memory, SD/SDHC card extension slot, internal stereo speaker, USB 2.0 connection, optional remote control, dimensions WDH: 4,8 x 13,15 x 2,24cm, weight: 165g (incl. battery).

€ 179.-
€ 150.-

order code 250006

Boss Micro BR Set

4-track compact studio

Ultra portable, 32 V-tracks, loads and plays mp3 files, onboard multi-FX, dedicated guitar input, timestretch and centre cancel features, 293 rhythm patterns, built-in tuner and mic, USB port for data transfer, SD Card slot, includes 128MB card. Bundle includes the t.bone HD660 stereo headphones and the t.bone ST40 stereo microphone.

€ 185.-
€ 155.-

order code 198217

Zoom Q3 HD

Handy video audio recorder

Built-in stereo condenser mics with true X/Y configuration, 2.4" LCD display, video resolution up to full HD 1080i, MPEG-4 AVC / H.264(MOV), Mini-HDMI and NTSC/PAL TV out, 44.1/48kHz 16/24bit Linear PCM or AAC, accepts up to 32GB SDHC cards, auto record level, uses 2 standard AA batteries or NiMH rechargeable batteries, USB 2.0 with built-in cable, headphone out, Windows and Mac OS compatible, incl. 2GB SD card.

€ 244.-
€ 205.-

order code 254939

Tascam DP-008

Portable 8-track recorder

2-track simultaneous recording, 2x XLR mic ins with phantom power, 2x 1/4" jack line ins, RCA line outs, stereo reverb on send/return path, level, pan and 2-band EQ controls per channel, 44.1kHz/16bit recording resolution, records to SD or SDHC card media, up to 32GB supported, USB 2.0, 2GB SD card, built-in stereo condenser mic, LCD display, powered by 4x AA batteries (included) or PS-PS20 power supply (optional).

€ 275.-
€ 231.-

order code 237802

Eidirol R-09 HR 4GB SD Card Bundle

24bit/96kHz mp3/WAV recorder

Up to 320kbps mp3 playback and recording, recording on SD or SDHC card (up to 8GB), integrated stereo condenser mic, OLED display, built-in preview speaker, incl. wireless remote control with split function, USB 2.0, stereo mic in, stereo line in, incl. power supply, 512MB SD card, USB cable, Cakewalk Pyro AudioCreator LE, wireless remote controller and small table mounting plate. Bundle incl. 4GB SD card.

€ 285.-
€ 239.-

o. code 203777

Zoom H4 N

Wizoo Bundle

24bit/96kHz digital recorder. Perfect for interviews, podcasts, meetings and live recordings. 2 built-in stereo microphones, provides 24V or 48V phantom power, USB port. Includes windshield, USB cable, cover and Cubase LE4. Bundle includes 4GB SD card, Superlux HD681 stereo headphone and Wizoo Publishing 'Mobile Recording' Thomann Special Edition by Kai Schwirzke.

€ 339.-
€ 284.-

o. code 232016

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.

€ 349.-
€ 293.-

order code 245233

Boss BR-800 Bundle

24bit/96kHz digital recorder

4-track recording at the same time on SD/SDHC card possible, 8-track playback + stereo drum track, usable as USB audio interface and effect engine, HiFi (MT2) Roland/Boss format and 16bit stereo WAV format, LCD display, headphone out, USB for audio I/O, MIDI I/O, incl. SD card, power supply, USB cable and Cakewalk Sonar 8.5 LE, weight: 872g. Bundle incl. the t.bone MB85 Beta dynamic microphone and Superlux HD681 headphone.

€ 439.-
€ 368.-

o. code 254835

Zoom R24 Bundle

Digital recorder

24-track playback and 8-track recording simultaneously, 24bit/96kHz, 8 ins and 2 outs, built-in stereo mic, compressor/EQ, tuner and metronome, support SDHC cards up to 32GB, USB 2.0, 8x XLR-/TR-input Mic/Line/Hi-Z, headphone out, incl. Steinberg Cubase LE, 1GB SD card, USB Stick (2GB with Drum Loop Library), power supply and cable. Bundle incl. the t.bone SC400 studio microphone, the t.bone HD-800 stereo headphones and cable.

€ 515.-
€ 432.-

o. code 253669

Tascam 2488 NEO

24-track hard disk recorder

24bit/44.1kHz, 8 mic/line inputs (4x XLR with phantom power), internal FX processor, 16x CD-RW drive (red book compliant, import/export WAV files and backup hard 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, 8GB hard drive. Weight: 80kg.

€ 738.-
€ 619.-

order code 219928

Behringer UB1202

12-channel mixer

2/2 bus, 4x stereo line ins, 4x mic ins with low cut, +48V, 1 post fader FX send, peak LEDs on all mono channels, 1x aux (post), 2-track I/O, control room out, external power supply.

€ 64.-
€ 54.-

order code 158998

Alesis Multimix 4 USB

4-channel mixer with digital output

16bit, 44.1kHz signal on USB, 4x line level ins, 2x XLR ins with gain and switchable 48V phantom power, high impedance guitar input, 2-channel EQ on mic ins, multicolour LED metering, main and headphone outs with independent level controls, incl. power supply. Dimensions: 15.2 x 19.6 x 5cm. Weight: 0.6kg.

€ 95.-
€ 80.-

order code 235244

Behringer Xenyx 1204 FX

12-channel mixer

4x mic ins with phantom and 75Hz low cut, internal 24bit multi FX, 2x stereo ins with 3-band EQ, 2x aux (pre/post), USB, peak LED and mute per channel, 2-track I/O, XLR main out, internal power supply.

€ 145.-
€ 122.-

order code 191262

the t.mix 1832 FX

Rack mixer

18 channels, 6x microphone inputs, 4x stereo inputs, built-in USB/mp3 player, 24bit DSP effects unit with 256 programs, 9-band EQ, 3-band EQ with parametric mids (channels 1-4), 4-band EQ (channels 5-12), 2-track I/O, 4x aux outputs/Dimensions: 41.5 x 40 x 11.5cm. Weight: 6.7kg.

€ 239.-
€ 201.-

order code 242617

Mackie 1642 VLZ3

Compact 16-channel mixer

8x mono mic/line channels, 8x 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.

€ 535.-
€ 449.-

order code 112362

Mackie Onyx 32.4

Live mixer

28x mono ins, 4x subgroups, 3x outs, 4-band EQ with fully parametric mids and fixed lo/hi, 30dB pad, low cut, 6x aux sends, LED and insert per channel, 6x2 matrix, internal compressor/limiter, D-Sub 25 direct out, talkback, phones out, main insert, internal power supply. Weight: 21.8kg.

€ 1150.-
€ 965.-

order code 194635

Mackie Onyx 24-4

Live console

20x mono ins, 4-band EQ with full parametric mids and fixed lo/hi, 2x stereo ins, 4x subgroups, 3x outs, 48V phantom power per channel, 30dB pad, phase reverse and low cut, 6x aux sends in pair pre/post and stereo switchable, inserts per channel, 6x2 matrix, 4 mute scenes, LED per channel, talkback, phones out, main insert, 1x BNC lamp connection, internal power supply.

€ 966.-
€ 810.-

order code 193356

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.

€ 2269.-
€ 1904.-

order code 161112

Presonus Studioline 24.4.2

Digital mixer with integr. audio interface

32x26 FireWire audio interface, 44.1/48kHz, 24 mic ins, 24 line ins, tape in (2x RCA), 2x FX return (stereo), analogue inserts, 10 aux mixes, 2 FX sends, 4 sub groups, class A preamps, dimensions WDH: 63.9 x 54.1 x 17.8cm, weight: 10.4kg.

€ 3299.-
€ 2768.-

order code 245038

Mackie DXB200 Refurbished Bundle

Digital open architecture mixing desk

72ch/96kHz (36ch/192kHz), 2x busses, 2 touch screens, 25 motorised faders, 4-band EQ, compressors and gates, VST plug-in compatible, 2 PCI slots, flexible I/O, 9 slots for optional I/O cards (not included in basic config), Mackie Control Universal deck for DAW control. Bundle incl. Xbus AES card, Xbus digital card and 2x Xbus line card. 8-Stock with full warranty!

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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: 2.8 x 34 x 9.7cm. Weight: 635g.



order code 235491

€55.-
£46.-

Akai MPKmini

USB/MIDI controller keyboard
 25 velocity-sensitive mini keys, 8 MPC-style pads (2 banks, 16 total), 8 assignable Q-link knobs, built-in arpeggiator (resolution, range and patterns, tap-tempo button), dedicated octave up/down and sustain buttons, program recall button to restore up to 4 separate global settings, USB powered, incl. software editor and sample player software.

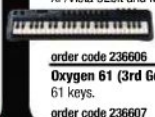


o. code 254954

€99.-
£83.-

M-Audio Oxygen 49 (3rd Gen)

MIDI USB Keyboard
 49 velocity sensitive full size keys, 8 controller knobs, 9 fully assignable sliders, assignable buttons including 6 transport buttons, Windows XP/Vista 32bit and Mac OS X.



order code 236606

€129.-
£108.-

Oxygen 61 (3rd Gen)

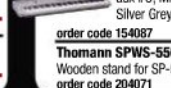
61 keys.

order code 236607

€199.-
£167.-

Thomann SP-5500

Stage piano
 88 hammer action keys, 559 sounds, 203 styles, 3 user styles, 100 songs, 64-note polyphony, accompaniment 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



order code 154087

€375.-

Thomann SPWS-5500

Wooden stand for SP-5500

order code 204071

€315.-
£39.-

Korg SP-170

Stage piano
 88 natural weighted hammer action keys, 2x 9W built-in speakers, 10 sounds, reverb and chorus effects, key transpose and pitch control, 2 line/headphone outs, MIDI out. Dimensions: 131 x 32.5 x 13.3cm. Weight: 12.1kg.



Finish: Black

order code 242228

Finish: White

order code 242231

€477.-
£400.-

€477.-
£400.-

Korg SP-250

Stage piano
 60-note polyphony, 2x 11W amplifier, 30 sounds, reverb and chorus effects, layer function with individual volume control, 2 headphone outs, damper, MIDI in/out, keyboard stand, music stand, includes sustain pedal and power supply. Dimensions: 129.5 x 38 x 14cm. Weight: 19kg

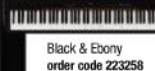


order code 189377

€699.-
£586.-

Yamaha P155

Stage Piano
 88 graded hammer action keys, pure CFIII piano sound, 17 voices, 128-voice polyphony, dual and split mode, metronome, 2x headphone outs, 2x 12W speakers, includes music stand, FC-4 pedal and PA301 power supply. Weight: 18.6kg.



Black & Ebony

order code 223258

Black & Mahogany

order code 223244

€1148.-
£963.-

Kawai MP-6

Stage piano
 88 weighted keys with Ivory Touch key surfaces, 256 sounds, 256 memories, 12 tone wheel simulators, 192-notes polyphony, amp simulator, DSP effects, pitch bend wheel, modulation wheel, master volume, 4x zone volume, dim. WDH: 135.5 x 34.7 x 18.1cm, weight: 21.5kg, finish: black, F-10H damper pedal included.



order code 246681

€1333.-
£1118.-

Clavia Nord Electro III

Stage keyboard
 Based on authentic emulations of Hammond B3 and electric pianos, Nord sample library support, flash memory for 256MB samples and 126 programs, new effects and amp emulations, compressor and EQ.



61 waterfall keys

order code 220551

73 waterfall keys

order code 220582

€1599.-
£1342.-

€1699.-
£1425.-

Rhodes Mark 7 73 A

Analogue electric piano
 73 keys, active version with preamp, EQ, tremolo, headphone output, incl. pedal, dimensions WHD: 118,1 x 20,9 x 59,4cm, weight: 43.5kg.



Black Glossy

order code 244353

Red Glossy

order code 244355

€355.-
£2983.-

€355.-
£2983.-

Korg Monotron

Analogue ribbon synthesizer
 VCO, VCF, LFO, VCO pitch, LFO intensity, VCF cutoff, VCF peak, LFO switch, assignable to oscillator pitch or filter cutoff, Ribbon controller, 1/8" stereo jack, headphone output, 1/8" stereo jack, power supply, dimensions: 12 x 7.2 x 2.8cm, weight: 95g.



order code 246282

€55.-
£46.-

Doepfer Dark Energy DVD Bundle

Expander
 Monophonic stand-alone analog synthesizer with USB and MIDI interface, USB, MIDI input, 4 CV outputs, 1 gate output, external power supply, dimensions WHD: 18.5 x 14.5 x 6.5cm, weight: 1.2kg. Bundle including german video tutorial DVD "Hands on Synth Sound".



order code 245106

€379.-
£318.-

Moog Little Phatty Stage II Thomann Ed.

Analogue synthesizer with 37 keys
 MIDI over USB, direct USB to computer connection allows the use of the Little Phatty editor, arpeggio and tap tempo function, 2 oscillators, 1 low-pass filter (classic Moog Ladder), 4-stage analogue Envelope generators, real analog control, 100 user presets, Thomann Edition (red back, red display, pitch wheel and mod-wheel, black sidecovers).



order code 251804

€1111.-
£932.-

Yamaha Motif XS 7

88-key workstation
 355MB Wave ROM, 128 voices, presets: 1024 normal voices + 64 drum kits, colour display, 4-part arpeggiator, 4 layers or splits in performance mode, sequencer, internal sampler, USB, Ethernet



order code 111124

€2099.-
£1761.-

Yamaha Motif XF 7

76-keys workstation
 741MB Wave ROM, 1664 voices and 97 drum kits, graphic colour backlit LCD, 8 element synth architecture with XSpanded articulation and 18 different filter types, 8 knobs and slider, dimensions WHD: 125.2 x 12.2 x 59.1cm, weight: 17.2kg.



order code 252946

€2699.-
£2264.-

Behringer BCF 2000 WH

DAW controller
 8 motorised faders, 16 + 4 illuminated switches, footswitch connection, 32 user presets, MIDI I/O (useable as MIDI interface), LED display, generic USB MIDI supported (Win XP and Mac OS X). Finish: white.



order code 119851

€125.-
£105.-

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.



order code 243147

€189.-
£159.-

Akai APC 40

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



order code 223229

€389.-
£326.-

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, PC/Mac.

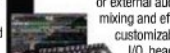


order code 223060

€548.-
£460.-

Native Instruments Traktor Kontrol S4

DJ Audio interface and controller
 4-channel mixer with ergonomic layout and 2 high-res jog wheels, 2 analog inputs with phono and mic preamp for CD player or external audio gear, 4-deck-mixing and effects, loop recorder, 2 customizable FX, 24bit/96kHz, MIDI I/O, headphone output, Win XP or higher, Mac OS X 10.5 or higher (Intel), USB 2.0 bus power.



order code 253480

€688.-
£745.-

M-Audio Fast Track USB

USB audio interface
 24bit/48kHz, 1x analog input, 2x analog output, input jack or XLR, headphone output, direct monitoring, for Win and Mac OS X, incl. ProTools M-Powered Essential Software.



order code 246876

€69.-
£58.-

Tascam US-122MK2

24bit USB 2.0 audio MIDI interface
 Supports 2 ins and outs, 2x XLR mic ins with 48V phantom power, enhanced high grade mic preamps, 2x analog line ins (1x switchable to Hi-Z guitar, bass in), MIDI I/O, 24bit/96kHz, latency-free monitoring with switchable mono function, USB 2.0, USB Bus powered, aluminium side panels, incl. Cubase LE4.



order code 235648

€133.-
£112.-

Presonus AudioBox USB

Compact 2x2 USB audio interface
 24bit/48kHz, 2x mic/instrument inputs (48V phantom power), 2x balanced jack outputs, MIDI I/O, clip LED (on each channel), headphone output, includes USB cable and Steinberg Cubase LE 4.



order code 217037

€148.-
£124.-

ESI ESP1010e

24bit/96kHz PCIe express audio interface
 PCIe card with external 19" interface, 8x analog ins (2x with mic preamp and 2 Hi-Z instrument), +48V phantom power, up to 8x analog ins and outs, coaxial S/PDIF I/O, 2x headphone outs, 2x MIDI I/Os, support for DirectWire 3.0, EWDMM driver: MME, DirectSound, ASIO 2.0 support, Windows 7/Vista/XP compatible, power supply optional, incl. Steinberg Cubase LE 4.



order code 230632

€155.-
£130.-

Tascam US-144MK2

24bit USB Audio/MIDI interface
 2x mic ins XLR, 48V phantom power, 2x analog line ins (1x switchable to 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.



order code 235644

€166.-
£139.-

Focusrite Saffire 6 USB

USB audio interface
 2 preamps with 48V phantom power, Hi-Z instrument input with -10dB pad, 24bit/48kHz, MIDI I/O, headphone output, 105dB, noise (mic in): THD+N = 0.0025%, 2x combo ins for mic/line/instrument, 4x analogue outs. Includes Focusrite plug-in suite, Xcite+ bundle and USB cable, for Mac OS X or Windows. Weight: 1kg.



order code 236371

€168.-
£141.-

Alesis IO|26

FireWire audio interface
 8x analog mic/line inputs (combo connector) with phantom power and inserts, hi-gain inputs for channels 1 and 2 for guitar recording, 2x headphone outputs, 8x analog outs, 2x ADAT ins, stereo 24-bit digital S/PDIF I/O, 2x FireWire ports, bus powered or optional power supply, includes Cubase LE



order code 192631

€199.-
£167.-

Apogee One

USB audio interface
 24bit/192kHz, 1-channel A/D, stereo D/A, XLR mic in with phantom power, hi-Z instrument/line in, headphones out, integrated condenser mic, multi-function controller, LED meter, Mac OS X 10.5 or later. Dimensions: 11.7 x 5.7 x 2.7cm



order code 233106

€215.-
£180.-

M-Audio Fast Track Ultra 8R

USB 2.0 audio interface
 24bit/96kHz, MX Core DSP, 8x inputs & 8 outputs, 8x Octane-based mic preamps with 48V phantom power, 2x headphone outputs with volume control, 2x inserts, 2x instrument inputs. Dimensions: 19"/1U

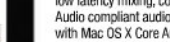


order code 207868

€422.-
£354.-

Apogee Duet Bundle

FireWire audio interface
 24bit/96kHz, 2 channels, FireWire 400 I/O, breakout cable with 2 XLR mic ins, 2x 1/4" jack instrument ins, 2x 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.



o. code 209773

€425.-
£357.-

Focusrite Saffire PRO 40

24bit/96k FireWire audio interface
 20x I/O, 8x mic preamps, 8x analog I/O (2x mic/line/instr. combo XLR, 6 mic/line combo XLR), ADAT I/O, 2x S/PDIF I/O, 2x monitor outs, monitor switch, 2 separate headphone buses, MIDI I/O, zero-latency DSP mixer/router, internal power supply, includes plug-in suite. Dimensions: 19"/1U. Weight: 3kg



order code 219725

€468.-
£393.-

MOTU Ultralite MKIII Hybrid

FireWire and USB audio interface
 24bit/192kHz, 2x mic/instrument ins, 6x bal. ins and 10x 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.



order code 239141

€489.-
£410.-

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 (1/4" balanced jack), 10x analog outs (1/4" balanced jack), Word Clock, MIDI I/O, includes Focusrite VST/AU plug-ins. Dimensions: 35 x 9 x 23.5cm (19"/2U). Weight: 5kg



order code 228525

€698.-
£586.-

RME Fireface UFX

USB/FireWire interface
 Up to 192kHz, 30 I/O channels, 12 analog inputs, 4x mic/instrument preamp (48V phantom power), 12 analog outputs, AES/EBU I/O, 2x ADAT I/O, WordClock I/O, 2x MIDI I/O, FireWire 400, USB 2.0, TotalMix FX Software, built-in monitor controller, SteadyClock, DIGICheck, stand-alone operation with setup recall, 19"/1U, for Win XP SP2/Vista/Win7 and Mac OS X 10.5.



order code 255180

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- free shipping to the UK and Ireland on orders above £159

Behringer UL 2000 B

UHF wireless system with headset
True diversity, 320 adjustable frequencies (798.850-805.800MHz), IRC compander, headset with Panasonic condenser capsule, cardioid, works with 1x 9V battery for up to 6 hours (not included), mute switch and low battery indicator on transmitter, scan function, pilot tone, 3 presets with 8 channels, 1 user preset with 8 channels, lock function, internal power supply, dimensions: 9.5" x 10".
order code 139250 ~~€ 109.-~~ **€ 91.-**

Behringer UL 2000 M

UHF wireless system with handheld mic
True diversity, 320 adjustable frequencies (798.850-805.800MHz), IRC compander, handheld transmitter with Panasonic condenser capsule, cardioid, works with 2x 9V battery for up to 12 hours (not included), mute switch and low battery indicator on transmitter, scan function, pilot tone, 3 presets with 8 channels, 1 user preset with 8 channels, lock function, internal power supply, dimensions: 9.5" x 10".
order code 107376 ~~€ 109.-~~ **€ 91.-**

Sennheiser Freeport Vocal Diversity UHF wireless system

4 switchable frequencies between 863 - 865MHz, 10mW HF power, diversity receiver with LED for HF, diversity, peak, XLR & jack out, dynamic handheld transmitter, cardioid, 80Hz-16kHz, 1x 9V battery (up to 10hr), includes 12V DC power supply.
order code 183508 ~~€ 159.-~~ **€ 133.-**

Sennheiser EW135 G3

UHF wireless system
Dynamic handheld transmitter (cardioid), 9.5" receiver, 1680 adjustable frequencies, 20 banks with each up to 12 presets, frequency range 80Hz - 18kHz, infrared frequency transmission, pilot tone, auto tune, internal EQ and guitar tuner, audio gain >48dB range, soundcheck mode, HDX compander, D-band 780.000 - 822.000MHz, 30mW HF power, includes power supply NT2 and 2 AA batteries.
order code 228132 ~~€ 599.-~~ **€ 503.-**

Sennheiser EW152 G3

UHF Wireless System with headset
Bodypack, ME3 electret headset mic (cardioid), 9.5" receiver, 1680 adjustable frequencies, 20 banks with each up to 12 presets, frequency range 25Hz - 18kHz, infrared frequency transmission, pilot tone, auto tune, internal EQ and guitar tuner, guitar cable emulator, audio gain >60dB range, HDX compander, D-Band 780.000 - 822.000MHz, 30mW HF power, includes power supply and 2x AA batteries.
order code 228117 ~~€ 622.-~~ **€ 522.-**

AKG C1000S MKIII Set

Condenser mic bundle
Cardioid/supercardioid, battery or phantom power, battery check LED, pattern switch, 50Hz-20kHz, 2000 impedance, 137dB max SPL. Weight: 275g. Includes K&M 27105 microphone stand, 10m Cordial XLR cable with Neutrik connectors, windscreen, clip and mic case.
order code 105776 ~~€ 144.-~~ **€ 121.-**

Rode NTG-2

Directional condenser microphone
Broadcast quality, condenser transducer, low-noise circuitry, low handling noise, phantom powered (44 - 52V) or battery powered (1.5V), 20Hz-20kHz, 131dB SPL max., ideal for film/TV/video. Includes stand mount, windshield and zip pouch. Weight: 161g.
order code 179393 ~~€ 189.-~~ **€ 159.-**

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 ~~€ 277.-~~ **€ 232.-**

Oktava MK012-01 MSP2 Matched Pair

Matched stereo set
2x small diaphragm condenser microphones, cardioid, 20Hz-20kHz, delivered in a wooden box. Finish: Silver. Made in Russia!
order code 165104 ~~€ 289.-~~ **€ 242.-**
MK012-01 MSP2
Single mic, cardioid
order code 165103 ~~€ 152.-~~ **€ 128.-**

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
€ 1158.- **€ 972.-**

StudioProjects B1

Large diaphragm condenser microphone
1" capsule, transformerless circuit, requires +48V phantom power, cardioid, 20Hz-20kHz, -34dB sensitivity (0dB=1V/Pa), 2000, 132dB maximum, 120dB-A noise (IEC651). Includes foam wind screen, zippered bag and shockmount.
order code 180703 ~~€ 109.-~~ **€ 91.-**

AKG Perception 220

Large diaphragm condenser mic
1" diaphragm, metal housing, cardioid polar pattern, 20Hz-20kHz, switchable 300Hz lo-cut filter, switchable -20dB pad, 135/155dB max SPL, includes elastic holder and carrying case. Dimensions: 53 x 165mm (diameter x length). Weight: 525g.
order code 208310 ~~€ 149.-~~ **€ 125.-**

Rode NT1-A Complete Vocal Recording Solution

Large diaphragm microphone
20Hz-20kHz, 1000 impedance, 132dB dynamic range, 137dB max SPL. Includes SM6 deluxe shockmount, 6m cable and Peter Freeman 'Studio Secrets' tutorial DVD.
order code 235937 ~~€ 185.-~~ **€ 155.-**

the t.bone SCT800 Set

Valve studio microphone
12AT7 valve, 20Hz-20kHz, 2000 impedance. Includes deluxe case, shockmount and external power supply. Bundle includes the t.bone MS180 pop shield.
order code 203198 ~~€ 189.-~~ **€ 159.-**
SCT800 Stereo-Set - matched stereo pair (pop shield not included)
order code 174362 ~~€ 385.-~~ **€ 323.-**

AKG C3000

Studio large diaphragm condenser mic
Cardioid, 20Hz-20kHz, 2000, switchable -10dB pad, includes shockmount. Diameter: 53mm. Length: 162mm.
order code 141408 ~~€ 189.-~~ **€ 159.-**

Rode T-1000 Thomann Edition

Large diaphragm condenser microphone
Identical as Rode NT-1000, transformerless SMT circuitry, 1" HF2 capsule with gold-plated diaphragm, incorporating internal shock mounting, 134dB dynamic range, 140dB SPL capabilities, frequency response 20Hz - 20kHz. Cardioid polar pattern, Thomann Edition in durable satin black finish including shockmount SM6, cable and bag.
order code 247421 ~~€ 215.-~~ **€ 180.-**

Rode NT2-A Studio Solution Set

Prof. 1" large diaphragm microphone
Switchable between omni, figure of eight and cardioid patterns, variable high-pass filter - flat, 40Hz or 80Hz, PAD 0dB, -5dB or -10dB HPF and PAD, frequency response: 20Hz - 20kHz, max SPL: 147dB, 48V phantom power required, weight: 860g. Bundle incl. deluxe shockmount SM6, 6m cable and tutorial DVD.
order code 256707 ~~€ 289.-~~ **€ 242.-**

Shure SM 7 B

Studio microphone
Dynamic studio microphone with cardioid polar pattern, 50Hz-20kHz, bass rolloff switch, mid-boost switch, 150V, shielded against broadband interference, fixed stand adapter, XLR connector, includes windscreen.
order code 129929 ~~€ 379.-~~ **€ 318.-**

EV RE20

Dynamic large diaphragm microphone
RE series, cardioid, switchable HP filter, variable D design, 150V, 45Hz-18kHz, includes clip and box, ideal for vocals, brass and bass drum. Length: 217mm. Diameter: 54mm. Weight: 737g.
order code 128926 ~~€ 459.-~~ **€ 385.-**

Neumann TLM 102

Large diaphragm condenser microphone
Cardioid pattern, 20Hz-20kHz, 500 impedance, 120dB-A equivalent noise level, 144dB max SPL for THD 0.5%, includes SG2 stand mount swivel. Weight: 260g.
Finish: Nickel
o. code 237768
Finish: Black
o. code 237769
~~€ 569.-~~ **€ 477.-**

ART Tube MP

Tube microphone preamp
Hand selected 12AX7A valve, limiter, 48V phantom power, phase reverse, XLR and jack I/O, perfect for hard disc recording or as a valve DI.
order code 191529 ~~€ 38.-~~ **€ 32.-**

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/instrument XLR), 8x jack outputs, 2x ADAT outputs (dual LightPipe), sync-to-wordclock input, JetPLL jitter-elimination. Dimensions: 19"/1U. Weight: 3.6kg.
order code 236376 ~~€ 388.-~~ **€ 334.-**

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 ~~€ 433.-~~ **€ 363.-**

Focusrite Octopre MKII Dynamic

8-ch. mic preamp with AD/DA converter
1-button compression on each channel, integrated 8-channel 24bit/96kHz digital I/O, 5-LED input metering and direct out on each channel, internal clocking and external via BNC, 8 analogue inputs Combo XLR (2x mic/line/inst, 6x mic/line), 8x analogue outputs, 2x ADAT (dual LightPipe), Sync-to-WordClock, JetPLL jitter-elimination, no vent.
order code 242382 ~~€ 598.-~~ **€ 502.-**

Universal Audio UA-610 MKII

Classic tube recording channel
Based on the legendary Bill Putnam 610 tube mic pre and EQ. Authentic Teletronix LA-2A style 14 opto-compressor, complete vintage channel strip, mic pre with gain and level controls, true bypass, large metering and improved signal output. Bundle incl. Universal Audio UA-2 Duo PCIe DSP Card.
o. code 252465 ~~€ 1525.-~~ **€ 1279.-**

Behringer FBQ1502 Ultragraph Pro

2x 15-band graphic-EQ
FBQ feedback detection system, servo-balanced I/O (TRS & XLR), additional sub out, switchable low cut.
order code 167720 ~~€ 75.-~~ **€ 63.-**
Behringer FBQ6200 Ultragraph Pro
2x 31-band graphic EQ with FBQ feedback detection system, sweepable limiter, additional sub out.
order code 172364 ~~€ 168.-~~ **€ 139.-**

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 179905 ~~€ 173.-~~ **€ 145.-**
RNLA 7239 Really nice levelling amplifier
10Hz-100kHz 0.5dB @ 0dBu, clip point: +22.5dBu @ 3% THD.
order code 190166 ~~€ 211.-~~ **€ 177.-**

dbx 266 XL

Stereo compressor/limiter/gate
Patented OverEasy technology (attack & release times), XLR I/O, -10V/+4dB switch, stereo link, dbx sound.
order code 131808 ~~€ 175.-~~ **€ 147.-**
dbx 166 XL
2-channel compressor/limiter/gate, stereo or dual mono, OverEasy or hard knee mode, PeakStop limiting.
order code 131035 ~~€ 269.-~~ **€ 226.-**

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 I/Os are routed to ADAT out, excellent expansion for DD3216 or any interface/mixer with ADAT I/O.
order code 164573 ~~€ 175.-~~ **€ 147.-**

Behringer DEQ2496 Ultra-Curve Pro

Digital mainframe
4 simultaneous EQ modules (31-band graphic EQ, 10-band parametric EQ, feedback destroyer, 3 dynamic EQs per channel), 61-band real-time analyzer with separate RTA mic in, 24bit/96kHz AD/DA converters and 32/40bit signal processors, 113dB dynamics, balanced ins & outs with gold-plated XLR sockets, AES/EBU and optical S/PDIF.
order code 162785 ~~€ 255.-~~ **€ 214.-**

Lexicon MX200

Stereo FX processor
2 independent processors, 24bit converter, VST plug-in architecture with USB interface, MIDI interface, tap delay, legendary Lexicon algorithms: halls, chambers, plates, delays, chorus, flanger, tremolo, rotary, etc. dx dynamic algorithm, 2 simultaneous FX, analog and digital ins and outs, internal power supply. Dimensions: 19"/1U.
order code 180403 ~~€ 225.-~~ **€ 189.-**

Boss VE-20

Vocal Performer
Vocal FX, dynamic compressor/de-esser, enhancer, delay, reverb, 2x harmoniser and pitch correction, LCD display, mono looper (38 sec), 30 preset + 50 user sounds, requires Boss PSA-230 optional power supply (order code 102842, not included).
order code 235812 ~~€ 195.-~~ **€ 164.-**

Roland VP-7 Vocalist

Vocal processor
64-voice polyphony, real time controls for harmony, ambience, tuning, headphone out, line out, jack/XLR (phantom power), foot pedal in (bypass on/off), MIDI in, power supply jack, incl. power supply and headset microphone. Dimensions: 24 x 14.4 x 6.4cm. Weight: 0.8kg.
order code 242074 ~~€ 463.-~~ **€ 388.-**

tc Helicon VoiceLive Touch

Vocal harmony effect processor & looper
Effects by VoiceLive 2 incl. HardTune and more, 8 voices of NaturalPlay harmonies, MIDI or USB/ao input, 200 presets, 25 favours, voicing buttons offer instant harmony arranging, VLOOP performance vocal looper, talk button bypasses all effects, XLR Mic in, Guitar in and thru, aux input, MIDI in, USB, headphone out, TRS and XLR output, incl. external power supply unit.
order code 250437 ~~€ 479.-~~ **€ 402.-**

tc electronic Voice Live 2

Vocal multi FX pedal
Up to 8 voices or 4 doubled harmonies, reverb, tap delay, megaphone and distortion, compressor, de-esser and EQ, MIDI or mp3, LCD display, XLR, line in, aux in, headphone output, coax S/PDIF I/O, backup and audio streaming, incl. power supply. Dimensions: 35 x 7.6 x 21.6cm. Weight: 2.3kg.
order code 225557 ~~€ 715.-~~ **€ 600.-**

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AKG K 240
Studio stereo headphones
Half open, 550, 88dB/mW, 15Hz-20kHz, ear-enclosing, cable connection, distortion-free playback (new XXL cap), involving sound from new Varimotion system, ideal for Walkman and sound cards. Weight: 240g

order code 153257
€ 89.- **£ 75.-**

AKG K 141 MKII
Dynamic, half open, 550, 18Hz - 24kHz, 200mW. Weight: 225g

order code 206955
€ 95.- **£ 80.-**

AKG K271 MKII
Closed dynamic studio headphones
Circumaural design, 550, 200mW max input, 16Hz-28kHz, 104dB/V sensitivity, self-adjusting headband and auto-shut-off feature, 3m cable. Includes 5m coiled cable, 1 pair velvet pads and gold plated mini-jack to 1/4" screw-on adapter. Weight: 240g

order code 206951
€ 148.- **£ 124.-**

5m extension cable
1/4" stereo jack.
order code 153216
€ 6.60 **£ 5.50**

Sennheiser HD25 BE
Dynamic DJ headphones
Impedance 700, SPL max. 120dB, frequency response: 16Hz - 22kHz (-3dB), closed system. Includes 150cm cable with 3.5mm mini jack and adaptor for 6.3mm jack. Weight: 140g.

order code 249403
€ 149.- **£ 125.-**

Sennheiser HD 212 pro
321, 12Hz-19kHz
order code 161045
€ 89.- **£ 33.-**

AKG K-701
High-end reference headphones
Revolutionary flat wire voice coil technology, dynamic, open back, 620 impedance, 105dB efficiency, 10Hz-39.8kHz, 200mW max input power, hard gold plated 1/4" jack plug, 3m cable. Weight: 235g (not including cable).

order code 185476
€ 189.- **£ 159.-**

AKG K-702
with Varimotion 2-layer diaphragm.
order code 217575
€ 299.- **£ 251.-**

Sennheiser HD-650
Hifi headphones
Open back, dynamic, impedance 3000, frequency response 10Hz to 39.5kHz, 103dB SPL, 3m cable, 3.5mm stereo mini jack with 1/4" adapter. Weight: 260g (excluding cable).

order code 165585
€ 289.- **£ 242.-**

ESI nEar04 Classic
Active 4" studio monitors
Magnetically shielded, bi-amped, 20W bass + 20W treble, balanced/unbalanced 1/4" jack inputs. Dimensions: 20.5 x 13.6 x 14.9cm. Pair price!

order code 232799
€ 95.- **£ 80.-**

Behringer MS40
Active 2-way multimedia monitors
Studio monitors for computer systems, multimedia and keyboard monitoring. 2x 20W, 24bit/192kHz D/A, optical and coaxials digital input, 2x analog inputs (stereo mini-jack and RCA), volume controls, 2-band EQ, headphone output (1/4" stereo jack), magnetically shielded. Pair Price!

order code 182187
€ 109.- **£ 91.-**

KRKR RP5 Rokit G2
Active studio monitor
45W, 5" + 1" speakers, 53Hz-20kHz, magnetically shielded. Dimensions: 27.6 x 18.5 x 25cm. Weight: 8kg. Unit price!

order code 213024
€ 144.- **£ 121.-**

KRKR RP8 Rokit G2
8" + 1", 140W.
order code 213090
€ 235.- **£ 197.-**

ESI nEar05
Active 5" studio monitors
Magnetically shielded, 33Hz-22kHz, bi-amped, 42W bass + 33W treble, balanced XLR & 1/4" jack inputs. Dimensions: 25 x 16.6 x 20cm. Pair price!

order code 160180
€ 175.- **£ 147.-**

ESI nEar08 Classic
Active 8" studio bi-amp monitors
2-way bookshelf monitors, magnetically shielded, 70W LF & 70W HF amplifier power, 40Hz-24kHz, 1x balanced XLR input, 1x balanced/unbalanced jack input. Dimensions: 35.8 x 25.5 x 32.2cm (HxWxD). Weight: 10kg each. Pair price!

order code 222139
€ 219.- **£ 184.-**

Tannoy Precision 6
Passive 3-way studio monitors
6" dual concentric driver, frequency response: 62Hz - 51kHz, crossover frequency: 2.5kHz, nominal impedance: 60, recommended amp power: 60 - 120W @ 80, dimensions: 35.6 x 22 x 26.1cm, weight: 8.9kg. Pair price!

o. code 113056
€ 249.- **£ 209.-**

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
€ 285.- **£ 239.-**

Adam A5X
Active nearfield monitor
2-way active bass reflex speaker, 6" carbon/rohacell/glass woofer with 50W, X-A.R.T. tweeter with 50W, frequency response: 50Hz - 50kHz, crossover frequency: 2.5kHz, dimensions WHD: 17 x 28 x 22cm, weight: 6.4kg. Unit price.

order code 245572
€ 289.- **£ 242.-**

Yamaha HS50M Stativ-Set
Active 2-way studio monitor
70W bi-amped bass reflex system, 5" woofer, 3/4" tweeter, 55Hz-20kHz, XLR & TRS ins. adjustable input level, mid EQ, room control, high trim, switchable low cut, fully magnetically shielded. Bundle with 2x HS50M and 1 pair Millennium BS-500 adjustable nearfield monitor stands.

order code 244787
€ 299.- **£ 251.-**

Adam A7 Special Edition
Active nearfield studio monitor
6.5" Rohacell/Kevlar sandwich woofer, A.R.T. tweeter, 46Hz-35kHz, 100W (peak), 150W (RMS), XLR and RCA inputs. Dimensions: 18 x 33 x 28cm. Weight: 8kg. Finish: Black Piano Lacquer. Unit price.

order code 241073
€ 385.- **£ 323.-**

Adam A7 Special Edition
Active nearfield studio monitor
Finish: white 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 244797
€ 395.- **£ 323.-**

Adam A7X
2-way active bassreflex nearfield monitor
7" carbon/rohacell/glass woofer with 100W, X-A.R.T. tweeter with 35W, shelving filter tweeter: >5kHz - ±6dB, shelving filter woofer: <300Hz - ±6dB, frequency range: 42Hz - 50kHz, crossover frequency: 2.5kHz, SPL max. / pair 1m: 114dB, gain: +14dB / -8dB, gain tweeter: ±4dB, THD 90dB/1m > 100Hz: <0.5%, inputs XLR and RCA, input impedance: 30kΩ, dimensions: 20.1 x 33.7 x 28cm, weight: 9.3kg. Unit price.

o. code 245513
€ 439.- **£ 368.-**

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 Millennium BS-500 nearfield stands.

o. code 227555
€ 477.- **£ 400.-**

Mackie HR824 MK2
Active 2-way studio nearfield monitor
8.75" low-distortion LF woofer, 1" titanium dome ferrofluid cooled tweeter, twin FR series amps (150W LF & 100W HF), passive radiator provides tight, articulate bass extension down to 35Hz, balanced XLR/TRS and unbalanced RCA inputs. Unit price!

order code 138446
€ 529.- **£ 444.-**

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.

order code 171716
€ 759.- **£ 637.-**

Behringer VMX300 Pro
DJ mixer
3 dual-input stereo channels with gain and 3-band kill EQ, 1x mic in with auto-talkover and depth control, intelligent dual auto BPM counter, crossfader, PFL function. Dim. HWD: 8.8 x 24.1 x 33.2cm. Weight: 3.5kg.

order code 153735
€ 95.- **£ 80.-**

Behringer VMX100 Pro
2 dual-input stereo channels, € 49.- **£ 41.-**
order code 152139

Behringer DX 2000 USB
7-channel DJ mixer
5 stereo ins and 2 mono-line ins, phantom power, gain-control and clip LED, USB audio interface, incl. energyT2.5 compact Behringer Edition music production software with audio MIDI sequencer, Audacity software for vinyl restoration and recording, incl. Podifier and Golden Ear podcasting software, 19" rackmount, finish: black.

order code 249768
€ 255.- **£ 214.-**

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 pots for master output. Dimensions: 32 x 38.1 x 10.8cm (WxHxD). Weight: 7.5kg

Finish: Black
order code 118996
€ 815.- **£ 684.-**

Finish: Silver
order code 119965
€ 815.- **£ 684.-**

Allen & Heath XONE4D
Clubmixer
8x 60mm faders, 16 control potentiometers (10 with push function), 32 push switches (8 with LED), high-quality jog wheels, navigation system, filters, cue-control, crossfader.

order code 216953
€ 1666.- **£ 1398.-**

Pioneer DJM 2000
4-channel DJ performance mixer
6 INST FX functions on each channel with potentiometer, 15cm multitouch colour display, linkable to CDJ-900/2000 and 2 rekordbox laptops pro ProDJ Link, beat effects, live sampler, internal USB audio MIDI interface, isolator EQ on each channel, talkover function, peak level meter on each channel, cross fader assign, weight: 8.5kg.

order code 248223
€ 2190.- **£ 1837.-**

Numerik NDX 800
Single CD/MP3/USB player
With USB and MIDI interface, beat-synched DSP effects with wet-dry fader, fast, reliable, slot-loading drive, 7" scratch wheel, adjustable start and stop time for vinyl-like deck performance, automatic BPM analyzer and tap tempo for manual BPM entry, pitch ±6, 12, 25 and 100%, bending over pitch buttons, fader start, outputs: RCA and digital S/PDIF.

order code 247251
€ 348.- **£ 292.-**

Pioneer CDJ-350
Single CD player
Plays MP3, AAC, WAV, AIFF, USB (flash recorder, disc drives), USB A/B connection, includes Rekordbox music management software, beat display function for better scratch and looping performance, auto beat loop function, dimensions: 21.8 x 29.6 x 10.8cm, weight: 2.7kg, system requirements: Windows VISTA/XP, Mac OS X 10.4 or higher.

order code 249908
€ 589.- **£ 494.-**

Numerik Mixdeck
DJ workstation
With CD/MP3/USB decks, mixer, computer, MIDI interface, dock for iPod, mixer with EQ/rotary kills, effects with beat sync (echo, filter, flanger, pan, phase), fader start, looping, sampling, tempo: 6, 12, 25 and 100%, controllable over MIDI software without timecode over USB, 2 displays, Mac OS X or Windows XP/Vista, incl. power supply and USB cable.

order code 245624
€ 877.- **£ 736.-**

Pioneer CDJ-850
Single DJ CD player
MP3, AAC, WAV, AIFF, 24bit/48kHz, HID and MIDI control by USB, new audio output system with Wolfson DAC processor, quantized beat loop, advanced auto beat loop, plays Audio CD, CD-R, CD-RW, USB, frequency response: 4Hz - 20kHz, dimensions: 30.5 x 36.4 x 10.5cm, weight: 3.3kg, incl. Rekordbox music database management software, Mac OS X (10.4.6 and higher), Win 7 & XP.

order code 251872
€ 888.- **£ 745.-**

Pioneer CDJ-2000
Professional multi-format 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. Dimensions: 32 x 40.6 x 10.7cm. Weight: 3.9kg.

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€ 1777.- **£ 1491.-**

Hercules DJ Control MP3 e2
Portable USB DJ controller
2x jogwheels, 1x crossfader and 2x volume faders, 6x level equalizer, 2 buttons to load tracks, automatic loops, USB bus-powered, incl. cover and Virtual DJ DJC Edition for PC and Mac.

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€ 79.- **£ 66.-**

Behringer B-Control DeeJay BDC2000
4-channel USB audio interface
24bit digital converter, incl. Behringer B-DJ software, 2 scratch pads, pitchbend and cue function integrated audio mixer with mic preamp, 3-band kill EQ per channel, talkover function, 2x high-end phono preamps, cue section with PFL mix/split function.

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American Audio TTD 2400 USB
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order code 108382
€ 125.- **£ 105.-**

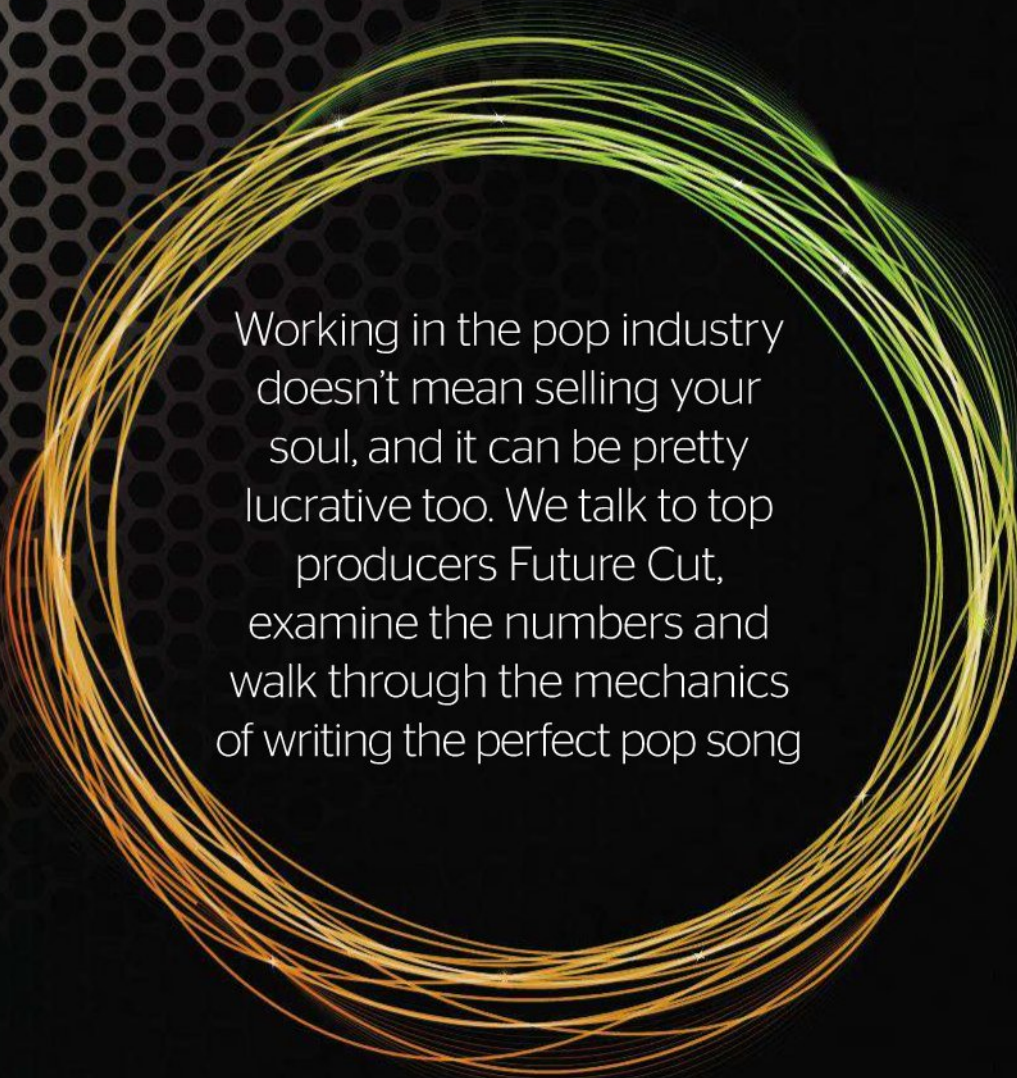
Hercules DJ Console RMX
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Integrated USB audio interface, 2 jog wheels, 6 faders, DJ buttons for DJing control, FX and loop buttons, mic in, headphone out, 4x line outs (1/4" mono balanced jack), 4x RCA outputs, 2x stereo ins, includes VirtualDJ DJC edition software (PC/Mac).

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Rane SL3 Serato Scratch Live
DJ complete system
Compact hardware design, 3 Vrms 24bit, 44.1/48kHz converter, 104dB DAC dynamic range, aux in for live recording or live feed, aux out for SP-6 sample player, USB 2.0, studio quality phono preamp, direct thru. Due to Serato's proprietary control scheme, the result is a feel and sound indistinguishable from playing vinyl.

order code 228530
€ 699.- **£ 586.-**

THE ULTIMATE GUIDE TO
FLUX
PRODUCTION



Working in the pop industry doesn't mean selling your soul, and it can be pretty lucrative too. We talk to top producers Future Cut, examine the numbers and walk through the mechanics of writing the perfect pop song

> **Let's start by discussing what we mean by pop music in the context of this guide, since the name means different things to different people. It started out as a simple abbreviation for popular music, but now the term is generally accepted as a description of a genre in its own right.**

Some would argue that whatever is in the Top Forty at any given time defines what pop music is at that point. But if a fidget house track were to reach Number One, that wouldn't mean that suddenly all other fidget house tracks were automatically classified as pop music.

In general, the genre now referred to as pop music is very much youth-oriented. Tracks are simple and fairly short, with catchy vocals, a clear verse/chorus structure and easy harmonies. Many have absorbed characteristics from other easily accessible genres, such as R&B and rock. Think JLS, Katy Perry, Girls Aloud and Will Young.

The charts are supposed to be a representation of what's popular, and most people would at least agree that pop music is

the sound that dominates the charts at any given time. By that definition, pop music is an important element of modern culture. It's all over the media and thus considered the default in terms of commercial music.

Unsurprisingly, then, pop music is often associated with major record labels and huge sums of money. Just how lucrative the pop industry is these days is a subject of debate, but nonetheless it continues to attract those who are in it for the money as well as those who genuinely love the music itself.

Sometimes a track that wasn't intended to be categorised as pop music will chart. This happens because the ingredients that come together to create a hit record are so volatile and mysterious, nobody can claim to definitively know what they are or how to distill them.

We're going to take a comprehensive look into the world of pop music from the computer musician's perspective. So no matter what style you usually work in, keep an open mind and be prepared to learn more than you might expect.



Pop music: A product of its time

Pop music by definition must be accessible to the majority of people likely to hear it. It also has to be sold via the most popular media in the marketplace so that the average person can buy it easily. Consequently, consumer tech can have an influence over the style of pop music.

When consumers started downloading music en masse around the turn of the century, piracy became rampant. All of a sudden, music of all genres became "free" and easy to access. This led to a trend that still stands: the narrowing of the accessibility gap between tracks produced by the traditional, big-money pop world and those made by independent musicians.

Music communities online are typically made up of people from all over the globe. Knowledge of a small underground phenomenon in one country can now easily spread into a worldwide movement. That can mean there's more money to be made, which can in turn help a music scene to thrive. The consequence of that increase in popularity is often exposure to the mainstream.

Aware of this, the major labels try to tap into all current trends that they think might have chart potential. An underground producer could be fiddling with FL Studio or Sony Acid one day, with his music firmly aimed at delighting the ears of the elite few who understand his scene, and offered work with the world's best known pop artists the following year. For better or for worse, that's the state of the industry today.

Steal, beg or borrow

Clearly, then, pop is influenced by other styles of music. Right now, it's especially influenced by

The Official Charts Company

In the UK, The Official Charts Company compile and supply weekly music and video charts. As well as the main charts for singles, artist albums and compilation albums, there are individual singles charts for dance, indie, rock and R&B, and albums charts for those plus many more genres.

These charts are compiled based on sales data provided by a sample of retailers on a daily basis. This includes legal downloads as well as physical format sales, and the retailers covered include all of the biggest sellers, as well as many independent shops.

It's worth noting, though, that if you're intending to get your song into the charts, it needs to be registered as a chart entry; and in order to be registered, it must meet The Official

Chart Company's (fairly stringent) rules. You can't buy your own record in bulk to boost perceived genuine sales, for example. Other rules discourage pre-order incentives, big giveaways and similar methods of coercing punters into buying your record for questionable reasons. Your record label should be aware of all of these things if they intend to go to chart with a release, but luckily TOCC is open to the public too: www.theofficialcharts.com/chart-rules.

Obviously, if you don't comply with the rules but you hit huge sales figures, you'll still have a hit record – it just won't appear on the published charts. The pop charts are featured on BBC Radio One every Sunday, followed by a host of TV shows, newspapers, magazines and websites.

the more underground genres, as ironic as that might sound. Underground music is associated with low budgets, which is why advances in computer music technology have largely dictated advances in underground tunes. So when something trends in this world, it's likely to trend in pop music a short while later.

For some, this is a bit of a sore subject. No musician likes the idea of having to compromise their art to meet the demands of businessmen, but that doesn't have to be the case when an artist enjoys commercial success after building an underground following. Furthermore, if pop music is doing its best to keep up with the underground, it stands to reason that a successful underground track should at least have the *potential* to rise up the charts.

Whatever factors are at play, dance music has become cool in the American mainstream over the last few years, to an unprecedented extent. Ke\$ha, Katy Perry, Rihanna and Lady Gaga have all flaunted full-on dance tracks at the top of the

US charts in recent years. Simultaneously, Taio Cruz, The Black Eyed Peas, Pink, Kelly Clarkson and other such stars have used heavy helpings of dance ingredients to secure the Number One spot with their rock and hip-hop tracks.

Similarly, while electro house and dubstep have set trends in the underground, pop music has unashamedly borrowed elements of both. And as progressive house and dubstep have revisited classic trance ideas, so too has pop music embraced this retrospective influence.

With this in mind, it should come as no surprise when leading underground artists such as D Ramirez, DeadMau5, Magnetic Man or Pendulum climb up the charts and break through to the mainstream every once in a while. You can be sure that A&R representatives at the major labels are always keeping an ear to the ground in the hope of discovering the next big thing. Perhaps an accurate predictor of coming chart trends, then, is what's catching on in underground venues around the world.

Kate Perry's tracks co-opt the sound of dance music, while Magnetic Man have risen out of the underground



Future Cut – kings of pop production

UK-based Darren Lewis and Tunde Babalola, aka Future Cut, are one of the most in-demand production teams in the industry today. Despite not initially intending to break into pop, they've found themselves working on a string of wildly successful chart hits and with more celebrities than you could shake a stick at in the Australian jungle. Speaking of jungle, Darren recalls how it all began for them, back in the 90s.

"We started out in drum 'n' bass," he recalls. "We were into jungle before that and then we progressed from that to DJing, then from that to making tunes. We first started working together in '98 and got signed to Renegade Hardware not long after. Then it was a sort of pretty mad rise for us over the next couple of years."

It's perfectly understandable that you might wonder how working on underground drum 'n' bass tunes might lead to the sort of high-flying work that Future Cut enjoy today. Darren explains the logical progression from working with the leaders of the underground to breaking the national charts with a new star.

"We were fortunate enough to work with all the people I suppose we really wanted to. We worked closely with Goldie quite a lot – you know, engineered stuff and had releases on his label – and Roni Size, Andy C, all those guys. Then we got signed to [Warner Music] off a track called *Midnight*. It wasn't intended to be a big crossover record, but it ended up crossing over. Shortly after that, we met Lily Allen and worked on her first album."

Reason to smile

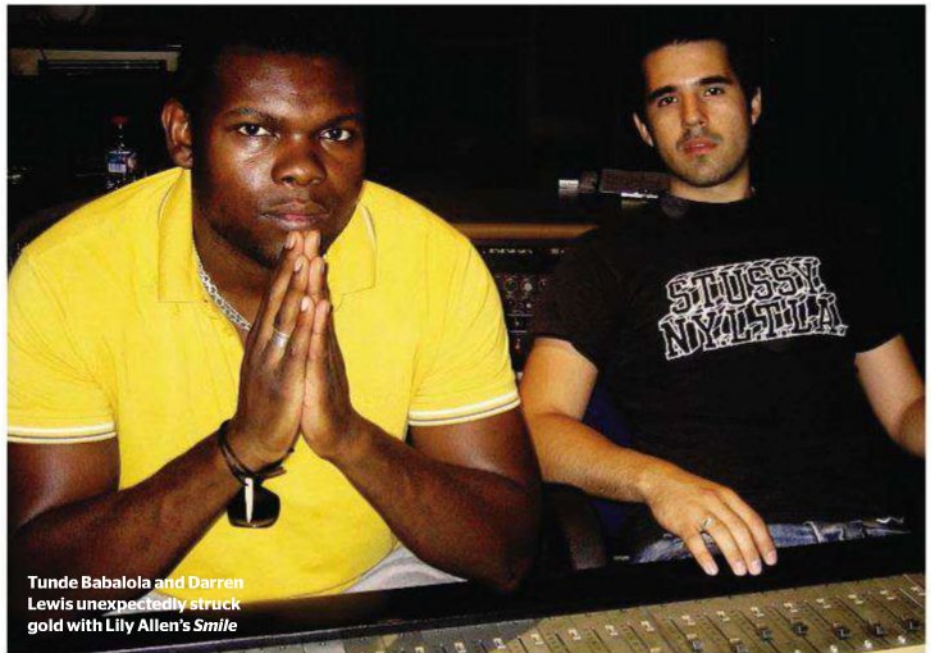
The step from Goldie to Lily Allen wasn't completely random. Remember that this hook-up happened before Lily was even defined as a pop artist. Since that point, she has repeatedly shattered the myth that all pop stars are otherworldly, squeaky-clean creatures with no interests outside of their own music.

"After the drum 'n' bass thing, we decided to become more producer-producers, take that back seat and work with artists, and Lily was one of the first artists we worked with," Tunde reveals. "That was the aim of the game. I suppose many people don't do it with the first artist they work with, which we were lucky enough to do."

"Lily was unsigned, but her manager at the time thought it would be a good match," explains Darren. "One of her favourite tunes was [jungle classic] *Valley Of The Shadows (31 Seconds)*. I guess we just took advantage of the opportunity and really threw ourselves into being producers as opposed to artist/producers or DnB producers, or whatever. In the five years since, we've been producing pop records of all sorts."

Future Cut's collaboration with Lily Allen put her in the Number One position for two weeks in 2006 and helped to make her a seemingly overnight sensation, but Darren points out that the thought of a Number One single hadn't so much as crossed their minds at the time they were actually putting the music together.

"We genuinely thought we were making a UK hip-hop record, so when we did *Smile*, we kind of thought she was like a female rapper-singer, and that it was a... not 'underground underground', but a sort of street-type record. And that was that, really. Obviously, in retrospect, that sounds ridiculous 'cause it was such a big pop song."



Tunde Babalola and Darren Lewis unexpectedly struck gold with Lily Allen's *Smile*

Top of the pops

Future Cut's CV reads a bit like the back of a greatest pop hits compilation album. Among the famous names they've worked with are Sophie Ellis Bextor, Dizzee Rascal, Shakira, Melanie Fiona, Kelis, Nicole Scherzinger, Kelly Rowland, Plan B, Lemar, Rox, Devlin, Professor Green, Tom Jones, Natasha Bedingfield, Sugababes, Kate Nash, Estelle, Olly Murs, Rihanna and Adele.

Still, the team insist that it's not just about working with the names people already recognise – and, indeed, it never was. Their affiliation with such names only came about after their unexpected success with Lily Allen. Today, Future Cut still work with lesser-known artists, helping to develop them. Darren and Tunde are understandably picky about who they work with, but they still see a lot of potential out there and aren't at all shy about investing in fresh talent.

"We've got this band, Paper Crows, who we've signed to our publishing company and our production company," Darren tells us. "They're just really exciting, really interesting. It's not really straight-up pop. It's very quirky – but it's a girl-and-boy duo and it's something different. It's hard to describe, really – you'll just have to check them out! We've just been lucky. We're also working with this guy called Wretch 32 – he's a rapper – and this girl, Yasmin. We've signed some young producers called The Megabits as well. Again, they're something different – they're still coming from a sort of dance edge, an underground edge, but they're gonna be big in the next sort of couple of years. We're helping them develop as well."

Dizzee Rascal is one of Future Cut's most high-profile clients, but they're also interested in developing new talent



© Getty Images

Future Cut's rocky road

If you think Future Cut have had an easy ride, you're mistaken. From the perspective of the mainstream, they may have been an overnight success, but Darren tells a different story.

"To be honest with you, we never thought that Lily was necessarily gonna be a massive pop star," he confides. "She has real charisma; we knew she was gonna be something. But as far as actually being a pop star, we didn't think anyone would get *Smile*. And as it turned out, no one did for about two years. It took a long time to get signed; it was floating around for a long time."

So long, in fact, that there was allegedly talk of scrapping Lily's existing works and kickstarting her career with fresh songs. As her producers and co-writers, Future Cut could have potentially been cut out of the deal. Tunde elaborates:

"I know there were people who were like, 'Let's try it with this producer and that producer', and she was adamant that she liked what she'd got already and was happy with it and just wanted to roll with the people who she'd been working with - which is testament to her character. And to her A&R skills."

Advice for cash

Tunde has some advice for those looking to make it as a pop producer. "Find a local talent you can work with, even if it's just to learn your skills, to learn how to produce a record. It's not just about writing a beat and then sending it off and letting someone sing it. It's getting the best out of that singer, working out vocal arrangements and all of that."

Having started out without the specific intention of creating pop hits, Darren's keen to stress the importance of finding your own style.

"Sometimes labels can be brave, but often they're not *that* brave. If a certain sound is going around, they tend to stick with the same people again and again. So what excites A&Rs most is something that's new, different and interesting. You've got to love what you do as well. If you're in it just for the fame and the money, then there's a good chance it's not gonna happen, because the hours you have to put in and the sacrifices that you're probably gonna have to make mean it's not for everyone."

As for attaining that elusive record contract, Tunde's very clear on his stance. "Instead of sort of trying to fit an artist to the criteria of a particular label, I think for me the music always comes first."

Darren agrees. "I think it's actually dangerous to try and pander to a label. There's a mystique around getting signed. We've been working recently with lots of young managers - really young, like early 20s - who are looking after artists around the same age. If you take Tinchy Stryder's managers, they're managing a guy the same age as them. They saw something, they did it well, they approached it in a way that was true to what they were about, and eventually the world kind of came round to them. The rest of it was hard work, graft, determination, making phone calls, chasing people."

"How do you get someone signed?" Darren continues. "There's no right or wrong, but I think you've got to start like Tunde said: by making music that you think is really, really, really good. Then the rest is hard work, luck, persistence, confidence, balls and a bit of cheekiness."



Lily Allen seemingly hit the charts running, but in reality her tunes kicked around the industry unsigned for two years

Ol' Lady Luck

Pop music isn't just about being formulaic and playing it safe. If it was, then people would be able to accurately predict the potential of a song. Regarding Lily Allen's debut chart success, Future Cut have the perfect anecdote with which to illustrate this point.

"Not that long after getting signed, *The Telegraph* or *The Guardian* called up the record label to do an interview with Lily, cos they'd heard all this buzz," says Darren. "The press department didn't even know who she was. It was pretty soon after she was signed, but her signing was such a small deal that it almost went unnoticed at the label to start with. Obviously, after that it ramped up pretty quickly."

It's not just the song that determines an artist's success either. Tunde describes the part that MySpace played in Lily Allen's success.

"In those days it was like, as a signed artist, do you put up the music you've literally just made? And that's where she was a bit of a maverick. She was like, 'Yeah, I'm gonna do this. I've not even asked the label - I'm just gonna put it up.' Then from that she got instant reactions. We put one song up and two or three days later it had 10,000 plays, and everyone was loving it. So the A&R part had almost been taken out because the public were A&R-ing the record, which was probably the first time it had ever been done like that."

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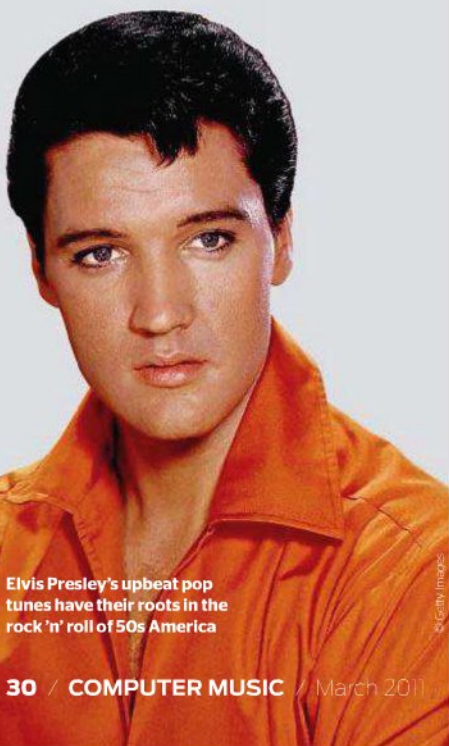
Chart history

In the early 1950s, before the pop charts as we know them today existed, a song's success was measured by the sales of its sheet music. The record industry was still in its infancy, and it never occurred to anyone at the time to count the weekly record sales and use those figures to build the charts.

That was until Percy Dickins, cofounder of the weekly *NME* (*New Musical Express*), came up with exactly that idea. He'd caught wind of the American Billboard charts and thought that by listing weekly records charts he would generate additional advertising revenue. He was right. Dickins started by calling 20 record shops and asking what their best sellers were. These crude beginnings were the formative years of the top 20 charts.

The first chart was published in 1952. At the time, Al Martino led the way with his performance of *Here In My Heart*. Pop music at that time (sometimes referred to as traditional pop) was dominated by slow, jazzy numbers, comprising melodic lead vocals and gentle instrumental accompaniments. Perhaps some clues as to what makes a hit record lie in the similarities between traditional pop and modern pop. The most obvious link seems to be the heavy use of vocals, with singers typically elaborating on romantic themes.

Next came rock 'n' roll, which served as the origin of more upbeat pop, paving the way for Elvis Presley and later, The Beatles, Queen and Madonna.



Elvis Presley's upbeat pop tunes have their roots in the rock 'n' roll of 50s America

Money, money, money

Naysayers say that the pop music industry isn't the big business it used to be, but the numbers are telling a different story. According to The Official Charts Company, sales of single-track downloads have been rising at a staggering rate over the last few years. In 2007, around 89 million downloads were sold in the UK. That figure rose to 115 million in 2008 and then to over 150 million in 2009. To put that into perspective, even in the glory years of vinyl and CD singles, sales never once surpassed 90 million. So, why are people denouncing this era as the end of the music industry?

It's true that some retailers and record labels are making less money than they used to, but this is because they failed to adapt in time to a fundamental change in the mechanisms for selling music. The concept of downloaded music caught on like wildfire, and it took a lot of people by surprise – which is why some companies are struggling now. But the industry

"In 2007, around 89 million downloads were sold in the UK; that rose to over 150 million in 2009"

as a whole is healthy, and if it continues to adapt to advances in technology, it should be big business for the foreseeable future!

Radio royalties

Even if sales figures were to drop off, the truth is that they aren't the be all and end all when it comes to pop music – and they never have been. When you write and record an original song, there are two types of ownership: ownership of the song and ownership of the recording itself. If you were to perform and record someone else's song, the original writer would still own the song, but you would own that particular recording. Because of this, musicians have two potential revenue streams. When the recording is played on the radio, the track's composers/songwriters earn royalties, which in the UK are collected by PRS for Music. The recording artist, meanwhile, earns separate royalties that are collected by PPL (previously Phonographic Performance Limited).

Since the main radio stations play pop music almost exclusively, there's decent money to be made from a pop record through the airplay it receives alone. PPL issue International Standard Recording Codes (or ISRCs for short) that uniquely identify every recording registered with them. At the mastering stage, this ISRC can be inaudibly embedded into the recording, enabling PPL to be automatically notified whenever your recording is broadcast.

Licence to bill

Speaking of broadcasting, you should also watch out for synchronisation rights: if you sign those away, you'll miss out on royalties owed



PRS for Music collects broadcast and venue royalties for songwriters/composers, while PPL looks after the wallets of recording artists

from the use of your recordings in film, TV and advertising. If you hear a La Roux song played in the background of a scene in *EastEnders*, for example, that has to be licensed. So, a track generates an income for every broadcast, too.

Furthermore, when music is played in any public place (shops, bars, cafes, etc), the venue has to pay a licensing fee to PPL and PRS for Music. Once you become a member of those societies, they account to you on a quarterly basis and pay out royalty cheques.

"Even if sales figures were to drop off, the truth is that they aren't the be all and end all when it comes to pop"

Be aware that the industry landscape is still somewhat changeable, though, especially as this is a volatile time for technology. There are currently efforts underway to bring about a pioneering system in which streaming media is accounted for in the charts. Consider how views of a song's video on YouTube might alter the playing field substantially. After all, it doesn't cost anything to stream music, and it's not difficult to set up a YouTube account and upload your music. Currently there aren't any structures in place to even make sure that the appropriate royalties are paid out on every video, but it wouldn't surprise us if this situation were to change in the near future.

Creating pop beats

Regardless of the specific style, pop music (in the UK, particularly) has become increasingly based on dance and electronic music. The importance of the drum beat in electronic music can't be stressed enough, and even the odd pop ballad isn't shy of a weighty synthetic groove these days.

So where do today's pop songs borrow their drums from? The vast majority use very simple rhythm tracks that are instantly familiar and integrate nicely into the rest of the record. So, as important as the drum beat is, the rhythms usually play only a supporting role and don't draw too much attention to themselves. So, good news: all of

the straightforward drum standards from rock, dance and R&B, and all variations thereon, will work.

Sound-wise, pretty much anything goes, within reason. Electronic R&B and house-style sounds tend to dominate, but those are also very popular types of beats. Interestingly, a pop song doesn't have to use authentic sounds. The key is that all elements in the mix work together and don't compete too much for space. As such, it's almost a given that the drum track on a pop record shouldn't be overly busy or messy – a sparse drum mix leaves plenty of room for the vocals and other foreground elements. The most common exceptions to



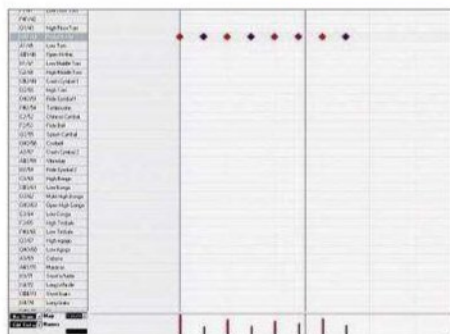
Pendulum experienced chart success after crossbreeding rock with DnB

this generalisation fall under the category of live rock drums.

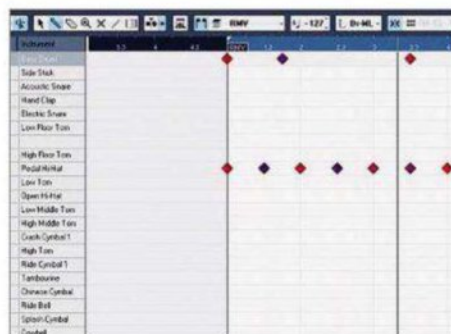
With all of this said, though, you're better off throwing the rulebook out of the window than slaving away to achieve a strict

ideal. Above all, pop drums have to feel good. Don't use 'playing it safe' as an excuse for your rhythm part being boring. After all, lots of great pop tracks weren't intended to be pop when they were produced.

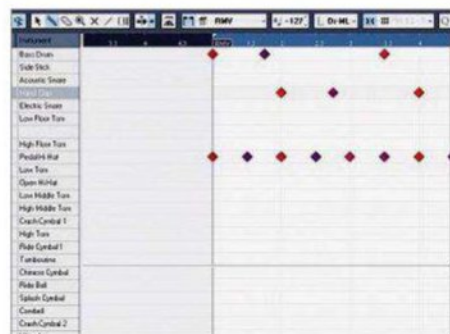
> Step by step Laying down electronic pop beats



1 > Many pop fans will tell you that these days, a good pop song relies on a good beat. Start by picking a moderate tempo and programming a simple hi-hat pattern. Here we use consistent eighth-notes with some velocity variation to help give the start of the bar some push.



2 > A basic kick drum pattern comes next. If you're thinking about commercial potential, you'll want to pick a tight and punchy kick sound, with a good top-end element to it. That should always be a consideration anyway, but it's crucial if you're aiming for a radio-friendly mix.

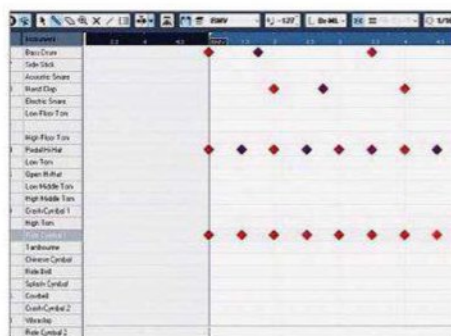


3 > No matter what your kick is doing, simply slapping a snare drum on the backbeat is often all that's needed to make the beat feel regular. Don't be afraid to add the odd lower-velocity hit at other points in the bar, though. As for sound choice, a handclap often works better than an actual snare. (**PopBeat1.wav**)

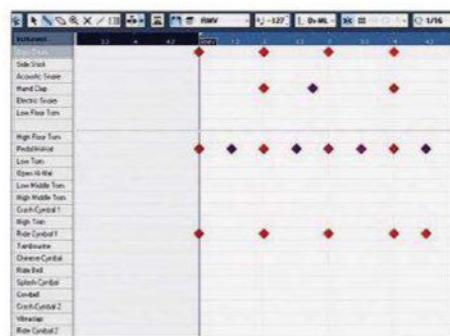
POWER TIP

>Keep it simple

Never underestimate the power of simplicity. Keeping your drum patterns simple doesn't just make it easier to integrate drums rhythmically with all of the other instruments, it also makes the job of mixing all of the sonic elements together far easier. In that respect, it creates less work for you as a producer – but it's also less work for your listeners, who'll find a simple beat much easier to get down to. Remember that nearly all pop music tracks use the 4/4 time signature. This is said to be linked psychologically to the instinct of walking with two feet.



4 > Even if your rhythm track sounds good as a sparse beat with minimal elements, you might find that adding a subtle extra sound or two can help lift a section. Try ride cymbals on every eighth-note for the chorus, for example, but remember to keep them low in volume. (**PopBeat1+rides.wav**)



5 > Where the rhythm's concerned, you can always switch styles for different sections of the song. Many pop tracks adopt a stomping house groove to give drive at certain points in the song. Notice in the screenshot above that it's mainly the kick drum pattern that we change. (**PopBeat2.wav**)

Lyrics first or last?

Many successful pop songs are written by songwriting teams, with one writing lyrics and another composing the music. But in what order should such work be completed?

The songwriting process isn't set in stone. As a lyricist, you may find that you work best with a backing track and some idea of a melody to write to. If so, consider what kind of scene the music is already painting. All of the elements have to work together in order for the song to work well as a whole. While there's nothing necessarily wrong with the ironic or mixed-signals approach, you should always bear in mind how the whole production is going to sound to a fresh pair of ears. A song about being caught cheating might work well over a jolly backing track if the intention is a cheeky, remorseless disposition. Sincerity, on the other hand, requires absolute, uncompromising congruency.

Conversely, concepts for lyrics and other ideas might be more easily realised without ties to a pre-existing piece of work. In this case, it's important that the backing track and melody tell the same story as the lyrics.

If you're writing everything yourself, consider your workflow. If you have trouble with either job, it might be worth switching the order around. Either way, it's best that you remain open to going back and forth between lyrics and music after you've written the first draft.

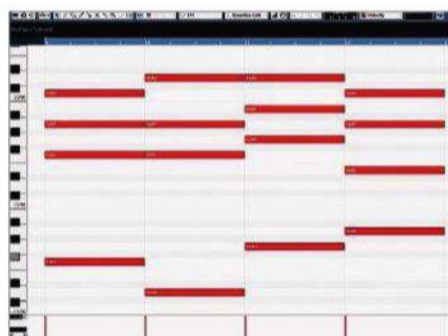
> Step by step Figuring out pop chord progressions



1 > Many pop fans will tell you that these days, a good pop song relies on good chords. Pop chord progressions need to be digestible, if not downright simple. However, it's a common misconception that pop music is always written in a major key. Here, we're starting with A minor.



2 > Experiment at the keyboard until you have two or three more chords that work together as a progression. All you need to keep in mind is that it has to flow both easily and musically. In our example, we end on the same chord that we started on: A minor. (**PopChordProgression.wav**)



3 > Next, we make a variation to be used for perhaps the chorus or middle eight. First we change the first chord (F major happens to sound good), and then we adjust the right-hand keyboard part only on the other three chords to help them flow from this new starting point. (**PopChordProgressionVariation.wav**)

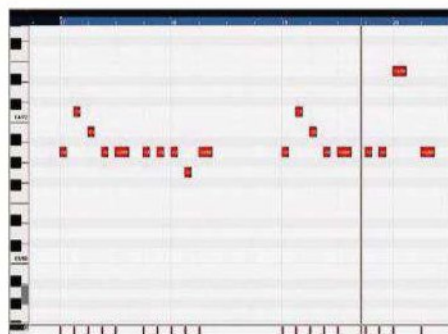


4 > With two chord progressions to hand, you can start to experiment with the arrangement. The most simple are based on the theme of chorus, verse, chorus, verse, but be aware that a pop song is in no way restricted to that degree of simplicity, even if the progressions themselves are simple.

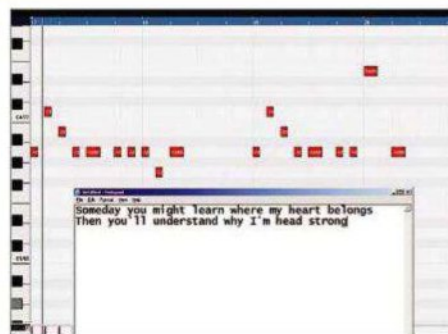
> Step by step Composing a pop melody



1 > Many pop fans will tell you that these days, a good pop song relies on a good melody. Start by playing a basic repetitive rhythm on a single note, but listen to the backing elements as you do it. You might base this rhythm on a lyrical idea you've had.



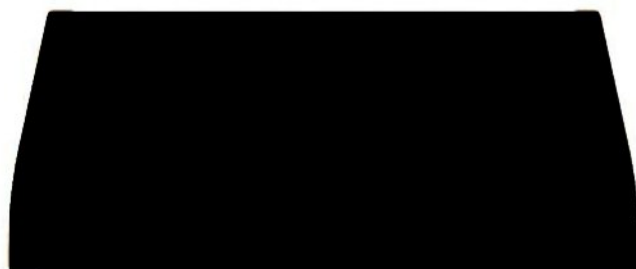
2 > The next step is to transpose the notes up or down in order to form a melodic shape. Often, simplicity and repetition makes melody catchy, so don't spend too long on this step. Use as few unique notes as you feel necessary, and transpose and resolve them predictably. (**PopMelodyIdea.wav**)



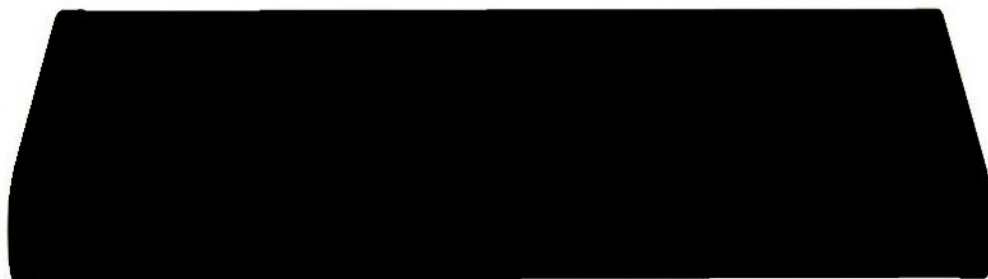
3 > Now is a good time to play with lyrical ideas. You may find it easy to add words to a melody you've written, but feel free to make adjustments to the pitch and rhythm to make them suit the lyrics. The point in writing the melody first is to begin developing the general shape of the song.



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> Step by step Combining music and lyrics



1 > Many pop fans will tell you that a good pop song these days relies on a good set of lyrics. Realistically, for most of us this begins with a blank page, but we recommend that you start by listening to some recently released pop music; this should help you develop an understanding of what's currently resonating with the public. Really listen to the message of each song.



2 > Obviously we're not suggesting that every pop song has to have deep, meaningful lyrics. However, once you're familiar with what kinds of messages are out there, you'll get an idea of what's possible and what won't work. It's time to develop your theme. Maybe you have an idea worth exploring already. Get it down. Don't be shy!



3 > Have a brainstorming session to see how you might develop the theme through the lyrics. At this point you shouldn't get too precious about any particular idea - and don't try too hard to come up with specifically 'good' ideas. The plan here is not to start writing your masterpiece, but rather just to plant seeds for ideas later. Even silly ideas are welcome at this stage.



4 > Once you've had a think about the theme, consider what visual imagery might work with it. It's said that a picture's worth a thousand words. Ironically, the right words might be just what's needed to conjure up those images. A well-written song will always hijack your imagination and play with several of your senses, even if on the surface it appears to be a throwaway pop number.



5 > After brainstorming and considering visual imagery, you should have a lot of ammo with which to determine a potential hook line. A song's hook is that part that hopefully lingers in your memory after the song has finished. As such, it's often a bold, simple statement. Remember that you can have as many as two or three hooks, maybe more, but you're not going anywhere if you don't have one at all.

POWER TIP

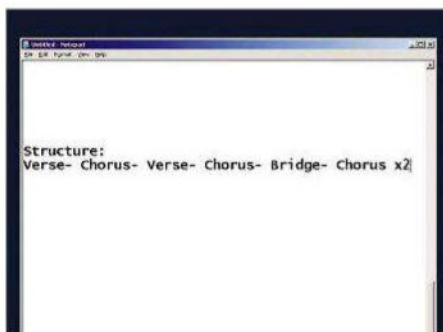
>Respect the norm

If you're unsure about the arrangement of the song you're writing, there's no shame in copying the structure of an already successful hit, at least to get you started. You'll find the big radio stations usually only play music that's around the three-minute mark, and that there are at least two choruses. Your options beyond that point are fairly open. You can be unconventional if you want, but the reason we have musical standards in the first place is because songwriters have worked out what works, what people respond to, and what sells.

POWER TIP

>Rhyme games

It's important to remember the function that rhyming plays: it helps the listener to feel like they know what's going to come later on in the lyrics, thereby working to build a sense of familiarity and making the message easier to digest. You can spice things up a lot by intentionally using half-rhymes. Sure, 'care' rhymes with 'there' and 'stair', but when you broaden your scope to consider matching it with words like 'here', your lines suddenly take on a more mature tone, without discarding the purpose of traditional rhyming.



6 > If you have at least one strong hook and plenty of verbal fodder with which to build lyrics, you might want to propose an arrangement. The advantage of doing so at this stage is that you can better estimate how many bars each section will last and how many sections you'll need lyrics for. Just keep in mind that anything you do while preparing your first draft is subject to change.



7 > To start constructing your first draft, have a go at putting some rhyming lines together. Refer to the music or your brainstorming notes as much as necessary. Writing great lyrics is a nonlinear process - it can't be done one word at a time. Consider how being flexible with the order in which you start and complete your various tasks can improve how all the elements work together.

Pop production tips

LESS IS REALLY MORE

These days, a big, full sound is absolutely essential. It might seem somewhat counter-intuitive at first, but the fewer elements you use, the easier it is to achieve a huge sound. The theory is that each sound can be mixed extra loud when there's little for it to compete with in terms of headroom and frequency space. This has the advantage of making everything supremely bold and clear. Instead of pouring your efforts into adding more sounds, try to be economical, with as few instrument parts as you can reasonably get away with. Above all, leave plenty of space for vocals to sit on top of everything else.

TALENT STILL RULES

Pop vocals don't need to be performed by exceptional vocalists. In fact, the vocal performance no longer needs to be impressive in the traditional sense - but it does still need to be impressive generally. Producers are always looking for new ways to process and treat vocals in order to add interest to the listening experience, so make a habit of experimenting with your recordings. However, no amount of processing will save a truly awful performance. Ignorant critics might suggest it can, but it's simply not true that any random bod off the street can sing a pop track. Without meaning to play down the role of technology, good vocals still require talent, just as they always have done.

LOOK FURTHER AFIELD

Keep your finger on the cultural pulse, and regularly check out advances in technology. Sometimes a new piece of software heavily defines what will be heard in the pop charts. Also, popular culture influences all forms of media, not just music. When retro 80s fashion came back in a few years ago, so too did the sounds from that era in popular music. Such clues should help you to tap into the trends of today's modern multicultural society and get a headstart on the next big thing.

FEEL THE MUSIC

Stylistic choices can be tough to call, so let your tastes guide you. It's all well and good listening to other artists' music and analysing it, but the most useful information will always be your own emotional response to the music itself. Ask yourself what you find exciting about it and consider what might work that hasn't been done yet. You don't need to reinvent the wheel, either. A lot of modern pop tracks are the result of the crossbreeding of different genres. Experiments in this area are likely to lead you to unique sounds that have their roots in tried-and-tested formulas. The perfect pop song sounds both new and familiar at the same time.

MIX FOR ALL EARS

For a song to stand any chance of being successful as a pop record, it needs to boast a spotless and exciting mix. A good mixdown will sound great on playback systems of all kinds, which is exactly what's needed. It needs to sound good in a club, so make sure



When 80s fashion came back in vogue, 80s music wasn't far behind

the low end extends low, like a dance or hip-hop record. It also needs to sound good through headphones, so a carefully considered stereo image will earn you bonus points with the listener. These are common-sense mix suggestions that should always apply, but the pop industry is becoming increasingly intolerant of sonic shortcomings.

WORK THAT MASS APPEAL

You've got to be sensible to a degree and keep in mind that in order to appeal to mass audiences, the overall aesthetic of the song should be highly accessible. This is the same theory that dictates that decorating a house in neutral colours will increase its rental prospects. While production elements within modern pop can be gritty and brash, the song and the overall production is almost never harsh, challenging or overbearing in any way, because those qualities are generally repellent to the music-buying public. On the flip side, the danger of being *too* neutral is that you risk being boring. Easy to listen to doesn't necessarily mean lacking character.

LISTEN AROUND

Listen to lots of music to expand your taste. Music appreciation is a skill in itself. The more

diverse your tastes are, the better you'll be able to grasp what turns a sound into music at the most fundamental level. This has the knock-on effect of increasing your musical palette, which can only be a good thing. Similarly, the more music you understand, the more potential you'll see in your own ideas, and the better equipped you'll be to develop a simple idea into a full-blown song. Dip into music's history, but make sure you prioritise modern music to get an idea of what turns on the current generation.

TRUST YOUR INSTINCTS

Feel free to ignore everything you've just read! Well, sort of. It's best to be aware of all of these things at some level, but there is something to be said for innovation and originality. If you strongly feel that breaking convention is going to work in a specific case then don't be discouraged from launching forwards - just make sure you take these ideas into consideration. If you're right, you could be on to something huge. On the other hand, while it's OK in principle to disagree with what everybody else is doing, there's no excuse for just getting it wrong because you wilfully ignored the reasons things are done the way they are.

Pop industry tips

BE A LITTLE STINGY

The internet is a domain in which music runs free with its clothes tossed to the side and its hair blowing in the wind. It might seem fun or even liberating to be able to plaster your tracks everywhere, but if you're wise, you'll consider the impact that this might have on your perceived worth. The idea of giving away your music for free might have a role to play as part of a bigger strategy, but it should never be the only card you have up your sleeve. A&R teams scour the industry for talent constantly, but they can't do anything with music you've already given away.

WAIT FOR PERMISSION

There are those who recommend producing unauthorised remixes to demonstrate your production skills and get your foot in the door. While this may work occasionally, it's far from the normal route into the industry and comes with many potential pitfalls. Make sure you know where you stand legally and choose your words wisely so as to make it clear what your ultimate intentions are. At best, this is a difficult path to take. If you feel this approach could work for you, then you must be prepared for the likelihood that your music will never actually see the light of day.

BE YOURSELF

Forming a band can be a good idea when trying to get that big pop break. Many bands confess to being heavily influenced by bands that came before them, which is OK - but make sure you're not the band who wish they were another band. There's a market for impersonators, but it's not the pop market. If you really want to model the success of another band, particularly one that was popular decades earlier, you should pay more attention to their attitudes and the things they stand for than necessarily the musical choices they made at the time. It's vital to connect with the audiences of today.



Making a name for yourself is a good thing, but giving away too many of your tracks to get there isn't - and a windfall will be harder to come by

DON'T BE NAIVE

If you're going to take Future Cut's advice and fancy your chances at producing a local talent, be sure to be clear on a set of agreed terms. As a producer in today's industry, you're likely to contribute ideas that qualify you to take a share as cowriter. You need to be careful in the early stages, because if you have a disagreement, the artist could quite feasibly sign a deal off the back of your hard work that you don't see your fair share of. Insist on getting everything in writing with signatures - you may later rely on it in court.

DO YOUR RESEARCH

Breaking into pop music is on the to-do list of so many budding producers that a whole industry has grown up around it. As you'd expect, some of these are better than others and there will always be dodgy organisations preying on naive musicians looking for success. What's certain, though, is that you can minimise your risk on your way into the industry by thinking smart. Always check

the track record of any outfit making big promises. Ask yourself whether or not what they offer is relevant to what you do. Who have they helped before, and in what ways?

GET TO KNOW PEOPLE

Get into real-life networking. Sometimes, who you know counts more than what you know. For example, at music industry shows there are often demo auditioning sessions with industry heads on hand to give real-world advice, and you might just catch them outside said session for a friendly chat. Failing that, you're still likely to meet others who might be good to know. As you go about your business making music, make a point of being friendly and helpful to everyone you meet. Reciprocity can go a long way.

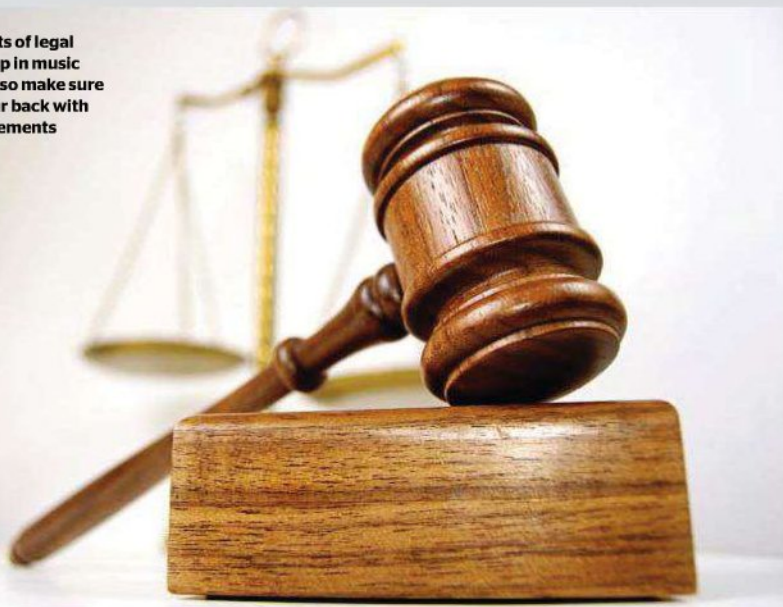
ENTER COMPETITIONS

One way to get your tracks in front of the right ears might be to enter competitions. There are plenty of songwriting and remixing competitions that are judged by professional A&R people. This means you're up against stiff competition immediately, but if you come up with a strategy, you could use the situation to work in your favour. The aim here is to stand out. If you can flaunt something a little different that's of a high quality and meets the spec, then you could be on to something huge. Don't necessarily make your goal to win first prize, but instead strive to impress and get noticed.

EXPLORE MUSIC PUBLISHERS

Once you've got some music together that you're happy with, it might be an idea to approach music publishers first and find out what they can do for you. A good publisher will have all the right contacts to help you find artists to record your songs, or to help you get signed to a decent label if you've already recorded them. They'll also be able to give a degree of assistance with legal issues, potentially even helping you to draw up contracts for session musicians or anyone else you might have worked with. They can sign on a per-track basis, too, so there's no need to sign your soul over. [cm](#)

There are lots of legal issues tied up in music production, so make sure to cover your back with signed agreements



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Web www.izotope.com

LITTLE INDIAN SPECTRUMWORX V2 (PC/MAC)

This modular sound-mangling effect features a variety of frequency domain-based ways to twist up your sounds. The trial version is save-disabled, inserts silence into the output and drops in volume when minimised or hidden.

System requirements

PC SSE-enabled CPU, Windows XP SP2 or later, VST host

Mac Intel CPU, OS X 10.5 or later, VST host

Web www.littleindian.com

MADRONA LABS AALTO (MAC)

A semi-modular synth with a distinctive sound. The demo is save-disabled and inserts silence into the output.

System requirements

Mac 1.6GHz Intel Core Duo CPU, OS X 10.4 or later, AU host

Web www.madronalabs.com

SYNAPSE AUDIO DUNE (PC/MAC)

A virtual analogue synth with a powerful modulation matrix. Patches can't be saved with this demo.

System requirements

PC 1GHz CPU, Windows 2000 or later, VST host

Mac 1GHz CPU, OS X 10.4 or later, AU/VST host

Web www.synapse-audio.com

TONE2 ELECTRIX (PC/MAC)

This mighty instrument gives you four layers of the same powerhouse synth all within a single



Sweeten up those vocals with iZotope's vocal-processing toolkit Nectar, reviewed on p104



Modulate the heck out of your sounds with Synapse Audio's easy-to-use yet very powerful soft synth Dune - see p96



You won't be short of either sounds or inspiration with Tone2's epic new instrument, ElectraX - see p98

interface. The demo version is time-limited and save-disabled, and is missing some of the full version's features.

System requirements

PC 800MHz CPU, 512MB RAM, Windows XP

or later, VST host

Mac 800MHz CPU, 512MB RAM, OS X 10.4 or later, AU/VST host

Web www.tone2.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.

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.

> make music now / full software

> Exclusive full software!

Vengeance-Sound Philta CM

PC MAC



A special version of Vengeance-Sound's dance-tastic new Philta XL filter plug-in is yours free with this issue of **cm**. We explain how to get started...

> Vengeance-Sound have accrued a legendary status over the past decade, releasing sample libraries and sound sets that have become hugely popular with producers of all kinds of electronic music. Now the man behind the company - producer and remixer Manuel Schleis - has moved into the field of music

software development in conjunction with Keilwerth Audio, creating plug-ins aimed primarily at dance music production. The team's latest addition to their Vengeance Producer Suite range is an incredible filter named Philta XL - read the review on p102.

Philta XL is an awesome effect, and *Computer Music* readers can

get a taste of its stunning sound for themselves because we've got our very own version on the **cm** DVD. Philta CM Edition has the same slick high- and low-pass filters as the XL version, complete with four different slopes, width and resonance controls, plus a handy link function and the ability to swap between band-pass and

notch modes. Philta CM Edition will delight you with its flexibility, ease of use and superlative sound.

In this tutorial we explain how to install Philta CM Edition, walk you through its functionality and give you some tips on how to get the most out of it. So, grab your **cm** DVD and let's get going! www.vengeance-sound.com

FILTER CURVE
A visual representation of each filter's cutoff curve

SPECTRAL ANALYSER
Shows the frequency content of the effect's output

LEVEL METER
Displays the output volume and indicates when it exceeds 0dB

LINK
Links the frequency cutoff values so that they can both be controlled with either cutoff control

HIGH-PASS SECTION
All the same controls as the low-pass section, but for the high-pass filter

BAND-PASS/NOTCH MODE
Switch between two different filter arrangements

SLOPE
Four different curves to set how steep the filter cutoff slope is

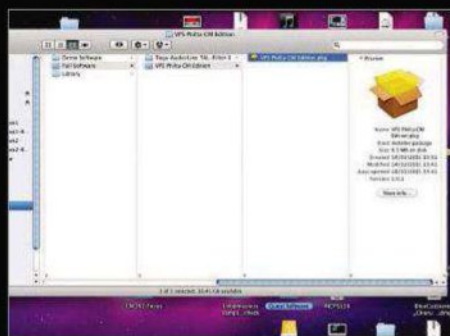
LOW-PASS
Controls the low-pass filter's frequency cutoff point

RESONANCE
Sets how much the signal is emphasised at the cutoff frequency

WIDTH
Controls the width of the resonance at the cutoff frequency



> Step by step Installing Philta CM and getting started



1 > Before we can get on with the filtering fun, we need to install the plug-in. You can find the installer on the **cm** DVD, in either the **Software/PC Software/Full Software/VPS Philta CM Edition** or the **Software/Mac Software/Full Software/VPS Philta CM Edition** folder, depending on which format you require.



2 > You can run the installer straight from the disc, but we recommend copying it to your hard drive first. Double-click the installer to run it, and it will guide you through the installation process. Once it's complete, exit the installer and run your DAW of choice. We're using Reaper, which you can find on the **cm** DVD in the **Software** folder. Alternatively, download it from www.reaper.fm.



3 > Open the **Tutorial Files/VPS Philta CM Edition** folder and drag **Drum Loop.wav** onto your hard drive - create an audio track in your DAW and drag that sample onto it. Add Philta CM Edition as an insert effect (if you can't find it, look for VPS Philta in the keilwerthAudio folder), and hit play. The plug-in's handy spectral analyser will start moving, but the audio sounds the same with the default settings.



4 > Set your DAW's tempo to **130BPM** and loop the audio. Let's try a simple low-pass filter. The **Low-pass** knob is located in the bottom left-hand corner - drag this down as the audio plays. You'll see the yellow filter-cutoff line move as you do, and the spectral analysis will reflect the attenuation of the frequencies.



5 > By now, you'll be enjoying Philta CM Edition's silky smooth sound, but that's just the start! Return the **Low-pass** knob to its maximum value. Next we're going to add some resonance. On the knob to the right of the low-pass filter, turn the darker, central ring up to 100% - this is the **Resonance** control.



6 > This gives us maximum resonance. Now sweep the **Low-pass** knob down and up again and you'll hear that the cutoff frequency is exaggerated. Very nice, but so far so standard. What Philta CM Edition offers is that the majority of filters don't have the **Width** control. Set the silver band outside the dark band to its minimum position.



7 > Sweep the **Low-pass** knob again, and pay attention to how it sounds. Now, turn the silver band up to full and sweep the **Low-pass** knob once more. Put simply, you'll hear a tighter, more ringing sound with a lower width, and a broader, less specific tone with a higher width.



8 > As well as controlling the width of the resonance, you can control the overall strength of the filter with the **Slope** knobs. These set how many decibels (dB) are attenuated per octave, and you're given a choice of 12, 24, 48 and 96. Lower values have a gentler effect, letting more higher frequencies through, while a stronger slope means frequencies above the cutoff point will be brutally 'chopped off'.



9 > You'll notice that all these controls are mirrored on the right-hand side of the effect's interface. These work in precisely the same fashion, only for the high-pass filter effect. By using both filters together, you can create a band-pass filter effect, cutting off the input's lows and highs and leaving just a band in the middle.

> make music now / full software

> Step by step Installing Philta CM and getting started (cont.)



10 > As well as the band-pass mode, it's also possible to switch the filters into a notch arrangement using the **Band-pass/Notch** switch. Clicking this will swap the position of the filters and allow them to overlap - it's ideal for creating interesting phasing effects by swooshing the filter cutoffs around.



11 > Another useful function of Philta CM is the Link mode. In Notch mode, set the filter cutoff frequencies (the **Low-pass** and **High-pass** knobs) apart as shown. Now activate the **Link** button and move either filter's cutoff knob. Both frequency bands will move, making it much easier to create tight automated notch filter effects.



12 > It's possible to use the **Link** function in band-pass mode, too, but if the filter cutoff frequencies are set to overlap before Link mode is turned on, no amount of frantic knob adjusting will create an audible signal. To fix it, you'll have to turn Link mode off, move the filter cutoff frequencies so that some audio can come through, and then reactivate Link mode.

Six funky filter tips



One particularly useful application of filter effects is to remove unwanted low-end rumble on sounds - this can clutter up your bottom end and lead to a poorly defined bass. With Philta CM Edition, you can take out the guesswork of locating problem frequencies by using the built-in spectral analyser to see where they're occurring, and then enlisting the high-pass filter to take them out.



It's easy to create a variety of useful sweep effects with filters and a little white noise. You'll find a lovely little white noise sample on the **cm** DVD in the **Tutorial Files\VPS Philta CM Edition** folder. You can make handy risers and sweeps by running this sample through Philta CM and moving the filter **Cutoffs** (automation helps). Try turning up the **Resonance** for an ear-scorching effect.



Often it can be useful to split a sound into separate frequency bands so that each part of it can be treated separately - this can be done by copying (or routing) the sound to multiple audio channels and placing a filter on each one, with different settings. Philta CM is particularly adept at this task thanks to its different filter slopes, which go up to 96dB. But do experiment to see which settings give the best results.



Automating the filter cutoff frequency to create a sweep effect is a classic sound, but you can make it even more dynamic by also automating the **Resonance**. This allows you to emphasise the filter sweep at a particular points of the buildup, or make things more intense as the sweep goes on.



You can get a wicked formant-style vocal filter effect by using the filters in band-pass mode and turning up the **Resonance** values so that you have two pronounced peaks. Next, sweep the cutoff frequencies around to create all manner of vowel noises.



You can create interesting stereo effects by splitting an audio track into separate left and right channels and using a filter effect on each. Using different settings on each Philta CM will result in phase and frequency differences between the left and right channels, thus generating stereo width. We found that this works particularly well with the filters in Notch mode. **cm**

>Royalty-free, pro-quality sounds

1996 **cm** samples

PC MAC



As a side-dish to this issue's big feature on pop production, we're serving up a tasty collection of shiny 24-bit pop samples

The 24-Bit CM Pop Collection 2011

To accompany this issue's pop-tastic cover feature, we bring you almost 2000 top-notch pop sounds lovingly crafted by our fresh-faced sample producers. These loops, hits and multisamples will give your productions that polished pop sheen you crave!

Alex Blanco

80 loops
20 construction kits
184 percussion hits
100 multisampled synth sounds

These samples take their influence from every corner of the modern electronic pop scene, including the

likes of David Guetta, Lady Gaga and Tinie Tempah. They include sounds created with the latest soft synths, including Tone2 ElectraX and Audio Damage Phosphor.

www.myspace.com/djalexblanco

Cyclclick

2 drum kits
96 bass loops
294 drum loops
72 synth loops
3 multisampled bass sounds
3 multisampled synth sounds

Taking inspiration from the likes of the Black Eyes Peas, these big drum beats and synth hooks are sure to get your feet tapping and lumps gyrating. The sounds were brought into existence using a

heady mixture of hardware and software, including a Kurzweil K2600R synth module, Musicman Stingray bass guitar and Korg CMP-1 compressor pedal.

Groove Criminals

102 beat loops
82 drum hits
82 loops
29 one-shots

Leaning more towards the upfront dance and urban sound of pop, these samples include drum hits provided by the Jomox XBase 09, synth sounds from the Novation V-Station and FXpansion DCAM: Synth Squad, and compression courtesy of De La Mancha's GTO and GTX vintage character compressors. Yum.

www.groovecriminals.co.uk



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



Emulate the sounds of successful pop artists such as Lady Gaga, Tinie Tempah and David Guetta with our samples

Producer Masterclass Video

Artist **The Nextmen**

The Nextmen have remixed and collaborated with a roster of A-list stars. Take heed of their tips as they break down a funk-fuelled demo for hot new band The Milk, and watch open-mouthed as they demonstrate their automation techniques in a sneak preview of a new track.

Web www.thenextmen.com



www.computermusic.co.uk

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, CMU162/March/11, Bath BA1 2BW. 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

Outsim SynthMaker CM (PC)

Create your own VST synths and effects

XT Software energyXT2.5 Core CM Edition (PC/Mac/Linux)

VST host and sequencer with modular routing

INSTRUMENTS

AlgoMusic ElectraBass Rack CM (PC)

Easy-to-use bass synth that's packed with presets

Big Tick RhinoCM (PC)

Amazing hybrid synth with cool FM capabilities

CM WusikStation (PC)

Hybrid sampler/synthesiser

Dominator (PC)

Virtual analogue synth with a classic feature-set

FabFilter One 2.01 (PC)

Beautiful-sounding single-oscillator synth

Homegrown Sounds Astralis CM (PC)

Modulation-heavy 'soundscape' synth

Homegrown Sounds Astralis Orgone CM (PC)

Flexible sample-based synth

Humanoid Sound Systems Scanned Synth CM (PC)

Create abstract noises and haunting instruments

Kotkas Paax 3 CM (PC)

Feature-packed soft sampler

Krakli CMorg (PC)

Vintage organ instrument

LinPlug AlphaCM (PC/Mac)

Subtractive synth with ring and amp modulation

LinPlug CM-505 (PC/Mac)

Analogue drum synthesis made easy

Muon CMplay (PC/Mac)

Powerful ROMpler instrument

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 sample

Odo Synths Unknown 64 CM (PC)

C64 SID chip-emulating VSTI

PowerFX Hütkins CM (PC)

Sample-based electronica synth

Synapse Audio Junglist (PC)

Effects-packed virtual analogue synth

Synapse Audio Plucked String (PC/Mac)

Specialised synth for creating plucked string sounds

u-he ZebraCM (PC/Mac)

Amazing virtual analogue synth

Ummet Ozcan Genesis CM (PC)

Another amazing virtual analogue synth

XT Software EnergyCM (PC/Mac)

Analogue-style sequencer

EFFECTS

Aixcoustic Creations Electri-Q CM (PC)

Sweet-sounding and flexible equalisation

Audio Damage Pulse Modulator (PC/Mac)

Wild, stomptbox-esque modulation effect

Betabugz Audio Vascillator (PC)

Semi-modular feedback delay multieffect

Blue Cat Audio FreqAnalyst CM (PC/Mac)

Sophisticated stereo spectral analyser

**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.

Camel Audio CMFuzz (PC)

Quick and dirty distortion

Image-Line CM Vocoder (PC)

Special **cm** version of FL Studio's FL Vocoder

Image-Line CM WaveShaper (PC)

Flexible wave distortion effect

Intelligent Devices MegaDelayMassCM (PC/Mac)

Sound design-orientated delay module

Intelligent Devices Slip-N-Slide CM (PC/Mac)

Easy-to-use double tracker

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

LiquidSonics Reverberate CM (PC/Mac)

Luscious impulse response-based reverb effect

Martin Eastwood Audio CompressiveCM (PC/Mac)

Compressor/limiter with side-chain input

Martin Eastwood Audio Duet (PC)

Easy-to-use double tracker

NuGen Audio Stereoizer CM (PC/Mac)

Useful mixing tool for control over your stereo spread

Ohm Force Ohmygod! (PC/Mac)

Crazy resonant/comb VST filter

PSP Springverb (PC)

Authentic VST spring reverb effect

Sanford Phaser-CM (PC)

Phaser effect with advanced modulation abilities

SimulAnalog Guitar Suite CM (PC)

Plug-ins modelled on classic guitar effects and amp

Sugar Bytes Artillery2 CM Edition (PC)

Multi-FX with internal sequencer

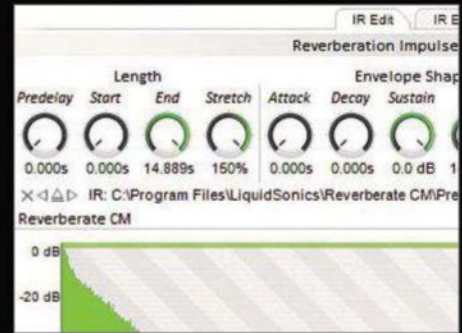


Stuffed with enough effects to get you sweating, Synapse Audio Junglist can produce some sweet sounds

Combining plug-ins to make synth effects

We combine ZebraCM, Reverberate CM and CompressiveCM in search of some unusual sounds

PC MAC



1 > Using Reverberate CM's impressive library of impulse response-based presets, it's possible to create some interesting effects using very little source material. Here we'll show you how to make sounds that use IRs to get some unusual results. First, create a new project in your DAW, and add ZebraCM to a MIDI track.

2 > Place a 1/16th note on C3 at the start of the bar. Give it a listen: it's not hugely impressive just yet. However, from these humble beginnings we can create something a lot more exiting. Add Reverberate CM as an insert after ZebraCM.

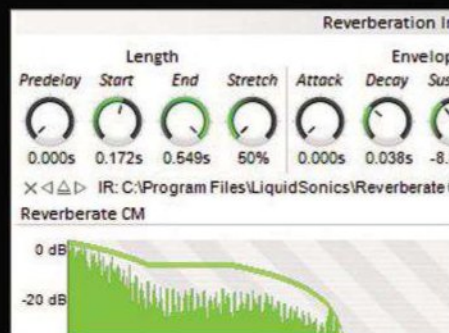
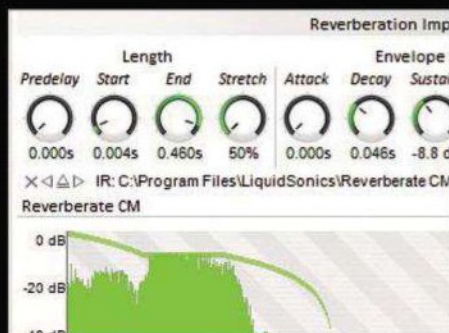
3 > If you play the sound now, you'll hear that it has a long reverb on the end of it, thanks to Reverberate CM's default **Long Plate** preset. You can make this tail even longer by turning up the **Stretch** value to **150%**. Set the effect's output to just the reverb by turning up the **Dry/Wet** knob to full.



4 > This sound is getting more interesting, but it's still a bit quiet, and gradually fades out. To make it louder for longer, add CompressiveCM after Reverberate CM and use these settings: low **Threshold**, high **Ratio** and **Make Up** gain activated. To stop the channel from overloading, enable CompressiveCM's **Limiter** option.

5 > Now when you play back our little 1/16th note, you'll hear a thunderous booming noise. Try it with the effects bypassed - what a difference! Big reverbs are by no means the only effect you can create like this. Leave CompressiveCM active, and change Reverberate CM's preset to **Slap Filter**.

6 > Again, set Reverberate CM's **Dry/Wet** level to **100%** wet, and play the sound back. This time you'll be presented with a short but dynamic filter sweep with a roomy ambience. As you can hear, using impulse responses can be really helpful when it comes to getting more organic sounds.



7 > Let's take another look at the **Stretch** function. This affects the pitch as well as the length of the IR. This time, set the **Stretch** value to **50%**. On playback, the sound retains the roomy vibe, but it's now a high-pitched nasty rave buzz.

8 > It's possible to fine-tune which parts of the IR are used with the **Start** and **End** knobs. Here we're focusing on a specific part of the IR by turning the **Start** time to **0.172s** and the **End** time to **0.549s**. This gives the sound a different, more midrange-focused character. **cm**

POWER TIP

>Bounce it out

When you come across a sound you like using this technique, we recommend not only saving the project for future references, but also bouncing out some audio so that you can use the sound quickly and easily in your projects. This works especially well with pitched sounds, as you can load them into a software sampler and play them up and down the keyboard chromatically. This also has the advantage of saving your processor power, as you can then do away with any synths and effects used to create the sound.

Reader music

Our team of production and engineering experts take a listen to four more readers' productions



Send us your music

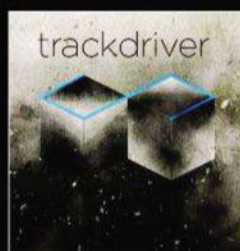
For the chance to be featured in *Reader Music*, simply send us your track via the SoundCloud DropBox on our website (see the walkthrough below for instructions), along with a description of your act, an image (sleeve art, photo or logo that you own the copyright to), and your equipment list. Be absolutely 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-free

TRACKDRIVER Yellow Sun

Artist Kristofer Jansson
Web www.myspace.com/trackdriver



> This beautiful, chilled-out piece from Scandinavian Kristofer perfectly creates the Sunday feeling he was intending, although it feels more like the lazy emptiness typical to the day than the hollow feeling of dreaded anticipation.

A combination of warm tones, big pads, languorous melodies and long spacious delays is at

the track's core. The dominant Rhodes piano part is interesting because it's a good likeness of the real thing in terms of character and has a long sustain. Around that part hang a number of dubbed-out sounds that together weave a deep sonic soundscape. On top of it all is the 'lead' synth melody, which is an indistinct but big, haunting horn-like sound.

The house rhythm is unobtrusive but very effective. The pushed kick and snare beats, combined with the skippy hats, create a subtle driving force. At the bottom end, the bass cleverly hits odd intervals, which distracts the ear from the simple nature of the chord progression.

The track mixes itself due to the choice nature of the sounds, but Kristofer's use of reverb is worthy of praise.

What the artist says

"Sundays have been depressing days for me ever since school, and I wanted to capture that mood. I started with a Rhodes-like sound in Cameleon 5000 and laid down the chords. I then built the rhythm patterns with Tattoo, which controls Battery 3, and made a layered bassline."

Equipment used PC, ESI Juli@, Ableton Live 8, Camel Audio Alchemy, Cameleon 5000 and CamelSpace, Audio Damage Axon, Tattoo, Discord3, Eos, Ronin and DubStation, IK Multimedia T-RackS Singles, FabFilter Twin 2, Pro-C and Volcano 2, AAS Tassman 4, GSi Type 4, NI Battery 3.

FRIED SUNSHINE You're Gone

Artist David Shepherd
Web www.myspace.com/friedsunshine



> Built around a vocal sample, this track has a touch of Daft Punk about the rawness of the drums and synth work. Suspend your judgement when you hear the bass come in at the start in the wrong key and run with it, because *You're Gone* has some fine attitude. There's no real finesse to the track, but the dirtiness of the bass, the

distorted loops and the unruly sequences give it a huge amount of energy. At times the track is a car crash, but at other points it comes together into something powerful.

It helps that the vocal sample used throughout is a good one, but production is all about the way that you use sounds and samples, and David has combined a set of sounds into a track that is greater than the sum of its parts.

The mix is rough and there's a fair bit of trouble at the bottom end, but the track is all about the way things jump out. The fact that it's not neatly balanced makes it exciting.

All that said, not many people will make it past that bass intro - so we'd suggest that particular piece of roughness needs to be tidied up.

What the artist says

"I wasn't worried about genres when I wrote this - I was looking for the almighty hook. This girl singing sounds a bit obsessed and sad, but the song remains edgy and almost happy. I played the bass live on the MiniAK. There's lots of synth automation and sweeps on this early song."

Equipment used Intel Core Duo 3GHz PC, 6GB RAM, Windows Vista Ultimate 64-bit, Delta 1010LT, Behringer XENYX 2442FX mixer, Akai MiniAK pro, Sonar 8.5 Producer, Beatscape, Z3TA+, Odissi Twisted Vocals Vol 1, various samples from all over, KRK Rokkit 6 monitors.



SoundCloud makes sending and receiving music easy. Anybody can sign up for a free account and start sharing tracks straight away, although you don't even have to do that to submit your track to *Reader Music*...



1 > Go to www.computermusic.co.uk and look on the right-hand side of the page for our SoundCloud DropBox widget. Click **Send me your track**, then **Choose a file** and select your track.



2 > Enter *all* of the following in the **Track description** box: track name, artist name, your name, email address, website (or MySpace), equipment list and a brief description of how your track was made.

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Enter our weekly
CM FACTOR
competition for a
chance to get your
track on our DVD.

This month's winner:

Benzie, *Homecoming*

www.facebook.com/computer.music.mag

KTD Anath (Strength Of Life)

Artist Hakeem Perring

Web www.soundcloud.com/ktd-uk



> The intro to this tune is a little misleading: its clicky kick, detuned cymbals and reverbed snare make it sound like we're heading into a big 80s Jan Hammer soundtrack for an eastern film. The only thing to give you an inkling of what's to come is the sampled vocal. So, it's quite a surprise when the 'chopper-blade' triplet bassline

appears along with slides and swells and a sound so deep it should be measured on the Richter scale not a dB meter.

The lows of the bass sound are layered with an excellent crusty top distortion that provides aggression and bite. Hakeem has created some interesting drum programming around the cross-beat. The detuned snare drum idea could possibly have been used more.

The limitations of the vocal sample start to become tiring on the ear after a while. However, the section where the sample is used as a low-level repetitive loop that sounds more instrument than vocal works well.

There's a hint of A Guy Called Gerald's *Voodoo Ray* to this, though that track's strong mid-range hook lines - which are missing here - give it a huge edge.

The mix is big and impressive, with plenty of highs to balance the big bottom end.

What the artist says

"The idea was to create ethnic-style music, then blend it with a dark, monstrous bass sound. Because the track has a strong Indian vibe, I thought an Indian name was fitting. Anath is the Indian god of the Heavens."

Equipment used Propellerhead Reason 4, Cubase 5, USB M-Audio Key Rig 49 keyboard, Toshiba Satellite L300-147, HH 100 Watt PA, Audio-Technica & Roland headphones.

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!

What's wrong with my mix?

Experienced studio hand John Reynolds dives into the diverse world of live band music with a critical listening of Feal Real's energy-laden punk rock track

Producer John Reynolds



John has produced so many Irish records that he lives the life of a celebrity whenever he visits the Emerald Isle. Currently putting the finishing touches to a Sinead O'Connor album, he's also just tied up an album with Seun Kuti, son of Afrobeat king Fela.

FEAL REAL Theogen Disco

Artist Bill Infant

Web www.soundcloud.com/fealreal



> It's good to hear a 'real' band complete with human element in these pages occasionally. This band clearly owe a lot to the influence of Devo and the post-punk period in general: fervent drums, angular guitars, shouty vocals. There's a hint of The B-52s in the female backing vocals. What's great is the energy of the piece, and there's an intention to pretty much every part.

The song structure is a very loose 'pop' one interspersed with several different instrumental sections. There's an obvious verse that happens a couple of times, followed by a chorus of 'Radiation' chants, and this is followed by another chanted vocal section of 'Masters of the universe', which for me is the weakest of the three. The song loses drive when this comes along and feels like it's peddling water with the tom-led beat - it's more like a middle eight that appears once than a post-chorus tag that appears three times.

The long instrumental in the middle is great in the way that it builds and then changes back to the intro theme. I would like to have heard the 'Radiation' chorus come back in after all the instrumental sections.

The band line-up is drums, guitar, sax and vocals, with bass (and various other sounds) courtesy of a synth. One thing that strikes me is the looseness of the band. To a point this is good, but there are a few howlers - especially the fill in verse one. The concept of how much audio recordings should be tightened up is a very subjective one, but there's nothing like the feel of a good tight rhythm section, and it makes for a solid foundation - so I think in this instance I would at least edit between drum takes to compile an overall good part. The trick is knowing when to stop meddling.

The recording is intentionally lo-fi and there's an excitement to the roomy nature of the kit, but the snare could do with a bit more fizz - perhaps from a mic placed underneath. The mix feels a bit flat and dull on the whole. I like the balance of the guitars and saxes, but I think the vocals could come out more and bite. Overall, despite *Theogen Disco*'s technical flaws, I still like it a lot.

What the artist says

"This track came out of a previous project and was transformed by our new synth and line-up. The lyrics were inspired by cell-phone radiation, kids taking random drugs at raves and the ongoing economic meltdown. It was all self-recorded and produced using budget mics and software."

Equipment used Self-built Intel i5 PC, Windows 7, 4GB RAM, M-Audio Fast Track Ultra, Rode NT1-A, Shure PGDMK6 drum mics, Cockos Reaper, plus PSP, Voxengo, Stillwell and Wave Arts plug-ins.

cm Producer Masterclass

THE NEXTMEN

Party-loving DJ producers The Nextmen have gone from vinyl to Serato and hardware samplers to DAWs in their quest for sonic perfection



Software converts

> **With four albums and an impressive roster of collaborations and remixes under their belts - including acts as diverse as Public Enemy, Commix and Corinne Bailey Rae - The Nextmen, aka Dominic Betmead and Brad Ellis, have become one of the UK's top production outfits. We caught up with them in their North London studio to find out how they make their funky hip-hop-inspired beats. So how did The Nextmen find their groove in the first place?**

"We both came from musical families, and we were lucky enough to be brought up by parents with really good record collections. Between us we listened to a lot of old jazz, reggae, funk and soul," begins Dom. "At the very beginning of actually creating music, I was already doing some experimental instrumental stuff with Roland's first sampler, an S10. I was making beats, and Brad heard them and thought they were pretty good, and we decided to get together and make an album together. The very first Nextmen album started off as one of these instrumental hip-hop tracks, like a Ninja Tune thing, and then rappers heard it and said, 'We can rap on these beats' - so we just went with it!"

The Nextmen's first tracks were made on a now largely forgotten program that the pair would still like to call on today. "We used to use a piece of software called Studio Vision," says Brad with relish. "It was made by a company called Opcode, who made MIDI management software. Then they were bought out by Gibson, and they

"Serato is brilliant: you stick your laptop in your bag and you can play any set you want"

stopped making it. I was actually really gutted when it was discontinued. It was really good software - it came with loads of really nice quantised grooves from MPCs, the SP-1200 and LinnDrum groove, and editing audio was really simple and intuitive. This was pre-software instruments, so we were just using samples and a hardware sampler. We'd do stuff like creating delays on screen by copying out the audio and automating the volume, but it worked really well. Modern music software is great and really flexible, but if I still had Studio Vision then I would prefer using that!"

Second choice

After Studio Vision disappeared from the scene, The Nextmen had no choice but to look elsewhere for their software needs. "For a long time after that we used Pro Tools LE with a Digi 001," recalls Brad, "but it was fucking terrible for MIDI. They've improved



Brad Ellis (left) and Dominic Betmead make up DJ and production duo The Nextmen

it a lot now, but it was terrible back then. We managed to get Logic 4.5 working with it, which you weren't suppose to be able to do, and it would crash a lot. That's when I got into using the soft synths that Logic offered, and later Dom bought Logic 6."

Since embracing the world of Logic the pair haven't looked back, and though their studio is still packed with exciting-looking vintage kit, they now work predominantly in the box. The Nextmen's four-deck DJ sets are also now computerised, with Serato replacing the mountains of vinyl they previously lugged around. Dom explains:

"We use Serato for mixtapes, podcasts and DJ sets all the time. There are advantages to vinyl: if you don't get feedback then a good vinyl record is probably the best sound you can get when you're playing out. But Serato is just brilliant. You stick your laptop in your bag with a few other bits and you can go anywhere and play any set you want - you've got your whole record collection!"

But The Nextmen don't solely rely on Serato for their DJing needs. "One thing that Serato don't do well is that they don't have very good offline stuff," Brad interjects. "You have to have it all plugged in to do stuff, unlike Traktor, which allows you to work completely offline. We keep that on our laptops for working on sets while we're travelling."

The Nextmen are also in-demand producers, and they're working on a variety of intriguing projects, including Plan B's new band. In this tutorial and accompanying video on the **cm** DVD, Brad explains how he produced the demo for Essex funksters The Milk's track *Kimmi*, which combines hip-hop-inspired electronic and acoustic beats with more traditional instrumentation and big vocals. The video also includes a sneak peek at a new uptempo The Nextmen track *Must Try Harder*, which is due to be vocalised by Dynamite MC and showcases the pair's clever use of master effect automation.

www.thenextmen.com

Selected kit list

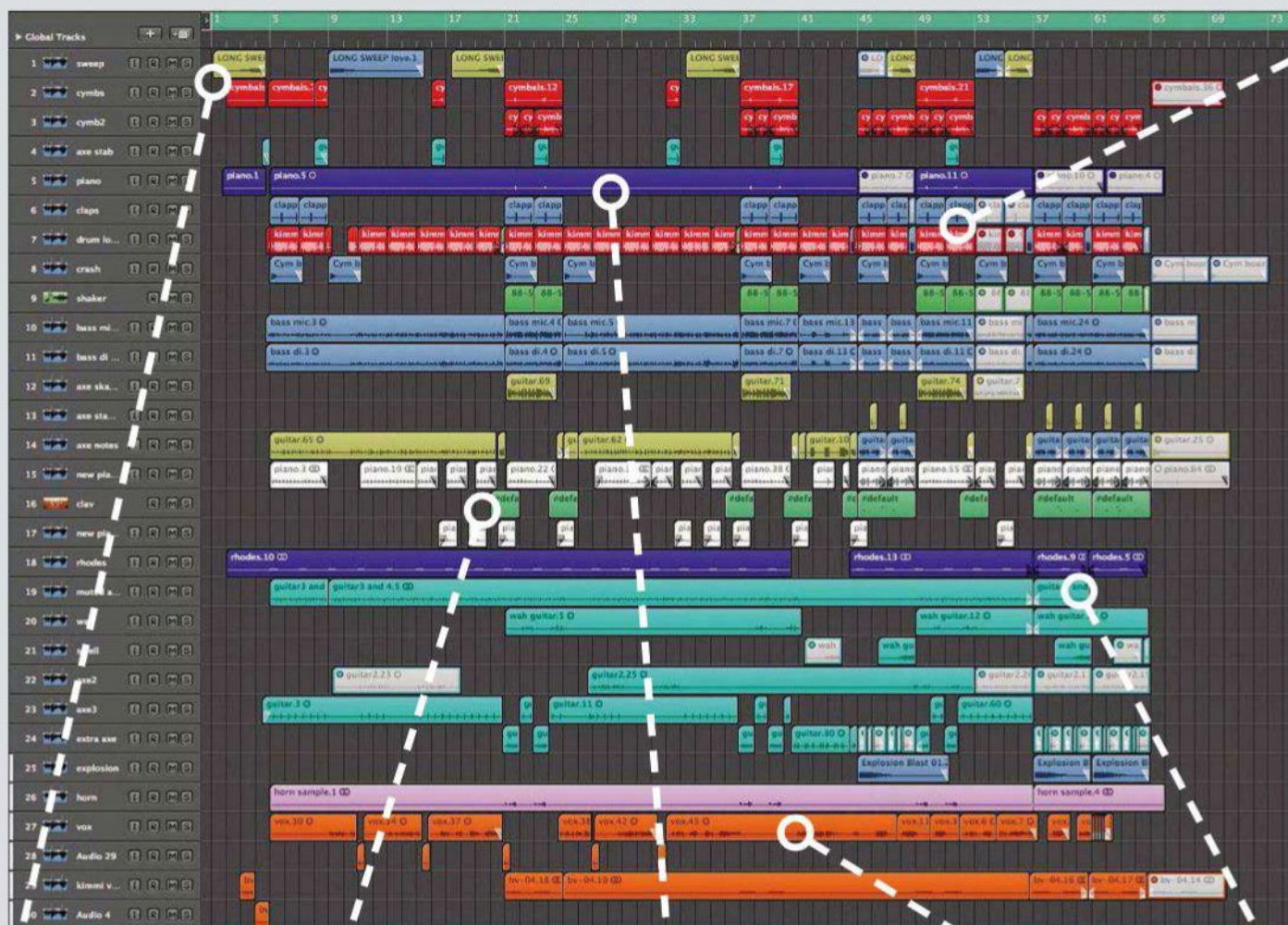
HARDWARE
Dual-core iMac
Apogee Ensemble
Yamaha O2R
Behringer BCF2000
Neumann TLM 103
Avedis MA-5 preamp
API 550b
TL Audio C1
Korg microKorg
Moog Little Phatty
2x Yamaha HS80M
2x PMC DB1
Beyerdynamic DT770
Sennheiser HD-25
Native Instruments Kore 2



SOFTWARE
Logic Pro
Native Instruments plug-ins
Spectrasonics plug-ins
GForce plug-ins
D16 Group plug-ins
Rob Papen plug-ins
AudioRealism Bass Line 2
Camel Audio CamelPhat
Lowcoders KingDubby
AlphaCM
CM-505
ZebraCM
2x Rane TTM57SL mixers
4x Novation Dicers

This Neumann TLM 103 is the mic of choice for The Nextmen

The Nextmen break down The Milk's demo track *Kimmi*



Sweep effect

Brad: "I used some sweeps that I made in Omnisphere and sampled. I used Logic's Tremolo for movement, an EQ to get rid of all the low nasty frequencies, and automated a band-pass filter with lots of resonance on it in CamelPhat. I find CamelPhat to be a really good choice if you want to automate a low-pass or something with a bit of character - it's not really flashy, but it's really easy to pick up and fiddle about with. There's also some Space Designer on this."



Clav

Brad: "The clav is Logic's evd6. We used NI Guitar Rig, which can be good for cabinet emulation and has a great interface. I also used a couple of distortion effects and a spring reverb to add a bit of bite to the clav sound."

Dom: "Guitar Rig is pretty good - you can get any sound you want from any decade, plus make your own stuff."



Piano

Brad: "The track includes a piano part that was recorded by the band in their shed. They've got an old honky-tonk piano that's completely out of tune, so when they recorded the part it was about 35 cents out. I used the Logic pitchshifter to put it in tune. I used Cytomic's The Glue compressor and Logic's Tape Delay. With the pitchshift, you get a few glitches, but it's either that or have the piano totally out of tune, and a piano plug-in doesn't sound as good - so I preferred to leave the real piano part in and just accept the glitches."



Vocals

Brad: "The vocals were also recorded in the band's shed. They like to record lots of backing vocals together - they're like an Essex gospel choir! I used a little bit of pitch correction and CamelPhat as the compressor; it's a really good way of limiting them. I've also put the vocals through a bit of outboard and the TLA compressor. On the backing vocals, I've used The Glue, Space Designer and KingDubby. With the pitch correction, I created a user scale, and I've blacked out F and F#. It's likely there's one small part with a duff note needing overall correction."

Beats

With their background in hip-hop, beats are a big part of what The Nextmen do. So, to get the perfect beat, the guys will create a separate project for it.

Brad: "I wanted to get the drums down to a loop that I could use, so I created a separate drum project, got the drums sounding good and then imported just a stereo file of the drums into the song project."

"I grouped the drums and used a CamelPhat compressor. It's really simple with just a Release time and an Amount, so you can just turn the compressor up and down. It gives the drums a nice breathing effect without losing the punch of the individual sounds."

Dom: "There are some plug-ins that you use for shaping and making sure things are smooth - simple compressors and EQs - but CamelPhat is most definitely an effect. If you want things to sound different and crunchy, or a bit unpredictable, you just switch it on and mess around with it until you find something a bit different. We find it really quick and easy to use, and you can create some really dynamic stuff with it."

Brad: "I used D16 Group's Decimort over the whole drum group with the MPC60 preset, and a limiter in The Glue plug-in to flatten it. Decimort is a bitcrusher and it makes the whole drum set distort. If you're not careful with The Glue, it'll distort too - but I've deliberately done that in this case to give the beat some extra distortion."

"Making the drum beat in its own project doesn't necessarily make it harder to mix the bass and drums together. The easiest way to do it in my limited experience is to start with the drums and work around them. Even if you do, say, boost the kick around 50Hz, you don't boost it very much. Plus you can also use sidechaining, so when the kick hits at the same time as the bass, it lowers in volume. I just kind of suck it and see. We usually try a few different things, and if it doesn't sound good then we go back to the drawing board. When making hip-hop records, people would sample drum loops and use them, and it's the same process really: you make a drum loop and try to make it as good as possible, and then you

sample it, just as you would if you were sampling off an old record. You'll start with the same limitations, so hopefully it gives you a similar sound."

Kick

Brad: "We wanted a hip-hop feel for the drums, so we mixed the live kit recording with electronic sounds, which mainly came from Stylus RMX."

Dom: "We do tend to use quite a lot of the Spectrasonics plug-ins. We find them really good for getting things started because there's so much on offer, and you can get things sounding at a good standard really, really quickly with them."

Brad: "The kick just has Stylus' limiter and a vintage EQ on it, but it's pretty much as it comes. There's another kick that adds a little bit of top to the sound. This is a sample from an old disco record played via the EXS24 with a pretty extreme EQ to take out all the bass."

"I grouped the kicks separately using CamelPhat's compressor and a simple EQ. When EQing kick drums, I find a frequency in the bass that I really like - it's usually somewhere between 40 and 50Hz - and just turn it up a bit."



Snare

Brad: "The snare is made up of a clap and a snare. These are also from Stylus RMX - the Claps 01 and Snares Snappy menus respectively. Again, I process them with the standard limiter and EQ. I took the sounds, tuned them and then effected them

afterwards. I won't generally mess around too much with Stylus itself."



Acoustic kit

Brad: "For the acoustic kit, we put D16's Decimort on the snare mic. It's a bitcrusher that emulates classic drum machines like the SP-1200 and the MPC-60, and old samplers like the original Emulators. I wanted it to sound like a hip-hop kit, especially the snares. I fiddled around with the preamp output and dry/wet ratio until I found a setting that I thought sounded good. I've also used the Decimort on a live clap with the SP-1200 setting."

Dom: "We find things like bitcrushers really useful because back in the day we worked with E-MU samplers, and they did give you a particular sound. It was harder to emulate that with early soft samplers, but now that there are more advanced ones and better plug-ins, we can get really fat drum sounds that previously were only attainable with that old kit. These new things help us get up to the standard of sound that we used to have with hardware."

Brad: "There's also a tambourine the lads recorded, which has got a bit of reverb on it. Generally, for their recordings, I use Logic's Space Designer. I go for the Old Vintage preset, which works really nicely as a kind of overall reverb for everything."



Guitar

Brad: "I took a really simple approach to the guitar group: I just used Logic's Compressor and Logic's Tape Delay. I haven't even EQed it at all!"

Dom: "If we find that an instrument has a really nice overall sound to it, it's a very good starting point for mixing the rest of the track. If you've got a really nice guitar sound like this and you don't feel like there's too much low end in it, you can just go with it. It's really nice to be able to build the track around something that you know is good already. Quite often, if we take a synth line in from the Moog, it sounds so good that we build everything around it, rather than taking anything out of the sound or adding anything at all."

Brad: "I also used KingDubby on some of that guitar. It's a free plug-in and the delay is always completely out of time - a bit like a Space Echo - but it sounds nice."

Dom: "It's great for us because we've got a real Space Echo and a few years ago we used it in just about every track. We were always looking for something that could replace it for when we were working on laptops on the move and stuff like that, and KingDubby is the one that really does the job. It's brilliant!" cm



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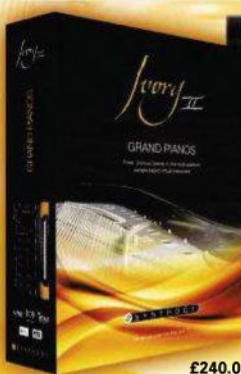


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Keeping it real

Badly programmed virtual instruments can make a track sound robotic, but with these techniques you'll fool even the sharpest of ears



> **Virtual instruments have improved in leaps and bounds in recent years, but it's still all but impossible to find a perfect trumpet emulation that fools listeners into thinking that Louis Armstrong is right there in the room with them. You can work your fingers to the bone creating a beautiful melody, but it's all in vain if the essential human touches aren't there.**

Many producers mistakenly consider a DAW's humanise functions to be their only option when it comes to adding real-life performance characteristics to MIDI parts. However, you can achieve so much more with a bit of technical know-how and some clever programming.

In this tutorial, we're going to blow, bow and strum three groups of virtual instruments into convincing reality. We'll be adding breaths, mutes, finger sounds and slides to some basic multisampled instruments in order to bring stiff patches to life. Keyswitching is an important aspect of any good multisampled instrument, so we'll also be exploring how to get the best from those hidden articulations.

On the **cm** DVD you'll find a collection of great Kontakt patches with which you can try out the techniques we discuss for yourself. You would expect this kind of thing to appeal primarily to those writing parts for orchestral instruments, but we'll also be showing you how to transform those sleepy samples into soulful solos for use in your pop, rock and dance tracks. In order to clearly demonstrate the techniques that we're illustrating, many of the walkthrough examples might seem a bit over-humanised - we've done this deliberately so that you can clearly hear the effects of our tinkering. Remember, however, that making instrument emulations sound realistic is a very subtle discipline, so exercise taste and discretion at all times. Otherwise, you risk your pieces ending up sounding like a high school band rehearsal.

So, say goodbye to robotic ROMplers, and hello to convincing, realistic MIDI performances - let's get programming!

> make music now / keeping it real

> Step by step

Mixing MIDI sections with pre-recorded phrases



1 > We build melody and harmony lines using the staccato and legato patches from Cinesamples' Hollywoodwinds. We double some parts with the woodwind sustains from ProjectSAM Symphobia. Two ROMplers running in tandem like this help to smooth over the inconsistencies in each. We double the octaves in the last section, reinforcing the melody. (Audio on the **cm** DVD: **Woods-melody.wav**.)

2 > Next, we load up some woodwind runs and short sections to weave around the melody. When doing this, be careful not to overpower the melody or double the instruments unrealistically. For example, don't layer a flute run over another flute melody, as a real orchestra only has three flutes, which normally all play in unison or harmonic pairs. (Audio: **Woods-prerecords.wav**.)

3 > The sections complement each other when mixed together, with just enough realism to fool the ear (**Woods-final.wav**). Of course, you would very seldom hear only woodwinds in any track, so we add the rest of the orchestra in a rough mix using more sounds from Symphobia. You can hear how the track ties together with the extra instrumentation. (Audio: **Woods-orchestration.wav**.)

Wind instruments

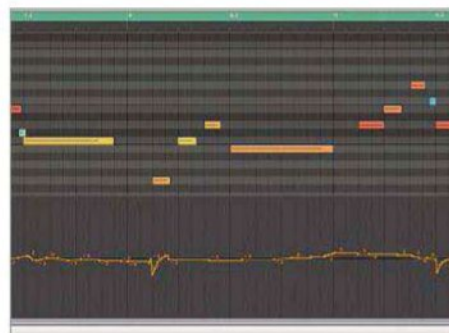
Let's deal with the trickiest first: sampled wind instruments are probably the toughest of all emulations to program realistic MIDI parts for. Take the saxophone, for example. Sax players not only bend notes using the reed itself, but there's also a lot going on with the lips, tongue, throat and diaphragm. Then there are all those complex overtones and harmonics found bouncing around in the horn, interacting with each other. Yes indeed, there's a very good reason that most wind instrument plug-ins and ROMplers sound rather flat by default.

The wind instruments that are most viable for realistic emulation are those that can hold reasonably long sustained notes without too much tonal change. Flute, French horn, clarinet and - to a certain extent - trumpet can be played in legato style reasonably naturally via MIDI. As soon as the phrasing becomes faster, however, the fakery behind the music inevitably becomes more obvious.

One of the most effective ways to build more intricate wind parts is to mix audio clips with programmed MIDI passages, in order to fool the ear into thinking that the whole thing is a single lifelike performance. The audio clips could be whole runs of notes, special effects or even samples of the player breathing and moving while playing the instrument.

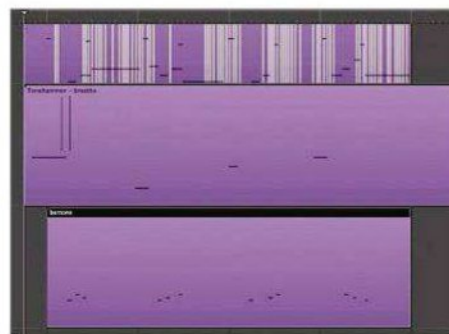
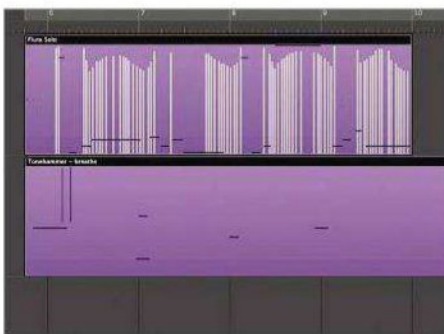
> Step by step

Adding breath and finger sounds



1 > In Garritan Personal Orchestra, we call up the flute's keyswitch articulation and add a high-pass filter to the track. We draw the frequency envelope in manually, but we could also tie the filter to the modwheel or control it via velocity. The idea is to make the staccato notes bright and the longer ones relatively dull. (Audio: **Flute-highcut.wav**.)

2 > The pitchbend is adjusted throughout the refrain, again adding delicate (although barely discernible) human imperfection to the track. Next, we add some short notes at low velocity (in blue). These are called grace notes and are used by wind players (and other musicians) to add interest to a simple melody. (Audio: **Flute-pitch.wav**.)



3 > Next, we use a 'short breath' patch from the Terri solo voice library from Tonehammer (www.tonehammer.com). The samples are on the **cm** DVD, but you could always sample your own inhalations or find an acappella track and capture only the short breaths before lines. We insert the breaths just before each phrase, changing the pitch each time to prevent repetition. (Audio: **Flute-breaths.wav**.)

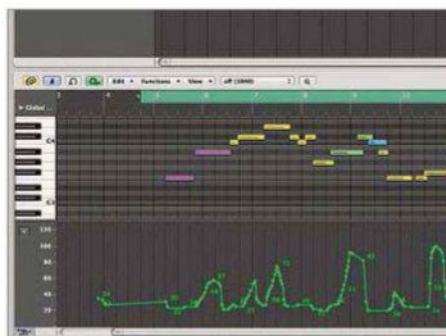
4 > Finally, we use another Tonehammer library, Phonehammer Buttons (also on the **cm** DVD), to add very short noises. These imitate the sounds of the keys falling back onto the pipe during the staccato sections. You could just as easily use samples of any small knocks or even edit a drum sound. Just keep it very low in the mix. (Audio: **Flute-final.wav**.)

> Step by step

Using crossfades to emulate a brass mute



- 1** > For this walkthrough, we're using Sample Modeling's The Trumpet, an excellent solo trumpet for the Kontakt sample player. You could use any brass soundset, although you will need two versions of the same instrument. We start by recording a basic melody using just key velocity and expression via MIDI CC11. (Audio on the **cm** DVD: **Trumpet-expression.wav**.)



- 2** > Next, we draw in more expression curves to provide some growl and tonguing. We also draw in the speed and depth of vibrato. Next, we copy the MIDI information to **Track 2** and send it to the Mute trumpet patch. We export and load the tracks into Logic's EXS24; you can use any software sampler with assignable sample crossfade. (Audio: **Trumpet-nomute.wav**, **Trumpet-mute.wav**.)

EXS24						
	Sample		Vel. Range			
ment	Start	End	Fade	On	Lo	Hi
#3	200000	1671168	0	☒	87	127
#2	200000	1671168	0	☒	0	86

- 3** > The samples are mapped to two different zones in EXS24, but triggered from the same MIDI note. We turn off the **Pitch** option and set the zones to trigger at different velocity levels by ticking the **Vel Range's On** checkbox, then setting the natural trumpet to trigger at velocities **0-86** and the mute trumpet at **87-127**.



- 4** > Back in the front panel of EXS24, we set **Velocity** to be controlled by CC1, the modwheel. As you play the patch and move the wheel, it will switch between the two samples (Audio: **Trumpet-mod.wav**). This is a bit abrupt, so we change the **Amount** to **+/-10** to smooth the transition slightly. This creates a sweet spot on the mod wheel where the sample switches. (Audio: **Trumpet-sweet.wav**.)



- 5** > Now delete the original two tracks and record a new one. Hold the note and adjust the mod wheel to simulate a trumpet player opening and closing the end of the trumpet with a mute. We've added a little reverb and a guitar line to create *The Good, the Bad and the Mod Wheel!* (Audio: **Trumpet-final.wav**.)

POWER TIP

>Take it further

We've used this technique on a whole musical phrase, but you could crack it out for single notes mapped across the keyboard for almost any instrument. All you need is two or more variations on the same instrument. You could even use it to mix in a continuous breath sound on one layer with the instrument sound on the other.

With the right software, you can take things a step further by morphing between sounds rather than simply crossfading. Software like Prosoniq's Morph can create a smoother transformation between samples. This particular plug-in recognises similar elements in your two sounds and then automatically matches them for you.

Programming the winds

1 As with any other instrument, the more expression patches you have at your disposal, the better, so get hold of the most expansive sample libraries/ROMplers that you can. If you're concerned about the realism of any particular instrument, double it up with another to disguise its flaws.

2 If you want to go all-out, invest in a wind controller. This is a kind of oversized MIDI recorder that can be blown into to create realistic dynamics envelopes, and configured to control simulated breath sounds as well as vibrato and portamento. It doesn't matter if you can't play a wind instrument, as most can be set up to only use the incoming breath expressions, while you use your MIDI keyboard to input note values.

3 Adjustable tonguing, growl and slur are essential in simulating wind instruments effectively, and the trombone also needs pitchbend for the slide. It's hard to program all of these simultaneously while playing a wind part live, so go for the parameters that have the biggest impact on the sound first - expression and vibrato. The other envelopes can be drawn in later.

4 Think about the limitations of the human player. Note duration will be limited to the performer's length of breath, and will shorten at higher velocities as the player's lungs blow harder and faster through the instrument. Emulate this by blowing along with the wind part that you're writing - when you run out of breath, split the currently playing note.

5 Pitching on wind instruments is rarely 100% precise. Much like string players, wind players correct pitch errors after a few milliseconds. During fast runs, valve instrument players (eg, trumpet and french horn) are physically unable to depress each valve fully before moving onto the next note, resulting in many half-tones and some slurring between pitches. Emulate this by mistuning the starts and ends of notes with pitchbend, or by heavily muting some notes during a run.

6 All blown instruments are relatively quiet compared to other families of instrumentation. Bear this in mind when mixing and refrain from pushing too much volume out of single instruments. If you want an instrument to stand out in the mix, EQ it differently, double it with another or use a brighter alternative like a piccolo or trumpet.

Guitar

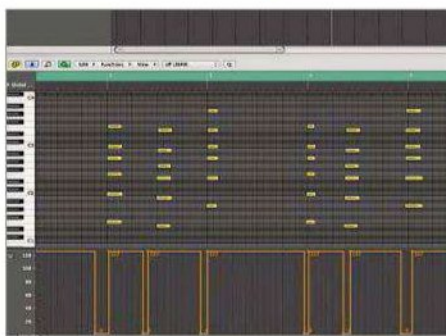
The guitar is a notoriously tricky instrument to emulate with MIDI programming. There are some very good plug-ins out there that can help you to achieve a realistic sound, but they need to be played and processed in the same way as a guitarist would play a real guitar to sound truly great. So, success involves allowing for and programming playing errors, and recreating the sounds of finger movements on strings.

There are essentially two ways to play the guitar: strumming the hand across all of the strings to produce a chord, or plucking the strings with fingers or a plectrum to produce separate notes. A strumming action always sees the player's hand move from the top to the bottom string, or vice versa, which means that strings are never played quite together.

The first thing you need to do to emulate this is turn quantise off in your MIDI sequencer. The strumming movement can be emulated on a MIDI keyboard by rocking your hands from the thumb to the little finger backwards and forwards. The other option is to enter MIDI notes by hand, but this can be tricky and time-consuming. Some plug-ins help you out by providing pre-recorded up and down strums to use as a starting point. A sustain pedal is useful for holding chords until the next chord progression starts.

> Step by step

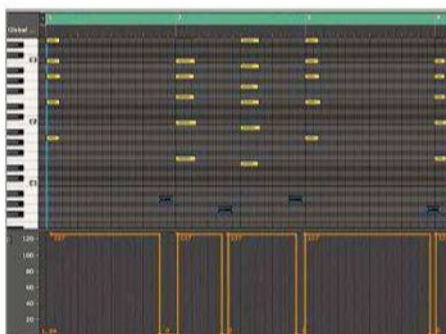
Making a realistic strumming sequence



1 > We load our multisampled guitar library - Indiginus Acoustic Guitar Collection - into Kontakt 3. You can use any patch you like, but we've included one from the Indiginus Collection on the **cm** DVD. We map out a simple chord sequence, using the sustain pedal to hold the notes and releasing them before the next chord. (Audio on the **cm** DVD: **Git-a-original.wav**.)



2 > The sequence sounds a bit robotic at the moment, so we move the notes manually into tight arpeggio groups, always strumming from the bass note up the frequency range. Note that there are always six notes in the chords, and they roughly correspond to real guitar finger positions. (Audio: **Git-a-moved.wav**.)



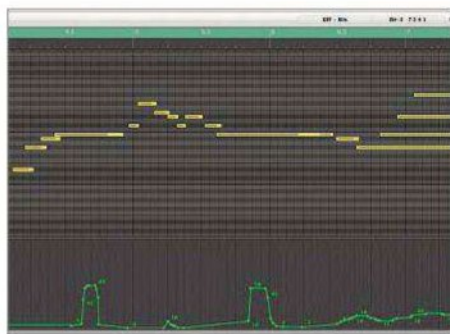
3 > Next, we add a subtle guitar slap sound as each chord ends. These are at the lower end of the keyboard in our patch. As the sustain pedal comes off each chord, we use the sound of a finger on the fret board to simulate the chord being cut off. We do this at low velocity to make it as light as possible. (Audio: **Git-a-stops.wav**.)



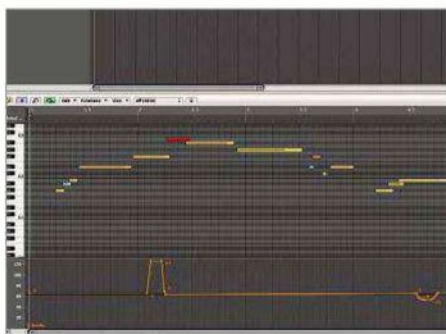
4 > All that remains is to fill in the gaps with a few on-beat strums on a separate track, remembering to keep the chords the same. It's a good idea to miss out the top notes of the chords on these extra strums. Real guitarists use this technique to give rhythm to the section while maintaining the leading notes in a sustain. (Audio: **Git-a-final.wav**.)

> Step by step

Programming a realistic guitar solo



1 > We're using the Indiginus Acoustic Guitar Collection Kontakt library again. Different articulations are available throughout the increasing velocities, but your ROMpler or multisample set might have keyswitch articulations instead. We sketch a freestyle melody using the bend and mod wheels to add small adjustments to pitch and vibrato. (Audio on the **cm** DVD: **Git-s-original.wav**.)



2 > Next, we adjust velocities in order to trigger alternative articulations in Kontakt. The fast runs of notes trigger the short muted samples (low velocity) and the high notes are finger slides (high velocity). (Audio: **Git-s-velocity.wav**.)



3 > We finish off by putting in finger stops at the end of each phrase to replicate the changing of finger position by the player, as in the walkthrough above. We then give the whole piece a little warmth and make the stops less obvious by adjusting the EQ, boosting 3dB around 2kHz and rolling off the bass frequencies a little. (Audio: **Git-s-final.wav**.)

> Step by step Heavy metal rhythm and lead guitar



1 > We build a basic chord sequence using Impact Soundworks' Shreddage in Kontakt 3 - but you can use any guitar library that includes chords. It's best to program this without any effects initially; if you can achieve a realistic sound without using distortion, etc, you're half way there. Instead of looping, we repeat the sequence and humanise it to keep the track fresh. (Audio on the **cm** DVD: **Git-r-loop.wav**.)



3 > Next we compose a fast lead line on a new track. The secret to great rock guitar leads is pitchbend and lots of frantic picking. We use our sequencer's humanise function again to move velocities and notes, adding realism. Don't go mad with the pitchbend, though - just use it to accentuate certain sustained notes. (Audio: **Git-r-lead.wav**.)



5 > Finally, we embellish the tracks with short pre-recorded samples. We use a pre-recorded guitar 'fall' to lead into the track. We then tie the lead and rhythm guitar sections together with a simple rock beat and push the result through iZotope Ozone 4's **Rock** preset for convenience. (Audio: **Git-r-final.wav**.)



2 > Now for effects. We add our favourite guitar amp plug-in and crank up its distortion (**Gain**) setting, although any kind of distortion/overdrive plug-in will do. We turn down the **Treble** and **Mids** EQ by 20% each and add a small amount of reverb. Next, we pan the track left a little to leave space for the lead track on the right. (Audio: **Git-r-distorted.wav**.)



4 > Set up your desired effects plug-ins on the lead track. We brighten the **Mids** and **Treble** EQ to make the lead line stand out against the power chords on the first track, and add slightly more reverb on this track, making the guitar really sing. Next, we pan this track to the right. (Audio: **Git-r-lead-dis.wav**.)

POWER TIP

>Improvise a sound

If you don't have a dedicated rock guitar ROMpler, don't stress out: you can use the sound of any picked instrument as a decent substitute. In step 3 - which is prior to distortion and overdrive effects being added - you can hear how our picked guitar line sounds rather like a banjo! By playing about with distortion and overdrive effects, you can disguise the original sound quite effectively. Have a go!

Top tips for realistic guitars

1 When programming strummed chords, remember to only use chords that guitarists regularly play. www.chordbook.com is a great site, featuring a virtual guitar that strums the chord you're after and names the notes it contains. Play these notes back on your MIDI keyboard to create a realistic strum. On the **cm** DVD is a PDF that explains how common guitar chords are played on a keyboard - check out **GuitarChordVoicings.pdf**.

2 When using pitchbend on rock guitar tracks, bear in mind that a guitarist can't pick the strings and use the whammy (pitchbend) bar at the same time. Hence, big bends should be used sparingly. The musician can also create bends by pushing the strings with their left hand, but one or two semitones should be the maximum bend within a picked sequence of notes.

3 It's the sounds you leave out that will blow the cover of your guitar patch. Finger slide sounds and release stops should always be included - omitting these will make your guitar sound as if it has a mechanical plucking mechanism! There are loads of these samples in Kontakt format on the **cm** DVD, courtesy of Impact Soundworks.

4 There are lots of multisampled instruments and ROMplers out there, but the two Kontakt patches we use here are ideal because of the ease with which their articulations can be velocity-switched.

Indiginus (www.indiginus.com) produce a great collection of acoustic guitar patches for £35, with ten guitars to choose from, and the StrumMaker plug-in for creating your own strumming loops.

Impact Soundworks' (www.impactsoundworks.com) Shreddage includes double-tracked patches, which are great for producing rhythm guitars, as different effects can be applied to left and right channels separately.

5 When a guitarist plays high-tempo rhythm chords, they won't completely mute the strings in between each note. So, you should use fast muted articulations for the 16th-notes and then go up to normal mutes for the eighth-notes. These eighth-notes should all be as long as possible, edged right up against the start of the following note. Dragging the end of each note to the very beginning of the next ensures a continuous vibration from the string, with realistic attack rhythms.

String instruments

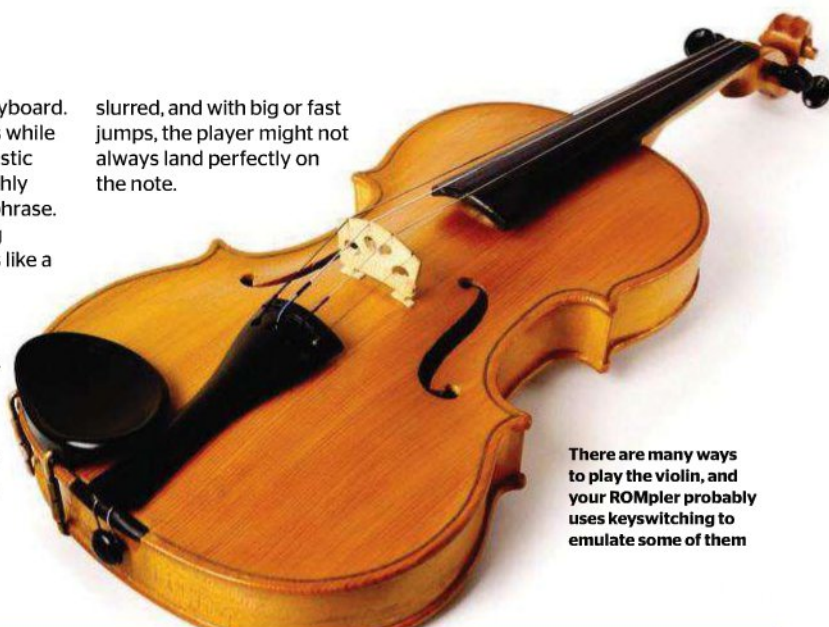
All bowed string instruments can be played in a huge range of different ways. A violinist, for example, will vary the tension of the strings, the position of their fingers on the neck of the instrument and the firmness with which the bow is pressed, not to mention the speed of the piece, the angle of the bow and many other factors that contribute to the instrument's sound.

In ROMplers and sample libraries, some of these articulations are often captured and allocated to keyswitches. Using a MIDI keyboard, the right hand plays the notes while the left hand picks out a specific sample bank by selecting different

keys at the bottom of the keyboard. Clever use of these switches while playing can create very realistic sequences if you know roughly how a player would form a phrase.

Because orchestral string instruments don't have frets like a guitar, players can slide smoothly from one note to the next by moving their hand up and down the neck. This is called portamento and you'll recognise it from any number of romantic Hollywood scores. Bear this in mind when writing string parts, as jumps from one note to the next can be

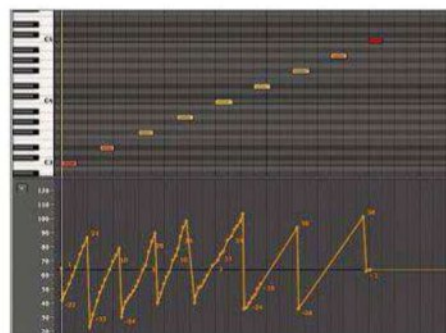
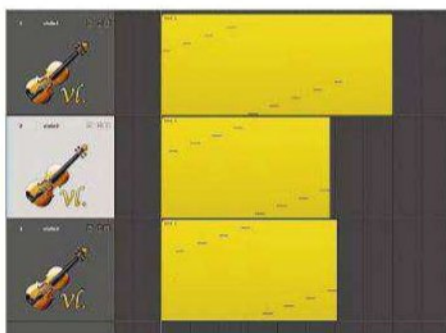
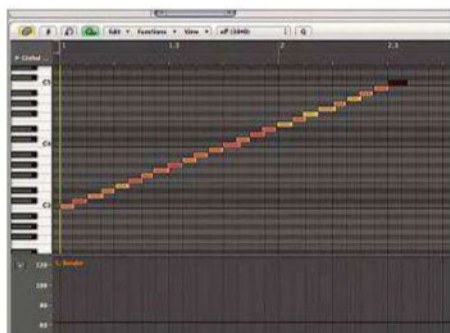
slurred, and with big or fast jumps, the player might not always land perfectly on the note.



There are many ways to play the violin, and your ROMpler probably uses keyswitching to emulate some of them

> Step by step

Emulating portamento on fast string runs



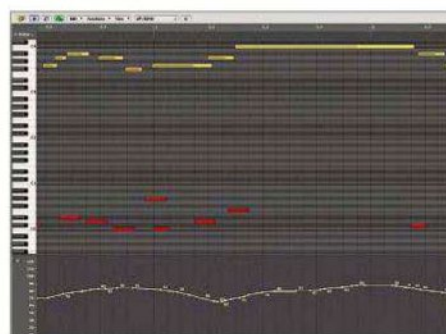
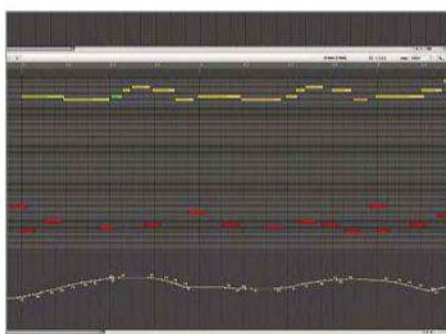
1 > We're using three different violin patches from Garritan Personal Orchestra, but you can use any sampled violin so long as the pitchbend wheel can be set to cover one or two semitones. First we sketch out a fast run with our first patch and no effects. It's easiest to record this sort of thing into your sequencer at a slow tempo, then speed it up. (Audio on the **cm** DVD: **Vruns-original.wav**.)

2 > We copy our sequence onto another two tracks, each with different violin patches loaded. If you don't have access to different patches, use the same one on each track, but add EQ and compression to slightly alter their tones. Alternatively, you could use a cello or viola and transpose the notes. Next, pick out every third note on each track and delete the others. (Audio: **Vruns-3rd-notes.wav**.)

3 > Now, draw pitchbend automation on every track: you want to create a sawtooth sequence that builds, then drops suddenly. This will create the slur between notes that we need to emulate the sound of the violinist not hitting every string note-perfect. Finally, apply a reverb to the three tracks to tie them together. (Audio: **Vruns-final.wav**.)

> Step by step

Using multiple keyswitch articulations



1 > Load a sampled string instrument that features at least three or four keyswitch articulations. We're using the Yalli Tambur from EastWest. We input the sequence using just one sustain keyswitch articulation and the mod wheel for expression. (Audio on the **cm** DVD: **Ethnic-original.wav**.)

2 > Next, we zoom in tight and pick out the notes one by one, adding a different keyswitch trigger (in red) before almost every one. We use a sound with a short attack for notes falling on the beat and one with a slower attack for the faster runs. We adjust the velocities to compensate for the various articulations' different volumes.

3 > Finally, we use a couple of more idiosyncratic switches on a few of the longer notes. These feature pre-recorded pitchbend and tremolo. Listen out for pitch-adjusted articulations that can replace parts of your sequence for a more realistic effect - ours has a slide instead of a run at the five-second mark. (Audio: **Ethnic-final.wav**.)

> Step by step **Fattening up a weedy string section**

1 > We're using the EastWest Hollywood Strings ROMpler, but you can use any sample library that offers a selection of string sections. Make sure you use clean or close-mic patches. First we record a violin melody, using the mod wheel for expression. We copy this data to some harmony tracks to give the illusion of the section rising and falling as one. (Audio on the **cm DVD**: **Legato-original.wav**.)



2 > Next, we create a blank MIDI track and copy/paste all of the sections onto it. We assign a contrasting string library to this track - a full strings patch from Symphobia. As it's a different library to Hollywood Strings, with different settings, we need to edit the velocity data a little to make it sound balanced. (Audio: **Legato-symphobia.wav**.)



3 > Using EQ, we slightly cut the Symphobia part between **200Hz** and **5kHz**, and boost the bass and treble. This ensures that our fattened effect doesn't muddy the central spectrum of the track and is just noticeable at both the upper and lower ends of the frequency scale. (Audio: **Legato-eq.wav**.)



4 > Next we add a delay. The aim is to simulate the slightly off-the-beat nature of a number of string performers playing together, so we create a short 16th-note delay with just a couple of feedback repetitions. We keep the **Dry** mix full and mix in **40%** of the **Wet** channel. (Audio: **Legato-delay.wav**.)



5 > Finally, we lower the **Pitch** of the Symphobia patch by **5 cents**. We also add a pitchbend envelope, but you could just as easily detune the whole plug-in. We add a reverb to the master track to tie everything together - a **Dry/Wet** mix of **80/20** sounds good. Comparing the track to the original, there's a subtle but effective difference, giving the illusion of a larger string section. (Audio: **Legato-final.wav**.)

POWER TIP

>Cover the cracks

This technique works very well when working with two cheaper, less articulate libraries, as the doubling-up masks any obvious repetition of samples. As you can hear from our audio example, the sound is pretty massive, so you will need to experiment with the wet/dry and delay ratios of the 'backup' track to suit your particular needs. Because our piece is quite slow, we can keep the reverb and delay quite noticeable, but for faster passages you may need to drop the volume of these tracks to stop the string parts becoming muddled as they run over each other. A rule of thumb: as the playing gets faster, ease up on the effects.

Programming the strings

1 Never use quantise if you can help it. All realistic string samples have an attack of between 20 and 30ms, and dedicated legato string patches may have as much as half a second. Quantise will make your strings play slightly behind the rest of the track. If it's necessary for your strings to be exactly on the beat (with staccato sections, for example), mute everything else and check the string timings against your DAW's metronome, then delay the entire track by manually moving the starts of the sections back a little.

2 When using short patches for string runs in which one note runs into the next, you don't need the 'release' samples. Purge them from RAM entirely if your plug-in gives you the option. If it doesn't, adjust the envelope Release time to 0 in your sampler, or set Number of Voices to 1. This will cut down on RAM and CPU usage as there's no need to play the release portion of every note during runs.

3 Invest in an expression pedal for playing 'live' strings. This will cut down on later expression envelope editing. With some practise it's possible to master playing the melody with your right hand, while controlling vibrato with the left and dynamics with your foot.

4 Very quiet strings can be hard to get right, especially in the higher registers, where they often sound too sharp. Use an EQ filter to cut the top end, but raise the **Cutoff** as the notes become louder. This will brighten the frequency subtly as the playing velocity increases.

5 When writing chords for strings, less is more. To create a full sounding chord you may only need three or four notes. This can be done very effectively by having each of the sections (violin, cello, etc) play just a single note.

6 Don't forget to double up. Many composers use string sections an octave apart to reinforce a theme or melody. This works especially well with first and second violin sections but can be used across the whole range of string instruments.

7 Change articulations often: the ear will quickly tire of hearing the same samples played over and over. Most decent libraries come with a few different sampled note lengths and sustain patches, so switch them around to keep your piece sounding fresh.

Resources for realism

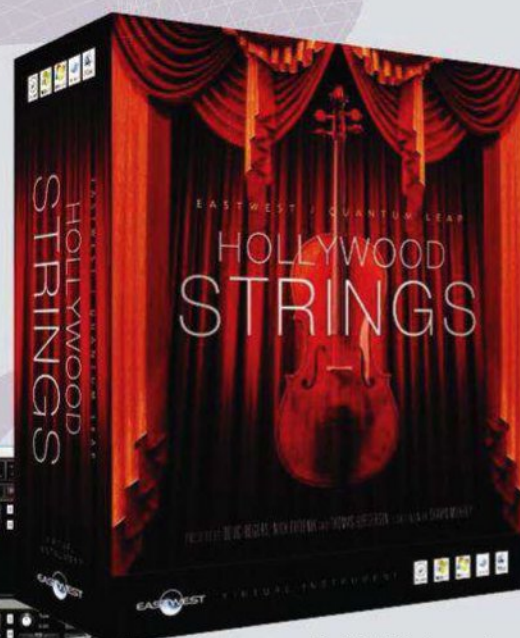
There's a wealth of information available online to help you learn the limits and possibilities of various instruments. The Vienna Academy at vsl.co.at/en/70/149/152/48.vsl offers tons of advice on orchestral instrumentation, including an extensive library of playing styles, all with audio examples. There's also a great online book at www.scribd.com/doc/19072922 to help you put these ideas into practice.

Post your efforts on SoundCloud or MySpace and invite criticism from real-life players. If you know someone who plays an instrument, talk to them about what works and what doesn't within your pieces. They'll be able to pick the wheat from the chaff in seconds.

It's difficult to learn to write and program realistic parts if you confine yourself to listening to the efforts of others who use only sample libraries. Get yourself along to some concerts and recitals to hear the real instruments in action. Try to focus on just a single player or group of instruments, rather than getting carried away with the whole soundscape – remember, this is a learning exercise.

There are also many groups on SoundCloud you can join and poach ideas from while listening to real instruments perform. We had a look and found groups such as 'Instrumental Acoustic Guitar', 'The Flute Group' and 'The Beautiful Violin' that contained some great examples of real-world playing styles.

Finally, learn the basics of an instrument. There are always plenty of second-hand instruments for sale online, as kids give up music lessons every day. Pick up an old, duff one for a few quid and try some online lessons from sites like eHow. A couple of hours won't make you a virtuoso, but you'll learn techniques that can be transferred to your ROMpler programming.



EastWest's Hollywood Strings (above) is a massive bespoke string section ROMpler

Libraries for samplers like Kontakt have the advantage of a standardised interface

Virtual instrument buying guide

Opening a sample library and being confronted with hundreds of different playing abbreviations can be a bewildering experience. But although it's confusing, in the world of sample packages, bigger is almost always better. Take EastWest's recently released Hollywood Strings as an example. It only contains section strings (no solo instruments), but it still weighs in at a vast 350GB. The reason for this is simply the amount of variation on offer.

The good news is that we're here to help! Look out for the following features when investing in a sound library:

MULTISAMPLES

In smaller libraries, one sample can be spread across several notes but changed in pitch or timestretched. Multisampling means that every individual note from the instrument has been sampled across the keyboard.

VELOCITY LAYERING

A layered instrument has been sampled at different velocity levels, from soft to hard, providing huge variation in brightness and tone. In dedicated ROMplers,

different velocities can often be crossfaded by moving the mod wheel, and some even apply sound morphing to the samples for a smoother transition.

ARTICULATIONS

Different playing techniques can be captured and arranged within the sample library. Selecting a particular articulation is normally done via keyswitching at the lower end of the keyboard, or by changes in velocity. Some ROMpler engines can analyse the playing style and automatically switch articulations accordingly.

MICROPHONE POSITIONS

Some ROMplers and sample packages are recorded through a range of mic positions. This is normally a combination of close microphones, surround effect mics and other specialised options. Mixing these different mic channels together gives the instrument a more realistic ambience than just slapping a reverb plug-in on it.

TRANSITIONS

Look out for sample packages that don't just sample the notes,

but also the transitions from note to note – the slide between notes on a cello, for example, or the fall and rise of a trombone slide. These realistic transitions are often called 'legato' patches, and although the changes are subtle, they can make the difference between believability and an obviously synthetic part.

AFTERTOUCH

This isn't a deal breaker as the effect can also be programmed manually, but aftertouch is really useful to have pre-loaded. With it, you can achieve effects such as realistic crescendos without having to program control envelopes using MIDI expression.

ROUND ROBIN

This sample playback technique aims to reduce the machine-gun effect that occurs when a sample is played repeatedly in rapid succession. It does so by choosing from a pool of three or four separately performed/recorded samples per note. These samples will all sound essentially the same, but the subtle differences between them make for a much more believable sound when the

same note is played repeatedly. Larger libraries will use different samples for each note and articulation; smaller ones might subtly alter the notes by selecting differently pitched notes and retuning them, or using EQ filters on a sample to add variation.

DEDICATED ROMPLERS VS SAMPLE LIBRARIES

Whether purpose-built ROMpler engines are better than sample libraries loaded into general-purpose samplers like Kontakt, EXS24 and HALion is a subject very much up for debate. On the plus side, ROMplers are built specifically around the sounds they contain, and such bespoke tailoring can make for extremely realistic results when it comes to programming instrumental parts. On the other hand, every ROMpler you buy can delay the music-making process, as you spend time getting your head around its particular intricacies.

It's worth pointing out that some ROMpler packages do enable you to use their sample libraries with universal sample players, like the aforementioned Kontakt, EXS24, HALion, etc. cm

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Software **xOx-box** revival!

Roland's mighty xOx-boxes were kings of the studio, defining the sound of dance for a generation. We go retro with software emulations of these classic units



Our Ableton Live project and rendered final mix can be found in the Tutorial Files folder



> Roland. Can there have been a company in music technology responsible for minting more classics? At the top of their pile of genre-defining boxes you'll find the TB-303, TR-909 and TR-808. All legends, all genre-defining in so many ways, and all still massively influential, despite being nearly 30 years old. Their continued desirability comes as no surprise when you look at the sheer volume of immense tunes that have been produced using them.

Let's start with the TB-303 - the single most charismatic single-oscillator monosynth ever made. If you can name another one that oozes as much class, character and unique tone as the 303, we'd love to hear about it.

Originally intended to offer bass accompaniment to gigging guitarists - the TB standing for 'Transistorized Bass' - the TB-303 was over-engineered to a gloriously huge extent. Sure, it could reliably hammer out walking basslines galore for anyone who could penetrate its highly opaque programming interface, but why a traditional musician would ever want to turn any of its six rotaries past 1 on the dial was hard to fathom. For those that did, though, the sonic rewards were returned in abundance.

Where the 303 adds infectiously wobbly acid bass and lead sounds, the TR-909 is its partner in crime on drums and percussion. (Strictly speaking, the 303 was actually designed to partner the TR-606, but the 909 ended up taking centre stage for house and techno producers - a great example of how creativity can take technology in an unexpected direction.)

Feel the beat

And then there's the TR-808. No other drum machine has contributed more to the rhythm sections and backing tracks of electronica and hip-hop. From that low, speaker-shaking kick drum to those perky percussion sounds, the 808 defines super-phat beats like no other.

In this feature we're going to look at how these machines worked and why they came to prominence back in the 80s, and take a bash at building a complete track using various virtual incarnations of Roland's awesome boxes.

"From that low, speaker-shaking kick to those perky percussion sounds, the 808 defines super-phat beats"

Big beats: The TR-909



The TR-909 doesn't allow for much sonic tweaking, but circumstances saw its popularity take off just as house and techno arrived

The TR-909 drum machine was released in 1983. Look inside it and you'll be astounded at the number of components mounted on its dual-layer circuit boards. The cymbals and hi-hats are sampled, while all other sounds – kick, snare, low/mid/high tom, rim shot and handclap – are synthesised.

The use of synthesis means that the sounds can be modified to a certain extent, enabling the user to dial in rudimentary changes. It's also said that tiny voltage variances in the synthesiser circuitry make for subtle differences to the output over time, making each hit sound different to the last. Being sampled, the cymbals and hi-hats can only

have their decay (and in the case of the cymbals, tuning) adjusted. Welcome to 1984, folks!

The other key part of the 909 is its rudimentary 16-step sequencer, which allows for very little in the way of sophisticated rhythmic programming. Flam and Accent introduce a bit of depth, but that's your lot in terms of embellishment.

There's no limit

Despite all these limitations, the arrival of house and techno in the mid-to-late 80s, and a price drop on the 909 due to the arrival of more impressive sounding sample-based drum machines soon after, made Roland's drum machine a ubiquitous

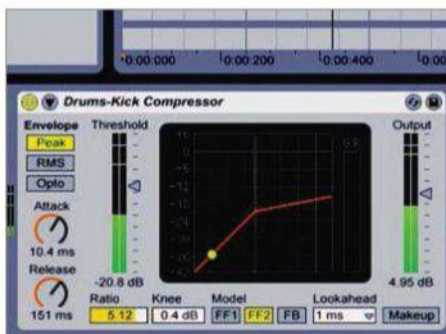
favourite among experimental musicians and producers.

To this day the TR-909 is still considered a cornerstone of the house and techno scenes, so it's no surprise that there are a number of superb software emulations available, two of which we're using here to create our old-skool acid track: D16 Group's Drumazon (www.d16.pl), a faithful recreation of the original 909 with a stack of extra functionality squeezed in; and AudioRealism's ADM (www.audiorealism.se), which brings the key sounds from all of Roland's seminal beatboxes together in one plug-in. Let's start by building a solid beat.

> Step by step TR-909 drums with ADM



1 > The first thing we need is a four-to-the-floor kick, so we load AudioRealism's ADM and draw 909 kick drum hits in on beats 1, 2, 3 and 4 in our MIDI sequencer (Ableton Live). This is going to form the bedrock of the track, so we really need it to thump.



2 > Next up, a little compression to bring out the snap and give it some body. We drag in Live's Compressor plug-in and set the **Attack** to about **10ms**, **Decay** to about **150ms** and **Ratio** to about **5:1**. We then bring down the **Threshold** until we hear the kick start to fatten up.



3 > Next we're bringing in another ADM, this time just to drop some incidental toms at the end of the bar. Again, it's classic 909 style all the way. These sounds require a bit of work to bed in, so with Live's Compressor, Overdrive and Filter Delay at the ready, let's move on.



4 > We've fudged the above screenshot so that you can see the settings on all three effects at once, so pull up the plug-ins or their equivalents and copy our settings. Compression is used to tighten up the tom, a little Overdrive gives it a bit of an edge, and the Filter Delay introduces a 3/16 echo.



5 > Let's bring in some more percussion in the shape of the 909 rimshot. We bring these in on the same ADM as the tom tom, placed on 16th-notes 1, 4, 7, 10, 12 and 16. We'll add a bit of variety later on, but this will build up our percussive base nicely for now.

POWER TIP

>Grit and crunch

Back in the day, a good technique for adding grit to a sound was simply to overdrive each signal through an analogue mixer channel. This added a certain crude but effective compression to the signal and crunched up whatever was being shovelled through it, giving it some edge. Combining sounds on a channel to get them interacting – as we're about to do with our 808 loop – and pushing them through an overdrive effect can disguise and nicely distort even the most meek of sounds.

Lower than low: **The TR-808**

The TR-808 hit the market in 1980, shifting 12,000 units before being discontinued in 1983, largely due to the birth of more sophisticated sampling drum machines.

Before it bit the dust, the 808 found favour with established musicians across a broad range of genres, from Phil Collins to Ryuichi Sakamoto and the Yellow Magic Orchestra. It also racked up perhaps its most well-known mainstream success as a percussive backdrop to Marvin Gaye's *Sexual Healing*. But it was hip-hop's demand for repetitive, programmed beats and 'that' bass-heavy analogue kick drum that would see the TR-808 embraced by a whole generation

of beat freaks, not least The Beastie Boys, who featured it heavily on their ground-breaking (and chart-topping) long-player *Licensed To Ill*.

The TR-808 has since become a defining force in many genres, such as hip-hop, electro, electronica, techno, house, even drum 'n' bass – such is the magnificent low-end power of that analogue kick drum.

Pick and choose

The same 16-step sequencer as on the TR-808 is used for programming kick, snare, cowbell and hi-hats, and the user can choose between toms or congas, claves or rimshot, and maracas or handclap for additional percussive action.

For our modern incarnations of this uniquely characterful drum machine we turn again to two of the best Roland-inspired plug-ins money can buy. As in the previous walkthrough, we use AudioRealism's ADM, which harnesses the power of all of Roland's classic beatboxes, throwing in an extra filter and sound mangling section for adding dirt to individually selectable sounds. To complement that, we use D16's Nepheton, which not only recreates the sounds of the 808, but also lets us play them all at the same time! After finishing up the drums, we're going to move straight on to bass – see overleaf for more on the TB-303 and the emulations we're using.



The TR-808's heavy analogue kick saw it embraced in many genres, from hip-hop to electro

> Step by step

TR-808 drums and TB-303 bass with Nepheton and ABL2



- 1** > Now to put together a TR-808 drum loop with D16 Group's Nepheton. We're pressing all three conga sounds into service to make a little percussive rhythm. Again, we stack up Live's Compressor, Overdrive and Filter Delay plug-ins, just like we did for our TR-909 percussion.



- 2** > Now we add to the 808 loop with – highlighted from the bottom up – kick, rim shot and laser sounds. Since we're just using drum machines for our track, it's effective to throw in complete loops under the main hits in much the same way that producers would throw in sampled loops.



- 3** > And so to the TB-303. For our first emulation, we pull up AudioRealism's ABL2. We'd usually program 303 riffs on the unit itself (the awkward sequencer often results in happy accidents) rather than the DAW's sequencer, but here we're showing the notes on a piano roll to keep things clear. The higher velocity notes (the deep red sixth and 13th ones in this shot) will trigger the 303's Accent function.

POWER TIP

>All hands on deck

We'll eventually have a trio of 303s running together, so set up your MIDI controller to control all three simultaneously. It may take a couple of passes to get the hang of it, but you'll be amazed at how expressive your synth lines become when you can get hands-on with all of them at the same time. In Live, hit the **MIDI map** button at the top right of the screen, then map your knobs and faders to whichever parameters you want to control.



- 4** > Arrange the intro as we have here. As it progresses, we're going to record some live tweaks to the low 303 part – namely the **Accent** parameter. The sixth and 13th notes in that part are Accents, so you'll hear the 'twang' increase as the track heads towards the first breakdown.



- 5** > At the first breakdown, we use 808 kicks to give some low-end sub-bass action. We also bring in another 303 riff, this time using D16 Group's Phoscyon. Long notes denote a Slide, while the darker red notes are Accents. Program this riff into your 303 emulator of choice to get that slippery acid vibe.

Bass in the place: **The TB-303**



The TB-303 had a huge impact on dance music, single-handedly redefining the sound of house

Roland's TB-303 is probably the most recognisable of all of their classic boxes. Lightweight and plastic in construction, only 10,000 were ever produced, but its impact on modern music simply can't be overstated.

The TB-303 makes its sound using just one oscillator, which can be switched between sawtooth and square wave shapes. While they can be retro-fitted for MIDI control, doing so detracts somewhat from the main selling points of this diminutive monosynth - namely the Accent and Slide functions, as well as the 16-step sequencer.

Programming the 303 is a moderately painful procedure, but

simply jabbing at the keys randomly until the sequencer's 16 steps are full will usually produce usable results - especially when Slide and Accent are introduced to give it that distinctive, slippery acid-style portamento. The 303's almost impenetrable programming interface was largely responsible for its demise... That is, until it was rediscovered by a new generation of experimental producers who used it to redefine house music.

Tweak to win

While the TB-303 is capable of unique tones straight out of the box, the hands-on control of filter cutoff, resonance and envelope

modulation make it a tweaker's paradise. Pump the output through a distortion pedal or massively overdrive the signal through a mixer channel and you're in classic acid-squelch territory.

There are numerous 303 clones available today, and we're using two of the best: AudioRealism's ABL2 and D16 Group's Phoscyon. ABL2 faithfully recreates the 303 in all of its original glory, adding distortion and a high-pass filter. Phoscyon goes further, taking the synth to the next dimension with all manner of new controls. Discover new possibilities courtesy of the dedicated distortion section, plus Env Attack and Step Length settings.

> Step by step

Taking things further with the 303



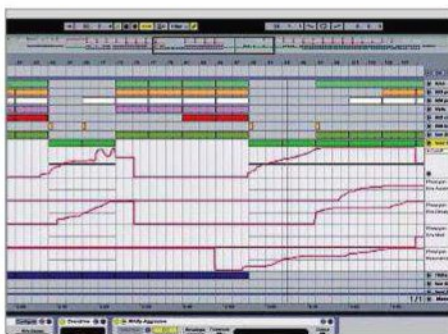
1 > After the first breakdown (bar 33), we bring in the hi-hats and swap the lead 303 riff for a different 16th-note 303 riff to keep things bubbling along. So, first, the hats. Open a Drumazon, and program in a simple offbeat pattern. Then add our usual Compressor, Overdrive and Filter Delay combo to give a little movement and control.



2 > For the 16th-note 303 riff, program this pattern into your 303 emulation. The longer notes denote Slide and the dark red notes are Accents. As well as the low 303 and the lead 303, we now also have a bubbling 16th-note pattern chugging along, adding to the pace.



3 > That 16th-note 303 pattern is making things a little muddy at the bottom end, so let's stick in a basic EQ and roll off those lower frequencies. Live's EQ Three does the trick - drag one into the effects rack and attenuate **5dB** at the **240Hz** mark.



4 > Bar 33 and we're back into it. We add the occasional percussive build along the way (see the next step), but first concentrate on tweaking that 16th-note 303 riff for movement and expression. That takes us up to bar 65, where we head into another short breakdown.



5 > At bar 49 we add some 909 claps from another Drumazon on its own channel - just on beats 2 and 4 - and augment the 808 percussion track with an 808 snare. This track already has delay applied to it to add to the rhythmic bedrock of the track.

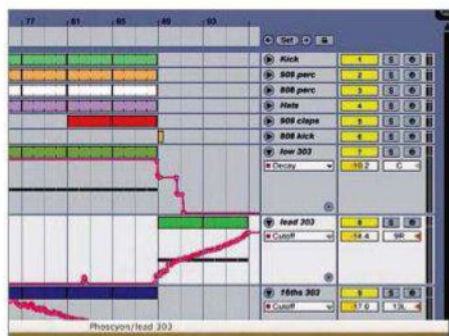
POWER TIP

>Bring it to life

The TB-303 is an amazingly expressive synth, but it really comes alive when the signal is distorted. Happily, both ABL2 and Phoscyon come with distortion capabilities built in! The 303 is also at its best when it's being constantly tweaked. To that end, map your MIDI controller so that you have at least **Cutoff**, **Env Mod**, **Resonance**, **Decay** and **Accent** set up for tweaking in real-time.

> Step by step

Completing our xOx-box track



- 1 > Bar 65, and we're breaking down again! Take the congas out of the 808 percussion part and let it roll with more 303 tweaks until we get to bar 89, at which point we face... The Drop. Take everything out apart from the lead 303 part.



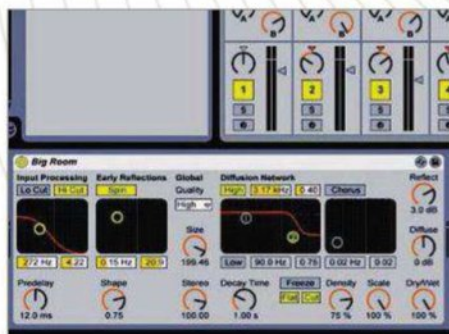
- 2 > Before we animate the lead 303 in the big breakdown, let's lay out the rest of the arrangement as a rough 'wireframe' for now. This is the big one, so take everything out and then slowly build it all up again so that we can really work that lead 303 right up to bar 157.



- 3 > For the big breakdown we want to automate the lead 303. Set up a Simple Delay on a **Return** channel and set the **Delay Taps** to **3/16** and **5/16**, with **Dry/Wet** at **100% Wet**. Assign knobs on your MIDI controller to govern the **Feedback** and **Send** levels, and get tweaking!



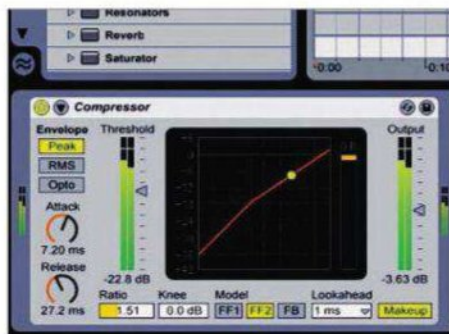
- 4 > As you can see from our controller data, we've gone a bit mental automating the lead 303 **Send** level and delay **Feedback**. All of this excess takes the lead 303 into pretty psychedelic territory, which is exactly what the dancefloors of 1992 were all about.



- 5 > Our delay is on **Return A**; let's set up a big room reverb on **Return B** so that we can experiment with giving other parts some basic spatial positioning. Although we've kept the effects and signal processing simple so far, we're roughly on a par with what some of those early acid classics were made with back in the day!



- 6 > To make some space in the mix, let's go back through the few elements that we have and apply a bit of panning. Because the 808 percussion loop has hi-hats in it, let's pan that right and the main hats ever so slightly to the left. Put the 909 percussion out to the left as well.



- 7 > For the final step, let's put a compressor over the Master Output for a gentle squeeze: low **Ratio** and just a hint of gain reduction to level things out a touch, along with medium **Attack** and fast **Release**. And we're done. Render out and report to the nearest retro dancefloor!

POWER TIP

>The 303 reborn

Although we're using the 303s as nature intended them, D16 have added a whole raft of clever extras to Phoscyon, enabling us to turn the old acid paradigm completely upside down. Being able to adjust the **Envelope Attack** takes the 303 into radical new territory, while adjusting step lengths puts stuttery riffs in the clip. Brilliant additions to a classic synth!

POWER TIP

>303 interplay

Once you've got the drums and percussion working well, go over the 303 lines again and again just to familiarise yourself with how they sound and the way that they interact. Just the subtlest tweak here and there can make a world of difference, sonically speaking. And with all your 303s on one MIDI controller, you'll really start to hear the interplay pay off. **cm**



Going with the grain

Break a sound into tiny grains and endless possibilities arise. Welcome to the world of granular synthesis



> **Sound synthesis is amazing: you can create a theoretically infinite range of sounds, just by manipulating simple tones. And if you feel like you've reached the limit of analogue-style subtractive synths and want to explore new territory, you should investigate granular synthesis. This slightly obscure technique can seem quite daunting at first glance, but exploring it is well worth the effort if you want to up your synth game.**

Granular synthesis sounds like something that was invented by a mathematically inclined audio geek (in fact, it's generally credited to the Greek composer Iannis Xenakis, who championed it in the 1970s), but when you get past the scientific stuff, it's actually pretty easy to grasp. It's all about dividing a piece of sound in half continually until you're left with a very tiny portion of audio material – a grain.

By manipulating, stretching, duplicating and otherwise messing around with these grains, you can create entirely new and fantastic sounds. Throw randomisation and pitchbending into the mix, and you've served up one seriously powerful synthesis tool.

We're going to show you how to get the best out of granular synthesis, using various parameters to get a range of tones. Although the most common use of granular synthesis is for the creation of huge, sweeping soundscapes, it's also hugely useful for melodic parts. We'll reveal the best ways of applying the technique to your own productions with various sounds in mind.

Broadly speaking, we're going to deal with two types of synthesis. The first we'll refer to as granular processing; this is where a granular plug-in is used as an insert effect to

radically transform a piece of sound. The second is granular synthesis, which refers to the playing of sounds constructed from grains in a dedicated software instrument. Both techniques share the same basic principles, but they need to be treated differently in your tracks.

Grain theory

Imagine that you've taken a sound – let's say a recording of a human voice – and split it into thousands of tiny bits of sound (around 10-15ms in length), using the scissors tool in your DAW. If you were to take all those tiny pieces of sound – grains – and rearrange them, twist them, pitchshift them and otherwise manipulate them to create completely different sounds from the original source material, that would be granular synthesis at its most basic.

Things get really interesting when you start duplicating the grains. After rendering a sound down into thousands of grains, you can duplicate and compile them as a 'grain cloud'. By controlling the density and shape of this cloud, you can determine the exact nature of the sound and create huge, swirling soundscapes. The cloud can be shaped not only by a controlled degree of overall randomisation, but also by the envelope settings of each grain.

The real beauty of granular synthesis lies in the way that it differs from more traditional techniques. Instead of relying on very simple sounds – like sine or square waves – with granular synthesis you can take absolutely any piece of audio and put it to work. Of course, more traditional synths can be manipulated in a similarly vast number of ways, but

this is a different sort of versatility: you can grab any audio sample on your hard drive and turn it into something completely different. Every sound at your disposal becomes fair game for radical transformation.

Modern marvel

Although it has been around for quite some time, only recently has granular synthesis really started to come into its own. This is because of the time it once took to render a piece of audio into its component grains. The process could take days or weeks, and involved copious editing of the tape that the sound was recorded onto. Nowadays, thanks to the monstrous processing power of modern computers, you'll have it done in a matter of seconds.

"Granular processing is excellent for sound design; its strength lies in creating non-musical elements"

We've already mentioned the difference between granular processing and synthesis, and it's worth looking at what each technique is best used for. Granular processing is an excellent tool for sound design; while it certainly has musical applications, its strength lies in creating non-musical sound elements. Granular synthesis, on the other hand, is great for more traditional production of musical parts, enabling you to fabricate really wild tones for the creation of melodic and rhythmic lines.

> Step by step The basics of granular processing



1 > We use GRM Tools' Freeze (www.inagrm.com) plug-in to capture our piece of audio – in this case, a vocal. We then zoom in on the segment we want, making it extremely narrow. (Audio on the **cm DVD**: **ZoomIn.wav**.)



2 > Playing with the pitch of the grains is key to creating a great granular sound. Here we slow things right down and use the **Pitch offset** and **Random Pitch** sliders to whip the pitch back and forth as the grains play. This really injects some life into the sound. (Audio: **PitchBend.wav**.)



3 > Most granular synths will let you control the density of your grain cloud and the length of the grains, which will create an immediate change. We use the **Random Dur** and **Nr of Loops** sliders to turn our voice into a metallic buzzing noise. (Audio: **Cloud.wav**.)

> Step by step Controlling the grains



1 > Let's look at how to control the exact sound of a granular processor to get the tones we want. Here we're using Kenaxis (www.kenaxis.com), a standalone granular workstation. First, we load a bass loop into it. It's nice and crunchy, and will make for some outstanding grains.

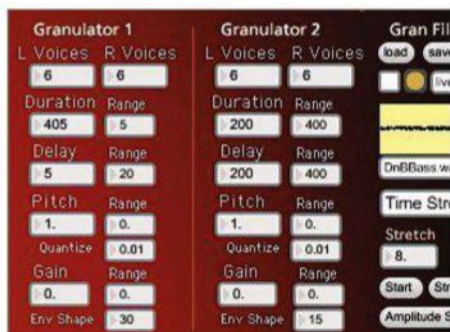


2 > We slow down our loop to an eighth of its speed (the **Stretch** parameter), before getting started on its most fundamental aspect: the duration of the grains. We're staying away from the randomisation options for now. First we keep the **Duration** of the grains quite short, which gives us a great glitchy sound. (Audio on the **cm** DVD: **ShortGrains.wav**.)

POWER TIP

>Overdoing it

Different synths will give you different options for controlling your sound. So, while basic processors like GRM Freeze give you the bare-bones stuff, higher-end examples such as Kenaxis let you add multiple sets of grains and process them with various filters and sound-shaping parameters. It's worth spending a bit of time familiarising yourself with your chosen software. Granular synths often come bundled with other synthesisers and oscillators, and learning how they work together can be key to getting the most out of your grains.



3 > Stretching out the grain duration will always produce a much mellower, smoother sound, often with a pulsing tone. In this case, our bass loop now resembles the sound of a sci-fi laser. Here's the loop going from short to long grain duration. (Audio: **LongGrains.wav**.)



4 > Let's look at the delay. Weirdly, short delays often work better with longer grain durations, enabling you to create juddering, static or smooth, swirling textures, depending on the other values. We keep both the **Delay** and **Duration** values extremely short, which really accentuates the glitchy nature of the sound. (Audio: **GlitchGrains.wav**.)



5 > Pitch is the variable that will give you the most predictable results. Want a high, squealing siren? Turn the **Pitch** up. After a low, rumbling growl? Turn it all the way down. In this case, a high **Duration**, low **Delay** and high **Pitch** creates a shaker-like sound. (Audio: **PitchGrain.wav**.)

POWER TIP

>Level things out

Grains can do funny things to your levels. Sometimes granular synthesis will result in a sound with a really low level, while at thicker densities it can get uncomfortably loud. This doesn't seem to be a universal rule, either; push those glitchy, short-length, low-density grains too hard and they can get real loud, real fast. Our advice is to keep your output levels fairly low when working with granular synths - it's better to turn things up afterwards than have to turn them down in a hurry while enduring an ear-shattering blast of noise.

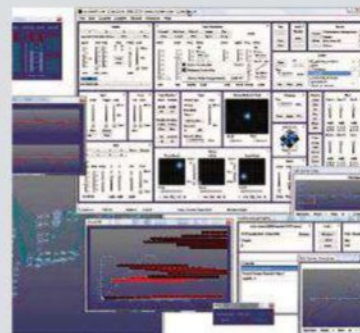
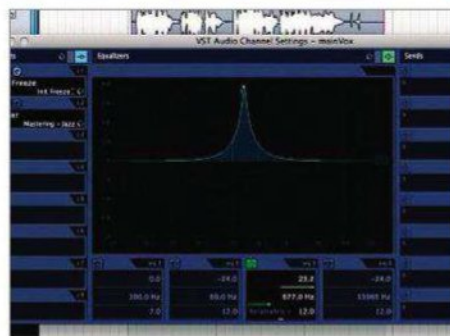


6 > In Kenaxis, this process of randomising grains is completed using the **Range** values. While randomisation is, of course, an unpredictable method, it's well worth playing around with it to hear the effect it has on a granular sound.



7 > Lastly, let's think about grain density. You may find that you get clearer sounds at lower densities - if you've got a lot of randomisation data, for example, the subtleties can get lost if the cloud is too big. Cycle from high to low density to see what sounds good. Here, the density parameter is called **Voices**.

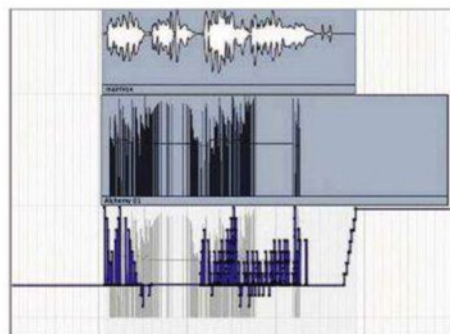
> Step by step Adding filters



When you want to ramp things up, look to Crusher-X - this powerful granular synth isn't for the faint-hearted, though

1 > You can have plenty of fun tweaking grain density and duration, but another essential part of granular synthesis is filtering. Choose a piece of audio and run it through your granular processor or synth. Then, pull up an EQ plug-in in your DAW.

2 > Insert a hard limiter to prevent overloading the signal, then activate an EQ band with a narrow **Q** setting and boost it right up. Sweep through the frequency spectrum until you find a sound you like. (Audio on the **cm** DVD: **QBoost.wav**.)



3 > Of course, you could skip the formalities and go straight to the filter section on your granular plug-in. Playing with the **Cutoff** and **Resonance** controls can really help you to shape your sound. Here, we've loaded a drum loop into Camel Audio's Alchemy synth (www.camelaudio.com), granularised it and use the filter cutoff to make a huge, bassy monster. (Audio: **BassGrain.wav**.)

4 > This technique really comes into its own when you combine a granular synth line with some filter automation. Try automating the filter **Cutoff** and **Resonance**, as we have here, to create a huge, mutating loop. Overloading your speakers is a real possibility, so watch those faders. (Audio: **BigGrains.wav**.)



5 > You'll often get even better results using a separate filter plug-in, like the **cm** Studio's Ohm Force Ohmygod! (on the DVD). Filters have a hugely positive effect on the textures of your grains, so crack out your favourite plug-ins and experiment to see what works.

POWER TIP

>First things first

If you're playing a granular synth (as opposed to processing a piece of audio using an effect), it's best to get your basic notes down before you start experimenting with filters. Because they can often have wild and unpredictable effects, trying to play a coherent set of notes with filters activated can give misleading results. Lay those notes down first to ensure that the basic structure of your music isn't compromised by any filtering experiments you throw at it.

Granular options

There's no shortage of granular plug-ins available. There are some good free ones floating around, but even the paid-for models are largely inexpensive, so you should be able to find one that fits your budget.

Granular processors are far more common than synths. We've used GRM Freeze (www.inagrm.com/grm-tools-3) quite a bit here, but there are plenty of others available. One of the best is Atomic Cloud (atomiccloud.gersic.com), which makes short work of any piece of audio, turning it into a massive grain cloud. Koen Tanghe's Smartelectronix KT Granulator (koen.smartelectronix.com) is a slightly more weighty beast - it enables you to control the delay as well as the standard granular synthesis controls. If you're after even more complexity, check out Kenaxis (www.kenaxis.com), which is a great standalone player.

As for instruments, Camel Audio Alchemy (www.camelaudio.com) has granular functionality built in, as does Crusher-X (www.crusher-x.de). This last is a standalone unit that can get extremely complex if you want it to. It's not for beginners, but it's well worth looking into.

More accessible is GranulOSO (www.roughdiamondproductions.com), which is free and comes with powerful built-in filters and modulators. You might also want to try Lidsquid's Grapheed synth (www.lidsquid.de), which is about as simple a software instrument as you can get.

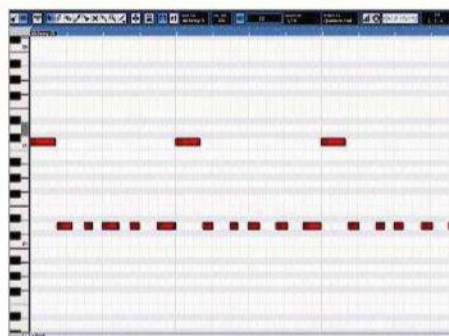
Don't forget that granular synthesis is often present in larger plug-in collections. If you're a user of Native Instruments' Kontakt, for example, you'll find a granular synthesis option buried deep within its modules. It takes a little work to get to, but it's there, and it can be incredibly useful.

> Step by step

Using granular synthesis in a track



1 > Finding a place for granular sounds in a piece of music can seem like a daunting prospect. Fortunately, though, there are endless ways in which it can be done. Here, we're going to integrate some granularity into a dance track.



2 > The first and most obvious way of easily integrating granular noises into a track is to use a granular synth rather than an effects processor. That way, you can play it via your MIDI keyboard, just like any other instrument.

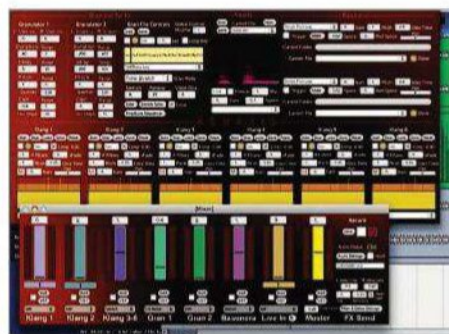
POWER TIP

>No randomisation

If you're using a granular synth rather than a processor, you may want to steer clear of using too much randomisation in your grain cloud. Although a little can mix things up nicely, what you're probably aiming for when using a software instrument is a consistent sound rather than one that develops over time. If you're playing a lead line, say, generating a sweeping soundscape is counterproductive, but if you keep the randomisation low, you'll get a full, regular sound that you can easily use in a track.



3 > You may find that you need to boost the volume of your synth, particularly for the low notes. Low-frequency granular notes are often quite quiet and difficult to pick out in the mix, so you may need to use a little extra distortion, or a loudness maximiser like the one in iZotope Ozone.



4 > If you've been tweaking a granular processor rather than a synth, working the sound into a mix can be a little more tricky. Granular processors don't just kick in when the playhead hits the audio in question, playing constantly unless bypassed. If you want to further manipulate it, you'll probably need to render your sound as an audio file.



5 > This is easy to do. Route an audio track to record the output of your granular track, then solo both tracks and press **Record**. Now you have an audio copy of the granulated sound, which you can import into your track. Bypass the processor, but keep it in your effects rack for now.

POWER TIP

>Enveloped

Envelopes can be extremely helpful when meshing granular tones with the rest of a track. Experiment with the **Attack** values in particular to shape your sound. You don't want it to be too harsh or come in too quickly, but if you set the **Attack** value too low, the sounds can blend into each other. Play with the parameters until you've got something with a little bite that will stand out nicely in a busy mix.



6 > The audio that's taken a trip through our granular processor is now a sweeping landscape of sound. We decide to use it as a background rumble, punctuated by a heavy drum line. Some sidechain compression can also work wonders here. (Audio: **Processed.wav**.)



7 > A good way of integrating this kind of processing into your music is to combine the granulated material with the original audio. Try either slowly mixing one in with the other, or rapidly cutting back and forth. This technique sounds really good if used in a breakdown, just before the bassline kicks back in.

Tips and Tricks

DOUBLE THE POWER

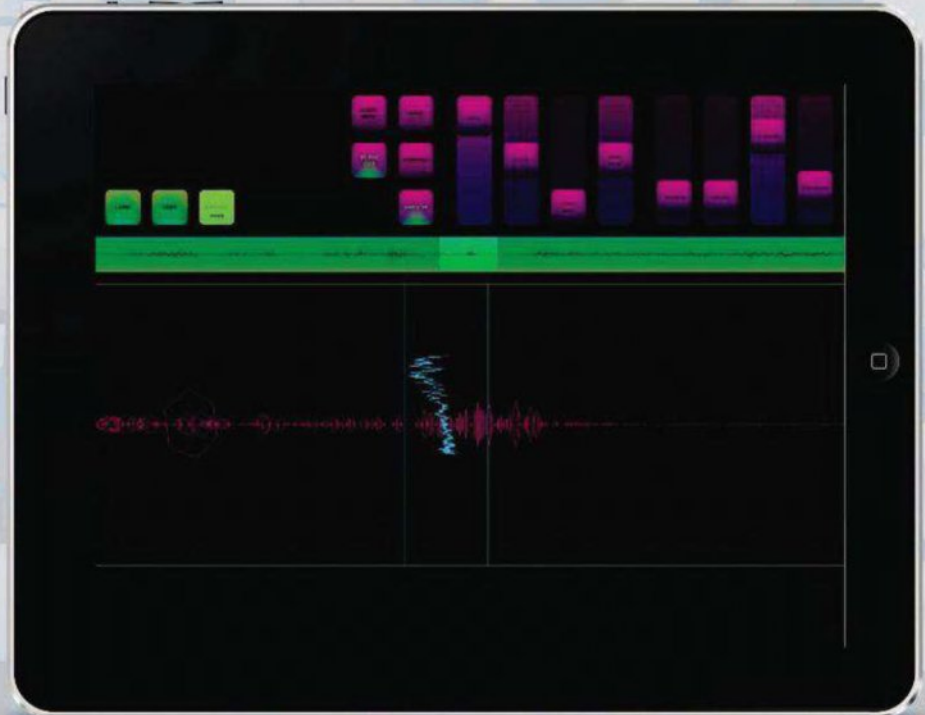
One of the best ways to get more from your granular processing is to use it on a given sound more than once. Some synths, like Kenaxis, enable you to manipulate your grains in two different ways at the same time, but even if your synth doesn't have this specific functionality, there are plenty of ways to fake it, as it were. Use multiple granular processors as insert effects, getting the sound you want with the first one and building up the tone slowly with the ones following it. This technique is best approached in steps, rather than simply piling on the effects and turning them all on simultaneously - that can get very messy, very quickly.

DOUBLE THE DUB

By its dark, slightly scary nature, granular synthesis is perfectly suited to dubstep production, particularly if you're remixing an existing tune from another genre. Grab a section of the original, stretch it out and mess with it using your granular processor or synth. Don't stretch it too much - you need it to be vaguely recognisable, after all - but otherwise, go to town. Next, add a massive bassline and some huge percussion. Immediately, you'll have something that can get the whole club shaking.

BITS AND PIECES

Bitcrushing and sample rate reduction can be sonically similar to granular synthesis. Indeed, a piece of audio processed by a bitcrushing plug-in often sounds much the same as a piece of audio that's undergone basic granular synthesis. That, however, is where the similarities between the two techniques end. While bitcrushing is good if you want to completely destroy or distort a piece of audio, it's much better to work with a dedicated granular synth if you're looking for any real degree of control over the sound.



Curtis for iPad lets you take your granular experiments on the road - it's not a synth, though, so you'll need to load your own samples into it as source material

AUTOMATION EFFECT

The best way to use automation with your granular synth is to play with the Pitch and Density controls. While quick changes are good if you're looking to glitch things up, you can get really great results from indulging in long changes over time. For even more surprising results, automate one of the randomisation controls.

ROLL IT UP

You can create a great intro effect using portamento, which works particularly well

with granular synth sounds. Load a loop into a granular synth, then stretch it out and play with it until it sounds how you want it. Turn on the synth's portamento setting. Begin by playing a sustained low note, then, while it's still playing, a high one. The sound will slide up to the high note, creating a great effect.

IGRAINS

Got an iPad? Fancy a bit of granular synthesis on the move? You're in luck: the number of audio apps available for the platform seems to increase by the day, and now there's even one for granular synthesis. The Strange Agency have developed Curtis for iPad, which is available for £5.99 in the App Store. Originally an iPhone app, Curtis is a great - if simple - app that enables you to granularise any piece of audio. It's a processor more than a synth, but it's well worth checking out. The company are also developing a prototype synth called, er, Spunk.

GO WILD

When you're tweaking a granular synthesiser, it's very easy to get bogged down in the minutiae of individual controls; endlessly playing with the grain density or lengths to try to sharpen the sound. Sometimes the best way to get things going again is to save what you're working on and then completely mess up the controls. You'll end up getting something different and unexpected, and it might be even better than what you had before. Half the fun of granular synthesis is just seeing what you can come up with, so never be afraid to experiment. cm

Turn the tables

Graintable synths - of which the most popular and recognisable is Malström, found in Propellerhead's Reason - quite literally combine granular synthesis with wavetable synthesis to produce a very distinctive sound, using the best bits of both to create something new. By now you've hopefully got a handle on what granular synthesis is - but what about wavetables?

A wavetable is made of a single sampled sound - usually something simple like a sine wave - which is played on a constant loop. The sound that the synth generates comes from 'dipping into' this sound at a certain point and varying the speed and position at which the sound is read. Unlike granular synthesis, this doesn't split the sound (so there are no grains to manipulate). Various sounds can be produced using wavetables alone, and when you combine it with granular synthesis, the resulting technique is called graintable synthesis.

In a nutshell, graintable synthesis works by taking the samples used in a wavetable and splitting them into thousands of grains, enabling you to fully control the position and therefore the sound of the waveform. We're skipping some of the brutal maths behind this (if you Google 'graintable synthesis', within a link or two you'll run into some serious calculations), but that's the general idea behind the technique. Essentially, it combines the ability to split sound into grains with the ability to control the playback of a sample. Although regarded as a somewhat esoteric branch of synthesis, graintable synthesis can be very powerful and productive.

Graintable synths like Malström don't sound all that different to more conventional synths when you first start playing with them. However, take some time to experiment with the settings and you'll discover the extent of fine control that they give you over your sound.

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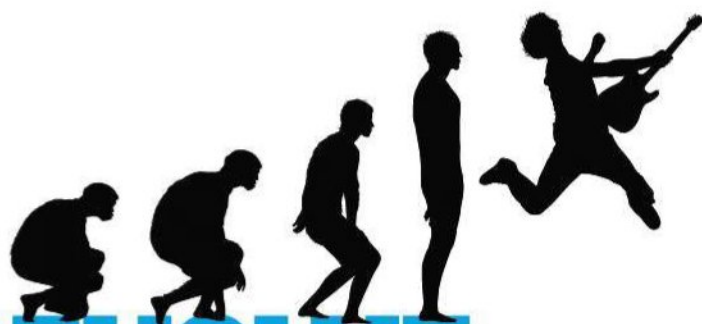
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[All the small things]

It's a loud world out there, and it's often hard to get heard unless you play it big. Yet sometimes, out of the din, the tiniest voice may carry the greatest message...

> At times, the least of things can make the biggest impact, and in no craft is this more the case than music production. With so much emphasis placed on achieving massive sounds with equally massive forces of impact, it's easy to overlook the simple, the sublime and the small. The music technology industry thrives on hyperbole. Adverts highlight words like 'phat' and 'huge'. One of the most popular hardware synthesisers of the past 20 years has made its name largely on its ability to stack up all its voices in one big unison blast.

While such high-calorie excess may work well in the club or blaring from a stage crowded with electric guitars, it does not a substantial sonic diet make. Quite the contrary, in fact. Big sounds are big because they are loud and frequency-rich. By their nature, they leave little room for other instrumentation and hence make for poor fare in a balanced arrangement.

It's ironic that the recent trend back to analogue synthesisers has coincided with the desire for fat sounds. In their initial heyday, analogue synthesisers were roundly criticised for sounding too simple, even thin. By their nature they are indeed quite simple. The waveforms they produce are in no way as complex as those of an acoustic instrument. These simple waveforms are pared down even more by the instrument's filter section.

The best classic synth players knew the limitations of their instruments and worked with them, enabling them to build up massive arrangements from basic timbres.

This is no less true in the modern studio. While musicians struggle to drown one another out in searing walls of sound, the engineers on the other side of the glass sit down and make sense of the resultant cacophony at mix time. One of the ways that they achieve the desired result is through judicious use of equalisation to attenuate frequencies that get in the way of other instrumentation. Likewise, they might apply compression to reduce the dynamic range of a given instrument - an approach that can, somewhat paradoxically, make the track sound bigger.

Over the next few pages, we're going to teach you some of these very valuable sound engineering tricks in the process of creating the smallest sounds we possibly can. We'll build a simple arrangement from start to finish, with an eye always trained towards reduction. We'll create tiny sounds from scratch, and we'll whittle down some big sounds. We'll use synthesis, sampling, EQ and other clever methods to finely hone the contents of our palette. We'll submerge ourselves in subtlety and simplicity; deify the delicate and dainty. We're siding with the little guy - hear him roar!



> Step by step

Cautious kicks



1 > Producers have long been aware of the appeal of minimalist drum sounds, and a tiny kick drum can be just the ticket. Let's craft one using the CM-505 drum machine, from the **cm Studio** on the DVD. Fire it up in your host. The default settings are fine.

2 > Click the **Kick1** pad. It's big, flabby and a little crunchy - there's a lot going on! We can bring it down to size with a few simple tweaks. Select it for editing and look to the OSC section. Crank the **Shape** knob all the way down, then play your sound. Now it sounds like a classic Roland CR-78 or Korg Mini-pops kick.

3 > Look above the OSC section. Up here are a couple of knobs that control the pitch envelope. Most drums change in pitch during the decay phase of the sound. The **Decay** here is pretty short, but let's turn it down even more. Set it to nearly **0**, then play a few hits. Rename your drum (we've gone for **Cautious Kick**) and save your kit.

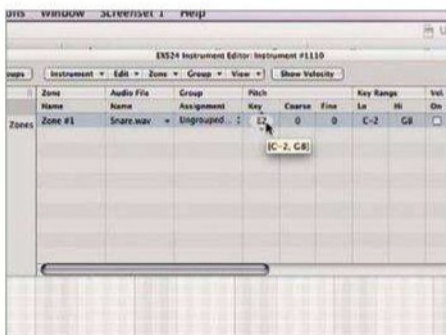
Delicate drummers

The evolution of drum recordings over the past few decades can almost be seen as analogous to that of recording technology itself. In the early days of rock 'n' roll, the drums were often buried far down in the mix, seen mainly as a guiding force for the rest of the band. Recordings were simple and monophonic, using a couple of mics to track the entire kit. When track counts increased, so too did the number of tracks dedicated to the drum kit. As clever effects were introduced, they were often applied to the snare drum (witness the Eventide on Bowie's *Low* and the ever-popular gated 'verb on Peter Gabriel's third album).

In the 80s, drums were big, cavernous and bombastic - almost ridiculous. This trend was put to rest by the resurgence of the analogue drum machine, bringing the drums full circle to the simpler, more subtle and expressive sounds of decades past. These basic sounds are easy to record and mix, and they rarely get in the way. The delicate pitter-patter of the analogue drum machine can propel a track and set up an instantly atmospheric mood. These are just the kinds of sounds that we're trying to create here.

> Step by step

Sublime snares



1 > Analogue drum machines are a good source of petite percussion, but you can, of course, also use sampled sounds. Fire up a sampler - any one will do, as long as it has a high-pass filter. We're using Logic's ESX24. Starting with an empty patch, open the editor and drag in the **Snare.wav** sample from the **cm DVD**. Set the **Root pitch** to **E2**.

2 > Rename the instrument (**SublimeSnare** works for us) and save it. Close the key editor and return to the sampler's main interface, then play a few notes at E2. Your sampler may have defaulted the envelope, so the sound might be truncated. We can fix that in the Amp envelope. The **Attack** should be set to **0**. Turn the **Sustain** down all the way, too.



3 > Set both the **Decay** and **Release** of your Amp envelope to around **500ms**. Play a few notes. That's a lot more natural, but it isn't exactly small, is it? We'll fix that! Activate the filter and set it to **12dB high-pass** mode. Now, reduce the filter's **Cutoff** frequency to around **60%** or so. Play a few hits. That's positively Lilliputian!

4 > We can make our snare sound even smaller by playing it a few steps up, so play the C above E2. Open an instance of the CM-505 and, using our **Cautious Kick** drum, lay down a simple kick/snare pattern that combines the synthesised sound of the CM-505 with the sampled snare drum. Reduce the snare's amp **Decay** a little if you feel it needs it.

> Step by step

Puny plucking



1 > Let's take a break from the drums for a moment and think about adding some guitar. There are plenty of pipsqueak plucked instruments that we could use: mandolin, ukulele, banjo... However, we're going to plump for something a little more accessible: a plain old acoustic six-string. We set up a mic and record a single high C note.

2 > Once we've tracked our plucky note, we normalise, trim and export it as **Plucked.aif**. If you don't want to record your own, you can use ours or any prefab guitar sample. We call up another instance of EXS24, open its editor and drag in our sample. The root note is already set to **C**, though you can change the octave to better reflect the pitch of the sample.



3 > We tracked a high C on the high E string, so our sound starts off pretty small, with a fairly narrow frequency range. However, it still sustains for some time when the note is held. As before, we need to look to the sampler's amplitude envelope, in this case, **ENV 2**. Turn the **Sustain** all the way down, and set the **Decay** and **Release** to around **60ms**.



4 > Play a note or a chord above middle C. The sound will be a lot shorter, almost like a ukulele. Still not tiny enough? Go to the filter section and turn the filter on. This time, let's use the **12dB BP** mode. This is a band-pass filter, so it will only allow the frequencies immediately surrounding the cutoff to pass through. Just turning it on has a devastating effect on the sound.



5 > Let's have a little fun with the filter. Set the **Cutoff** to around **46%** and play a chord or two. We think that it might be more interesting if we sweep the filter using a mod source. We go to the Mod section in the centre of the sampler, select the filter **Cutoff** as the Destination in an unused slot, choose **LFO 2** as the Source, and nudge the depth up to around **58%**.



6 > We now need to look to the **LFO** itself to get things going. You can choose to sync the LFO to the host's tempo, or use it in free mode. We like the latter. Nudge the **LFO Rate** to **0.320Hz**. Now, try playing (and recording) a series of eighth-note chords. As you can hear, our LFO is sweeping through a narrow band of frequencies. It's still a tiny tone, but it's a lot more fun to listen to!



Many mobile phones contain microphones that are great for capturing small sounds

Reduced Recording

Although we have plenty of software that can treat our recordings after the fact, any engineer worth his widgets will tell you that it's always best to capture the sound the way you intend right from the start, using a judicious microphone selection and placement. For example, a large-diaphragm condenser mic with a cardioid pattern will almost always emphasise the low end if placed too close to the source. This is known as the proximity effect. Even when used at a distance, such mics are designed to reproduce the fullest complement of frequencies. Many have a slight mid-range boost to add a bit of presence. In other words, they do exactly the opposite of what we're trying to achieve!

You might get better results from a small-diaphragm condenser microphone. These are often used as overhead microphones for drum recordings, or on acoustic stringed instruments. They tend to bring out the high-end detail without accenting the low frequencies. However, any mic with a cardioid pattern selected will produce the proximity effect if placed too close to the source.

You can get some very small sounds using the built-in microphone on an iPad, mobile phone or dictaphone - such devices generally use the smallest, cheapest microphones. Furthermore, they record at reduced bit-depths and sample rates, resulting in still more loss of detail.

To take this idea to the extreme, you can also experiment with sending your recordings down a phone line and re-recording them through a speakerphone or the tiny speaker built into your mobile. You might even try recording the speaker from a distance. We've heard some great vocal recordings made this way.

Tiny TBs

Ever since Moog stacked three oscillators together in its Minimoog synth, musicians have constantly sought to fatten up that bottom end. However, this tendency is decidedly at odds with the popularity of Roland's TB-303 Bassline and all of its dance-floor descendants. Like Roland's SH-101 (another favourite for squelchy basslines), the 303 was a single-oscillator affair. More than that, its set of parameters was somewhat, well, anaemic. And yet it wheezed and squeaked and buzzed away behind a billion bombastic club hits. What's the secret behind the sound? Simplicity.

You knew we were going to say

that, didn't you? Yep, the 303 was a study in minimalism. The sound cut through the mix, rather than overwhelming it. It let the beat breathe and gave plenty of room for chords, leads and whatever else could be strapped to its back.

Although it's primarily associated with screeching acid jams, it could fit into just about any style if you're not afraid to tweak its minimal complement of knobs. Ditto for its bigger brothers in the SH and Juno series, most of which drew upon a single oscillator and but one envelope generator.

So ideal are these classic instruments for making minimal sounds that we've elected to use



The CM Studio's CM-303 emulates the Roland TB-303 - it's free on the DVD

Togu Audio Line's SH-101 emulation for our next step-by-step. However, you could also do just as well with

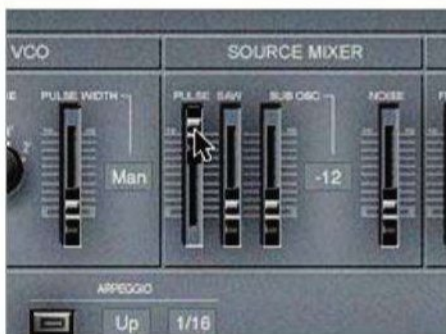
our very own CM-303 or Propellerhead's ReBirth - www.rebirthmuseum.com.

> Step by step

Bite-sized basses



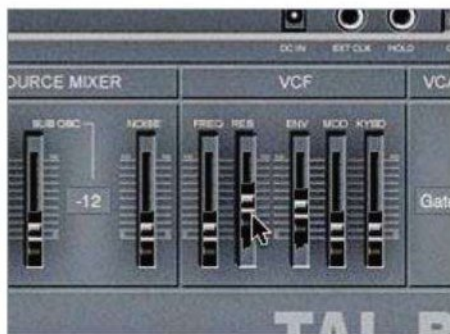
1 > We're calling on Toгу Audio Line's Tal-BassLine to supply the bottom end for our track. Although this little guy can generate some bone-crunching basses, we're going to give it the Dr Cyclops treatment and shrink it down to a fraction of its usual size. Fire it up in your host. We can start with the default patch, which is appropriately named **Start Here**.



2 > Clearly, this is way too brash for our laid back track - it would bury all of our 'insignificant' instruments! We want to create a bass track that pulses and percolates, and that calls for some slimming. We can get off to a good start by turning the **Sub Oscillator** down in the **Source Mixer**. Come to think of it, we can turn the **Saw** wave down and crank up the **Pulse** wave instead.



3 > Play a note or two. That's a bit better, but it still sounds too big, yet lacks excitement. So, turn to the **VCO** section, where we can reduce the **Range** to 16. That's a more appropriate setting and the bass is now sounding very Roland-esque to our ears. OK, let's move over to the filter (**VCF**) section. Turn the cutoff frequency (**FREQ**) all the way down.



4 > That didn't have any effect, really! That's because the filter's cutoff frequency is tied to the envelope generator, and the modulation amount is cranked up. Turn the **ENV** slider in the **VCF** section way down. The slider's centre line should be even with the fourth hash mark from the bottom. Let's add some interest by moving the filter's **RES** slider up to around the 30% mark.



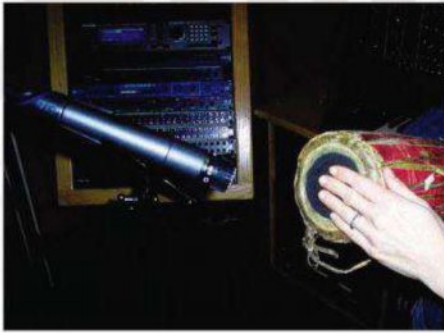
5 > After a bit of playing, we decide that the portamento is way too extreme for our exercise in restraint. You can find it to the left of the keyboard. Turn it down to around the 9 o'clock position. Otherwise, that's pretty good as it is: it's got a narrow frequency range, and is simple without being dull. We can shorten it a bit by turning the envelope's **Decay** down to between 25% and 30%.



6 > You'll notice that the envelope generator only affects the filter. The VCA is set to **Gate** mode, meaning that the instrument will play for as long as you hold a note, assuming the filter hasn't squashed all of the audio down (which it has). Select **Env** for the VCA mode. Finally, activate the built-in arpeggiator and lay down some brief 16th-note passages, as we have done here.

> Step by step

Pipsqueak percussion



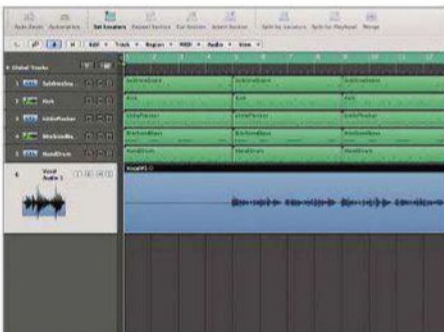
1 > Some sounds are naturally small, this Tibetan hand drum being a good example. If you have such an instrument lying around, you can track it live or sample it for playback in your sampler. We've chosen the latter route. We were careful to close-mic it using a decent preamp so we could play it very softly. Playing gently results in a delicate sound!

2 > Next we load the recording into our sampler. We don't need to do much to it at this point, so we leave the filtering off and the default envelopes in place. The EXS24 automatically routes incoming MIDI velocity messages to amplitude. If your sampler doesn't, set it up to do so.

3 > Our instrument is already small and has been played delicately. However, we're going to play it even more gently, recording the gentlest of performances. The goal here is to reduce the overall volume level while maintaining some sort of dynamic variation. Any hits that jump out can be tamed in your sequencer's piano roll, as shown.

> Step by step

Infinitesimal FX



1 > We've done a lot of filtering and futzing around with sample length, but all of these tasks have been applied to individual samples rather than to an entire recording. We mustn't overlook the value of effects plug-ins when it comes to minimising sounds. Here, we've recorded a vocal to Track 6 of our project.

2 > You can record your own voice, or use ours. Our singer was suffering from a cold, but that hardly matters, given what we're about to do! We **Normalise** the track, but that only makes it louder, so bring the track fader down afterwards. Normalising just brings the overall level up, without affecting dynamics.

POWER TIP

>Dynamics Processors

It's almost habitual: you record an acoustic track such as a guitar or voice, then reach for the compressor to reduce its dynamics, bringing the loud bits down and the soft bits up. Reducing the dynamics means that we will need to bring the overall track volume up, making it sound louder and bigger than the unprocessed recording. Compressors and limiters are indiscriminate, squashing every frequency with equal disregard. You can call upon a multiband compressor if you need to tame a range of frequencies, but if you want to make things sound small, it's best to avoid them altogether.



3 > We loop the playback around the vocals to make our work a little easier, and trim off the noise at the start. How can we make this voice sound smaller? The most obvious method is equalisation. Call up and EQ plug-in.

4 > It just so happens that Logic's Channel EQ has a preset that fits our needs to a tee. It's called **Phone Notch Filter**, and your EQ may have something similar. If not, it's pretty easy to recreate. Give a healthy boost to the area between **1kHz** and **2kHz**, and scoop out everything above and below that.

5 > We suggest a small space using reverb - Logic's **Spave Designer**, set to a small **Wet Room** preset. While this increases the overall spectrum, it gives the illusion of placing our singer in a small room. We reduce the wet signal to make it even smaller. This track shows just what you can achieve by thinking small! **cm**

Done for effect

Effects commands may seem impenetrable, but understanding them will bust open new sonic doors



> We opened a can of worms last issue by uttering those four little words, 'Getting back to basics'. So by popular demand, this tutorial looks at the most basic of tracker functions: effects commands.

The **Effects** column provides the flexibility and functionality to create really distinctive sounds. From arpeggios to sample slicing and playing samples backwards, this feature provides tracker musicians with the power to do things that users of many traditional MIDI sequencers don't get as standard.

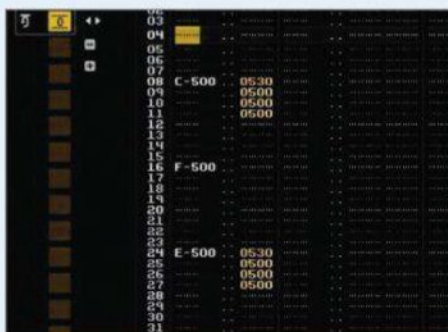
We're using Renoise in this tutorial, not least because of its cross-platform capabilities, but also because it gives us a chance to test-drive one of the new LUA plug-ins: Drum Processor. Based on the free VST effect Glitch, it generates effects within user-defined parameters.

To get the most out of Effects Commands, it's important to understand the syntax involved. In Renoise, each command is defined by four digits residing in the Effects Column. These are in one of two formats - nnxy or nnxx - where the first two digits (nn) represent the effect type (eg, Set

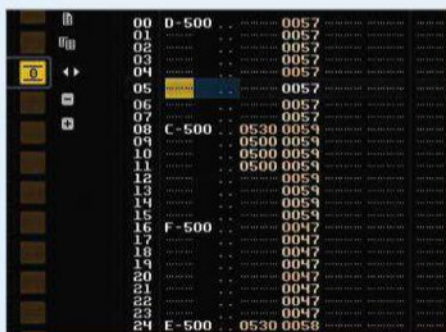
Volume) and the x (or xx) y represent the parameters. To illustrate the two types, the Arpeggio command is 00xy, where x is the first note offset in semitones above the root note and y is the second. Glide to Note is 05xx, where xx is the glide speed. Click **Help>List Pattern Effect Commands** for the full list.

You'll need to download the Drum Processor tool, which can be found at tools.renoise.com/tools/drum-processor. Then simply drag the XRNX file onto an open Renoise window to install. All the tutorial files are on your **cm DVD**.

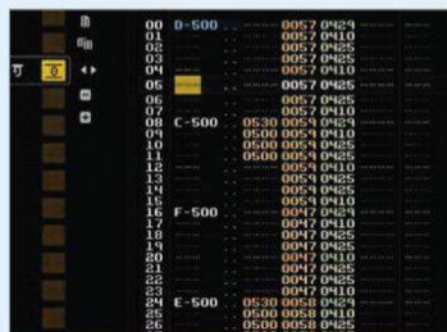
>Step by step Using effects commands in Renoise



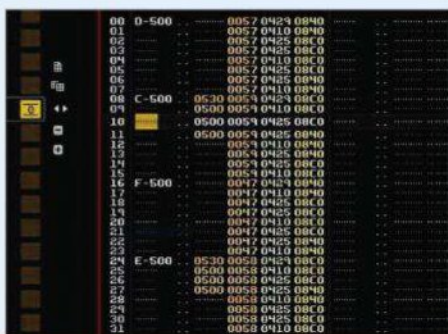
1 > Load the file **CM_trackers_tutorial_35start** and, using the **Square Wave** instrument in Instrument Slot **00**, input a melody consisting of four notes every eight lines on **Track 01**. In the first **Effects** column, enter **0530**, **0500**, **0500** and **0500** sequentially on the second and fourth notes to glide to these tones.



2 > Now for some arpeggios. Click the **+** button three times at the top right of **Track 01** to reveal three more **Effects** columns. In the second column, input some arpeggio values in the format **00xy**, as explained above. You may find it useful to play chord progressions on a keyboard first and note the offsets in semitones. (File on the **cm DVD**: **CM_trackers_tutorial_35a**.)



3 > In the third **Effects** column, input some rhythmic **Volume Slicer** data in the format **04xy**, where x is the volume factor (0 to F representing 0 to 100%), applied at tick number y. So the higher the y value, the longer Renoise waits until the slice kicks in. With experimentation, you'll achieve great dynamics and expression. (File: **CM_trackers_tutorial_35b**.)



4 > In the fourth column, use **08xx** to set the **Pan** level from left to right (00 to FF) to coincide with the rhythm. We've used **08C0** and **0840**, which gives a 25% pan each way. Once you're happy with this, add a **Distortion 2** (preset **Drums Soft**) and **Delay** (preset **Groovy 6**) from the **Track DSPs** tab at the bottom left. (File: **CM_trackers_tutorial_35c**.)



5 > Now for some Drum Processor fun, which you'll find under the **Tools** menu. With the cursor block in **Track 02** and the Drumloop in Instrument Slot **01** selected, invoke the Processor. Pick some of the main six modules and click in some colours on the sequencer, then select **Process** to generate the commands. (File: **CM_trackers_tutorial_35d**.)



6 > Experiment with adjusting the parameters of the modules, each time choosing **Process** before listening to the result. Then manually adjust the effects commands to further suit your needs. Finally, add a **LofiMat Track DSP** to the **Master** track (preset **Cheap**) for an 8-bit effect. (Files: **CM_trackers_tutorial_35e**, **CM_trackers_tutorial_35f**.) **cm**

Minor jazz chords

Things get a bit bluesy this month, as we tackle the thorny issue of minor jazz progressions and what scales they require

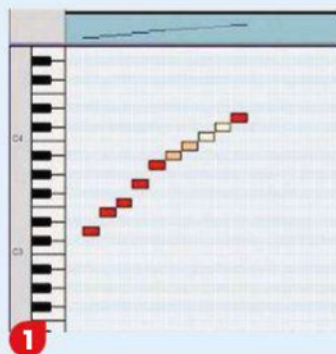


> We're now going to continue the process that we set up last issue, looking at jazzy minor key progressions and in particular demonstrating how chromatic changes can affect the scales you should use to create melodies over them. We'll then briefly check out the weather over in major key county.

What's in a name?

So, let's consider what a minor scale actually is. We'll let rip with the good news first: in the normal course of events, the first five notes of a minor scale are fixed and do not move. You will by now have guessed that the sixth and seventh steps of the scale are slippery and will be required to move up and down at different times (see **Fig 1** for a D minor example).

To create that authentic George-Gershwin-plays-*Summertime*-at-the-piano sound over a minor sixth chord (D F A B in our example key), the sixth and seventh notes will both need to appear in their higher slots, creating a so-called ascending melodic minor in traditional terms (see the first scale in **Fig 2**). The word 'ascending' is misleading, however, as it suggests that you can only use this scale in rising passages. In fact, this scale works just as well if your melody heads in a downward direction. The different forms of the scale go with different chords, and you'll be glad to hear that they do not change simply because of melodic direction.



As we saw in last month's examination of the minor ii V i progression, the dominant chord (V) in minor keys frequently takes a minor ninth as well as a seventh (in D minor the dominant chord is A, and the notes of the ninth chord are A C[#] E G B^b), so it would seem that the harmonic minor scale (**Fig 2** second scale) would work well. So it does, but a useful simplification will follow shortly.

The typical chord ii for minor key progressions sports a lowered fifth (in this key E m⁷, or E G B^b D) and the so-called descending melodic minor (also known as natural minor or Aeolian mode) fits the bill (the third scale in **Fig 2**). In practice, many composers and improvisers opt for using

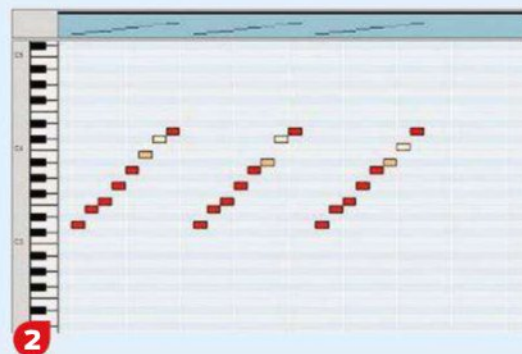


Fig 1: A typical minor scale with five fixed notes (red), alternative sixths (pink) and alternative sevenths (white). **Fig 2:** Ascending Melodic Minor with raised sixth and seventh; Harmonic Minor with lowered sixth and raised seventh; and Descending Melodic Minor with both sixth and seventh lowered

this last scale over the chord V as well, creating a satisfyingly bluesy clash between the C in the scale and the C[#] in the A⁷ chord. So, if you want to keep things as simple as possible, use the raised six and seven over chord i, and the lowered six and seven over the other chords.

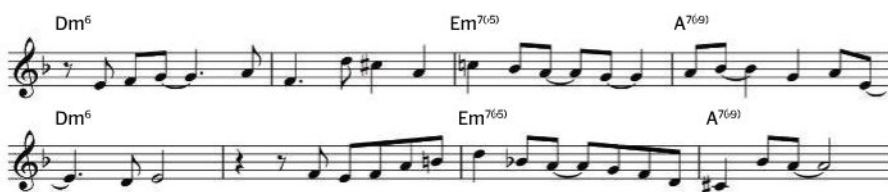
All of these scale/chord combinations are demonstrated in the accompanying MIDI file on the **cm DVD**, along with a brief passage showing how they might work together with a couple of ii V i progressions as illustrated in the *Staff notation special*.

Staff notation special

In staff notation, minor keys take the key signature that's used for the major key a third higher, the so-called Relative Major. In other words, D minor uses an F major key signature, B minor uses a D major key signature, A minor uses C Major and so on. Using the correct key signature puts the sixth and seventh degrees automatically in their lower position (B^b and C in our D minor example), so any alterations are made with sharps or naturals, as shown. Notice how the sixth and seventh are raised over the Dm⁶ chord, while mostly lower

versions of these notes are placed over the other two chords, though D harmonic minor puts in a brief appearance in the last bar.

It may be helpful here to recall the convention that within the same bar or measure, these accidentals do not need to be repeated for notes in the same octave. Furthermore, a bar line cancels them - so the notes are automatically returned to their key signature forms in following bars. However, it is very common to write cautionary (or complementary) accidentals in the first bar following chromatic changes.



A simple melody over a repeating ii V i pattern in D minor

Major varieties

Fortunately, jazzy ii V i progressions in major keys can be much more straightforward. At the simplest end of the scale (pardon the pun!), you can merely add seventh and ninths to all of the chords (preferably with rootless voicings) and have your melody stick to the major scale. So in D major, the progression would be Em⁹ A⁹ D⁹, simply accompanied by a diatonic melody in D major.

Jazz composers and players, however, never tire of making simple progressions more complex, and the main target for chromatic alterations is the dominant (V) chord. As you have just learned how to navigate the choppy waters of minor dominants, a convenient expedient is to borrow the chord V from the minor version.

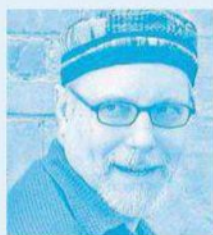
So, with us still thinking in D major, that means substituting the A⁹ chord and then melodically using the lowered sixth and seventh (B^b and C) and also the lowered third (F not F[#]). This chromatic effect is fleeting and should be reserved for the dominant chord only, reverting back to the regular major scale notes for chords ii and I. A full exploration of chromatic jazz changes would take many pages and is probably a bit beyond the remit of an *Easy Guide!* **cm**

Controlling the mind with music



Our mad musical scientist rachMiel goes all George Orwell and experiments with producing music that influences your state of mind

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.

> **From the moment you're born to the moment you die, your brain is swirling with electricity. Some of it is chaotic: quasi-random neuron firings. Some of it is ordered: pulsing brainwaves. We'll explore the latter here: how brainwaves can be controlled by sound, and how this sonic control can be translated into music.**

Mind-control music

Brainwave entrainment is a technique where a subject's brainwaves are synchronised with an external periodic stimulus. For example, beating a drum at 4Hz would entrain brainwaves to oscillate at 4Hz. This occurs because the human brain tends to change its dominant frequency to match strong external stimuli.

There are four main types of brainwaves. In order of decreasing frequency, they are: beta, alpha, theta, and delta. We emit beta waves

(13-30Hz) when alert, tense, fearful, or anxious. We emit alpha waves (8-13Hz) when relaxed, but still aware of what's going on around us. We emit theta waves (4-7Hz) when sleepy, meditative, or in a heightened state of creativity. We emit delta waves (1-4 Hz) in dreamless sleep, deep meditation or unconsciousness.

There are three techniques for using audio to entrain brainwaves: monaural beats, binaural beats and isochronic beats. Monaural and binaural beats both occur when two tones close in frequency are played simultaneously, generating a 'difference' tone. For example, one sine wave of 60Hz and one of 65Hz would generate a difference tone of

5Hz, or five beats per second. In monaural beats, the two tones are mixed 50/50 and the mix is sent to both stereo speaker/headphone channels. In binaural beats the tones are not mixed; one is sent to the left channel, the other to the right. Difference tone perception occurs courtesy of the human brain.

Isochronic beats are periodic sonic events from a single source, rather than two tones. Monaural/binaural beats are usually generated by two sine waves, because sines are the simplest waves, having no harmonics. Isochronic beats sometimes use sine waves, but also white noise, drum beats, instrumental/vocal tones, and more.

Entrain or entertain?

So, brainwave entrainment audio is scientifically provocative, yes. But can you make music from it? Of course you can! You can make music from any sounds. Will it be good, compelling music? Well, that depends on the composer's skills and the listener's taste. The biggest challenge is to remain true to the science of entrainment while managing to imbue the music with enough drama and musicality to keep listeners engaged.

Can entrainment music still entrain brainwaves? Or will the musical conversion process weaken/destroy its entrainment mojo? Again, it all depends on how it's done. If your top priority is to entrain, then the music you create should stay simple, clear and focused, retaining key entrainment-audio characteristics.

My primary goal is to make music. In my example piece, there are so many polyphonic lines of rapidly shifting entrainment waves that I doubt it will have any coherent brainwave-entrainment effect on listeners. I'm perfectly fine with that. What interests me about science is not the science, per se, but the inspiration it provides.

Fig 1: Timing and tempo

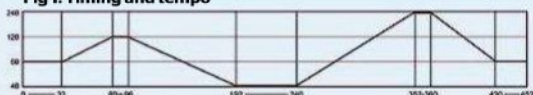


Fig 2: Entrainment beat frequency

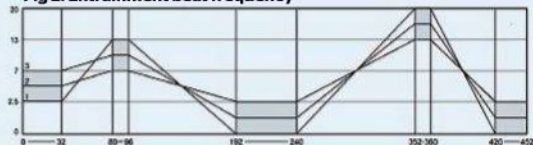
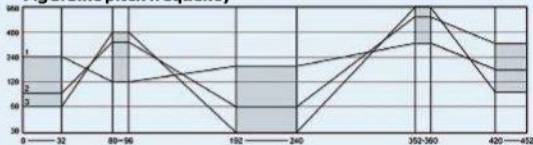


Fig 3: Sine pitch frequency



I-dosing: Binaural E?

Hey kids, wanna get high? Just grab yer iPod! Or so the advocates of i-dosing would have you believe. I-dosing is a phenomenon where binaural beats are purported to act like psychotropic drugs, entraining your brain into altered states of all ilks: spiritual, sexual, sedative, stimulating, weight-losing, hallucinogenic, even video-game-enhancing.

Getting your hit is easy: download an i-dosing MP3 from your preferred friendly

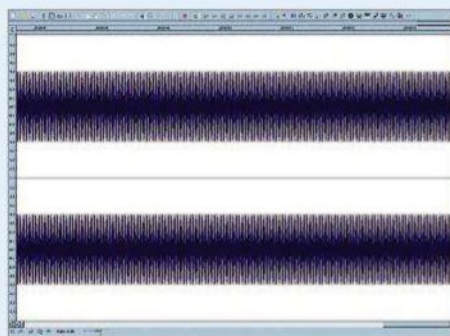
internet i-dealer, don a pair of headphones, turn out the lights, lie down in a yoga corpse pose, take a few deep breaths, and let'er rip.

So, can music really provide instant ecstasy? Well, I guess that depends on your EQ (Entrainment Quotient), the degree to which your little grey cells allow themselves to be synced to an external audio stimulus. Some users claim to have profound i-dosing experiences that feel like the result of taking

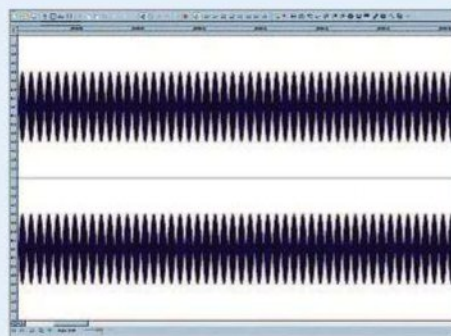
various drugs or sinking into deep meditation. Others feel nothing. Most people fall somewhere in between: they're clearly experiencing something, but the effects are nowhere near as specific as i-dose track titles advertise. Each one promises a very defined experience, such as Acid, Marijuana, Peyote, Adderall, Out of Body, Orgasm and King of the World! I think it's best to take i-dosing with a pinch of salt - not literally, of course.

>Step by step

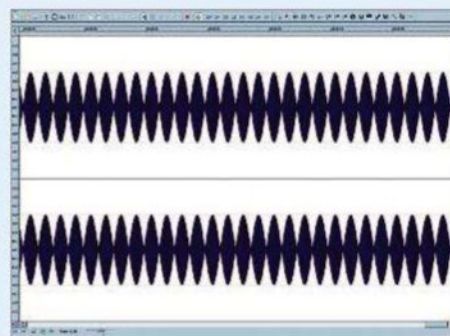
Composing a brain entrainment piece



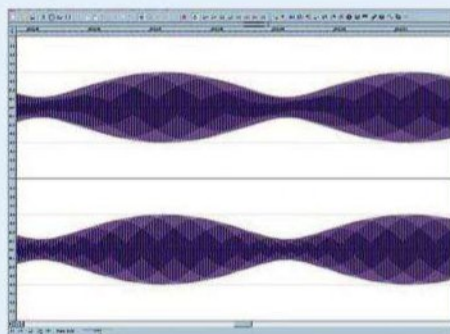
- 1** > Before I dive into the creation of a brainwave entrainment piece, let's listen to each of the four entrainment waves on their own. On the **cm** DVD is a one-minute passage of a 640Hz sine wave beating at a beta frequency of 20Hz: **Beta.wav**. Beta brainwaves arise with active concentration, arousal and cognition.



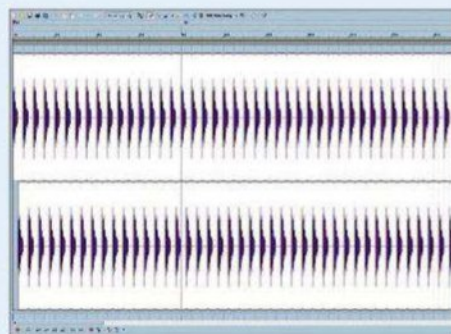
- 2** > Next up is alpha, darling of the brainwave world for its association with biofeedback. Alpha brainwaves are emitted in states of waking relaxation and pre-sleep/pre-wake drowsiness. In this two-minute passage, a 320Hz sine wave begins beating at the lowest alpha frequency (7Hz) and speeds up to the highest (13Hz): **Alpha.wav**.



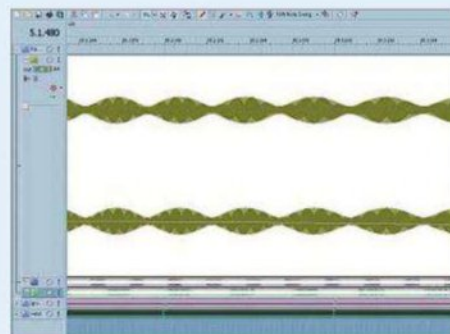
- 3** > Theta brainwaves happen during deep relaxation, meditation, dreams and REM sleep. Their frequency range is 4-7Hz, the speed of 16th-notes at a downbeat tempo of 60-105bpm. Here's a three-minute passage in which a sine wave glisses down from 320 to 160Hz while beating down from 7 to 4Hz: **Theta.wav**.



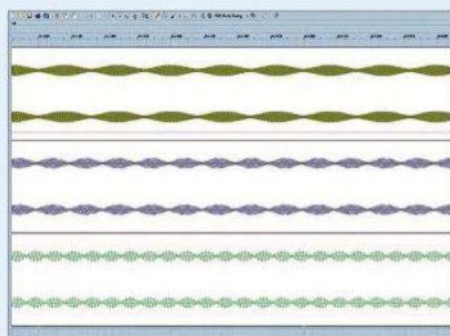
- 4** > And finally, my personal favourite: delta. My brain doesn't seem to want to entrain to the faster brainwaves; mostly they just make me feel dizzy. But there's something about a low-pitched delta wave that makes my brain sit up and take notice. Here's a full four minutes of an 80Hz sine wave beating at 3Hz: **delta.wav**. Yum!



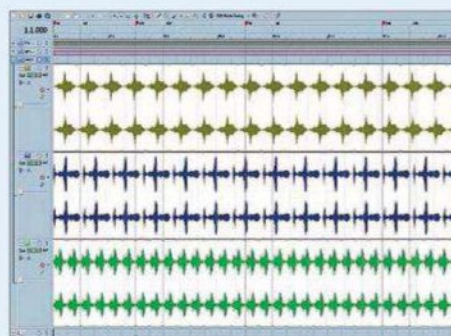
- 5** > Time to create some brainwave music! I begin with the piece's structural foundation: its beat. I decide to make it an unbroken eighth-note pulse of a low Native American drum sample, the depth and purity of which seem perfect for the task at hand. Check it out: **Beat.wav**. The beat's timing and shifting tempo are displayed in **Fig 1**.



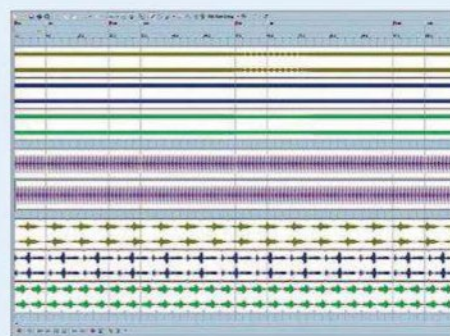
- 6** > Next I decide to create the piece's foreground: three intertwining solo sine wave parts. My goal is to follow the structure of the beat: five steady states bridged by four transitions. Each steady state homes in on a different band of the total brainwave frequency spectrum, 0-20Hz. Have a listen to the first sine part: **Sine1.wav**.



- 7** > In the mix of the three sine parts, I strive for stasis alternating with dynamic variation. As you can see in **Fig 2** and **Fig 3**, in the bridges the three parts keep crossing each other both in sine wave pitch frequency and brainwave beat frequency. In the steady states, both pitch and beat frequencies remain unchanged: **Sines123.wav**.



- 8** > Brainwave entrainment music often contains white-ish noise: rain, wind, surf, etc. It's thought to offset the unpleasantness some people experience with sine waves, and to draw upon the calmness that white noise inspires. I use three noise-rich synth samples to create a polymetric looping structure that rises and falls like the wind: **Wind.wav**.



- 9** > I've got all my ducks in a row: Native American pulse beat, intertwining sine wave trio, and synth-wind loops. As usual, I mix down with Acid. I'm tempted to use iZotope Ozone to master the piece, but resist, because I fear it would be overkill. Instead, I turn to my trusty Wave Arts Power Suite. Here's the result: **Brainz.wav**. Enjoy!**cm**

Layer things up

We take a lesson from some classic 80s synthesisers and create a thickly layered, highly textural patch



The patch we make in the walkthrough is in the Tutorial Files folder

> A few years back, Dave Smith took a chance, releasing his Prophet 08 synthesiser to a world-weary and sceptical community of analogue synth fiends. Critics wasted no time comparing it to Smith's legendary Prophet-5, an instrument which - if truth be told - it only slightly resembles. On the other hand, those not expecting a clone of the once-and-future king of polysynths were delighted to find that, if anything, the Prophet 08 more closely resembled some of Oberheim's famous OBX series. Most obviously, it enabled users to

layer two sounds with independent settings, and even different filter types.

I've noted before the power and promise of mixing up filter types in parallel signal paths. I first came across this idea when Oberheim's mighty OBXa was unleashed in 1980. A few years later, the same (sort of) company upped the ante with their astonishingly deep Matrix 12 and its keyboard-less brother, the Xpander.

I never had the fortune (literally!) to own an Xpander or a Matrix 12, but that didn't stop me from wasting many hours of both my own time

and that of a few hapless salespeople who let me play with the things in the stores. I couldn't get enough of the rich, evolving timbres that the Matrix and Xpander could wrangle up. They had no less than 15 filter modes to choose from, never mind the crazy modulation opportunities provided by five LFOs and envelope generators!

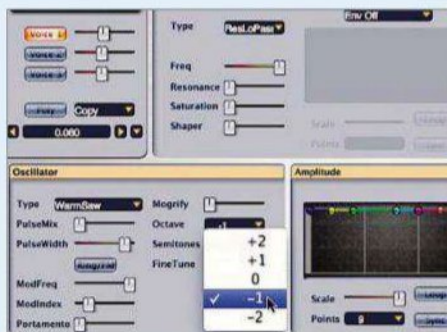
Needless to say, when I got my hands on my first modular instruments, I immediately began experimenting with recapturing that thick, layered sound that I had heard on the Oberheim synths. And guess what - so can you!

>Step by step

Build a layered patch in Crystal



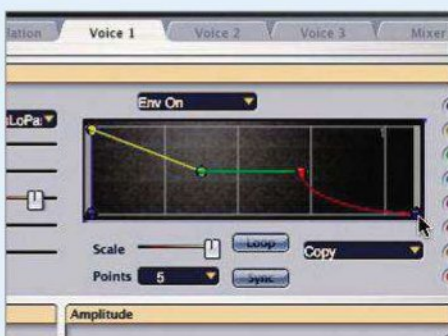
1 > There's a freeware synth with many of the same qualities found in those big, beautiful Oberheims: Green Oak's Crystal (www.greenoak.com). It has three oscillators per voice, loads of filters and scads of LFOs and envelope generators. Let's fire it up and play with it. Start by calling up one of the **Unused** patches at the bottom of the browser list.



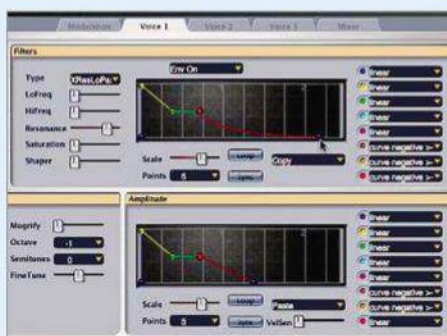
2 > Trigger some notes from your MIDI controller. This initialised patch is as simple as it gets, with one oscillator and no modulation, effects or filtering. Click the **Voice 1** tab at the top of the GUI to call up the editor for that voice. Look at the Oscillator section. The waveform you hear is the **WarmSaw** wave. That's fine. Let's reduce the **Octave** to **-1**.



3 > Now, move to the Filter section. Select the filter type **XResLoPass** from the dropdown menu. Crank the **Resonance** up to **0.780**. Both the **LoFreq** and **HiFreq** sliders should be all the way to the left. Activate the filter's envelope generator, then play and hold a note or two. Uh-oh... we can't play two notes. Change that by clicking the **Poly** button. Set it to **Poly24**.



4 > Now let's return to the filter envelope. For our first layer, I think we'll keep things fairly simple. Currently there are nine envelope **Points**; let's change that to **5**. Next, it's time to set up a basic envelope shape. I've made the yellow segment linear, and created a shape suitable for, say, a slightly squelchy bass. Try copying my envelope shape.



5 > Let's make the same envelope in the **Amplitude** section by using the **Copy** and **Paste** functions to move it across. Change the final segment of the amp envelope to a linear shape, then increase the scales of both envelopes and tweak them so that the amp envelope rings out a bit, with the filter's following close behind.



6 > Now we have a basic resonant bass patch that sustains while we hold our notes. This is the main timbre. Next, let's introduce a new layer that will create some interest underneath this main tone. Activate **Voice 2** and click the **Voice 2** tab to open its editor. Select the **SawSquare** waveform for this voice's oscillator and reduce the **Octave** to **-1**.

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 Cosmonauts.

RECOMMENDED LISTENING

STEVE ROACH/KEVIN BRAHENY/MICHAEL STERANS: DESERT SOLITAIRE

Ambient mastermind Steve Roach is a long-time devotee of the Matrix-12 and Xpander, using them to create the sort of lush, slowly evolving timbres that are his speciality. In fact, you could listen to just about any Steve Roach album from the mid-80s onwards to hear the Oberheims doing what they do best.

SASHA: XPANDER

We'd be remiss if we didn't point out dancefloor master Sasha's thumping, bumping tribute to the machine itself. The eponymous Oberheim can be heard throughout the track, and is mainly used for its ability to stack and layer sounds. It just goes to show that this technique isn't only applicable to tracks that require moody atmospherics!

PRO TIPS

COMBO PLATE

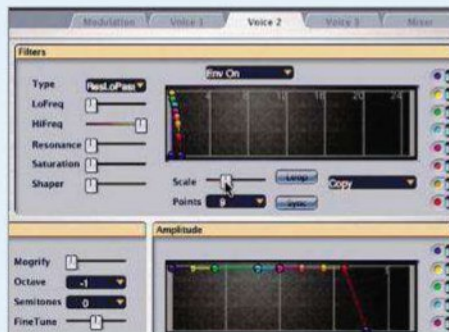
Though it's great fun to create sounds entirely from scratch, there is something to be said for the inspiration that can be found by randomly piling one or more existing patches together. You'll be surprised at how well some disparate sounds work when combined.

MORE MODULAR THAN MODULAR!

If you have a synth (or even a sampler) that has qualities you'd like to combine with, say, those of another synth, you can mix them together in a modular host such as Plogue's Bidule or XIutop's Chainer. Some modular hosts enable you to resample the output and export it as a multisample file, such as a SoundFont.

SONIC GLUE

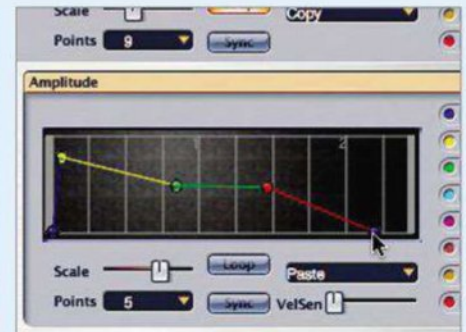
Sometimes, you may want your patches to form a cohesive whole, rather than sound distinct. If that's what you're after, a wide variety of effects can be used to glue the parts together. Route the patches through a single reverb or a chorus effect; the timbres will squash together, without losing their individual qualities.



7 > Play some notes. That's not too exciting, and it's drowning out our cool bass sound. That's alright, though - we'll whip it into shape. Let's activate the filter envelope for this voice. The nine points are fine - we want as many as we can get. I'm going to make all of the envelope curves positive for now. Next, I increase the **Scale** quite a bit.



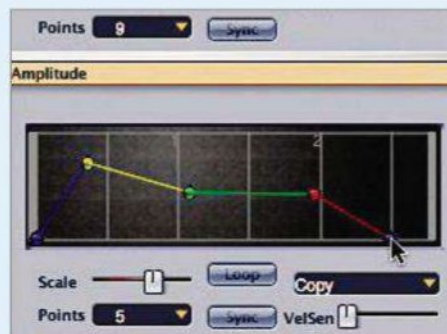
8 > The idea is that our second voice will evolve and shift under the first - so we need to create a complex envelope shape with peaks and valleys. Make something like mine above and then activate the **Loop** function so that it repeats indefinitely, rather than sustaining at some static level. Crank the filter's **Resonance** up to **0.440**, then play and hold a note or two.



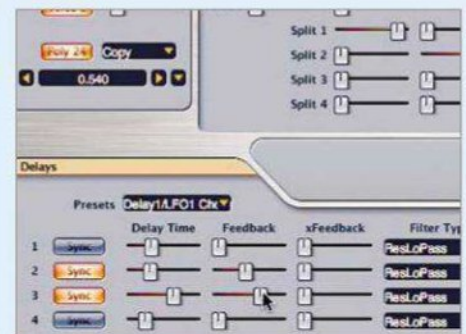
9 > Let's fine-tune our voice levels using the horizontal sliders in the upper-left section. Set Voice 1's level to **0.700** and Voice 2's to **0.280**. This ensures that the initial bass sound is still the most prominent and that the second layer acts as support. You can also use Voice 2's amp envelope to change the level over time. I've created a five-point ADSR-style shape.



10 > Now it's time to activate Voice 3 and tab over to its editor. This time, let's stray far away from the analog origins of the OB sound by selecting a sampled waveform such as the breathy **Vox** wave. We activate the filter envelope for this voice and loop it. Create an envelope shape that resembles a series of uneven sawtooth waves; this will give a rhythmic effect.

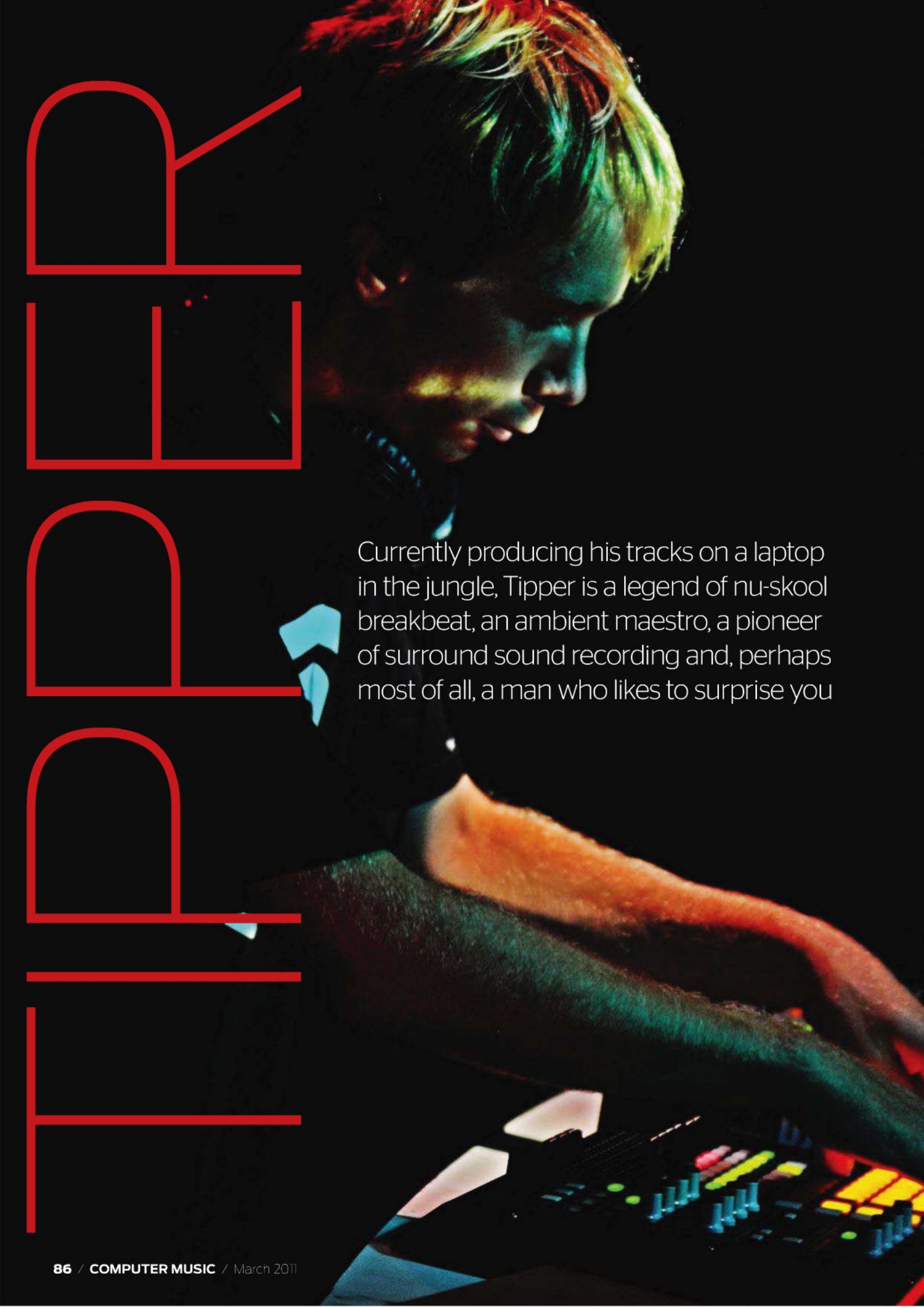


11 > Play and hold a couple of notes. That's pretty cool, but our new sound is overpowering everything. It could also do with a change in filter types. Let's try a **ResHiPass** filter on this and give the **Resonance** itself a nudge. We also need to reduce the relative level of Voice 3. I set mine to **0.140** and create a slow five-point amplitude envelope shape for Voice 3.



12 > We can make the sound even more atmospheric by routing some of the voices through Crystal's delay effects. I shuttle Voices 2 and 3 through Delays 2 and 3, and dial in different **Delay** and **Feedback** amounts for each. You can take this even further by, say, using an LFO to control the delay times. When you've finished, you'll have a thick, textural tone. **cm**

REDA



Currently producing his tracks on a laptop in the jungle, Tipper is a legend of nu-skool breakbeat, an ambient maestro, a pioneer of surround sound recording and, perhaps most of all, a man who likes to surprise you

➤ **On the face of it, Tipper seems to have taken on the mantle of superhero electronic musician, forging a path that encompasses both supreme quality and huge variety. He is certainly among the elite of 'electronic' composers, and while that term loosely covers a multitude of genres, so does Tipper. He seems equally at home with ambient as he is with nu-skool breakbeat, and when he plays live he mixes in everything he can, throwing in scratches of various samples (his own music included) over the top of obscure recordings and unreleased material.**

And it's not just in music that Tipper is credited with pushing the envelope. On the technology side of things, he's well regarded for his minimalist setups and has been credited with some progressive technical recordings. For while he stretches the electronica genre as far as he can as a composer, he has also stretched the very space he plays and records it within. The *Surrounded* recording, released back in 2004, was one of the first 5.1 albums designed as a proper surround listening experience.

It's almost like Tipper is some kind of musical, schizophrenic, technology doctor – like a young Doc Brown from *Back To The Future*, only with a laptop, controller keyboard and Logic rather than a DeLorean sports car. Yet through the mind-bending haze of cleverness and genre-hopping, it's clear that there's something within Dave Tipper that gels everything together – something that has led to a longstanding and loyal fanbase eager to lap up his rare releases, whatever their genre.

Tipper's latest album, *Broken Soul Jamboree*, has brought that fanbase just what they expect: the unexpected. It's got all of the genres you would imagine it to (plus a few you might not), and all of the broad appeal of electronica, yet it also features strings and acoustic-type elements. Tipper's knack for playing the quirky card means that this is an album where the word 'concept' is floated around in blue smoke above the speakers, while whispers from the industry mention the album in the same breath as classics like *Blue Lines* and *Leftism*. Whatever its 'classic' status proves to be, *Broken Soul Jamboree* is certainly a daring move; four years of musical effort pushed into a concept dance music album and released into a world where people don't really listen to albums, let alone the concept kind. That could be either very stupid or very brave. What we can say for certain is that it is typical Tipper...

Inspired to rave

So where has this electronic maverick come from? Straight from the decks! Tipper's early career was carved out over the turntables, perfecting the scratching technique that he still incorporates into his sets today.

"I took a lot of initial inspiration from the early 90s UK rave scene," remembers Tipper. "Around the age of 15, I found out that people

were using Ataris to make music and not just to play games. To me, that sounded like something worth investigating."

So, investigate it he did. After embracing those early MIDI-only computer setups, Tipper soon started experimenting with his own music-making. After being discovered by his manager over a conversation about the most effective bass in dance – as you do – he eventually found an outlet for his music on Fuel Records, and produced the track *Twister* – which ended up backing no less than the European Renault ad campaign. Not a bad start at all...

At this point, Tipper was already attracting attention for the quality of his releases. Achieving the perfect bass sound was just the start, and soon it became the punctuating characteristic of many a Tipper remix and production throughout the 90s and beyond, with his work pioneering the nu-skool breaks genre. His time in the studio saw him release his debut album *The Critical Path* in 1999 and follow-up *Holding Pattern* in 2001. Both albums garnered much acclaim, but it was tracks from the latter that were picked up by DJs around the world. Tipper soon followed them, touring internationally and quickly building himself an excellent reputation as one of the best live acts in dance music.

Awash with sound

At this point, the first hints that Tipper wasn't going to stick to one genre began to pop up. His productions took an ambient turn with the release of the aforementioned *Surrounded* album, which came out on MyUtopia Recordings and was supported with special '5.1 tours' spread over the next two years. By this time, Tipper was embracing the MP3 format with his own MP3 Surround Sound Player, and his tracks were coming out for download at an almost alarming rate. Included in this crowd of top-quality releases were *Tip Hop* and *Relish The Trough*, from which several tracks were picked up by prime-time US TV shows.

Since the early 00s, Tipper has veered between more downtempo albums (*The Seamless Unspeakable Something*) and the glitch-hop of *Wobble Factor* while remastering and rereleasing back-catalogue material. So where does Tipper's latest album find him in his musical development, and is he finding peace in any particular genre yet?

"The thinking behind *Broken Soul Jamboree* was to try not to think about it too much," Tipper tells us wryly. But somehow, that doesn't sit quite right with us. After going through such a prolific stage over the first half of the last decade, taking four years to release this album seems both extravagant and particularly thoughtful. So, why the wait?

"I try to utilise as many tricks and techniques

as possible," Tipper explains. "That takes a lot – a lot – of time, which I think is the main reason for the [quality of] results achieved."

Tip tricks

Broken Soul Jamboree features a lot of real instrumentation – or at least it seems to. Are the instruments real, or are they another example of Tipper mastering a technological medium?

"It is a mixture of both real and sampler instruments, with no sampled loops," Tipper confirms. "I like the combination of electronic and organic sounds in compositions – I think it's a natural complement. The stuff I recorded myself playing [Tipper adds guitar, mandolin, keys, and so on] was mic'd pretty badly, so it's

"What inspires me? Being anchored to a bizarre bag of flesh that's gravitating to a giant spinning ball"

inherent crappiness balances well with more polished electronic sounds." That revelation is almost a shock to hear from such a sonic perfectionist, but Tipper immediately redeems himself, going on to admit that his sampler instruments are played back to perfection because he spends a lot of time programming each individual note.

Perhaps we're blurring Tipper's lust for sonic perfection with his continual goal to break new ground. Just moments after revealing that his recording techniques can be less than perfect, he surprises us again.

"I'll use anything as a starting point – a fart, if it pleases me."

So, what next, if that fart works well?

"Although I work predominantly in sequenced loops, I think ahead in terms of 'one sound at a time,' Tipper tells us. "Over the course of a few weeks there will be enough sketches laid out to begin to find ways to integrate them sequentially."

We're getting used to surprises from this man now – as perhaps we should be, given his musical track record. Our next question gave rise to a very unexpected answer.

"What inspires me? Being anchored to a bizarre bag of flesh that's gravitating to a giant spinning ball." We think it's a roundabout way of saying that his inspiration is being alive – Tipper clearly thinks about things a little differently.

Tech talk

When we start to talk technology, Tipper relaxes. It's evidently an area he is happier talking about.

"Computers are awesome," he grins. "Modern computing technology is the sole reason I can

live in the jungle" – he now lives in a remote spot in the island state of Hawaii – "and still be able to go through the entire process of creating and producing a record from start to finish without leaving the house. Taking that into consideration, I'd imagine that in the near future, I'll be able to do that entire process without leaving my bed."

So, what software does he work with while acting the recluse in the jungle? "Logic is my sequencer of choice," Tipper reveals. "I'm also using the Access Virus TI a lot right now, which has an integrated software interface to pair with the hardware. What used to be a fiddly and arduous UI is now an easily navigable on-the-screen interface. So, you get the liquid clarity of the hardware with the added benefit of a software UI."

When it comes to software plug-ins, Tipper is equally positive about just one set. "UAD plug-ins are by far the highest quality plugs on the market." With such a diverse output, it

"Modern computing technology is the sole reason I can live in the jungle and still produce a record from start to finish without leaving the house"

seems incredible that Tipper relies on such a small range of instruments and effects, but our experience confirms that the 'less is more' concept often wins hands down when it comes to filling hard drives – and clubs. Reducing your options can increase your output as you have less scope for dithering about, and that's definitely been the way forward for Tipper. He likes to keep things small and perfectly formed.

After starting out on the Atari with hardware all those years ago, keeping it software seems to be Tipper's philosophy from now on. "It doesn't weigh anything, only takes up virtual space and doesn't get covered in sticky fingermarks or splashed with tea," he laughs. "You can buy it without going to a store, which works for me, because there's no music store for 2000 miles in any direction!" Maybe the solitude that this particular 'bag of flesh' enjoys on this 'spinning ball' is the real reason he likes to keep things simple. If a music store were to pop up in the jungle, what would be on his shopping list?

"Well, I'm always drooling over a fully juiced 12-core desktop," he notes, "but I'm missing the whole '20 grand' thing with which to procure it!

Live it

Tipper's live setup differs quite a lot from his studio setup. It's still a compact affair, though, and while it's minimal in amount, it's maximal in terms of flexibility.

His philosophy is to reserve as much spontaneity for every performance as possible while working within the confines of technology. "At the moment, I'm using an Akai APC40 for interfacing with Ableton, which is running all of my tracks, layers, one-shots and FX. I also use a turntable for scratching sounds, which helps to add a percussive element."

It's a human element that he clearly thinks he needs, as he's still unhappy with live human/computer interaction.

"The interfacing between humans and computers is still very much in its infancy," he tells us. "I prefer to use the term 'alive', in that it's me operating the computer and not a corpse – although I'm aware that it's easy to mistake me for a dead person on stage."

Selected kit list

Akai APC40
Apple Mac laptop
Ableton Live
Apple Logic Pro
Access Virus TI synth
Native Instruments Reaktor
UAD plug-in suite

I'm also still holding out for a thought-controlled brain cap UI. Then I won't be glued to my chair for 14 hours at a time."

Believe your eyes

As we've hinted at, a Tipper live performance is one to behold. Using Ableton Live and throwing in samples and beats, Tipper makes every live performance different. Sometimes using his own unreleased material as a backdrop and at others using anything of quality he can find, one thing you can be sure of is that his set is going to be unpredictable. But surprisingly, Tipper has strong feelings regarding computers being used live on stage.

"Mmm..." he muses. "That 'live' word again. I make no assertions that the word 'live' regarding computer music performance is in any way equal to the same terminology when applied to an acoustic band."

However Tipper views the philosophy of his live show (see *Live it* above for more), he certainly ensures that he makes the most of it in a 'stretching the boundaries of what you have'

kind of way. And with his most ambitious live plans reportedly underway for performances this year, there's a strong chance that his best gigs are yet to come.

"Primarily, the idea is to give people a rich listening experience," he says. "For me, the only thing of real importance is what is coming out of the speakers, and for that purpose I'll be touring with a Funktion One rig. There will also be a tidy LED visual rig to cover the ocular requirements."

Sounds great – just don't expect the obvious. And as for advice for anyone wanting to make music (and make money from music), Tipper has a refreshing reply: he doesn't know, simple as that...

"I have no idea, and I wouldn't like to speculate," he says. "It's all changing so fast that it would be naive to make assumptions."

We get the impression that Tipper's not here for any of that, anyway. And living on the edge of a jungle, in Hawaii, doing what he wants and able to take his music around the world, why should he care? Jungle, beaches, laptop, software... would you? Thought not. **cm**



Tipper works hard on his live shows, ensuring that each is as spontaneous as possible

From nirvana to mediocrity

Tipper can't be that far away from his technological nirvana of making an album in bed, describing his studio setup as simply "speakers, laptop, soundcard, summing box, Access Virus and MIDI keyboard". His setup is affordable and as such accessible to many, but Tipper isn't sure that such accessibility is a good thing.

"Technology has levelled the playing field in that everyone can affordably make noises on computers and put them on the internet," he says. "In theory, that is a beneficial thing, as it allows a larger demographic to indulge their creative whims. In practice, though, it seems

to make it harder to find music one likes, because searching for it is comparable to drowning in a sea of mediocrity."

"I'm all about encouraging humans to indulge their creative desires," he continues. "However, a curious knock-on effect of the internet is that everyone is a superstar these days. Hopefully when this initial power rush has been assimilated, people will spend a little less time on shameless self promotion and a little more time finessing their audio creations, which could make for a more favourable situation in the future."

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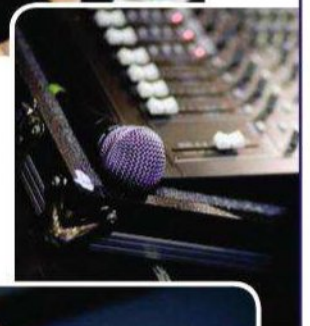
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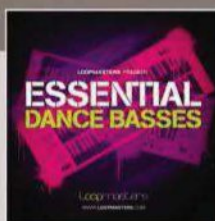
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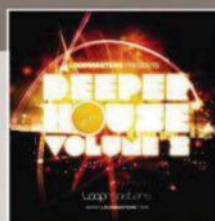
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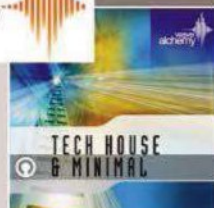


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COMPUTER music

> competition

Rob Papen is a legendary name in synthesis and we've teamed up with his European distributor Time+Space for a monster giveaway! Two lucky winners will each receive a **Rob Papen eXplorer** bundle, worth £499, - this mighty collection contains all of Rob Papen's synths and effects. **Blue** (cm 93, 7/10) is a "cross-fusion" synth that handles several different types of synthesis, while top virtual analogue synth **Predator** (cm112, 9/10) is packed with waveforms and modulation methods as well as 21 effects. Two more specific synths are next: **RG** (cm 138, 9/10) is a rhythm guitar synth with built-in step sequencer and sweet effects, while **SubBoomBass** (cm140, 8/10) lives up to its name with a variety of "cone-shaking" low-end sounds. Innovative **RP-Verb** (9/10, cm 146) is far more than just a reverb, enabling the creation of weird and wonderful textures. Rounding off the bundle is **RP-Delay** (10/10, cm160), which we lauded as "one of the best delays we've used".

HOW TO ENTER

To enter, send a text to **87474** containing: the keyword **PAPEN**, followed by a space, then **A, B or C**, then another space, then **your email address**. Alternatively, you can go online and use the form at **www.futurecompetitions.com/cm162**. Entries must be received between **February 9 2011** and **March 14 2011**, and only UK residents aged 18+ may enter.

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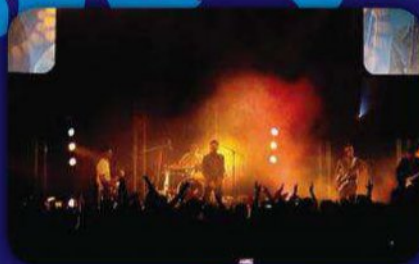
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94_ SYNAPSE AUDIO DUNE

Proof that you shouldn't judge a book by its cover, Dune is plain to the eye but titillating to the ear



102_ VENGEANCE-SOUND PHILTA XL

Endowed with cool features and a banging sound, Philta XL hits the nail right on the head for dance producers



104_ IZOTOPE NECTAR

Containing 11 processing modules and several great genre presets, this complete vocal channel strip will get your singers sounding sweet

This issue

- 94_ Synapse Audio Dune
- 96_ Waldorf PPG Wave 3.V
- 98_ Tone2 ElectraX
- 100_ Madrona Labs Aalto
- 102_ Vengeance-Sound Philta XL
- 104_ iZotope Nectar
- 105_ Universal Audio Studer A800
- 108_ Mini Reviews
- 112_ 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!



Awarded to products that challenge existing ideas and do something entirely new



A product has to really impress us with its functionality and features to win this one



If the product exceeds expectations for its price, it will receive this gong



In the opinion of our editor, the best product reviewed in the magazine this month

OSCILLATOR SECTION
Three typical oscillator wave types and 69 wavetable ones

UNISON MODE
Stack oscillators until your sounds are fit to burst!

LCD DISPLAY
Access the mod matrix, preset controls and the arpeggiator

OSC COMMON
Inject grit with pulse width, ring mod and FM controls

LFO SECTION
Get busy with up to three LFOs, synced or unsynced!

EFFECTS SECTION
Distortion, EQ, phasing/chorus, delay and reverb

FILTER
The Offset knob is used for the dual filter modes, to set the distance between cutoffs

ENVELOPES
Amplitude, modulation and filter envelopes, all assignable in the mod matrix



Synapse Audio

Dune £99

PC MAC



It might look pretty average, but some serious muscle lurks behind that lean exterior, ready to kick sand in the face of the competition

System requirements

PC P4 1GHz, Windows 2000/XP/Vista/7, VST host

Mac 1GHz Intel CPU, OS X 10.4, VST/AU host

> Synapse Audio may not be the biggest name in the industry, but they do have a solid reputation going back many years, so we were excited to hear that they had a new soft synth with an exotic name on the way. On the surface, however, Dune looks rather plain, offering up two oscillators, a sub-oscillator, LFOs, filters and envelopes. So, a standard subtractive synth, then. But dig a little deeper and an impressive arsenal of secret weapons is revealed...

The two main oscillators are identical, each offering sawtooth, pulse and sine waveforms, along with a wavetable mode featuring 69 further wave shapes. The wavetable position can be modulated, thank goodness, and there's a sync option too. The Fat control further excites proceedings, offering seven extra oscillators stacked for each oscillator, which, when you factor in the sub oscillator and the unison mode, means that Dune can issue forth a whopping 120 voices with a single keypress.

We just mentioned the unison mode, and if the synth has a headline feature, this is it. Where most synths' unison modes simply stack voices and apply panning and detuning to thicken the

sound, here you can target individual unison voices (or groups thereof) in the modulation matrix, which turns out to be pivotal to much of the synth's fun. Synapse dub this the Differential Unison Engine, and this is where the name Dune is derived from.

Lead by example

It's all made possible by an extra Voice column in the mod matrix, where you designate each modulation to the desired voices - leave it blank and it applies to all voices, like any normal synth. You can solo unison voices from the front panel, which aids sound design. As an example, you could set up an eight-voice unison patch and apply filter modulation to only the even-numbered voices, while applying pitch modulation to, say, voices 1 and 2. We particularly like being able to set oscillator phase individually per unison voice. This makes it possible to have the attack of each new note sound the same, unlike almost every other synth, where unison voices are free running.

Oscillator 3 is the sub-oscillator, and it's fixed at an octave below the first one. While it has no

"Patch after patch
leaps out at you,
egging you on"

wavetable capability, it does give you a triangle waveform instead of a sine. And on top of that, it also offers a rudimentary noise generator.

For further sound-jiggering there's an FM mode that's very easy to dial in, and that can be applied to the filter, too. Speaking of which, the filter has 18 different modes, including 12 and 24dB/oct low-passes, serial modes (eg, comb filter into low-pass), a bunch with additional effects like distortion, and other filter arrangements, such as separate filters for each main oscillator. The envelopes and filters are basic but effective. At first, we were perturbed by the lack of an LFO phase control, but it turns out you can set it in the mod matrix - hurrah!

Won't get fooled again

Dune fools you into thinking it's simple. But flip through the presets and you'll hear classic wavetable and FM sounds rubbing shoulders with subtractive tones. There are close to 400 presets, and you can expect to hear everything from searing trance leads and Kraftwerk-style sequences, to highly convincing special effects and sounds based on classic synth patches. There are some spot-on analogue-esque drums in there, too. Patch after patch leaps out at you, egging you on to start a new track. Another great touch is the comment window, which gives details of the current patch, and often suggests how to modulate it. If we have one criticism, it's that there are a few too many soft string pads and a lack of convincing subs.

Finally, we get to the effects section, opened with a little tab at the bottom left. It's pretty standard stuff and the effects are well chosen for each preset. We'd like the industry to start issuing faders for any synth released without a global effects off control, but until that day, you'll have to flick off the effects for each patch manually if you want to hear it dry.

We have some other minor grumbles. First off, we'd have liked a global master tune control in a highly visible spot (ie, not buried in the mod matrix), as the richer the sound, the less useful conventional tuning settings can become in a track. It's also frustrating that you can't tempo sync the phaser/chorus, and a few more effects-related destinations in the mod matrix wouldn't go amiss. There's also no unipolar



The modulation matrix is the key to unlocking much of Dune's sonic potential - it has 24 slots across two pages



Dune's programmable sequencer/arpeggiator is reminiscent of editing in a tracker

'Arping on

Dune's arpeggiator/sequencing functions deserve a special mention. Selling point number one for us is the swing function, which completely transforms the vibe. It's crazy that you don't see this more often, as it stops arpeggios and sequences sounding like soulless 80s soundtrack music.

There are five rather nifty modes. Chord rhythmically pumps out the chord you play, creating an energetic accompanying part (and a funky one, too, if you elect to use swing).

Duophonic is based around two notes. Mod doesn't trigger note information - rather, it's designed to be a modulation source (with obviously

powerful possibilities). Dynamic is quite original - it generates the pattern based on the lowest played key, but any additional keys pressed replace specified notes in the sequence, enabling an exciting and spontaneous mix of sequence and live play, and all in perfect time.

Finally, there are three types of Simple mode - one that plays back the sequence on a loop, a single-shot mode that plays it through once (ideal for creating strum sounds or chip music blips), and a mode that only affects the even-numbered voices in a patch. There's no traditional arpeggiation (up, down, etc), however.

mode for LFOs, although you can fudge it with some mod matrix trickery.

A synth of many voices

So what are Dune's strengths? We'd say its splendid sound, wide-ranging sonic possibilities, approachable layout and awesome presets. It's not a particularly analogue-sounding synth, and the bottom end isn't the phattest, but it does sound very pleasing and polished in a way that's slightly reminiscent of reFX's Nexus (even though that instrument is predominantly sample-based). It's surprisingly light on the CPU, too, even with all those unison voices.

No matter what kind of music you make, we think you'll find something useful here. Dune inspires you to start new projects, and is great when added to an existing project. With its detailed and informative manual and easy interface, we reckon it's a fine choice for less skilled synth programmers wanting to take a step up, while seasoned synth fiends will relish the novel unison features. Whichever category you fall into, picking up Dune could be just the way to start 2011 on a creative footing.

Web www.synapse-audio.com
Contact service@synapse-audio.com

Alternatively

Rob Papen Predator
cm112 >> 9/10 >> £125

Similarly-spec'd club smasher, but not as versatile

Lennar Digital Sylenth1
cm113 >> 10/10 >> £167

Piles of presets, and about as flexible as Dune

Verdict

For Versatile, slick-sounding synthesis
Innovative unison modulation system
Awesome arpeggiator
Great presets
Excellent layout
CPU-friendly

Against Can't sync modulation effects
Not enormously weighty in the bass end

Dune combines cosily traditional synthesis with crafty innovations and a seductively polished sound

8/10

PROGRAM PANEL

Assign up to eight on various MIDI channels or stack 'em up for richer sounds

ENVELOPE GENERATORS

Envelope 1 is for filter cutoff and wavetable position, 2 is for amplitude, while 3 is a two-stage affair with reversible polarity

DIGITAL PANEL

Dive inside of those wavetables, mess with their modulation and have a play with the arpeggiator

LOW FREQ OSCILLATOR

Offers adjustable rate, shape and delay, and is as erratic as the real thing!

BASIS

Determines how voices will be placed around the stereo sound field

MODIFIERS

Here you'll find filter controls, a drive control and knobs for setting the start position of the wavetable

PANEL BUTTONS

Select what to display in the Digital Panel area up top



PANEL FUNCTION

Choose filter modes, select between transistor- and tube-style drive and activate the True PPG function

Waldorf PPG Wave 3.V £119



System requirements

PC Intel P4/AMD Athlon 1.5GHz CPU, 256MB RAM, Windows XP/Vista/7, VST host

Mac 1.42GHz PowerPC/1.5GHz Intel CPU, 256MB RAM, OS X 10.4, VST/AU host

> Waldorf's PPG Wave 2.V virtual synth is an emulation of the classic PPG wavetable synth. The hardware saw the light of day in the early 80s and experienced a number of revisions: 2 (the original), 2.2 and 2.3. The soft version has been around for nearly a decade now and, though we've seen minor tweaks, fixes and even a repackaging, there has never been a significant update. We've seen variations on the wavetable approach (including Waldorf's own Largo), but the PPG clone seemed to be collecting dust. That would have been a shame. Technology has come on a great deal since the PPG Wave 2.V was first released, and developers can now take advantage of a lot more horsepower to hone their emulations to a T and provide keen extras like built-in effects. Happily, that's just what Waldorf have done with the PPG Wave 3.V.

Feeling blue

The interface will be instantly familiar to anyone who used the Wave 2.V or, indeed, a real PPG. As with the real thing, the interface is divided between familiar 'analogue' knobs and slightly more cryptic digital functions. The analogue

section recreates that of the the hardware with only a few variations, while the top half is used as a detailed display of the deeper functions. It's a vast improvement over the hardware's archaic two-line LCD display. A brace of buttons allows access to the digital facilities.

The sound is as familiar as the GUI. Subtractive synthesis is the name of the game here, though instead of the usual smattering of simple waveforms, the PPG uses wavetables, each consisting of a series of digital waveforms strung together in a linear fashion. This allows for a far greater range of sounds, but wavetables really come alive when using modulation to dynamically sweep through the waveforms, resulting in the shifting, evolving timbral changes that are the PPG's calling card.

New additions for the 3.V include a wicked Drive function in the filter section, along with the ability to select between the sound of the 2.2 and 2.3 hardware (or even the 2.V software, for backward compatibility). The True PPG mode must be activated to achieve the most faithful emulation of the original. The filter itself features 12dB and 24dB modes.

“PPG Wave 3.V still sounds terrific and is the closest thing to a real PPG”

Waldorf have included a full complement of effects this time around. There's an EQ, phaser, overdrive, chorus, six-tap delay and, of course, a reverb. They all sound good. The effects are assigned and saved per program, so if you stack a bunch of patches up in a multi, they can each have their own processing. Sweet.

Terms of endearment

Many of the sounds that we associate with the original PPG machines came courtesy of the bulky blue sidacar computers known as Waveterms. These heavy-duty processors opened up new possibilities for PPG owners, providing sampling, custom wavetables and more. When we heard that the new PPG Wave 3.V was to include the sampling of the original, our anticipation-ometer went off the scale.

However, our excitement may have been a little premature. Yes, the 3.V does import samples (dubbed 'transients' in PPG speak), and they are loaded in via the Digi page. The Wave 3.V comes with the original Waveterm factory samples, and it can even read Waveterm disc images (with the help of third-party freeware), if you are lucky enough to have an original Waveterm lying around. 8-, 12- and 32-bit playback resolutions are provided, the first two being in keeping with the PPG Waves 2.2 and 2.3 respectively.

As with the original, you can use up to eight different samples to create a multi (assuming that each of the eight parts is responding to the same MIDI channel). You can adjust sample start and loop position, but not a lot else. It's very rudimentary by today's standard, but that's really the point: to provide an authentically retro experience. Yet we can't help but feel a little disappointed that more of the Waveterm's functionality wasn't included. We'd dearly love to see the ability to cobble together custom wavetables (Waldorf suggest that this might be implemented in the future). Still, the sampling is a nifty addition and it's terrific to have access to all of those familiar 80s sounds.

Waldorf's press releases have made much ado about the diligence applied to recreating the harsh, characterful sound of the original PPG Waves. It just so happened that we had access to an actual (battered) PPG Wave 2.2 for our review, and we couldn't think of a better way to put their claims to the test than by comparing



The PPG Wave 3.V's graph display is a heck of a lot easier to grasp than the two-line LCD of the original



We compared the PPG Wave 3.V plug-in to the original hardware - and came away impressed

Keeping it real

So how does the software stack up to the hardware? As the Wave draws upon digital wavetables, the oscillators are, as you'd expect, pretty close. The main differences that we found were in the envelopes, which isn't uncommon in emulations. However, we have to say that in the case of the PPG Wave 3.V, the differences are slight indeed: they really only became evident when using ADSR 1 to sweep through the selected wavetable. You can plainly hear this in the files **PPGTestWaveSweep1.aif** and **PPGTestWaveSweep2.aif** on the **cm DVD**. In these examples, we set up both the real PPG and the 3.V with the same parameter values - the real one plays first, and the clone sounds after that.

Obviously, there are some slight differences. It turns out that the envelopes in the Wave 3.V are matched to the slightly faster envelopes of the

Wave 2.3, and even though you can switch between emulations of the 2.2 and 2.3 modes hardware, it seems the envelope is always in 2.3 mode.

These disparities are even less noticeable when, say, shaping classic PPG bass, as our **PPGTestBass.aif** clip demonstrates. Again, the real PPG is heard first, followed by the clone.

The final example is a recording of initialised settings with the resonance cranked high, while the cutoff sweeps from lowest to highest settings and back. Here, you can plainly appreciate the hard work that Waldorf's boffins put in to the filter! It should be noted that the filter itself is the same as the one used in the 2.V - it has always sounded this good. The improvement comes in the way it responds to the envelope, which is far more accurate on the 3.V. Very well done, lads!

the Wave 3.V with the gritty, grainy grandiosity of the real thing. See *Keeping it real* for the results.

What's it bring to the table?

It's easy to expect too much from an update that took so long to arrive. While we'd have loved more Waveterm functions, there's no denying that the PPG Wave 3.V brings enough new features to justify the cost of upgrading. The ability to layer programs with individual effects is alone worth the upgrade fee. It should also pique the interest of those who didn't grab the 2.V version. It's still sensibly priced, it still sounds terrific and it's the closest thing to a real PPG.

Of course, much of the cryptic nature of the 3.V's hardware forebear is still in place. The original patch names still give nothing away as to how they sound (superb, in most cases), and the Waveterm samples often have confusing names - all carried over from the real thing.

Nevertheless, like its old man, the PPG Wave 3.V provides an awesome, gritty sound that, even decades on, will make the most jaded synthesists sit up and listen. **cm**

Web www.waldorfmusic.de
Contact info@waldorfmusic.de
Info Upgrade from any 2.V version, €119

Alternatively

Waldorf Largo
cm142 >> 8/10 >> €199

Packs in more features, but doesn't quite have the raw bite of the PPG

ConcreteFX Kubik
cm142 >> 9/10 >> £54

A true 'sleeper' synth packed with options. Does custom waveforms!

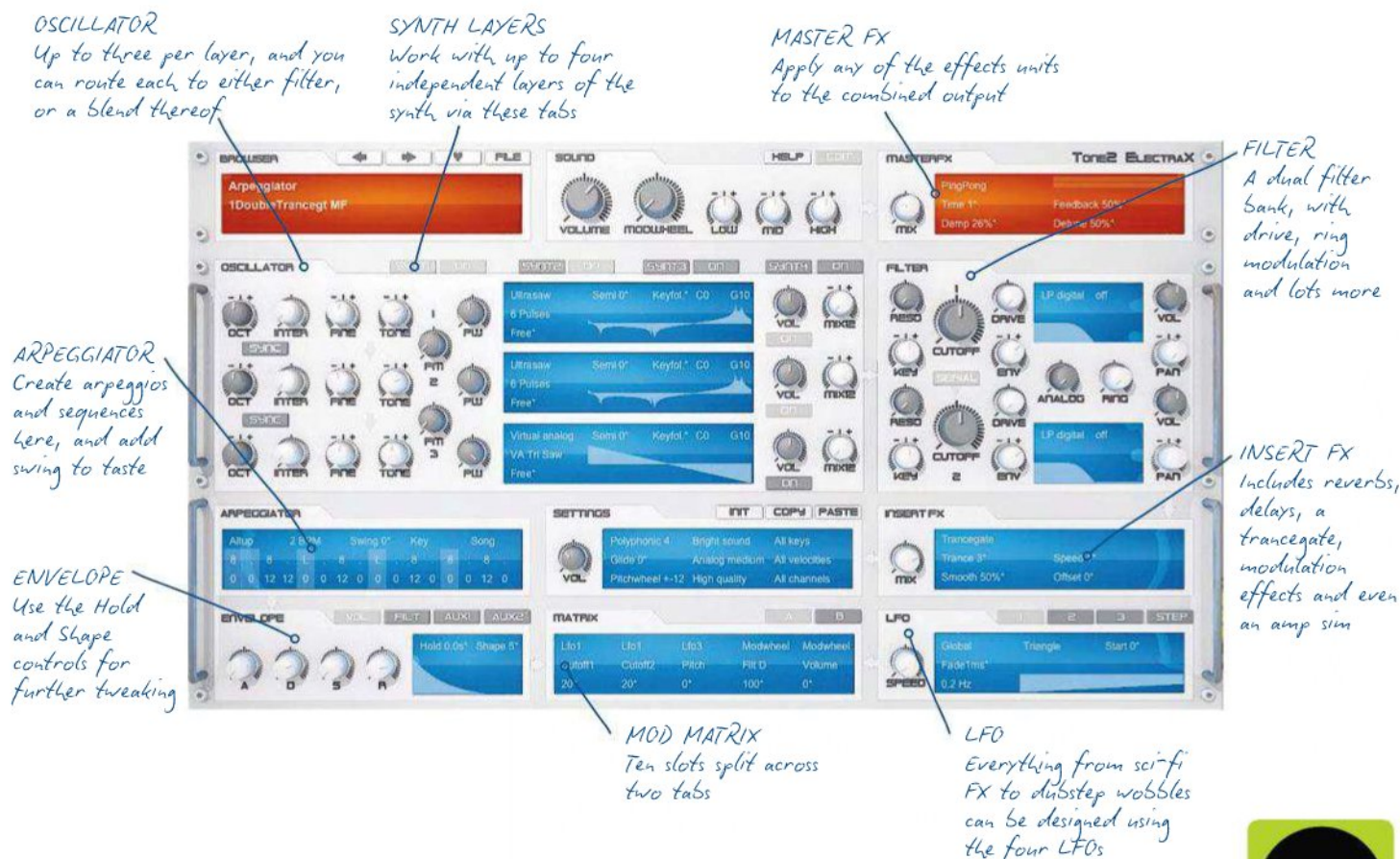
Verdict

For Astoundingly faithful recreation
Filter still sounds amazing!
Loads samples and Waveterm content
Flexible effects
Stack up to eight patches

Against No user wavetables

This emulation of a character-packed classic is now more convincing than ever, with greater flexibility to boot.

9/10



Tone2 ElectraX £149

PC MAC



System requirements

PC 800MHz CPU, 512MB RAM, Windows ME/XP/Vista/7 (32/64-bit)

Mac 800MHz G4/G5/Intel CPU, 512MB RAM, OS X 10.4

> Tone2 garnered a lot of respect with their Gladiator synth – it was a gift to everybody from film-scorers to dance producers. Some purists and sound designers balked at its polished sound, but when tweaked in the right way, it could also be raw, light, or heavy. It was that good. Enter ElectraX, which looks for all the world like Gladiator on steroids – no wonder they bill it as a ‘sonic warrior’! Fire it up and you get the same formidable synth engine times four, split across as many tabbed layers. The output from all the synths is mixed and pumped through a global effect, and that’s your patch. We’ll focus on the anatomy of a single synth layer during this review, but do bear in mind that you can effectively multiply the lot by four.

The first thing you’ll notice is that each of the four synth layers has its own totally different GUI skin. The first layer’s white fascia is the best of a bad bunch, as the others are severely afflicted with a cheesy glow effect that impairs legibility. The actual control layout is good, though, and Tone2 say that improved skins are in the works.

We don’t want to bore you with statistics, but we must mention ElectraX’s 13 synthesis

methods, categorised under five main types: Virtual Analog, Ultrasaw, Noise/Fractal, Sample and Wavetable. The Virtual Analog category offers far more than the typical sine, saw and square waveforms – you’ll also find wavetable, sync, additive, phase distortion, FM and more. The PW (pulse width) knob offers extra functionality for some oscillator types, most notably as the waveform selector for wavetable modes – enable the Crossblend PW option and waveform transitions are smoothly blended.

Plucking brilliant

As well as basic sample playback, there’s a resynthesis function that analyses a sample and plucks out its waveform so you can use it like a synth oscillator. It’s a shame that you don’t have control over where in the sample the waveform is extracted from, and that you can’t combine multiple waveforms to create custom wavetables.

Fractal Synthesis is new to us, and Tone2 reckon it’s based on chaos theory. In practice, it provides a range of unpredictable-sounding oscillator types. They won’t change the way we think of synthesis forever, but they do offer

"You might suspect it of being quantity over quality, but ElectraX sounds mind-blowing"

some esoteric sonic twists.

In total, there are a whopping 45 oscillator types, and you can stack up to three in each synth layer. What's more, there's great-sounding sync and FM on the second and third oscillators, creating interesting interactions. Powerful indeed.

The twin multimode filters offer up a massive 23 modes, including analogue-modelled ones and oddball options like Vocals and Aliaser. They sound excellent too, with all the analogue-style juice and warmth you could need. There are four envelopes with adjustable smoothing and 18 effects including an excellent vocoder (see *Robovox*, right). You get one insert effect per layer.

The LFOs in ElectraX are stunning (three regular plus a step-style one) and more than a match for the kind of bassline modulation that is so popular right now. The arpeggiator reeks of funk, with a nifty swing control - it makes a great track-starter, and remember, you get one per layer. By now, you should have some idea of the scale of ElectraX and the sheer number of potential combinations. See the manual on the **cm** DVD if you crave yet more details.

You might suspect ElectraX of being a case of quantity over quality, but as we've pointed out, all of its component parts are terrific, and as a whole, it sounds mind-blowing.

Our favourite things

ElectraX's 560-preset factory bank is rammed full of almost every type of sound you've ever heard on film, in a club or on TV and radio, and there are some intricate, fresh-sounding tones too. Some of our favourites include inspiring four-layer grooves, percussive sounds, vocoded patches, a string of classic noises (everything from *Beat It*'s opening synth to the kind of 80s stabs you heard in the disco scene in *Robocop*) plus so many current-sounding presets that you'll think all your club sound-a-like Christmases have come at once.

If you want to go off-piste, the Initialize button offers up a list of templates for numerous basic sounds, and some of these are so useful that even sound-designers can appreciate them.

ElectraX has seen a lot of action during our review period, and we have to say that it's hard to fault it. Top of our request list is a multi-output version. Building sequenced groove patches is so fun and easy that it would be great to mix them separately. In many functional ways,



Each of ElectraX's four synths has its own striking fascia



Load your own waveforms into the sample playback module and vocode the hell out of 'em!

Robovox

Vocoders are a funny old thing. When done well, they're incredible; but when done badly they can sound like nothing more than a cheap toy robot with a cold. The key is in getting them just the right side of intelligible.

There are lots of tricks that you can employ - everything from enunciating your words clearly or exaggerating what you're saying to adding white noise in your DAW to put the definition back into your speech - but the best way is to find a vocoder that does it all for you. And to that end, ElectraX does a pretty damn good job.

Now, there are a number of controls that you can use to tweak the sound, but our advice for novices is simple: use the presets on offer here.

ElectraX has a tasty vocoder bank that covers a wide spectrum of vocoder styles, including most of the examples you've heard on hits for the last three decades. All you need to do is load up your own samples in the Oscillator window. It's that simple.

Another great advantage of using ElectraX for your vocoding tasks is that whereas traditional vocoders use an audio track input as their modulating source, by loading your vocal into ElectraX you can play and retrigger words at will, straight from your keyboard. You might find yourself using a couple of instances of ElectraX to get the whole vocal down in this way, but it isn't too heavy on the CPU, so that shouldn't be a problem.

ElectraX is reminiscent of top sound modules of yesteryear, such as Roland's JV-1080 and E-MU's Orbit V2, and we'd like to use it in the same way.

Synth fiends may spot that there's no unison function outside of the Ultrasaw synthesis types, but since you can stack so many oscillators and use four synth layers, we'd say it doesn't matter - ElectraX never lacks fatness.

We should mention that we experienced a few crashes and bugs while using the synth, but a v1.1 fix should be out by the time you read this - we tried it and it did indeed resolve our issues.

Super synth me

ElectraX allays any doubt that Tone2 make hugely versatile synths that can excel in any genre. But for all its far-out synthesis methods, the results don't break much new sonic ground. It's still fantastic in its own right, though, and will suit musicians of all levels. It's perfect for novices as a sound bank; it's helpful for intermediate users learning how sounds are made; and it's rewarding for experts, who will relish its sheer power and diversity. It's an essential purchase, and fully deserving of being your one go-to synth. **cm**

Web www.tone2.com
Contact orders@tone2.com

Alternatively

LennarDigital Sylenth1

cm99 >> 10/10 >> £169

Another preset powerhouse but nowhere near as flexible

Camel Audio Alchemy

cm137 >> 9/10 >> £179

Powerful synthesis/sampling engine, including resynthesis

Verdict

For Stunning presets

Great vocoder

Hugely powerful, diverse synthesis

Excellent filters

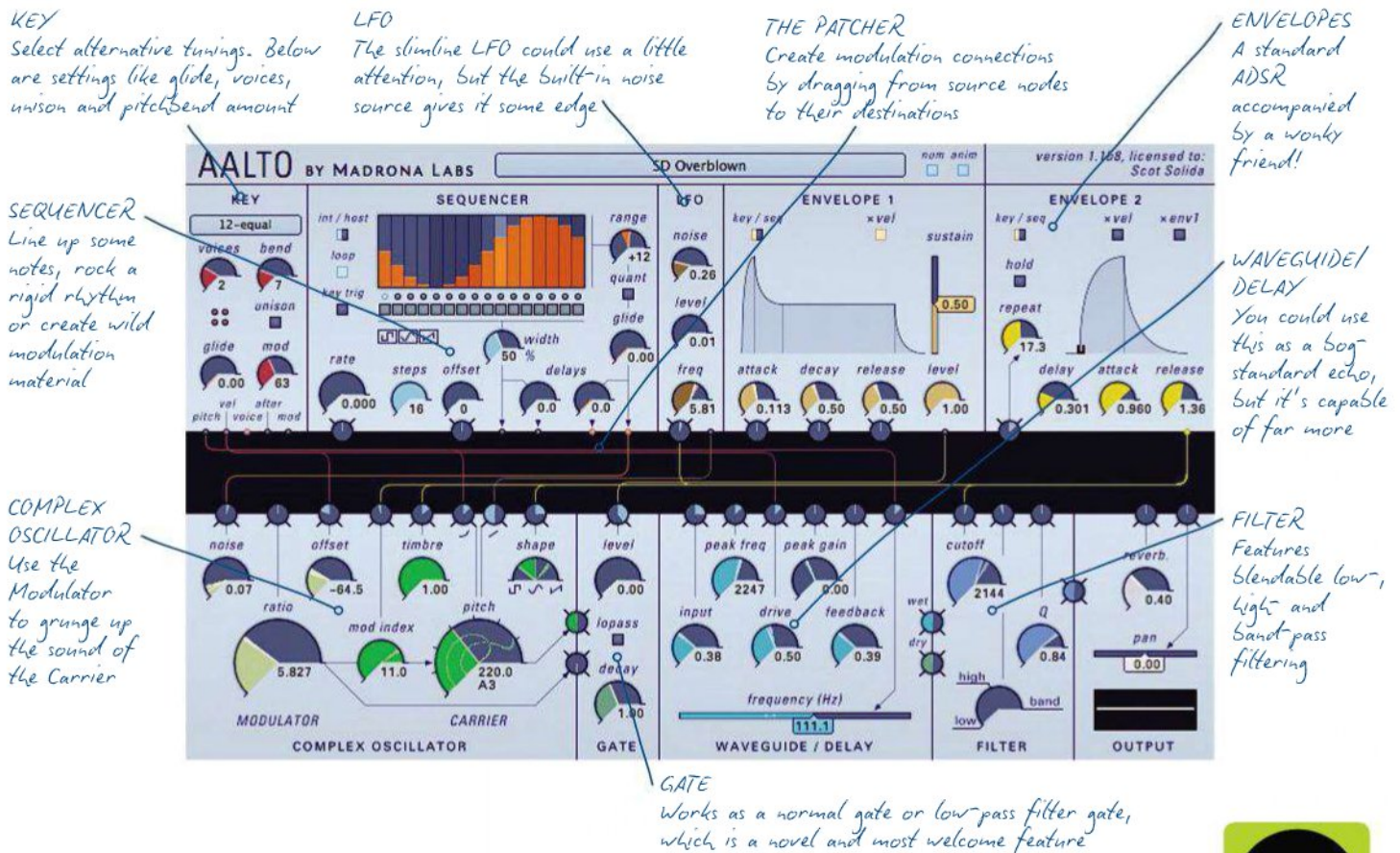
Good control layout...

Against ...But dodgy graphics

No multiple outputs

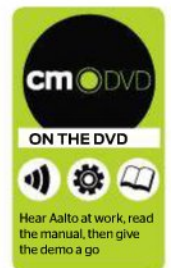
A ridiculously complete synthesis engine and excellent sonics make ElectraX an outstanding do-it-all synth

9/10



Madrona Labs

Aalto \$99 MAC



An upstart developer takes the path less travelled with a semimodular synth that stands out from the crowd

System requirements

Mac 1.6GHz Intel Core 2 Duo, OS X 10.4

> Tired of the same old subtractive synths? Madrona Labs clearly were, as their Aalto instrument for OS X takes its cues from analogue synth legend Don Buchla's legendary and quirky units. Aalto is brimming with features that provide an alternative to common methods of sound design, composition and performance. It's a semimodular instrument, so it offers a fixed number of synthesis components, but these can be freely patched together.

Right from first launch, it's obvious that we're in new territory here. Aalto's GUI is divided into two sections. The top half of the interface sports most of the modulation and control sources, while the lower half provides oscillator, filter and other audio-level modules. There's a black band across the middle peppered with tiny knobs and coloured dots, and this is where all of your patch connections are made. The dots are signal outputs, while the small knobs are both inputs and the control by which you set the amount of signal to pass to the target. To make a connection, you drag from a node to a knob to create a virtual patch lead. Multiple cables can be routed (and summed) to a single destination. The Amount

dial will then multiply the input by the dial's value. At first glance, you might think that the signals flow only from the top of the interface to the lower half, but there are quite a few input points up top as well.

When the going gets weird

Aalto's unusual Complex Oscillator is based on a legendary vintage oscillator, inspired - at least in part - by Buchla's 259 Complex Waveform Generator. Thankfully, it's not quite as complex as the real deal! You're provided with both Modulator and Carrier oscillators, joined at the middle by a Mod Index knob - yep, we're talking basic frequency modulation (FM) synthesis here. Unusually, control signals are sent to the Mod Index through a multistage low-pass filter that emulates the response of a Vactrol-style opto-isolator (an LED driving a light-dependent resistor). There's a Timbre dial that mimics Buchla's wavefolder circuit, and tweaking this adds harmonic richness (and weirdness) to the sound. A Shape control enables you to dial in waveforms from square to sine to saw, as well as anywhere in between.

"Aalto sounds rich,
evocative and
wonderfully weird"

The Complex Oscillator spits its signal through a Gate module. This is another nod to Buchla in that it includes a mode that enables low-pass filtering along with amplitude attenuation. This is useful for a range of timbres, but is probably most applicable to percussive patches. Like the Oscillator, the Gate mimics a Vactrol's response, and there's a Decay knob to control how quickly it closes.

Still wallowing in the unconventional, we turn to the Waveguide/Delay section, which offers a delay line with a peaking EQ and a waveshaper. It's a variation on the combo that's widely used in physical modelling synthesis and, accordingly, you'll find a few presets that draw on this section to make rudimentary woodwind or plucked string sounds. By using longer delay times, you can also tap into this section for standard delay effects.

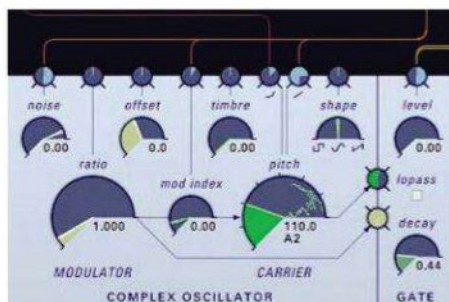
While we're grateful for all of the weirdness, it's nice to see that Madrona have included some more familiar functions, too. There's a lovely resonant multimode filter for one, and it takes its cues from Oberheim's SEM filter. You get three modes: high-, band-, and low-pass. The sound itself is oh-so-analogue. At the output section, meanwhile, you've got modulatable pan and a reverb section for added ambience.

Top heavy

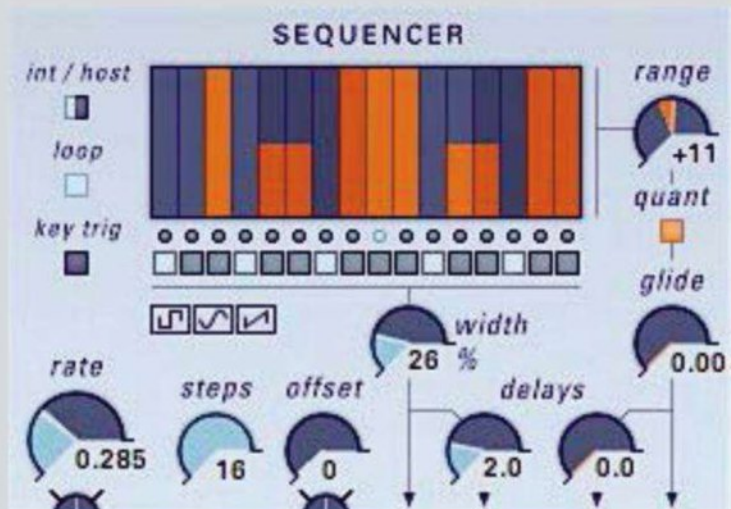
The upper half of the GUI is less likely to confuse. To the left, you can route pitch, aftertouch, mod wheel and velocity messages, and there's a Voice output that sends a signal proportional to the number of each voice. Unison and glide are provided, and you can adjust bend, range and the number of voices to be played. Tuning tables are supported, and you can load scala .sci files.

There's a sequencer (see *Seq and ye shall find*, right) and an LFO, along with a pair of envelope generators. The LFO is a bare-bones affair and produces a sine wave: that's it. You can, however, add noise to this for more chaotic modulation. Of the envelopes, the first is a typical four-stage ADSR, while the second offers attack and release parameters along with a pre-trigger delay time and a Repeat function that retriggers the envelope.

What you can't appreciate from our static screenshots is that Aalto's controls are animated, with an additional line displaying the effective



Note the wobbly line inside the Pitch control - this takes into account the Modulator's effect on the Carrier



Step into line with Aalto's superb sequencer module

Seq and ye shall find

It's all too easy to think of a sequencer as merely a method by which a series of notes are programmed and played back. You can do that with Aalto, certainly, yet it provides a number of features that set it apart. The sequencer generates both pulses and values. The former are used to trigger other events, such as envelopes or the Gate, while values are used for modulation. They might be routed to pitch or filter cutoff, or even LFO rate.

The sequencer can be clocked internally or to the host. Up to 16 steps are provided, and you can adjust the width of the outgoing pulses. Each step can be toggled on or off via a row of

square cells just below the value sliders. The sequencer can be re-triggered via MIDI note-on commands. There's a built-in quantiser that, when activated, locks the output to the currently selected tuning table. The sequencer even has built-in glide, and you can delay both the pulse and value by up to eight steps. Oh, and there are three waveform buttons that snap the sliders to a preset shape.

The sequencer is quite powerful as a modulation source, though we wish the Rate dial's range could be extended into the audio range. Still, you can push things quite a long way by driving it with a modulation source.

post-modulation value in real-time. This helps a great deal in getting a grip on what's going on under the hood.

Real good

Aalto is one of the few modular soft synths that captures the elusive feel of real analogue modular systems. It's perhaps unsurprising, then, that it's pretty tough on the CPU. Three instances were all we could manage on a 2.4GHz Intel Core 2 Duo Mac, and even then we were pegging Logic's CPU meter.

Madrona Labs are going out on a limb here with an instrument that can at first seem intimidating, though, really, it isn't too hard to grasp. It sounds rich, evocative and wonderfully weird at times. Like the hardware that inspired it, Aalto can surprise even veteran voltage jockeys and that, in our books, makes it a winner. Those looking for huge supersaw sounds or phat bass tones might as well look elsewhere. However, if you got into synths because you wanted to explore new sonic territory, Aalto could be just the ticket. Finally, note that a Windows version is scheduled for February. **cm**

Web www.madronalabs.com
Contact info@madronalabs.com

Alternatively

XILS-Lab XILS 3

cm143 >> 9/10 >> £149

Based on the EMS VCS3, XILS 3 is just as quirky and sounds terrific

u-he Zebra 2

cm108 >> 10/10 >> \$199

Sounds brilliant and provides some interesting and unusual modules

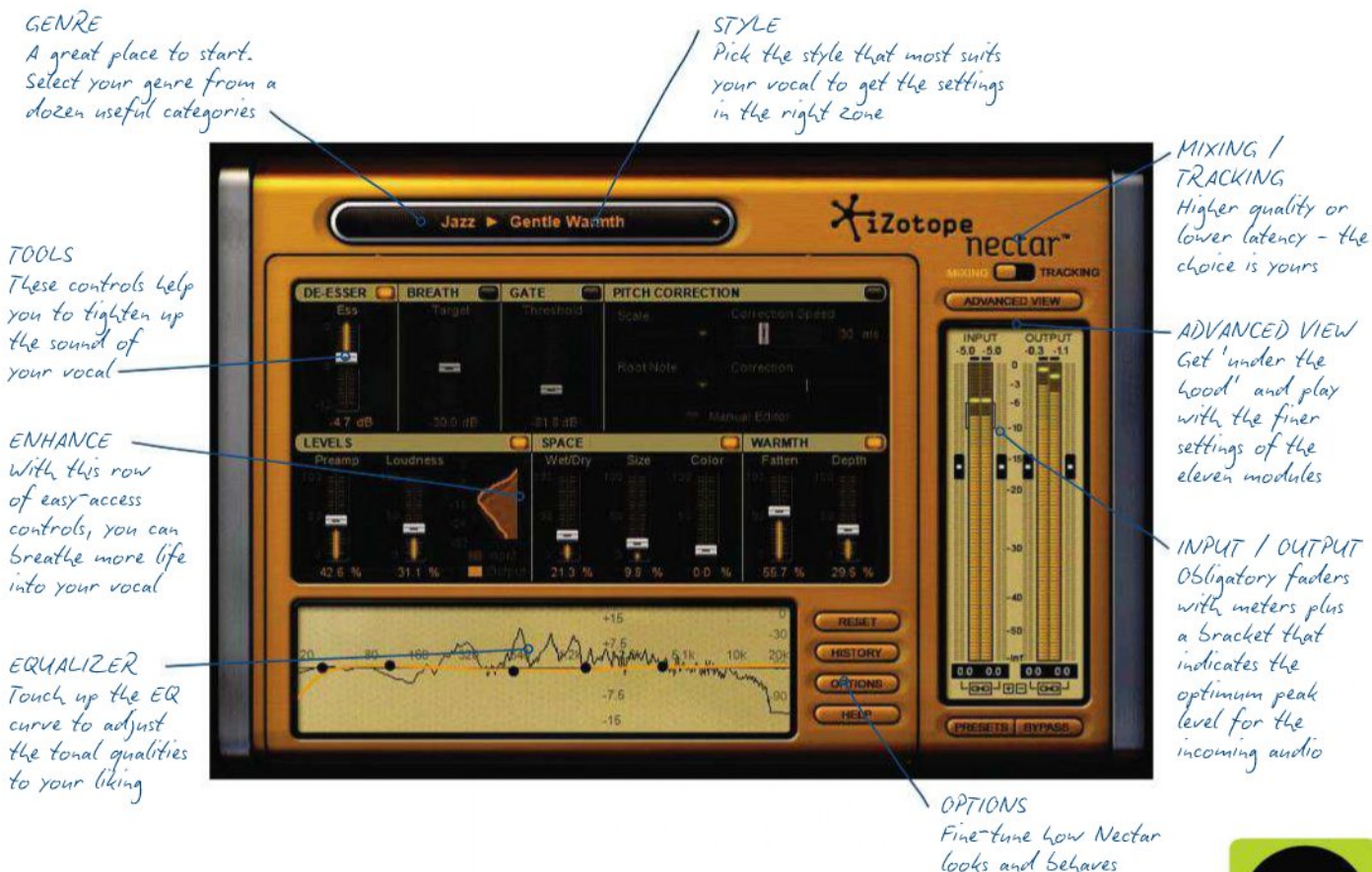
Verdict

For The spirit of a maverick modular
We love the low-pass gate
Sequencer is quite powerful
Sounds wild and woolly!
Good built-in reverb

Against LFO is under-spec'd
A little CPU-heavy

Aalto is aimed at those with a penchant for the unusual. It sounds splendid but may put the hurt on your CPU.

8/10



iZotope Nectar \$299

PC MAC



This sweet package promises a range of full vocal chains, complete with pitch-correction and breath control, all with an easy workflow

System requirements

PC Windows XP/Vista/7, VST/DX/RTAS host

Mac OS X 10.5, VST/AU/RTAS host

> iZotope are perhaps best known for Ozone, their excellent all-in-one mastering plug-in. Many users found that its modular approach also made it a great channel strip for general mixing, albeit a rather heavy-handed one. In response, iZotope created Alloy, a feature-packed mixing-specific channel strip. While Alloy did feature a de-esser, it wasn't a complete vocal solution. So, now we've got Nectar, which is based around the concept of a channel strip that's designed for vocals. Sweet! Although it packs 11 fully fledged vocal-processing modules into a single plug-in instance, iZotope claim that Nectar's capable of delivering immediate results using a preset-orientated workflow.

At first glance, the interface seems fairly intuitive. It's easy on the eyes and doesn't take up too much space, considering its ambitious purpose. The modules are Pitch, Breath Control, Saturation, EQ, Compressors, De-Esser, Doubler, Limiter, Reverb and Delay - seemingly everything you could ever need. One handy feature is a visual bracket on the input meter that shows you the range where the level of your vocal should peak under ideal

circumstances. This plays an important role because our immediate concern with a vocal processor that claims presets as an integral part of its workflow is that it might not properly take into account the qualities of the incoming vocal signal. How can you expect it to give your vocal tracks a particular sound if you don't know how close or far it is sonically from the target sound?

The input bracket is only the beginning of iZotope's addressing of this potential issue. You can get straight to work by selecting a Genre and then a Style from the top preset menu. The simplified controls on the front of the interface then allow you to fine-tune the settings required. Worth a special mention is the EQ, which has a super-imposed frequency analyser.

Sharpest tool in the shed

Aside from the aforementioned EQ, the controls are divided into Tools and Enhance rows. The Tools row offers De-Esser threshold; Breath target; Gate threshold; and the scale, root note and speed of the Pitch Correction module. Most of these properties are likely to need adjusting at least slightly to suit your source recording,

"It feels liberating to have all those controls so close together"

but it actually feels liberating to have all of those controls so close together in one space.

To take things further, there's an advanced view that exposes the full controls for all of Nectar's 11 internal modules. The first two in the chain are Pitch and Breath Control, which are logically hardwired in their positions, while the other nine modules can be moved freely to reroute the signal as you desire.

It might seem daunting to have command over 11 modules in the advanced view, but as the presets demonstrate, it's not necessary to have all of them active at once - you can just select the ones you need for a particular job.

Getting vocal

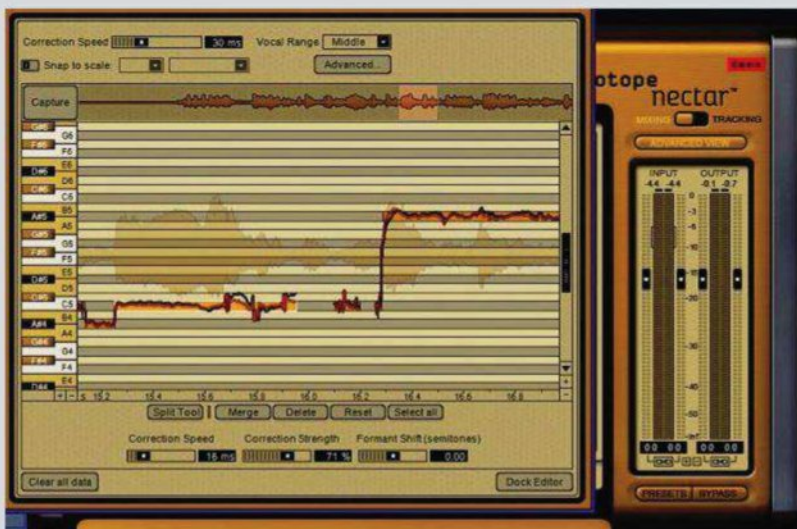
So, how does it sound? Well, we tested all of the modules extensively, and all of them impressed us. These are all exceptional tools in their own right. For instance, the Compressors module actually houses two compressors that can work in parallel. That means you can compress the hell out of your vocal and mix the results with a more pristine version for a tight, controlled sound that retains the fidelity of the original recording. There's even a filter on the second compressor that's perfect for dialling in an 'excited' sound to mix in via the parallel approach.

To have the power of this kind of advanced routing in a single plug-in is a serious blessing. Users of iZotope's Alloy (and indeed, Ozone) will be familiar with this degree of flexibility, but of course, Nectar's modules are angled towards vocal processing. For example, the compressors have more modes. Whereas Alloy offered Digital and Vintage options, Nectar also sports Optical and Solid-State varieties, which represent classic compressor types that sound awesome on vocals. And like Alloy and Ozone, you get peak and RMS detection modes. It's surprising just how in-depth the individual modules are - many could be plug-ins in their own right! We haven't got space to go into detail on all of them, so we suggest that you check out the demo on the **cm** DVD to see what they have to offer.

Back to the main interface, and beneath the Tools row of controls is the Enhance set, which includes Levels (Preamp and Loudness), Space (Wet/Dry, Size and Colour) and a customisable control that's particular to the preset. Even if you decide to dive deep into fine-tuning the modules



The compact interface of the Compressors module puts an awful lot of power at your fingertips



When you consider the price of dedicated pitch-editing software, Nectar seems even more attractive

Pitching in

We'd imagine many people are going to be interested in Nectar purely for the Pitch module. It's a really cool feature, especially considering Nectar's price point and everything else it can do. We found that the automatic style of correction worked quickly and well enough to get us into the right ballpark most of the time: it's as simple as selecting the correct key and adjusting the correction speed. However, the manual pitch correction is where Nectar truly shines.

If you want further control over the intonation, the workflow is a little more involved. When you're happy with the position of the audio in your

arrangement, click the Capture button make Nectar analyse the incoming audio. As it does this, the GUI updates and displays the waveform plus the tuning information. Then you're free to make detailed adjustments to the pitch, much like Celemony's Melodyne.

We immediately appreciated the Split and Merge tools because the detection of where one note ends and the next begins can make all the difference to the quality of the results. While Nectar's pitch correction doesn't sound as good with extreme settings as iZotope's Radius pitchshifting algorithm, it sounds extremely natural when used for even ambitious pitch-correction jobs.

in the Advanced view, you can still emerge from the depths and call up the basic interface to make quick adjustments. There's also iZotope's history-based undo system - very slick!

Out of breath

Naturally, there are certain scenarios where you're going to require a low-latency response - for instance, when monitoring vocals through the plug-in. As well as its default Mixing mode, Nectar has a Tracking mode that minimises latency. The drawbacks are reduced functionality of the Pitch module, lower quality algorithms for the Doubler and Limiter modules, and disabling of the Breath Control module. All of which are entirely acceptable compromises.

Nectar is hard to knock. It's likely to become the go-to vocal processor for many. We did try it on other types of material, but concluded that it wouldn't get so much use outside of processing vocals - there are more suitable tools for that. For its intended purpose, though, it's invaluable, and when you consider how much you might have to spend to get the same functionality from other plug-ins, it's a good deal too. **cm**

Web www.izotope.com
Contact izotope@izotope.com

Alternatively

Celemony Melodyne Editor
cm148 >> 9/10 >> £299

Advanced pitch/timing/dynamics correction - great on vocals!

Voxengo Voxformer

N/A >> N/A >> \$70

Vocal-focused channel strip with dynamics, EQ, saturation and more

Verdict

For Sounds great on vocals

Easy to use

Instant gratification...

...And deep editing via Advanced mode

Manual pitch correction rocks

A true all-in-one solution

Against Doubler hits the CPU hard

Presets not always what you'd expect

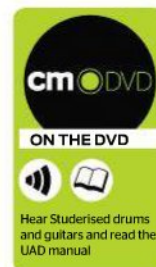
If you've ever daydreamed about an 'Ozone for vocals', then your wish has been granted - its name is Nectar

9/10

Universal Audio Studer A800 \$349



PC MAC



Do your mixes lack soul? If so, try a full-strength injection of analogue flavour courtesy of the latest UAD-2 plug-in

> As a widespread recording medium, analogue tape is pretty much dead and buried. But despite its inconvenience and expense, it really can add both the glue and sheen needed to round off your sound and make your mixes sound 'like a record'. No wonder, then, that tape still has its diehard fans.

Based on Studer's classic 2-inch multitrack machine, Universal Audio's official Studer A800 plug-in aims to give you flexible (and creative) access to many of the capabilities of the original. These include tape speed, record bias, HF pre-emphasis, tape formulation, operating level, playback EQ and input/output levels.

UA don't cut corners, and here they've modelled the complete analogue signal path, making available sync, repro and input monitoring options, just like the real machine. The plug-in can run in both calibrated and uncalibrated modes, allowing you to take full advantage of the original circuit features mentioned above. If all this tape-talk is alien to you, check out the manual on the disc.

Top deck

The first thing you'll notice when launching the plug-in is that the reels spin in accordance with the current tape speed. If you find this a gimmick too far, clicking the IPS label disables it. Next up, clicking the A800 name badge reveals the additional calibration controls - bias, EQ and so on. In this mode, and with the Auto Calibration turned on, it's easy to see how under-the-hood settings such as bias, HF pre-emphasis and playback EQ change according to the selected tape formulation and speed. However, for 7.5 and 15 IPS, UA have also included CCIR and NAB EQ options, and these influence the EQ response as well. The EQ curves also affect the type of hum that's introduced - 60Hz for NAB, 50Hz for CCIR. Finally, you'll find a level control for hiss.

In use, our UAD-2 Solo card managed a combination of five mono and three stereo



instances at 44.1kHz - enough for the significant aspects of a drum kit. The presets cover many common setups and sound surprisingly varied. Those familiar with tape's speed-dependent low-frequency response (or 'head bump') will spot that straight away. However, the real power here is to go beyond the simple 'tape deck' emulator. This can mean driving sounds hard, eliminating or boosting noise and hum, or biasing in extreme ways. You can do this either globally using the gang function (where editing an A800 instance updates parameters on the rest), or on a track-by-track basis. Using considerable under-biasing gave us some fantastic break-up effects.

Purists will note that there are some things the plug-in doesn't replicate, such as print through, adjacent track bleed and dodgy edge tracks - but these are mostly undesirable traits anyhow. More pertinently, you will need a

powerful UAD-2 card (or several cards) to run many instances. However, the Studer A800 plug-in manages to deliver the tone-shaping capabilities of multitrack tape in a convincing way, and is far more flexible than the original hardware, as you can fiddle with settings on a whim. For those already working in the box and for whom analogue tracking isn't an option, it's a highly desirable - albeit pricey - release from UA, and one of their very best efforts to date, which really is saying something. **cm**

Web www.uaudio.com

Contact Source Distribution, 020 8962 5080

System requirements

PC 256MB RAM, Windows XP/Vista, UAD-2 card, VST/RTAS host

Mac 256MB RAM, OS X 10.4, UAD-2 card, VST/AU/RTAS host

Alternatively

Nomad Factory Magnetic
N/A >> N/A >> \$129

Mimics reel-to-reel tape and even has a Sony DASH Digital option

Virsyn VTAPE
cm123 >> 8/10 >> €169

This pack's Saturator offers bias, hiss and flutter, with three-band EQ

Verdict

For Amazingly flexible
Impressive sound
More convenient than a tape machine
Gang option
Controllable noise and hum
Can be used subtly or driven hard

Against Only four tape formulations

A typically first-class effort from Universal Audio that can deliver gentle tape flavour or all-out saturated fire

Taping it

Using this plug-in requires no prior understanding of how analogue recording works, but a bit of know-how may help you get the most from it. To get the most dynamic range from tape, you need to record at a sufficiently high level so that the tape noise is less significant. However, this in turn may result in subtle saturation of the signal, particularly for transient sounds such as drums. This trade-off is affected considerably by the tape formulation you

use, as these are all designed to handle different operating levels. The most recent, GP9, tolerates much higher levels.

Further influencing factors include the tape speed (slower has a different bass response but more tape hiss) and the choice of hearing the record (sync) or playback (repro) head. Further factors include the machine's playback EQ (CCIR, NAB or AES curves depending on speed), record bias voltage and HF pre-emphasis. Phew!

Loopmasters

The Sample Boutique

LATEST RELEASE

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BEST SELLERS



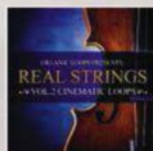
Dark Percussive House & Techno



Groove Tech



The Funky Underground



Real Strings Vol 2 Cinematic Loops



Deeper House Vol 2



Ghetto House

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cm mini reviews

A rapid-fire round-up of sample libraries, ROMplers and more

Vir2

Q £204

Web www.timespace.com

Contact Time+Space, 01837 55200

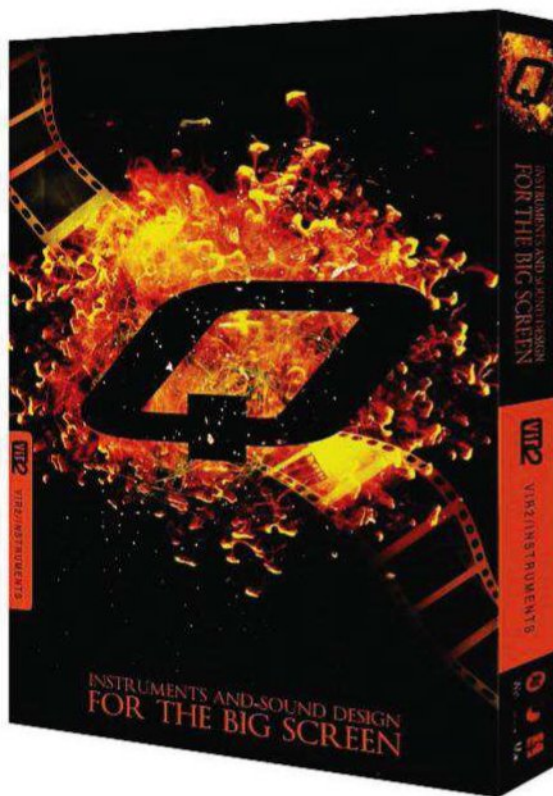
Format Kontakt 4 Player

In the last few years, the mystery surrounding high-level movie sound production has been ripped apart by some stellar libraries that offer pro quality pads, atmospheres and hits right out of the box. Vir2's Q is no exception, with 16GB of polished 24-bit Kontakt patches and some bonus FX as WAVs.

All your typical big-screen production patches are included, and most feature interesting and unusual tweaking options. Multilayered pads can have their individual elements panned and tuned, while the legato instruments' crossfade and pitchbend times can also be adjusted. Standouts are the 710 tempo-synced cinematic percussion loops, in both timestretched and sliced variations. These are all recorded clean so are easy to fit into any mix. Sadly, solo instruments (horns, flutes, etc) only include one legato articulation, which makes them unsuitable for traditional soundtrack work and too reserved for most epic soundscapes.

If you already own a decent cinematic library, Vir2 Q doesn't really add anything new – but if you're just starting out in sound design, it offers an all-round palette of highly usable pulse-quickeners.

7/10



Cinesamples CineOrch £97

Web www.timespace.com

Contact Time+Space, 01837 55200

Format Kontakt 4

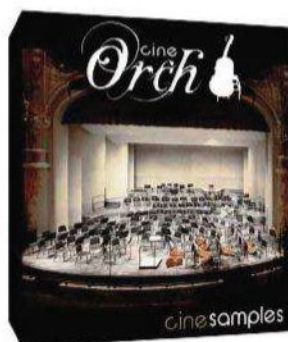
Three patches: that's all you get with this collection of orchestra chords and octaves. Each patch showcases all orchestra sections played in unison to give a lush and very realistic sound, even when playing just a single note.

Various major and minor chord inversions are mapped across the keyboard, with the length of samples controlled by velocity. Attack rates of staccato samples can be shortened and dynamics can be mapped to different CC values. There's also a humanisation option.

The samples were recorded in the same Cinesamples hall as their other libraries, so combine seamlessly. As each chord and note has been recorded with a full range of balanced instrumentation, this keeps the sound palette consistent across all three patches.

This is a library that is purely supplementary to any other orchestral soundpacks you may own, but it's invaluable for fast scoring of block chords or preparing a bed quickly before adding other elements. When you look at the library for what it is – essentially a collection of natural orchestral hits – the price is fair for time- and cash-strapped composers.

8/10



XILS-lab PolyKB II €149

Web www.xils-lab.com

Contact contact@xils-lab.com

Format PC/Mac, VST/AU/RTAS

PolyKB (cm154, 9/10) is an emulation of the exceedingly rare (only about 30 were ever made) RSF Polykobel II hardware synth, which featured novel waveform-morphing oscillators. Now we have v2, a free update for existing users.

First off, there's now a smaller GUI option, which is great news for laptop users. Notable new features include new modulation sources and targets; negative modulation; two new effects (phaser and dual EQ); features like swing and polyphonic operation for the arpeggiator; a time multiplier option for envelopes; and novel new modes for the XY modulation pads. Sound designers in particular will love these new features, which serve to further separate PolyKB from the pack – so it's a shame we're still getting some stuck MIDI notes. The CPU hit can be intense too, but with good reason: this is one of the best examples of analogue synth modelling we've heard.

9/10

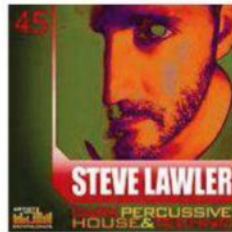


Soundware round-up

Loopmasters

Steve Lawler Dark Percussive House & Techno £35

Format Acidized WAV, REX2, ReFill, Ableton Live Pack, Apple Loops, HaLION, Kontakt, EXS, SFZ, Stylus RMX, NNXT, GarageBand
Web www.loopmasters.com
Contact info@loopmasters.com



Steve Lawler is a household name among house DJs. He describes his sound as "deep and sexy", and happily his sample pack reflects that pretty well. What's most impressive is the number of samples: 1842 WAV one-shots as well as over 100 loops at 125 and 127BPM. This is elegantly produced house, and although it doesn't offer anything particularly unique, there's so much and at such high quality that those aiming to reach Lawler's heights would do well to start here.

9/10

Loopmasters

Timo Maas Tech House & Techno £25

Format Acidized WAV, REX2, ReFill, Ableton Live Pack, Apple Loops, HaLION, Kontakt, EXS, SFZ, Stylus RMX, NNXT and GarageBand
Web www.loopmasters.com
Contact info@loopmasters.com



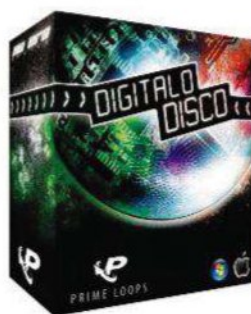
Taken straight from Maas' hard drive, this pack is made up of deep, rolling kicks, sparse rhythmic loops and rather understated effects and noises. In fact, the whole thing is rolling and understated. With 236 loops and 198 one-shots, there's not a huge amount here, so it will neither make or break your track. This pack is all about sound design, effects and layering rather than bombastic riffs or stabs. Perfect for more minimal techno, then, and fans of Maas' stripped-back stuff will love it. Those looking for one-stop track ideas should look elsewhere.

7/10

Prime Loops

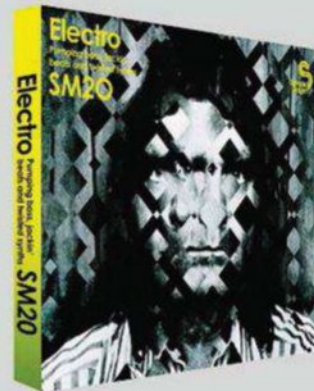
Digitalo Disco £9

Format WAV, Ableton Live, ACID, Apple Loops, Akai MPC, FL Studio
Web www.primeloops.com
Contact info@primeloops.com



Italo disco is a genre that you love or hate. It's cheesy and it's dated... but that's part of its charm. This pack gives you 400MB worth of modernised Italo - so modernised, in fact, that much of it has left Italo behind completely: it's really more 'mau5 than Moroder. The bassline loops are in the right ballpark, being filled with chorused, retro-arpeggiated goodness, but the rest (synth lines and drum loops/hits) is mostly your standard electro/disco house fare. The production quality is decent, clear and crisp, if not especially expensive-sounding. This pack seems like a missed opportunity, then, but if all you want is some satisfactory Italo basslines, it'll do the trick.

6/10



Sample Magic

Electro £55

Format WAV, Apple Loops, Stylus RMX, REX, EXS24, Kontakt 3, HALion and NNXT
Web www.samplemagic.com
Contact Time+Space, 01837 55200

Since launching in 2006, Sample Magic have built up a fantastic reputation as one of the elite dance sample vendors. So when their latest sample pack, the simply-titled Electro, landed on our desks, we assumed it was going to be top quality. And it is.

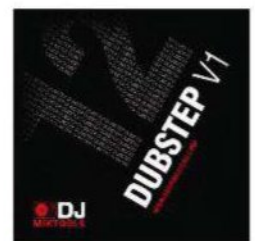
There are 888 one-shots and loops here, and as expected, it's a well-produced and versatile sample pack. It's primarily a loop-based affair, with deep, gritty basslines, tight, heavy kicks and energetic effects. The real selling point, though, is the production. These samples are not just ready for the floor - they're *dying* to get out there and show off their moves. They're big, deep, wide and anything but static. Sample Magic have proven yet again why they are the go-to guys for dance producers in all its forms. It might seem slightly pricey, but it comes with a behind-the-scenes short film and in very neat packaging (there's also a download version for £50). In short, it's quality through and through.

9/10

Loopmasters

DJ Mix Tools: Dubstep Vol 1 £15

Format WAV, Ableton Live .asf files
Web www.loopmasters.com
Contact info@loopmasters.com



DJ Mix Tools follows the construction kit mantra, breaking down ready-made songs into their stems. The latest release sees dubstep take the stage, and with four full tracks broken down in chunks of either 32 or 64 bars, there's a lot to pick and choose from. There's definitely enough beats and effects here to top up your third and fourth deck with 'filler' material for your DJ set (that's the primary idea behind this series), while the basslines and more melodic samples will be at home in the studio. The production quality and overall vibe is convincing and the pack's well worth the £15 for heaps of flexible and high-quality dubstep samples, even if we are missing one-shots.

8/10

Soundware round-up

Producer Loops

Gangsta Beats 3 £24

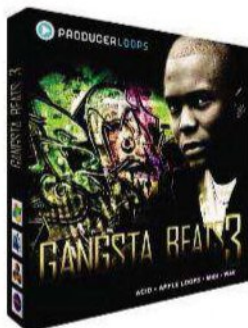
Format Acidized WAV, MIDI, REX

Web www.producerloops.com

Contact via website

Gangsta Beats 3 is made up of ten separate kits ranging from 65 to 99BPM, each one opening with a full track that is then split up into its stems, including REX and MIDI versions of each part. While ten tracks might not seem like a lot, each one has anywhere from 11 to 18 WAV loops, not including the MIDI and REX files, so you do get quite a versatile pack. The thing that stands out the most, though, is the quality of the production. Deep, decaying 808 kicks, tight claps and crisp horns are just some of the highlights, and for the price, it's right on the money.

8/10



Big Fish Audio

Hip Hop India: Modern Percussion £66

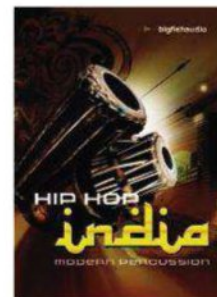
Format Acidized WAV, Apple Loops, RMX, REX

Web www.timespace.com

Contact Time+Space, 01837 55200

This is an entirely beat-based affair, offering hip hop beats combined with traditional Indian percussion like tabla, dholak, ghungroo and good old shakers. With over 6GB of content, 49 construction kits and tempos ranging from 62 to 105BPM, the material is covered in a modern and well-produced manner. The Indian elements aren't over-the-top and the beats are easily adaptable for general purpose percussion uses, so don't rule it out for other hip hop styles. If you're looking to add a bit of spice and groove to your beats, this is a good source of nontraditional percussion.

7/10



Ueberschall

Urban Ballads €89

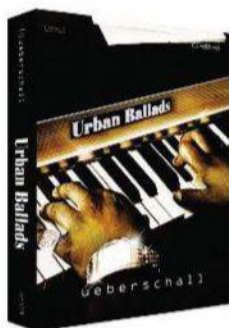
Format Elastik Player

Web www.bestservic.de

Contact mail@bestservice.de

This pack has a great title and an even better cover - it's all about those smooth and sensual moments. Think sexy guitar licks, slow and crisp beats and enchanting chords. With 22 construction kits in suitably silky tempos from 50 to 77BPM, there's a lot to get stuck into. However, you're going to have to contend with Ueberschall's Elastik Player virtual instrument, which 'powers' the library. For the price, you'd expect to be able to use the samples as you please, and the fact that you can't overshadow the high quality. For library musicians, it might fill a gap, but those looking for sounds to easily work into their own urban ballads should look elsewhere.

6/10



Haunted House

Toxic Beats £15

Format WAV

Web www.hauntedhouserecords.co.uk

Contact stephen.haunts@gmail.com

Toxic Beats is a collection of distorted, twisted and gritty drum beats and samples. Each of the 28 kits can be split into kick, snare, and so on, and every loop has a kickless version if you're just looking for top lines for your beats. The collection is split into three suitable tempos - 128, 135 and 145 - and is aimed at EBM, techno and industrial. In total there's 840 loops, so you get a lot of bang for your buck. But is it any good? Well, not really. The sounds are quite cheap and inconsistent, and what seems like a lot of loops is really just varying types of distortion on very similar beats. We'd suggest that you'd be better off buying a decent distortion plug and dirtying up the sounds you already have.

5/10



Big Fish Audio

Rebel: Modern Punk Rock £66

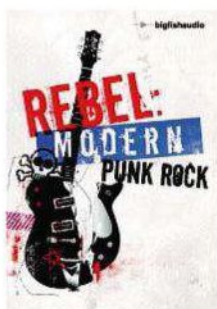
Format Apple Loops, WAV, REX, ACID, RMX

Web www.timespace.com

Contact Time+Space, 01837 55200

The concept of a punk rock construction kit is a contradiction. That being said, we're sure someone's prayers have been answered. This pack is made up of 25 construction kits, each one broken down into guitar, drums (including multitracks) and bass for the various song sections. There are no vocals, disappointingly. The pack is focused on Blink 182 and Green Day-style pop punk, so it's suitably sugary/cheesy. It's comprehensive within this sphere, with a huge 4.31GB of content. Real punks won't go anywhere near this, but for those doing soundtracks/music-to-order or for genre-hopping producers, the quality and quantity is here.

7/10



Puremagnetik

Vespine \$15

Format Live Instrument, Kontakt

Instrument, EXS 24 Instrument

Web www.puremagnetik.com

Contact info@puremagnetik.com

Vespine is a sample-based instrument emulating the classic EDP Wasp analogue hardware synth. We tried out the Ableton Live instrument version, which loads up as 600 samples shared over 33 Instrument Rack patches. True to the original Wasp, Vespine is full of pure buzzing, stinging tone and simple but powerful synth sounds and effects. The pack is split in to categories such as Slow, Bass & Lead and Chaotic - all pretty self-explanatory. The sounds are great and very usable with lots of editing options via Live's macro controls. Overall, Puremagnetik continue to impress with their instantly usable and ludicrously cheap packs.

8/10

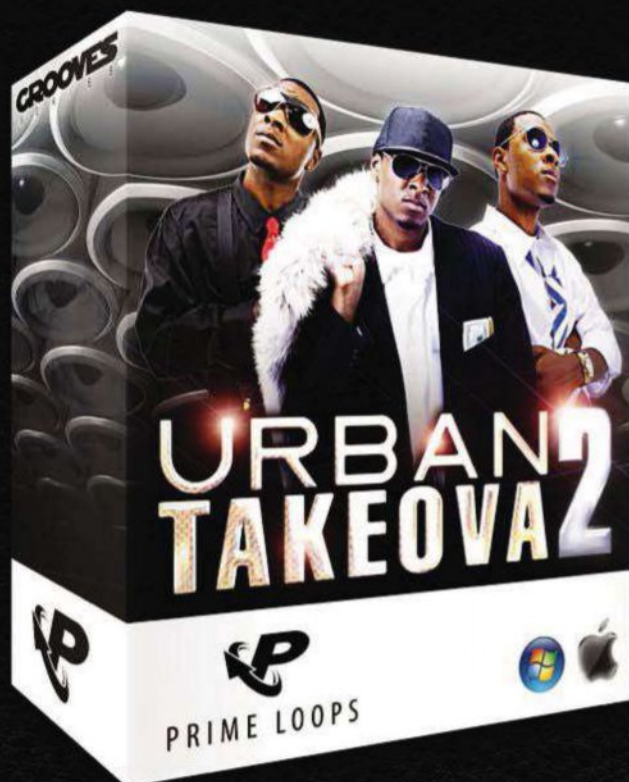




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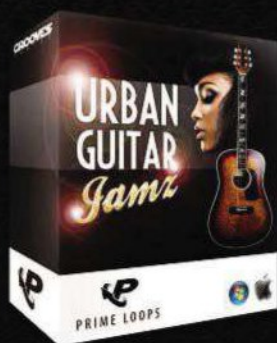
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The best new gear from the last three issues...



Steinberg WaveLab 7 £497 PC/MAC

Rating 9/10
Reviewed **cm**159
Contact Steinberg, +49 404 223 6115
Web www.steinberg.net

What is it? A long established audio editor, finally available for Mac as well as PC. New for this version are a bundle of Sonnox restoration processors, over 30 VST3 effects nabbed from Cubase and Nuendo, and a slicker interface with four dedicated workspaces. And with a 15-year pedigree behind it, it goes without saying that there's a ton of excellent pre-existing features.

Verdict "WaveLab is probably Steinberg's most cohesive and well-rounded product, capable of pretty much everything you could want from a modern audio editor"



Cakewalk Sonar X1 £379 PC

Rating 9/10
Reviewed **cm**160
Contact Roland UK, 01792 702701
Web www.cakewalk.com

What is it? A PC DAW with a lineage stretching back more than two decades, now refreshed with a totally new interface that dispels previous criticisms of it being fiddly and obtuse to operate. Anyone who was previously turned off by Sonar's interface owes it to themselves to give it another go. Offering further enticement is the new channel strip, ProChannel, offering superb EQ, compression and saturation.

Verdict "More than a mere reskinning, X1's GUI truly revitalises Sonar's workflow, while ProChannel gives it a huge sonic boost"



FXpansion Geist £189 PC/MAC

Rating 9/10
Reviewed **cm**161
Contact via website
Web www.fxansion.com

What is it? It's been a long time coming, but here we have the spiritual successor to FXpansion's popular sample-based drum machine, Guru. Geist sports a fresh interface and totally rewritten code, with new features such as direct sampling, retrospective recording, a song mode, new effects, a brilliant 2GB sound library, and tons more.

Verdict "Geist is one of the best virtual drum machines around and will more than satisfy those who've been waiting patiently for a Guru sequel"

What we've been using this month



Ronan Macdonald
Editor

Sonic Charge's MicroTonic drum machine has long been one to beat, and v3's new morphing system and matrix editor take it to new rhythmic heights. It's quite literally a 'tonic'!



Lee du-Caine
Deputy Editor

iZotope's Nectar has given me the confidence to lay down my own sweet vocal tracks. With the pitch-correction on full, I've finally found 'my sound' as Yorkshire's answer to T-Pain.



Tim Cant
Multimedia Editor

As a connoisseur of the phreshest, phunkiest sounds, I've been all over Vengeance-Sound Philta XL. It's both phat and phuturistic, but it sure isn't helping with my spelling.



Caity Foster
Production Editor

Recently I've had a great time playing with the Akai MPK Mini, bashing the keys, punching the pads and tweaking the knobs. And - who knows? - maybe one day I'll even plug it in! **cm**

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 - Small Wonder: Guide to NanoStudio
 - Spectral Editing audio manipulation feature
 - Producer Masterclass: FuntCase
 - URS Classic Console Strip 2, PSP Audioware PSP 85, Novation Dicer and more reviewed



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- Intelligent Devices Slip-N-Slide CM and 2017 Remix Toolkit samples on the DVD
 - This is the Remix tutorial
 - Finger-drumming for beginners
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 - Producer Masterclass: S.K.I.T.Z Beatz
 - Flux IRCAM Tools Trax, Voxengo HarmoniEQ, Audio Damage Axon and more reviewed



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>Your questions answered

Q&A

Lusting after a certain sound that you can't quite reproduce? Not sure how to use a new plug-in? Or searching for a piece of kit that will take your productions to the next level? Email cmhelp@futurenet.co.uk and we'll get our expert brains on the case

Filter facts

Question One of the most common topics of discussion among hardware and software synthesiser enthusiasts seems to be about filters. I see it often: a new synth comes along, or an old favourite comes up in discussion, and there are people who remark, "Oh yeah, that thing has great filters on it," or, "That developer really knows how to make filters." In articles with musicians who talk about their classic gear, there's often a comment like, "We loved the filters on that sampler - there's just nothing like it." There are even examples of companies releasing standalone filters for audio processing



after the filters in their synths became legendary - Moog, for example.

I get the general concept of filters and what they're supposed to do, but what exactly what makes one filter sound better or worse than the same filter type on another device or software instrument? What is it about software code that makes people gush about filters on specific synths? Do tell, because I feel like I'm in the dark on some great, big elite synthesist's secret!

Jace Cavacini

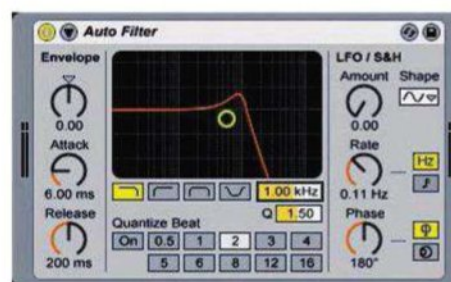
Answer To get an answer we could happily call definitive, we asked EQuality developer DMG Audio's Dave Gamble (who was also behind Sonalksis' TBK range of plug-ins) to explain how filter algorithms can differ.

"That's a big question, and one that us developers tend to spend a lot of time thinking about. I'd say there are three key reasons that filters of the same type sound different.

"First up is the actual filter shape. On paper, what a filter does is apply an EQ shape to the signal passing through it; typically one that's pretty extreme at certain frequencies and fairly mild at others. When designing a filter for creative use, there are certain basic shapes that are very common and familiar - everyone has seen the diagram of a resonant low-pass filter, for example.

"However, as the order of the filter goes up, the shape can become more complex, and we can design more interesting shapes that have more exciting effects on the audio. A quick look at the diversity of filter types in, say, FXpansion Strobe will give you some ideas!

"Also, filters on synths and the like tend to be modulated; so we can cause the shape of the filter to change in interesting ways as you move the cutoff and resonance controls around, either by hand or modulating with an envelope or LFO. Anyone who's ever automated a low-pass filter to open, and also automated the resonance alongside it, knows how much excitement that can bring to a section. We take that idea and run with it:



Everybody knows what a low-pass filter looks like, so perhaps we shouldn't even be writing this caption...

for instance, when we were designing the TBK, the adaptive resonance algorithm was designed to bring maximum sonic impact across a sweep. The EMU Z-plane filters are pretty legendary for this.

"Finally, when I said it applies an EQ shape, that's just not the whole story. A lot of good filter designs apply distortion in a creative way (again, see TBK), and because the distortion is inside the filter, it's not always obvious that that's what's going on: it just sounds fat. The Roland TB-303 filter is legendary for all three reasons: it distorts, the shapes are a little eccentric and it moves in a crazy way. That said, you lose control over it pretty quick, so some balance is useful.

"Furthermore, there's a big difference between designing an analogue and a digital filter. Generally, an analogue design behaves more consistently, leaving more control in the

COMPUTER music QUESTION OF THE MONTH

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The writer of our *Question of the Month* will receive their choice of two Artist Series sample libraries courtesy of Loopmasters.
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EQuality is an example of an EQ plug-in that uses filter mathematics to provide a dependable, 'analogue' sound



If you're trying to embellish your track with a realistic guitar sound, you might want to get yourself a dedicated guitar instrument plug-in rather than struggling on with a general-purpose ROMpler

designer's hands. Achieving the same result digitally takes a lot of work, and a ton of hairy maths that even now very few designers have. This stuff is a cornerstone of great EQs, too, like Equality, which is designed around sounding analogue - meaning it just doesn't warp in an inconvenient way.

"Designing a great-sounding filter is something of a black art, and also something of a matter of taste. I hope I have given you some insight into how it all works, albeit without giving away too many secrets of how it's done!"

Thanks, Dave! You can download the demo of Equality and check out Dave's filter designing skills at www.dmgaudio.com. You should also check out Vengeance's amazing filter effect, Philta CM, which you'll find on this issue's **cm** DVD - see p40 for details.

Strumming done right

Question I'm looking for an acoustic guitar strumming VST that I could use with guitar sounds from SampleTank 2.5 XL. Do you have any recommendations for getting strumming guitar rhythms or patterns with a VST? I'm looking for a sound similar to Beyoncé's hit single *Irreplaceable* and Nelly's new single *Just A Dream*, to use in pop tracks. I guess my other option for creating strumming would be MIDI programming in the Piano roll. I just need great templates to replicate it from. Do you have any suggestions for MIDI strum files or VSTs that can do any of what I'm asking?

Greg Mitchinson

Answer Programming convincing guitar strumming parts is tricky with a ROMpler. See p53 for this month's guide, but if you're after

convincing results quickly and with a minimum of effort, we'd suggest investing in a dedicated guitar instrument plug-in like MusicLab's RealGuitar (\$239, www.musiclab.com) or Applied Acoustic Systems' appropriately-titled Strum (\$199, www.applied-acoustics.com). As well as the cash investment, you'll also need to put in a little time to get the best out of each instrument, but they'll certainly be easier to get to grips with than a fully needs-to-be-programmed-from-scratch ROMpler or sampler patch. Vir2's Electr6ity (\$399, www.vir2.com) and Sugar Bytes' Guitarist (\$199, www.sugar-bytes.de) are also capable of creating great strummed parts, but are designed for replicating electric guitars. Demos of RealGuitar Strum, and Guitarist are available from their respective manufacturers websites, so we suggest giving them all a try before you invest.

As mentioned, though, if you want to manually program realistic strums, check out our feature *Keeping it real* on p53, which explains how to do just that.

Do the splits

Question Electro house often has several synths playing different parts of a bassline. Is it possible to split my MIDI keyboard so I can play different synths on different octaves? Life could be a lot easier if I could set my keyboard up like this! I use Cubase - as far as I know there doesn't seem to be an easy way to do it.

Gareth Morgan

Answer It's often necessary to have multiple instruments playing different parts of a lead or bassline, and it is indeed possible to create

> Step by step

Making keyspits in Cubase



1 > Start by creating a new project in Cubase and adding a MIDI track. Then bring up the **VST instruments** menu and add a couple of instruments. Choose contrasting presets for them, so that you can easily tell when each one is playing. Deactivate the track's main output by setting it to **Not Connected**.



2 > Select the **Master** track and click the **MIDI Sends** tab. If you can't see it, right-click the tab and ensure that the **MIDI Send** option is selected. Activate two sends using their power buttons, and route them to different instruments. You should now be able to play both instruments at the same time from your MIDI controller.



3 > Click the blank space above the send destination to add a MIDI effect. Select **MIDI modifiers** and a panel with a selection of parameters will appear. Click where it says **OFF** in the Range section and change it to **Note Filter**. You can now use the Min and Max notes for the current send. Choose a different range for each sound and you've got a keyspit!

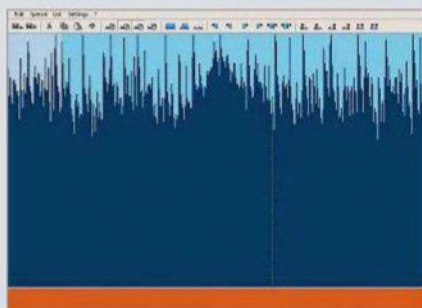
"Generally, an analogue filter design behaves more consistently. Achieving the same result digitally takes a lot of work"

> Step by step

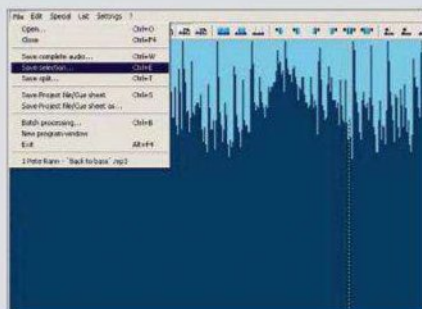
Cropping MP3s with mp3DirectCut



- 1 > Download and install mp3DirectCut, then run the program and drag the MP3 you want to edit onto its interface. A warning panel will appear explaining that the waveform display is different to the usual audio editor, in that it only displays MPEG data. Click **OK** to close this window.



- 2 > Locate the section of the track you want to crop using the transport buttons and the horizontal scrollbar at the bottom of the waveform display. Once you've got the exact part you want to crop, click and drag on the waveform to select it.



- 3 > To save the area as an MP3 file, select **File»Save Selection**. Enter a name for the file and click the **Save** button. Finally, open the file you just saved in a media player to check it out. And there you have it: simple, lossless MP3 editing for free!



iZotope Nectar's low-latency mode enables real-time pitch correction while performing

keysplits in Cubase to trigger multiple instruments using different octaves. See *Creating keysplits in Cubase* (previous page).

Stick to MP3

Question Is it possible to cut a track from an MP3 mix without having to convert it to a different format? I want to keep the track as an MP3 without having to re-encode it and hence lose quality.

Luke Gardner

Answer It is indeed possible to edit MP3 files without having to convert them, using a freeware utility for Windows called mp3DirectCut. You can find download links for it at mpesch3.de1.cc. See the walkthrough *Cropping MP3s with mp3DirectCut*, left, for a guide to performing simple MP3 editing with it.

Live pitch perfection

Question I play my band's live show through a computer, and want to use pitch correction as an effect on the vocals. I'm running Windows 7 x64 with Presonus' Studio One, which is great, but Studio One will only use native x64 plug-ins. Is there a real-time VST pitch corrector that is x64 native?

Jim Angel

Answer Currently, there seems to be a real lack of native x64 versions of pitch-correction plug-ins, though a brand new one has just

appeared: iZotope Nectar. It even features a low-latency mode that would presumably be ideal for stage use. If Nectar isn't quite what you were looking for, we have another suggestion that you might not like so much: use the x86 version of Studio One with the 32-bit versions of your plug-ins. Alternatively, perhaps you could use an old computer running a 32-bit operating system and host as a dedicated machine for running your preferred pitch-correction effect.

Bump up the monitors

Question I have built up my home studio over time as my interest in production has grown. During this time, and following your useful advice and recommendations, I have upgraded both my computer hardware and software, and I am more than happy with the results I get from this.

My monitoring, however, remains as it did at day one. I use a couple of Bowers and Wilkins VM1 speakers hooked up to a NAD amplifier with direct audio from my computer's soundcard. The sound quality from this setup is good and I A/B all my mixes with finished tracks of a similar type.

I am now considering upgrading and purchasing a dedicated audio interface with active monitors, probably the KRK Rokkit RP5s, which fit my budget. What I am unsure about is whether they will improve my mixes overall, as my ears have become tuned to my current setup and it is impossible to take this and compare it to active monitors in the showroom. Perhaps you could advise

"Buying a set of quality active monitors will almost certainly improve your mixes and definitely make the mixing process easier"

whether an upgrade would be advisable, or if my money would be better spent elsewhere.

Andy Ross

Answer

When trying to get the best mixdowns possible, it certainly helps to have a good knowledge of how your setup sounds and how mixes you make on it will translate to other systems. A/Bing is definitely a good idea, even if your setup is high-on perfect, and it sounds as if you're being sensible about how you go about improving your mixes.

While we can't guarantee it, we would suggest that buying a set of quality active monitors will almost certainly improve your mixes and definitely make the mixing process easier: even if you're familiar with how your current monitors respond to certain frequencies, the flatter and more detailed audio image that you get from pro monitors will help you to get better mixes. Broadly speaking, hi-fi speakers



High-quality monitors such as these KRK Rokits can make a real difference to your mixes, so it's definitely worth spending as much as you can on them

Question

How do I make an Afrojack-style lead?

Jamie Stewart



1 > If you're after the lead sound used by Afrojack on tracks such as *Take Over Control*, you'll find plenty of similar sounds in reFX's excellent Nexus 2 ROMpler. Alternatively, you can make one yourself using a synth with amplitude modulation capabilities, such as Rob Pape's Albino 3. Load it up in your DAW and select the **Diverse Soundsz_initial** preset.

2 > The Afrojack lead is basically a sawtooth wave with a few extra tweaks to give it a bit of character, one of which appears to be subtle amplitude modulation. To do this in Albino 3, we need to use two oscillators. Set oscillator 1's routing to **AM**, then activate oscillator 2 and set it to **analogue** mode.

3 > Now we have two activate oscillators. When you play a note you'll hear oscillator 2, with oscillator 1 providing the amplitude modulation. We want a sawtooth sound, so turn oscillator 2's **Waveform** knob down as far as possible to get a pure saw sound.



4 > You won't hear the effect of the amplitude modulation yet, because the first oscillator is playing at the exact same pitch as the second. What you will hear, however, is an unwanted phasing effect. You can avoid this by activating both oscillators' **Free-Run** buttons.

5 > Now for the magic: lower oscillator 1's **Cent** value. This detunes it very slightly, and you'll be able to hear the amplitude modulation come into effect. You can get a more extreme effect by turning down the **Semitone** setting too, but for now a **Cent** detune of **-50** will do. You can control the intensity of the effect with the first oscillator's **Volume** knob.

6 > That's the main part of the sound sorted. To make it more like the *Take Over Control* lead, visit the Master section and set **Voices** to **Mono** with a bit of glide, then add a reverb effect from Albino 3's effects section. You can find our patch **Albino 3 Control Lead.fxp** on the **cm** DVD in the **Tutorial Files/Q&A** folder.

are designed to flatter the sound and make it sound 'nice', whereas pro monitors are - ideally - as truthful as possible.

Assessing the suitability of new monitors can be difficult, especially in an unfamiliar space such as a music tech retailer's showroom, and often these purchases are a leap of faith. The Rokit RP5s are a decent set of monitors for the price, but they're absolutely at the cheapest end of the spectrum. They may be perfect for your needs, depending on the kind of material you're working with, but we'd recommend getting the very best monitors you can afford rather than buying something cheap and then deciding you need to upgrade. Your choice of audio interface will also have an impact on the speakers' sound quality, so consider upgrading that too, unless you've already got a half decent unit. Oh, and room acoustics and speaker placement are absolutely crucial, so anything you can do to improve these will give real benefits.

We'd also recommend hanging on to your existing setup, because having a different setup to listen to your mixes on - whether in your studio room or another - will be helpful when it comes to assessing your mixdowns and hearing how they translate to different audio systems.

Vocal excavation

Question Is there any worthwhile freeware or cheap Windows software that can remove vocals? I want to get the acappellas from some old DAT tapes of music I made in the 90s so that I can do up-to-date remixes of my previous tracks.

Sarah

Answer A few years ago we might have told you it was impossible to remove the vocals from a track, but technology marches on and

nowadays you do have a few options. However, taking the vocals out of a piece of music is a very tall order. The results won't be perfect - they'll often be unusable, in fact.

Adobe Audition 3 (£334) features a Center Channel Extractor option that can be used to remove or isolate material at a particular stereo position and in a certain frequency range. Its spectral editing features can also help. On a similar note, there's a piece of software called Photosounder (\$59) that we've had some success removing/isolating vocals with, though it does involve a fair bit of work. Demo versions are available from www.adobe.com and www.photosounder.com respectively.

On the freeware front, you could try Voxengo MSSED (www.voxengo.com). This plug-in can isolate the middle and sides of a mix, which could help you get at the vocal. More sophisticated is VST effect kn0ckOut, which uses spectral trickery (www.freewebs.com/st3pan0va).

Question How do I make an FM bass sound with a freeware synth? Nicholas Hale



1 > If you want to make a simple FM bass tone, Togu Audio Line's excellent virtual analogue synth TAL-NoiseMaker is more than up to the task. It doesn't have a complex modulation routing matrix, just a single **FM** knob to control the amount that oscillator 2 modulates the frequency of oscillator 1. Load it up in your DAW and change both oscillators' waveshapes to **Pulse**.

2 > Turn up the **FM** knob on oscillator 2 to **0.33**. You won't hear any difference to the sound yet because the volume level of this oscillator isn't yet turned up in the Master panel. Turn the **Osc 2** knob in the Master panel up to maximum and you'll hear the synth's output become much rougher and more FM-like.

3 > Obviously, this noise is a far cry from the smooth-but-punchy bass tone we're after. Click the **Envelope Editor** tab to bring up its graphical display, and copy the envelope shape we've used here. Set the **Speed** to **x4**, the **Amount** to **0.42**, and the **Dest 1** (routing) to **Osc 2**.



4 > This quickly lowers the volume of oscillator 2 when each note plays. It gives the noise a bit more of an expressive vocal quality, but the overall tone is still quite rough. We can make it smoother using the filter envelope, but first use the **Tune** knob to move oscillator 1 down to **-24** semitones, making the sound lower.

5 > Click the Synth 2 panel to bring up the filter controls, then set the **Sustain** to **0.00** and the **Decay** to **0.36**. Turn the **Cutoff** all the way down, the **Contour** all the way up, and set the **Key** tracking to **0.50**. This is a bit of a cheat because you wouldn't really use filters with pure FM synthesis, but it gives us a nice sound fast!

6 > Try using the different filter types in the filter panel to give the sound a different character. There's one thing that still needs fixing - the little click at the end of the sound. This happens because there's no release on the amplitude envelope. To remedy it, turn the filter and amplitude envelopes' Release sliders up to **0.32**.

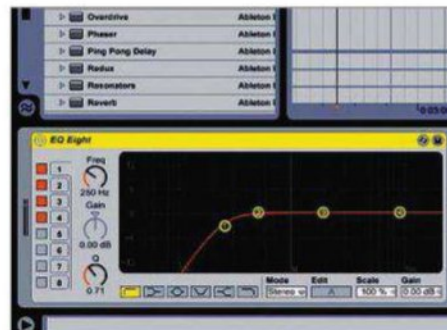
Question How should I process funk breaks for use in drum 'n' bass? Justin Neumann



1 > There are many different ways to program and process funk breaks for DnB, but here's the method we find most efficient. The first thing you'll need is a funk breakbeat. You can find plenty at www.junglebreaks.co.uk. Download the Kick Back break, and import **Kick_back.wav** into your DAW. We're using Ableton Live, but the techniques are the same whatever software you're using.

2 > Set your DAW's tempo to **175bpm** or so. Timestretch or repitch the break to fit the tempo. If you don't like how the timestretching or repitching affects the sound of the break, there's an alternative - create a new audio track and put the original version of the break on it.

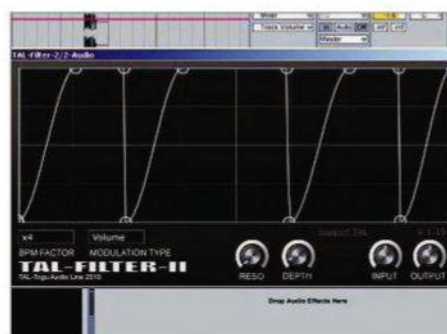
3 > Slice the break at each hit and place the slices under the corresponding hits of the timestretched or repitched version. This gives you the exact same groove of the processed version without altering the sound. Some breaks will sound better with each method than others, so experiment to get the best result. Here, we're going to go with the chopped break, so mute the first audio track.



4 > Most of the processing you perform on a funk break depends on what you're layering it with. Let's add some simple single-hit drums so we have something to work with. Picking suitable single hits for your break is a big part of making a DnB beat. Drag **DNB_KICK_3.wav** from the **Tutorial Files\Q&A** folder on the **cm** DVD onto a new audio track.

5 > Put the kick sample on the first and sixth eighth-notes, so that it sits with the kick of the break. The break has a lot of messy low end that we can get rid of. Add an EQ to the break's audio channel and filter out everything below **250Hz**. On playback, you'll hear that the kick sounds a lot clearer.

6 > Next we need a snare. Drag **DNB_SNARE_2.wav** from the **Q&A** folder onto a new audio track, and place it on the third and eighth eighth-notes of the bar. This gives us a pretty generic kick, snare and break pattern. The shuffle on the fourth and fifth eighth-notes is a bit messy, so copy the part of the break on the fourth note over to the fifth note.



7 > The parts where the kick of the break overlaps with the single-hit kick need to be toned down. We'll deal with this by automating the volume level of the break. Rather than automating the channel's fader or the gain stage of a plug-in, we're going to use a more convenient technique. Add TAL-FILTER II to the breaks audio track.

8 > TAL-FILTER II (which you can find in the **Software** folder on the **cm** DVD) is a filter plug-in, but we're going to use it to automate the volume. Set the **Modulation Type** to **Volume** and the **BPM Factor** to **x4**, then copy the curve shown here. Next, set the **Depth** knob so that the volume cuts let the kick and snare punch through properly.

9 > The beat's sounding good, but now the shuffle is a bit weedy compared to the rest of the beat. Add **DNB_SNARE_3.wav** on a new audio channel on the eighth and tenth 16th-notes. Turn the channel down to **-6dB** to make it quieter than the main snare. You now have the basis of a DnB beat. **cm**

> cm focus



DISTORTION

Distortion effects shouldn't be pigeon-holed as just for metalheads. Use it properly and you can add weight, warmth and volume to mixes in any genre



> Distortion, intentional or otherwise, has been a feature of recorded music for as long as it's existed. Even before willful electric amplification distortion was popularised in the 1950s, the rough and ready reproduction afforded by vinyl and earlier methods of recorded music playback had inherent distortion. Nowadays, even though we have reproduction equipment boasting fidelity unimaginable all those years ago, distortion is still very much around - though not always apparent. These days, entire tracks are distorted with clipping and limiting to make them as loud as possible, and sophisticated sonic manipulation of individual sounds via effects plug-ins and audio editing tools is part of the everyday language of music production.

Though seemingly simple, distortion is actually one of the hardest elements of music production to master. It's all too easy to overdo: the temptation to turn everything up to 11 is ever-present, but the most interesting and useful results occur between effectively transparent clipping and overt overdrive. Because distortion is so dependent on the level and frequency content of your sound, very small changes in the signal or effect settings can result in huge changes to the end result.

Distortion can be used for so much more than just wailing guitar tones, and with a little patience and experimentation, you'll find that it can become an incredibly useful creative and technical tool.

In our guide to this oft-unappreciated area of signal

"Distortion can be used for so much more than just wailing guitar tones"

processing, we'll look at the whole spectrum of distortion, from full techniques for getting big, bad bass sounds to subtler methods that will help you to get more out of your mixes. You'll find the files that you need to follow these tutorials on the **cm DVD** in the **Tutorial Files** folder, while some of the best freeware distortion effects in the business await your attention in the **Software** folder. So without further ado, let's crank it up!

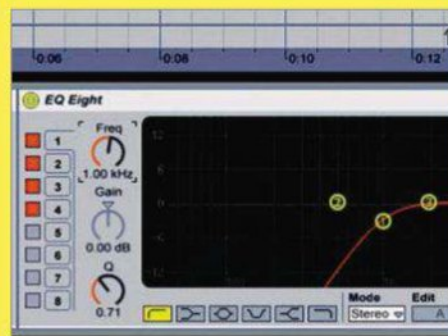
> Step by step Multiband distortion in Ableton Live



1 > While dedicated multiband distortion effects such as Ohm Force's Ohmicide:Melohman are convenient, it's possible to create your own multiband distortion effects with basic plug-ins. We're going to use Ableton Live, which has excellent, easy-to-use routing capabilities ideal for this sort of thing. Drag **Drum Loop.wav** from **Tutorial Files\CM Focus** on the **cm DVD** onto an audio track.



2 > Add an EQ Eight effect to the track, then right-click it and select **Group**. This makes an Effects Rack that we can use to create parallel processing effects. Click the **Show/Hide Chain List** button, which shows us the chains in the effect rack. Currently there's only one chain. Right-click it and select **Duplicate**. Now we have two identical effect chains.



3 > If you play the project back now, the channel will be terribly overloaded because the output of the two chains will be summed. So, resist the temptation to play the project back just yet. In chain one, make the first EQ band a high-pass filter, and set its frequency to **1kHz**.



4 > Select the second channel and use a low-pass filter to cut off everything below **900Hz**. We put a gap between the frequencies because, as the curve on the EQ's interface indicates, the frequencies above and below these values are rolled off rather than eliminated completely. Using the same values would give us phasing issues.



5 > Now we can play the project back. You can compare it to the original, unprocessed audio by clicking the **Device Activator** in the top left-hand corner of the Audio Effects Rack. The split version doesn't sound too dissimilar from the unprocessed version, but if you try this technique with different audio, you may need to change the cutoff frequencies to suit the material.

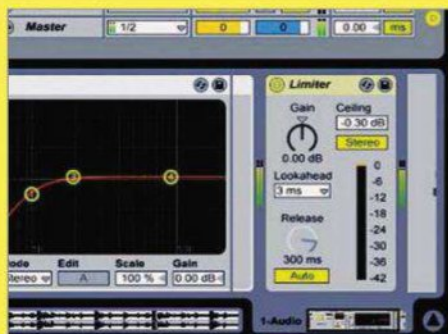
POWER TIP

>Parallel compression

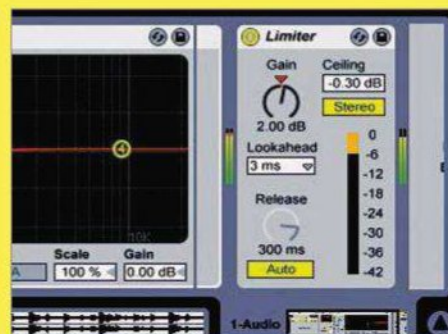
As well as multiband processing, Ableton Live's Effect Racks are useful for performing parallel processing such as 'New York Style' compression. This involves running two chains together - one dry, and one with compression and distortion - the idea being that the unprocessed track provides the clarity of the transients, while the compressed and distorted version brings some beef, adding weight and warmth to the kicks and snares. Doubling up the track in this manner will boost the output's volume level, so remember to turn the track or the level of each chain down!



6 > Now for the fun part. Add a distortion effect to the first chain - we're plumping for Live's Overdrive effect. You can either add this before or after the EQ to get a different feel. If you add it before the EQ you'll get more of the boomy feel from the kick, though the actual distorted lows will be taken out of the mix.



7 > The snares are now overloading the track in a major way, so add a limiter after the Effect Rack. It's important that the limiter is actually after the whole Rack rather than on one of the chains within it, because we want to compress the signal in its entirety.



8 > The snare is way above everything else on the track, so you can get away with boosting the Limiter's **Gain** level by a dB or two before the signal starts to become too degraded. We now have a drum beat that's punchy and rough-sounding, but the low ends of the kick and snare are still intact and weighty - that's the magic of multiband processing!

Three excellent free distortion effects

CamelCrusher

It may only have a very simple distortion component with a mere two controls, but this effect's great sound and handy compression and filtering sections make it a worthwhile download.

www.camelaudio.com



FuzzPlus

This stompbox-style effect gives you basic distortion with Fuzz and Tone controls and a dedicated bypass switch that can be used to flip the tone between clean and dirty.

www.audiodamage.com



Boogex

This guitar amp emulation enables you to pick from a selection of different impulse responses to get a variety of feels. It's also capable of loading third-party IR wave files, giving this fantastic freebie plenty of flexibility.

www.voxengo.com



> Step by step Using kick drums to make filthy bass sounds



1 > Using soft synths is a great way to get dirty bass noises, but it's by no means the only way to do it. You can get huge, punchy, filthy basses by simply running kick drum sounds through distortion effects. First you need a suitable kick, and you'll find one on the **cm** DVD (**Long Kick.wav**). Drop this straight onto an audio track in your DAW.



2 > We're using Logic, which has particularly good built-in distortion effects, but you can get similar results in any DAW with the right plug-ins. Add **Distortion»Clip Distortion** to the track. Turn the **Clip Filter**, **LP Filter** and **Mix** controls all the way up to get the biggest, brightest distorted sound possible. Next, turn the **Drive** level up to **24dB**.



3 > It's a nice sound, but too quiet. Add **Distortion»Overdrive** after the Clip Distortion, and turn the **Tone** control up to maximum. We can now turn the **Drive** control up to **12dB** without the sound clipping, which gives us a fantastically dirty kick drum.



4 > This is a great sound, but to get the most out of it, we need to resample it. Export the sound as audio (in Logic, use the **File»Export»Track as Audio File** function), then load it into your sampler so you can play it chromatically. And there you have it: beautiful analogue-style bass warmth without even a sniff of synthesis!

> Step by step Using clipping on busses for a better mix



1 > Not all distortion has to be obvious. Here we're going to look at an example of how you can use the effect subliminally to create a better mix. By saturating drum and bass busses in a way that's not obvious, you can get more volume out of them. Start by routing all your drum or bass parts to a bus.



2 > Now, add a clipping or saturation effect. We're using Cubase's Soft Clipper in this example, but any similar clipper or saturation effect will do. Add your clipper on the bus channel. Cubase's Soft Clipper features controls for **Second** and **Third** harmonics, which add character to the sound. We don't need these, so turn them down.



3 > Gradually turn up the input control. Listen carefully to the sound, and when the signal starts to become obviously distorted and the transients begin to suffer, back the input control off a bit. Used on your drum and bass busses, the technique will give you extra volume in the mix, though excessive use will result in lower clarity. So, be careful!

> Step by step Creating the ultimate synth guitar lead in Logic



1 > You can use distortion to give synths a more raw, organic and expressive feel, and this trick has been used by plenty of artists, including Daft Punk. Using the right source material and processing is essential to getting this sound right, but Logic has everything we need to get a great tone. We start by creating a software instrument track with an ES2 synth on it.



2 > The ES2 has some presets that are already quite guitar-esque, in particular **Brightest Fuzz**, which you can find in the **01 Synth Leads** bank. Even before we add any additional distortion, this sharp but relatively beefy tone already has the right kind of attitude for the sound we're after.



3 > In the channel's Inserts section, add the **Distortion»Overdrive** effect. Turn the **Tone** knob up fully to get the brightest sound you can, and whack the **Drive** up to maximum. This roughs up the sound nicely, but it also means that it'll peak too easily. Don't worry about adding a limiter, though, because the next effect we add will deal with that problem.



4 > Logic's **Guitar Amp Pro** plug-in will provide an even more authentic feel. Add this to the insert chain after the Overdrive, and select the **02 Crunch»Boutique Blues** preset. This gives a great crunchy feel and tames the level. Change the **Speaker** setting to **DI-Box** to reclaim some of the lows and highs.



5 > This tough-edged distortion is all very well, but we need a little warmth in there too. Add Logic's **Modulation»Chorus** effect, and set its **Rate** to **1.066Hz** and **Intensity** to **14%**. This adds a decent amount of chorus without going overboard, and gives the sound a pleasantly organic feel.



6 > The sound is getting there, but it's not epic enough. We can remedy that with the addition of a little delay. Add the **Delay»Tape Delay** effect after the chorus, and turn the **Wet** level down to **10%**. It's not a really intense effect, but it's enough for our needs, and it'll create a great interplay with more complex parts.



7 > For the final component of the signal chain, we recommend adding a compressor. This will boost the overall level of the track, add a bit of character and make the delay tails more apparent. Add Logic's **Dynamics»Compressor Tools»Platinum Analogue Tape** preset. Simple, but very effective!



8 > So we've got the sound, but that's only half the battle. Without some decent programming, it's not going to sound great. Thankfully, it's possible to get a convincing axe-warrior feel through judicious application of pitchbend and vibrato. By default, the ES2 patch we've used has a **pitchBend range** of just **2** semitones, so increase this to **5** or **7** if you're feeling a little constrained.

POWER TIP

> Save to save time

When you've gone to the trouble of creating a fairly involved channel strip, you should take advantage of Logic's useful track-management capabilities. Open the mixer and click on the name of the track to be presented with a list of options, which includes the **Save Channel Strip Setting As...** function. Select this, enter a name for the track and click the **Save** button. Now you can quickly recall the whole setup on any software instrument track from this menu. It's a handy time-saving tool, and is well worth doing for any software instrument and audio track settings that you find yourself using regularly.

Three top commercial distortion effects

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> Step by step Making distorted vocal synth noises in Reason



1 > Reason's Scream 4 is a truly excellent distortion effect, and it can do much more than simply overdrive your sounds. Let's take a look at how you can make distorted vocal bass noises with its Body section's **Auto** function. Start by creating a Thor instrument, then right-click it and select **Initialize Patch**.

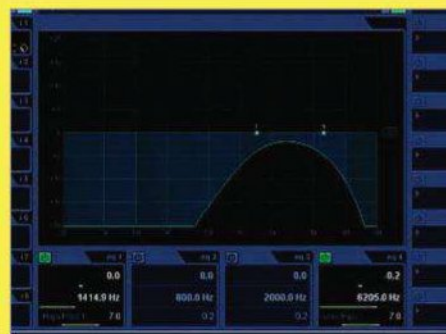
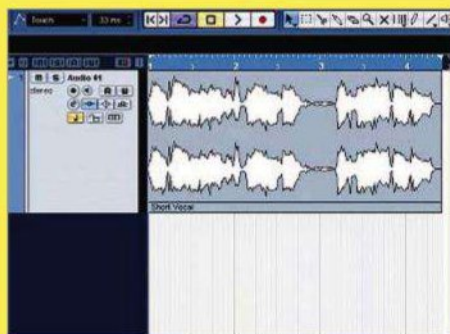
2 > Click the **Show Programmer** button to bring up the guts of the instrument. Set the first oscillator's wave shape to square. We want the filter cutoff to open up on this sound, so set the **Cutoff** and **Env** parameters in the Filter panel to **39.4Hz** and **127**, and turn up the filter envelope's **Attack** time to **1.1** seconds.



3 > Run Thor through a Scream 4 distortion effect. Right-click it and select **Initialize Patch**, then set the **Damage Type** to **Digital**, **P1** to **99** and **P2** to **92**. This gives us a gritty feel, but the real magic comes from the Body section. Activate it now.

4 > Set **Type** to **C**, **Reso** to **105**, **Scale** to **32** and **Auto** to **57**. Using the **Auto** parameter is particularly important because it gives the sound the amount of movement required for that organic, vocal quality.

> Step by step Creating 'radio voice' effects



1 > Subtle distortion can be used in conjunction with EQ to create the classic 'radio voice' effect so beloved of pop and R&B producers. First you're going to need a vocal sample, such as **Short Vocal.wav** in the **Tutorial Files\CM Focus** folder on the **cm** DVD. Drag this onto an audio track in your DAW.

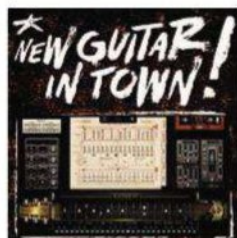
2 > Add some subtle overdrive as an insert effect on the audio track. In this case, we're going to use Cubase's Da Tube effect with the **Drive** level turned up to **70%**. This is a really simple distortion unit, so you should be able to get the same effect with any overdrive plug-in. We just want to mess up the top end of the vocal without totally mangling it.

3 > That's the distortion done and dusted, but the vocal still sounds too hi-fi. To remedy this, we use a couple of filters to attenuate the highs and lows. Cut the bottom end with a high-pass filter at about **1.5kHz**, and cut the top with a low-pass filter at around **6kHz**. There you have it: AM radio-style vocals in your DAW. **cm**

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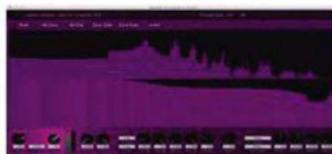
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Expert Sleepers Spectral Conquest (Mac/PC, VST/AU), reviewed in CM156, offers realtime and scriptable manipulation of a sound's frequency spectrum. From the review: "very responsive" "very pleasing to the ear" "enormous amount of potential" "vast flexibility ... easy spectral manipulation" "CPU-friendly"



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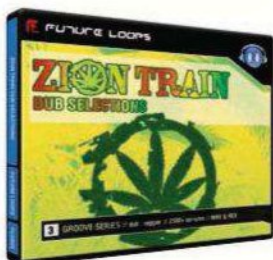
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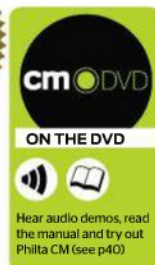
Vengeance-Sound Philta XL £40

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Since joining the great plug-in race, Vengeance-Sound have wrought some crafty innovations, but what can they do with the humble filter?

System requirements

PC Pentium III 800MHz, 512MB RAM, Windows 2000/XP/Vista/7, VST host, eLicenser USB dongle

Mac 1.5GHz Intel CPU, 512MB RAM, OS X 10.4.8, VST/AU host, eLicenser USB dongle

> Filters are one of the most fundamental studio effects. Whether used for obvious sweeps, synth patches, sound design or simple mix-sculpting, they are near ubiquitous in the studio. When we heard that Vengeance-Sound - those purveyors of innovative and powerful dance-centric effects - had released a filter plug-in as part of their Vengeance Producer Suite, we had no idea what to expect. But it's here now and with a name Philta XL, it'd better be pretty damned phat.

The overall design is pretty straightforward. The front panel shows the frequency spectrum in the main window, with two separate but linkable filters: one low-pass and one high-pass. Each can be set to a classic analogue 12dB per octave slope, a powerful 24, a fairly surgical 48 or even an insanely precise 96, as with the recently reviewed Vengeance-Sound Multiband Compressor (**cm**159, 9/10).

Each filter band offers a cutoff frequency control and another dual-purpose control with Width on the outer ring and Resonance on the inner. Though clearly interconnected, we still find having both of these controls on one dial a

little cumbersome from time to time, and would have preferred a different system.

By default, Philta works in a band-pass arrangement, passing frequencies that fall between the high-pass and low-pass filters. However, enable the Notch option and the high-pass becomes a low-pass (and vice versa), so chopping out the middle frequencies instead.

Give it some bite

Topping off the obvious front panel features are main input and output controls and some far-too-of-often-overlooked input and output meters. Beyond that, you're going to have to check out the pop-up sub-menus. First are the envelope and LFO controls, which offer far too much power to cover fully in one review (but see *Mod heaven* for more info). Despite their power, they're very intuitive, and if you're concerned about overlooking some of their possibilities, the carefully grouped presets are on hand to show you how it's done.

Next up comes the ring modulator section. Again, this is best heard in action, but one of our favourite features here is the Mix control. It

"In terms of sound, Philta is excellent: it offers a great level of crunch and bite, with bags of character"

allows some exciting sweeps, and like all of Philta's major parameters, it can be automated. Ring modulators seem to have cropped up more and more on plug-ins in recent years, but after trying it out on a variety of sources, we can vouch that this one is no mere nod to fashion. It can take straight-up filtering and turn it into a sound-mangler's dream, or simply add a little bite and character to help sculpt a mix.

The distortion effect comes next, and this is fit for anything from all-out sonic decimation to helping sounds cut through a mix. On a more creative tip, there's a sample rate reducer that can be linked to the low-pass cutoff, which, as we have already established, can be modulated with an LFO. We can assure you that this is well worth trying.

Finally comes the output limiter. It's a simple affair, and we encountered the same feature on Multiband Compressor. On both plug-ins, it works best with the auto-release disabled. As with MBC, the limiter really comes into its own when Philta is used on a full mix, but however you use it, you shouldn't just leave it on and forget about it - keep an eye on your input levels to ensure it isn't destroying the dynamics.

In terms of sound, Philta is excellent. It offers a great level of crunch and bite, and though it's not particularly warm in a 'vintage' way, it has bags of character and is perfect for modern productions. The interaction of the two bands when linked and modulated is particularly impressive, and from a performance perspective, it can function as an incredibly authentic DJ mixer-style filter effect. Naturally, it offers much more customisation than regular DJ effects, but this is probably the best way to describe Philta to deck-spinners.

Please sir, I want some more

In the end, it's hard to criticise Philta without sounding rather greedy. It sounds so good and



The envelope follower can do anything from subtle variation to extreme frequency/dynamics mangling



Here we've used the Notch mode and distortion to give a resonant phasing, all driven by the LFO

Mod heaven

Anybody who's used an LFO-driven filter will know the kind of whoomping, pumping sounds this can achieve, but the LFO on Philta has clearly been carefully designed to have maximum impact in electronic music. To this end, the LFO offers a range of shapes and speeds, can be sync'd to the host BPM and can be used to modulate a variety of parameters. Even the amount of modulation and the starting position of the LFO can be adjusted.

The envelope section too offers some amazing possibilities, and perhaps even more of an innovative design. The basic premise is an amplitude-sensitive input that

monitors the incoming level and uses this to modulate the cutoff frequencies. A further Area control defines which part of the frequency spectrum is monitored, and that can be used to tailor the effect to react a specific range, or use one part of the spectrum to trigger control of another. The Attack and Release controls offer control over the speed of the action, while Strength and Boost determine the intensity of the effect. The whole section is brilliantly implemented. If we had one wish, it's that the envelope could be MIDI-triggered or perhaps linked to BPM. Overall, though, Philta's modulation system is terrific.

has such cool features that you find yourself hankering to use it on anything that might require a filter, such as when removing hi-hat tails from a kick drum sample. However, without MIDI envelope triggering and additional envelope controls, it isn't the ideal tool for this task. While we're at it, we reckon an offset delay on the envelope and LFO would be very beneficial too. But we aren't going to mark it down particularly on this basis - these aren't complaints as such but rather our wish list for a future version.

To sum up, Philta XL is a fantastic plug-in that totally lives up to its heavyweight name. While you've probably already got a filter, this one is more than powerful and tasty-sounding enough to justify its purchase. The modulation parameters are exciting and effective: they're clearly designed by people who know a thing or two about producing dance music. It's not an essential plug-in, but for most kinds of dance music and creative electronica, you won't regret the modest outlay. In a crowded market, it more than makes its mark, and for Ableton Live DJs looking to expand their performance arsenal, it is a genuine gift. **cm**

Web www.vengeance-sound.com
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Verdict

For Spot-on filtering and effects

Fantastic presets

Dance-tastic LFOs and envelopes

Hugely powerful

Good value

Against No MIDI envelope triggering

Width/resonance knob can feel awkward

Envelope and LFO could use time-delay

Philta XL lends further credibility to Vengeance-Sound's status as lords of the dance scene. It's a certified banger!

9/10