


Q&A FOCUS

Bass

YOUR QUESTIONS ANSWERED

 Can't seem to get your bass in place? Fear not, **cm**'s assiduous experts are at your disposal...

Funking it up

Q I'm very into 70s funk synth basslines (ie, Stevie Wonder legato style and Bernie Worrel from Funkadelic), which are still being used by the likes of Outkast and Jam & Lewis, to name but a few. However, I can't seem to emulate this

style on my soft synths and keyboards. I know how to put them into the right mode (ie, mono glide or legato mode with some portamento), but I think it might be that my playing technique is wrong.

Can you offer me any advice on this?

Steve T

THE SOUND YOU'RE GOING FOR IS ALMOST ENTIRELY BASED ON GROOVY PERFORMANCE

A You've hit the proverbial nail right on its clichéd head. The sound you want is almost entirely based on groovy performance technique, and your success will be down to practice, practice, and more practice. Bernie Worrel and Stevie Wonder are top-notch performers, and that has a lot to do with that sliding, gliding goodness you're hearing.

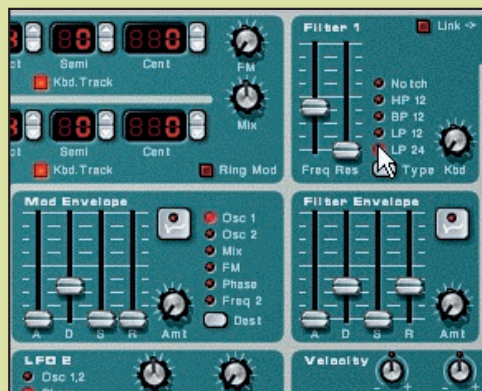
Still, there are a few things you can do. Back in the day, both of those artists were fans of the Minimoog (though Stevie played a mean ARP 2600 too), and that classic combination of two

analogue oscillators and a meaty, squelchy low pass filter is fairly common in the world of soft synths.

In addition to the portamento and glide of which you're already aware, those funk maestros also made liberal usage of the pitch and modulation wheels, as well as using an envelope to control the filter cutoff. The filter might open up a little slower than the VCA envelope, and such envelope control over the filter is what gives that classic 'wow' bass.

It's worth noting that the

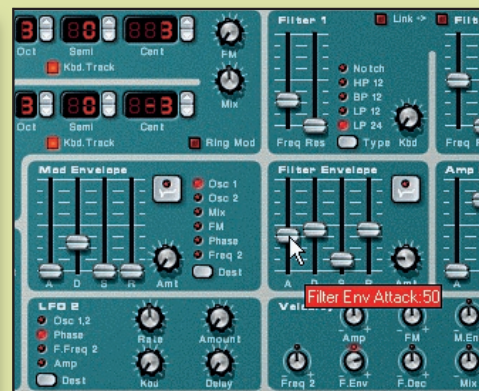
STEP BY STEP Play that funky bass



1 To create a classic funky bass sound, you'll need an analogue synth with at least two oscillators and a dedicated filter envelope. Propellerhead's mighty Reason has just such an instrument in the shape of Subtractor. Here, we've loaded a Subtractor into a rack and selected the LP 24 filter type. >>



2 Make sure both oscillators are activated and select sawtooth waveforms for them. Lower the octaves of both oscillators, and detune them a bit from one another. A third oscillator wouldn't go amiss here, but two is usually enough. Reduce the polyphony to a single note. >>



3 Make sure the portamento is up a bit and maybe put it into Legato mode. This will give you that characteristic slide from note to note. Now, increase the **Attack** segment of the Filter Envelope as shown. Set the **Decay** a little under half-way and reduce the **Sustain**. Increase the **Envelope Amount** and filter **Cutoff** to taste.

Minimoog and ARP synths were not capable of many of the niceties of modern software instruments, and you may have to likewise limit your performance parameters to achieve that classic sound. For instance, there was no velocity or aftertouch, and polyphony was rarely in effect. Dynamics and modulation were often accomplished by the deft tweaking of the front panel's knobs in real time.

Of course, it goes without saying that real-time performance is the key to that special groove. Those guys rarely made use of any sequencing for their grooves (though Malcolm Cecil provided some stunning modular sequences from his monstrous modular, TONTO, on some of Stevie's best work). Practice it and play it, but don't ever quantise it.

Sound me out

Q My bass guitar is swallowing up my kick drum. Everything sounds a mess when I attempt to mix it. I want them to be rhythmically tight but still sound like separate sounds. Help!

Sean Foster

A It might sound weird, but try rolling off some of the lowest frequencies of the kick drum track. Let the bass handle those frequencies and leave the attack to the kick. Try boosting the kick at around 5kHz to bring out the crack of the beater striking the head, and scale back the levels that hover just around the root of the song's key. Boost the bass track at the root note and at an octave above that. This will allow the bass to suggest the melodic content and 'oomph' of the song while the kick drum creates the drive.



Need a killer synthetic bass sound? Look no further than our very own CM-303 — you can find it on the cover DVD every month

Double bass

Q I need a basic procedure to mix a song with two basslines.

Rui Barata

A Whether you're a newbie or a seasoned studio veteran, getting a good bass sound is one of the most difficult aspects of mixing. It's hard enough just balancing a bass with a kick drum, but when you add a second bass into the equation, things can be vexing, to say the least. Yet there are a number of artists who have successfully doubled up the bass. Most commonly, there'll be an electric bass guitar combined with a synthesized bass of some sort. Such a dynamic can be very interesting if you get it right.

The biggest problem with mixing two bass sounds is that they can step on each other, or share so many of the same frequencies that they overpower the rest of the instruments. Simply reducing the levels won't help, as that might make them disappear altogether.

So how do you make the bass sounds clear and defined, yet not overpowering? The answer lies in considered use of equalisation and maybe a little panning. The reason we say 'maybe' is that bass frequencies are not particularly directional. When mixing a pair of guitars, it's a simple matter to separate them by panning them towards opposite sides of the stereo sound field; bass frequencies, however, are generally perceived as sitting right in the middle. Usually, then, we must look to equalisation.

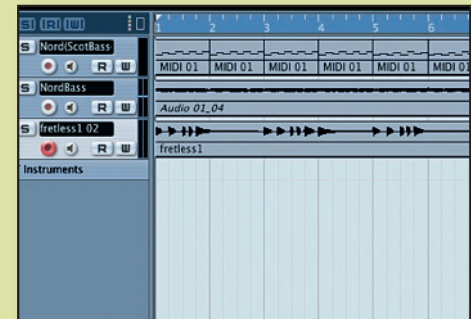
THE PROBLEM WITH MIXING TWO BASS SOUNDS IS THAT THEY STEP ON EACH OTHER

The first thing to do is decide whether one of the bass sounds should dominate. Is one primarily rhythmic and one melodic? If so, you'll want the rhythmic sound to lie back a little, integrated as part of the rhythm track. That means that the higher frequencies might be less important in that sound, so maybe roll some of them off. The low frequencies will be most important here. If it's a bass guitar (particularly one played with a pick), you might boost the high-mids slightly to bring out the attack. The result will be a chugging rhythm that carries the tune but doesn't crowd it.

Whatever you do to one bass track will be reversed in the other. If you roll off the highs and mids in one, do the same with the lows of the other. Try to think of the overall sound of the track, and don't focus too much on how each track sounds solo.

Of course, it would be best to start thinking of these things during the arrangement and tracking process. Looking ahead to how the sounds are going to fit together in the mix will save you a lot of headaches when that time comes.

STEP BY STEP Mixing two basses



1 Mixing bass can be hard enough when dealing with a single bass track. When you have a project with more than one bass playing at the same time, it can be a nightmare getting the balance right. However, it isn't impossible, and the results can often be quite interesting. Here, we have a pair of bass tracks in Cubase SX 3. One was made with a fretless electric bass, the other with a synthesizer. >>



2 Fortunately, we planned ahead a little, and our bass sounds are pretty distinct from the outset. We chose the fretless to play the melodic role, and used our trusty Nord G2 for the squelchy synth bass. As you can see here, we've mixed the more rhythmic synthesizer bass a bit lower than the fretless. The synth should move the song along, leaving the melodic work to the fretless. >>



3 Finally, we've made some adjustments to the equalisation of both tracks. The Synthesizer bass has had some boosts around 100Hz and has been attenuated in the upper and lower mid-ranges. Conversely, the fretless track has had a slight cut in the 100Hz range and a boost in the upper-mids. This will bring out the melodic aspect of the fretless, while ensuring that the synth bass stays out of the way.

Compress me

Q I'd really like to see some tips on compression. Also, I want to know if bass should be on a mono or stereo channel.

Paul Fletcher

A As we pointed out in the previous answer, bass frequencies are not terribly directional, so it's usually better to track them in stereo. But then, a

and the mix. Compression is a fundamental ingredient of modern music, so you can't simply ignore it. If you have a bass guitar track or an acoustic bass track with levels all over the place, you'll certainly want to tame it with a compressor. However, you must proceed with caution. If you compress the bass too much, you'll wind up with a dense and muddy track that is hard to sit in the mix.

If you do decide to compress, make sure you're helping and not

IF YOU COMPRESS THE BASS TOO MUCH, YOU'LL WIND UP WITH A MUDDY TRACK

lot of us around here record most instruments in mono anyway. The only time you might want to record a bass in stereo is if there are external processors involved. If your bassist (or synth bassist) is using stereo effects pedals or outboard processors to help define the sound and inspire the performance, then it might be best to track what they're hearing. However, if you're just tracking a bass guitar or synth with little or no effects, try doing it in mono. It'll be easier to mix.

As for compression, it will really depend on the source material

hindering the mix. Use release times that fit in with the rhythm of the track. Try a threshold of anywhere between -2dB and -10dB. The amount of compression will depend on the source material, but you could wind up using a ratio as subtle as 3:1 all the way up to a brutal 9:1. Hard knees and fast attacks will be the name of the game for bass.

It may not be a bad idea to see if you can't tame the dynamics with automated mixing, particularly when working with quieter, more delicate material.

Dizzy heights

Q When I create a bassline using a synth it sounds great at a low level, but when I turn it up the bass starts to flap. How can I stop this happening and create a bassline that can be played at high volume?

Craig Weir

A We're not too sure what you mean here, to be honest. Do you mean that your synthesizer's volume is at a low level? Or that you're listening back at a low level? Either way, there could be a number of culprits and a number of solutions. First, how are your speakers? Are you listening back on monitors that are capable of reproducing the bass frequencies that you're creating?

to a problem in the synthesizer patch itself. A lot of modern synthesizers have filters capable of producing levels of resonance that were usually unavailable to their hardware forebears. A filter's resonance is supposed to boost the frequencies around the cutoff frequency, providing that rockin' squelch when the cutoff is relatively high and the resonance is cranked up. However, when the cutoff frequency is set very low, turning up the resonance can sometimes result in a harsh buzzing sound that can be charitably described as 'flatulent'. To reduce this effect, either dial back the resonance or strap a high-pass filter after the low-pass filter and roll off some of the low end.

No matter what the problem is, it's important to gain-stage your sound properly. Remember that the

NO MATTER WHAT THE PROBLEM IS, IT'S IMPORTANT TO GAIN-STAGE YOUR SOUND

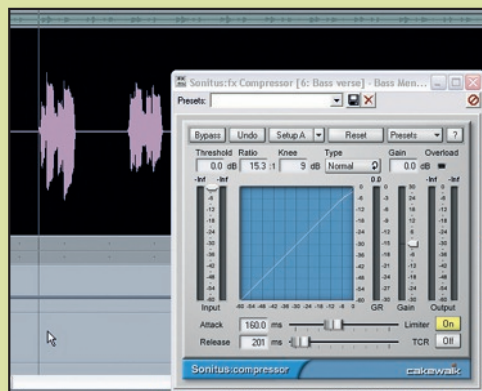
This is why studio monitors are essential for achieving a professional sound.

Maybe you already know that, though, and maybe you have good monitors. Perhaps you're referring

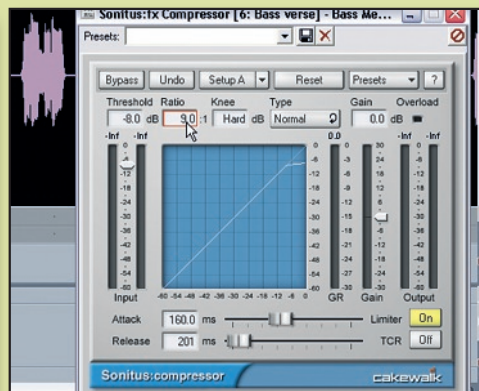
filters, VCAs, distortion effects and many other synthesis functions can add volume to a patch. You may be overloading the input of some part of the signal path.

Finally, it may be that you're

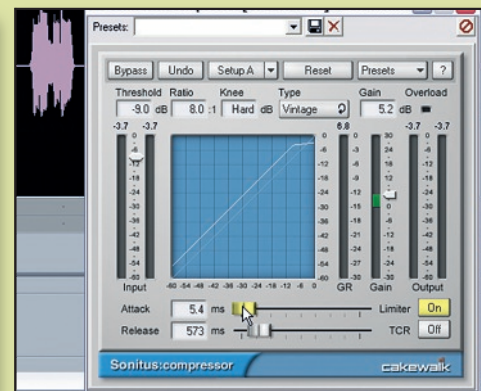
STEP BY STEP Compressing the bass



1 Compressing bass can be a dangerous but necessary business. This is especially true with bass guitars, as they tend to get muddy when compressed. In this example, we have an electric bass track in a Sonar 4 project that we want to tame a little. We've called up an instance of the fabulous Sonitus Compressor on the track's effects insert. >>



2 We've set the threshold pretty low, at about -9dB. We've also set the compressor knee to **Hard**. Because this is a rock song, we've really squashed the signal with a ratio of **8:1**. This could be risky, as it might bring up the sustain portion of the notes to the point where they overwhelm the other instruments, but in this case, we've already gated the original signal upon recording. >>



3 Finally, we've reduced the **Attack** to around **5ms**. This governs how long it takes the compression circuit to kick in once the threshold level has been reached. We've also adjusted the output gain to make up for any signal loss. There's a limiter in place, so we're not too worried about overloading the outputs.



▲ Even a faithful reconstruction of a classic synthesizer such as the Moog Modular can produce ear-blowing distortion when its filters are pushed to the limit

just having trouble getting the bass to sound clear in the mix without overwhelming the other tracks, or peaking the meters. It's worth bringing up the Fletcher-Munson Effect here. This is the phenomenon that makes certain frequencies sound louder than others, even when they're at the same overall level. The human ear is very quick to recognise sound in the area of 2-3kHz. If your bass sound has a lot going on in this area (yes, even a bass sound can have significant material at such a high range), this may be why it sounds fine at low levels but becomes oppressive at higher volumes. Maybe you need to roll off some of the low end.

We are, unfortunately, just guessing here. It's difficult to understand exactly where your trouble lies without hearing the sound itself. Your dilemma was precisely why we created the Synthesis and Sound Design forum at forum.midiaddict.com. Head on over and check it out.

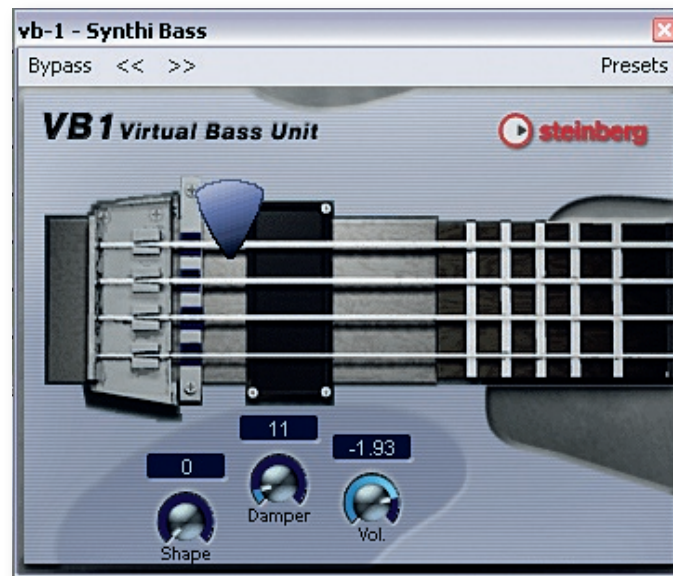
Direct hit

Q I have often read that it's best to record guitars through an amplifier. Is this also true of bass guitars? If so, what kind of microphone should I be using? Or do you think I could get by with just a direct box? Just how should I be recording my bass?

Tim Robson

A Many engineers track their basses direct. A bass cabinet is a very difficult thing to record, and it can be quite difficult to get any sort of definition to the sound if you don't know what you're doing (and often even when you do!). A good direct box can provide you with a clean and detailed sound that you may find difficult to achieve with an amplifier, and many professional engineers swear by products like those in the Sans Amp catalogue.

If you have a good preamp, that can make an excellent substitute for a direct box. We've had great results tracking basses through



▲ It may not get very much use these days, but the importance of bass is exemplified by the fact that one of the very first VST instruments was modelled after a bass guitar!

everything from a cheap ART Tube MP to a high-end Manley.

If you do want to record a bass amplifier, you must take a few things into consideration. First, there's the microphone. The mic should be able to handle any high SPL levels you throw at it, and it goes without saying that it must have a good low-frequency response. There are many microphones available that are specifically designed for recording bass, and just about any mic that you would stick in front of a kick drum will work well too. The trusty AKG D-112 would be an excellent choice. Some engineers have no qualms about shoving an expensive large-diaphragm condenser mic in front of a bass cabinet, and we've heard some good bass recordings done with the relatively inexpensive Neumann TLM-103.



▲ The D-112: A classic kick drum microphone but great for bass too

of space. Low frequencies can be measured in meters, not feet. You might try a combination of close and distance miking.

No matter what you do, you're not likely to get the definition from the amplifier that you will from a

A GOOD DIRECT BOX CAN PROVIDE YOU WITH A CLEAN AND DETAILED SOUND

When capturing the sound of the bass cabinet, keep in mind that bass frequencies need a lot

direct box. Conversely, though, the amp may provide a full and meaty tone that's missing from the direct box or preamp. It's a fairly simple matter to combine the two – you can split the signal and send it to both the amplifier and the direct box, and record both sources simultaneously; or you can just record the direct box and shuttle the recorded signal out through an auxiliary output to re-amplify and mic it up. Stick the two signals on separate tracks and mix them to taste during mixdown. Keep them panned to the centre, though. **cm**

COMING SOON: SWITCHING YOUR COMPUTER PLATFORM

In issue 87, our experts will be solving your **platform switching** problems. If you're making the move from PC to Mac or Mac to PC, mail your questions to ronan.macdonald@futurenet.co.uk.