SOOPER

TAKA, UMPF,

AM, BAM BAM BAM

IIEH, BRZZZ, SCHIIE

DDER, MPFMPF, RÖDDER, M

MPF, PIIEP, MÖÖP, MPF, PIIEP,

LABA, PALAVA, LABA, PALAVA, L

SCHINGELINGELING, SCHINGEL

SOOPER TALK

WITH THE CHIEF IN PERSON: ANDREAS SCHNEIDER

Crisis or not, the SuperBooth20 Home Edition was a real success and gave an authentic impression of the missing real event to new visitors and all of us over the internet. Lots of exhibitors and performers presented the latest gear and creative live shows, which could (and of course still can) be streamed via Vimeo and YouTube. We had an entertaining talk with the leading man behind the event, his personal highlight and experiences with his first virtual fair.

> ## Keep smiling and don't buy crap «

Beat / *Hi Andreas, the SuperBooth20 is over and due to the lockdown it took place in form of the first virtual music fair ever. What was your key point or initial idea to let the event happen via streaming and how did it work?*

HerrSchneider / We wanted to offer a virtual way to remember the personal contacts, let the people virtually meet up with Jean-Michel Jarre or with the purchase manager of Thomann or SchneidersLaden, and ask the usual questions that we all ask each other at least once a year: "Hey how are you? Looking younger than ever, or – in this case – how do you feel with corona in your country?". This became the topic "listen:" in our Superbooth20 Home Edition, where we had guests from India, the USA, France and elsewhere.

Beat / *How did the exhibitors react to the SuperBooth postponement to 2021? As far we noticed all exhibitioners showed a lot of solidarity support, right?*

HerrSchneider / Not all of them were ready to directly swap their booking to the follow up year, but this is totally fine. We already asked them to think about coming or not for the 2020 edition when we still planned to let it happen. The first big change to our plan was a reduction to a local come together with all the concerts and potentially less than 1.000 visitors, so we offered our manufacturers to either jump off and postpone the booking to next year, or to just jump off and get their money back. They understood the message and made their decision already before we had to cancel this years event. So in the end it was easy, logical for all our friends and a safe way of dealing with the situation.

Beat / *Streaming a whole fair requires a lot of courage and pioneering spirit, especially when it is spontaneous and short-termed. What did you learn from this? Will you possibly adapt the new knowledge for the upcoming SuperBooth?*

HerrSchneider / We definitely should think about new mixtures for 2021. Who knows how the upcoming situation will be and whether we can prevent a few people from flying overseas just for this event. It's bad for this event, but very good for the environment, so we might do good in making it a bit smaller. But we are still ready to make it the same size as 2019 again – or even bigger, we will see. The best thing with the SuperBooth20 Home Edition and kind of magical was the active way of making it a real conference or whatever you would call it, together with (first of all) Sonicstate, Amazona and Hainbach, but also plenty other partners who jumped on the train reporting and offering their channels making promotion for the general idea, like you do with this magazine. I think the Home Edition was really great for all those who was sitting at home worldwide.

Beat / *What have been your personal highlights of the 2020 home edition?*

HerrSchneider / The VOSTOK by Sputnik Synths. A perfect example for what could help to make a good product sell well: Spirit, Carma, hardware quality paired with outstanding charme and a good idea. We're looking forward to meet them in person on SuperBooth21.

Beat / *What thoughts would you like to share with our readers?*

HerrSchneider / Don't take it too seriously, keep smiling and don't buy crap.

www.superbooth.com | www.schneidersladen.de

JOIN THE GAME OF ~~DRONES!~~ TUBES

Erica Synths Fusion Drone System is here for those, who want to explore the dark territories of the sound, where only few have stepped in.!

Erica Synths is one of the few manufacturers that use vacuum tubes in eurorack modules, and those, who are familiar with tube-based modules, know that tubes can push the sound to extremes or turn it deep, saturated and complete.

The Fusion Series modules are the basis for this system. It offers **loads of patchpoints** for extensive experiments in sound design, all analogue signal and CV path to **create the drones of massive power**. Erica Synths Fusion Drone System II brings distinct and powerful sound into eurorack.

We have come up with three new Fusion series modules – Fusion VCF3, Fusion Modulator and Fusion VCA/Waveshaper/Ringmodulator – to create the Erica Synths Fusion System II – a modular synthesiser for sounds of **unprecedented pressure**, unconventional modulations and creativity-inspiring patching. The system has **63 patchpoints** for extensive experiments in sound design, all analogue signal and CV path; it's a system **for those, who take sound design seriously**.

www.ericasynths.lv

Two Fusion VCO2s – fully analogue sound source with three simultaneously available waveforms, transistor-based suboscillator and detune function – two BBD delay lines that make frequency shifter that is mixed back to the principal oscillator in order to emulate two detuned VCOs. Tube crunch – distinct tube overdrive - is added on the top of the mix.

Fusion VCF3 - resonant 24dB/oct lowpass filter of unique design that combines vacuum tubes and vactrols, providing distinct, soft filtering. For more versatility a CV recorder, that records motion of the potentiometer, is incorporated in the module, so you can design advanced modulation patterns.

Fusion Modulator - complex, all analogue CV source that consists of several blocks – two EMS Synthi functionality inspired looping envelope generators with simultaneous unipolar (0V-10V) and bipolar (-5V-+5V), VCA, Noise generator and Sample&Hold.

Fusion VCA/Waveshaper/ Ringmodulator – a modulation source based on two miniature pentodes that operates as VCA, waveshaper and ringmodulator. With two CVs applied simultaneously to different stages of the VCA, audio rate modulations, using ringmodulator as a waveshaper it becomes surprisingly versatile sound shaping module.

(Fusion Delay/Flanger/ Vintage Ensemble – a distinct multifunctional analogue effects module that combines BBD chip based effects with an adjustable tube overdrive in the delay output and a feedback path for extra thickness of the sound.

VERMONA meloDICER

DICE YOUR HOOKLINES

A vision of a sequencer with perfect balance between stochastic and deterministic creation of rhythm and melody: Algorithms generate random values that magically turn into musical events. Sounds complicated? Don't worry!

RROOOAHHH

RROOOAHHH

The theory behind meloDICER may sound complex, but using it is a breeze. The simple version to describe meloDICER could sound like: "Hit two buttons, move some faders and get a melody". The module creates random patterns and sequences, while letting you keep control over the amount of randomness. Or use the module as quantizer for incoming voltages, to turn even a LFO into a hookline generator.

How does it work?

meloDICER dices patterns with up to 16 steps and allows changing them in real-time. Freely alter the pattern length or choose which notes should be contained and set the probability via fader for each note to be part in the sequence after dicing. Also the octave range can be changed anytime, as well as note length, rhythm, chances for legato and empty steps.

Need a quantizer? Easy!

Use your existing modules to transpose and alter the patterns or to re-dice the sequences. Or skip the random pattern creation and use meloDICER as a fully-fledged quantizer instead! Choose the note values that incoming voltages should be quantized to and off you go.

www.vermona.com

The RHYTHM Section

Add variation to the generated patterns with access to quantization, note length, legato and pause settings. VARIATION randomly brings in more note values, based on the quantization settings of NOTE VALUE. Play with both controls to generate different rhythm patterns.

The MELODY Section

This is the main section of melo-DICER: Select the notes you want to allow and use the faders to set the probability for them to appear. In real-time! Use the RANGE faders to determine the note range from within five octaves. Furthermore set the length of the diced pattern or shift the starting and ending steps, resulting in ever-changing patterns to keep the fun-level of your performance high.

Controlled tunes or total mayhem

Apart from being a standalone unit, meloDICER also accepts two incoming gates and pitch voltages each, which can be used for different tasks, like transposing the diced sequences, controlled re-dicing, changing quantization and note length on-the-fly and much more.

To Dice or not to Dice

This is where the magic happens: Hit RHYTHM to change the diced steps and MELODY to randomly create note values for them. Want more coincidence? Hold the buttons for a second to enter real-time mode. In real-time mode, there is no repeated pattern. meloDICER continuously generates new random values, based on the parameters you set for the corresponding section.

## NOVATION PEAK & SUMMIT WAVETABLE EDITOR

SUPERCHARGE YOUR SOUND DESIGN

The free Wavetable Editor for Peak and Summit unleashes the power of the wavetable oscillators, allowing you to design your own waveforms and expand your creative potential.

The Editor, which is part of the Novation Components browser-based platform, features drawing tools and a Live Edit mode, so you can draw your own oscillator shapes and preview them in real time. The audio import feature lets you load in your own samples to be used as the oscillator waveform.

Built into the Wavetable Editor is a curated selection of space-themed audio from the NASA sound library. Get inspired and expand your sound design possibilities by generating waveforms from recordings of human space exploration and otherworldly environments. Also included is exclusive wavetable content from production giants Noisia, who have created a preset pack to stir your creativity.

www.novationmusic.com

INSERT YOUR SAMPLE HERE
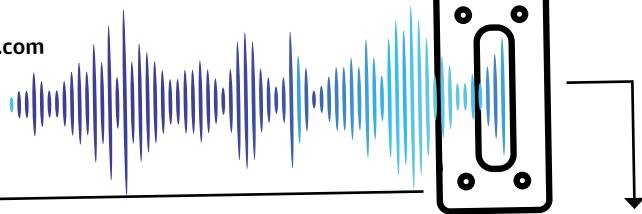
[INCLUDING WAVE-TABLES BY NOISIA!]

CG PRODUCTS XR22 VCO FT

CREATE BRAND-NEW FREQUENCIES

Deep, rumbling basses, shiny bells, ever-changing textures, metallic sounding howls and voices from otherworld… while ring modulators might count to niche products, their sonic spectrum yields sounds like these. So fasten your seatbelt and get ready for …

… some theory

The XR22 VCO FT is a **ring modulator** with input for **amplitude modulation** and **frequency shift keying**, that allows direct ring modulation of audio signals with the oscillator's sine/triangle signal. Alternatively, this input can be used to control the amplitude of the sine/triangle output.

Advanced waveform creation

The frequency shift keying option with two switchable oscillator frequencies, which are controllable by the two big-sized knobs, allows advanced waveform generation. The oscillator's square wave output can be switched directly to the FSK input, resulting in separate controlling of sing/falling edges of the angle signal and the duty of the square output for ting ramp and pulse wave via the knobs and CV.

www.cg-products.de

Dr. Clever says:
A ring modulator multiplies two signals together to create two brand-new frequencies which are the sum and difference of the input frequencies. «

BEAT SPECIAL

DOEPFER MUSIKELEKTRONIK

DEFINE YOUR SOUND

Modules by Doepfer have always been known for being tools and work-horses with great functionality. The latest addition stick to that fact, but do not forget the fun part. Find out what the seven upcoming modules will add to your rack. **www.doepfer.de**

A-149-4 Quad Random CV Source

Module A-149-4 generates four triggered random voltages which meet the criteria choosen by several controls and associated control voltage inputs. Manual controls and control voltage inputs for the criteria selection: Octave range, Grid, Minor / Majorand Sixth / Seventh. The output voltages follow the 1V/octave standard. The generation of a new random voltage at the output (CV Out 1...4) is triggered by the corresponding trigger input.
Typical use: Any process that requires several random voltages

A-135-3 Voltage Controlled Stereo Mixer

A-135-3 is a is a voltage controlled stereo mixer with four inputs. Behind a front panel with 8 HP only eight linear VCAs and the mixer based on the VCAs are available. The sum of the left and right signals appear at the sockets Out L and Out R. The maximal amplification is about 0.5 to avoid clipping at the mixer outputs . If another maximal amplification is required two resistors have to be replaced. All inputs and outputs are DC coupled. Consequently the module can be used to process both audio and control voltages.
Typical use: Versatile mixer with great flexibility

A-133-2 Dual Voltage Controlled VCA / Polarizer / Inverter / Ring Modulator

The module contains two special voltage controlled amplifiers (VCAs) that allow both positive and negative amplification. The overall amplification is definded by the sum of the voltage generated by the Man control, external voltage CV and the position of the CV control which works as an attenuator for external voltage. In addition the CV signal can be modulated via the modulation control input Mod by means of another control voltage.
Typical use: Simple VCA, polarizer, attuverter, inverter or DC coupled ring modulator

A-183-4 Quad Level Shifter / Clock / Trigger Buffer

Module A-183-4 is a fourfold level shifter. A level shifter is required if the level of a digital control signal has to be increased or decreased. The outputs and inputs of the four sub-units are normalled via the switching contacts of the input sockets, i.e. the output signal of the upper unit is used as input signal of the unit below provided that no patch cable is inserted into the input socket of the lower unit. That way the module can be used also as clock/trigger/gate buffer or buffered multiple for digital signals.
Typical use: Conversion of a gate, trigger or clock signal with +5V voltage level

A-130-8 Octal Linear VCA / Voltage Controlled Mixers

Module A-130-8 contains eight linear voltage controlled amplifiers. Each VCA features a control voltage input, a signal input and a signal output. In addition three mixers are included. The signal inputs are able to process levels up to 10Vpp without clipping. Each CV input is equipped with a trimming potentiometer that is used to adjust the sensitivity of the CV input in question.
Typical use: Voltage controlled attenuation of audio or control voltage signals

A-174-4 Joy Stick II

Module A-174-4 generates several control voltages and a gate signal controlled by a spring-loaded X/Y cross potentiometer (the joy stick). The control voltages for X and Y are controlled by the X and Y position of the joystick in the usual way. The third control voltage Z is controlled by the rotation of the spring-loaded joystick knob. The gate signal is generated by a button at the center/top of the joystick knob. As an additional feature four control voltages are generated that are assigned to the quadrants of the Cartesian coordinate system. These quadrant voltages are derived from the X and Y voltages by means of a special algorithm.
Typical use: Live modulation performance

A-111-5 Synthesizer Voice – Getting a successor!

Module A-111-5 is a complete and versatile monophonic synthesizer module, including an oscillator with triangle and sawtooth waveforms, pulse width control and modulation as well as frequency modulation. Furthermore lowpass filter with frequency modulation, a VCA with amplitude modulation, two LFOs and an ADSR envelope.
Typical use: Great foundation for your system

A-100 ANALOG MODULAR SYSTEM

DOEPFER

A-111-5 Mini Synthesizer Voice

A-100 ANALOG MODULAR SYSTEM

DOEPFER

OHRWÜRMER KRIEGEN KEIN ALZHEIMER.

Carol ist nicht mehr die, die sie mal war.

Sie erkennt weder ihre Schwester Nancy noch ihren Mann Jim. Die meiste Zeit ist es so, als würde sie kaum noch etwas um sich herum wahrnehmen.

Doch wenn Nancy ihr vorsichtig die Kopfhörer aufsetzt und ihr ihren absoluten Lieblingssong vorspielt, leuchten ihre Augen wieder. Sie wiegt sich sanft im Rhythmus, sogar die Tanzschritte kann sie noch.

Vielleicht knufft sie Jim am Arm. Oder sagt ihm, was für ein lustiger Typ er ist. Für die Länge eines Songs ist sie wieder da. Für 4:35 ist sie wieder Carol.

THE POWER OF MUSIC!

thomann
MUSIC IS OUR PASSION

LEAF AUDIO MICROPHONIC SOUNDBOX

HEAR THE WORLD FROM INSIDE

CONNECT ...

The Microphonic Soundbox mk2 is an acoustic wooden experimental instrument, which perfectly integrates in any audio setup to create interesting and otherworldly soundscapes. It comes prepared with metal springs, metal rods, sand paper and a Kalimba made from carbon strips, but it can easily be extended with any other found materials. It can be played in many ways by scratching and bowing, to create totally unique sounds. It's the perfect sound design tool - be creative!

What's inside?

The Microphonic Soundbox features two internal contact microphones and two battery powered low noise pre-amps (~100x Gain), both signals can be mixed together and sent to the outputs as a line level. Inserting an external signal to the input will switch off the first internal mic and use the external signal instead, what also makes it a platform for amplifying and mixing external Hi-Z signals. It's standing on soft rubber feet, which guarantee a good grip on most surfaces, and also do some acoustic decoupling.

How to use

Standalone it's already fun, but its whole potential is unveiled when it's being processed in realtime by livesampling, loopers and effects. For getting you started, we provide a Live-Set for Ableton as a free download, but of course you can use it with any other DAW or mixing desk. You can also interact with Eurorack Modular, using modules like Clouds or Morphagene or Magneto. Possibilities are endless and many sound designers and musicians use it in their work for theatre, cinema, TV and music production.

www.leaf-audio.com

LeafAudio
Microphonic Soundbox mk2

INPUT   GAIN 1   GAIN 2

FEED IT   WORK IT   TOUCH IT   MOVE IT   SLIDE IT

USE WITH ...

FRISCH AUFGESETZT.

Das Kopfhörer-Magazin im Web.

www.kopfhoerer.de

KOPFHOERER.DE

BITWIG STUDIO 3 – ENTER THE GRID

BERLIN SCHOOL SEQUENCING

Bitwig Studio inspires you to take greater control of your music, giving you access to every aspect of your production. Streamline your creative process and quickly evolve your ideas into complete songs, tracks, and compositions. Record and arrange, improvise and perform, or do it all at once. Welcome to the next generation of music creation and performance software. Modularity has been at the core of Bitwig Studio from the beginning. Devices can be nested, clips are containers, modulators exist everywhere, and practically anything can be dragged anywhere.

The Grid - coming with Bitwig Studio 3 - is an open modular environment that powers a family of new devices in Bitwig Studio 3: Poly Grid and FX Grid. With a vast library of modules and a supersonic workflow, you'll be creating your own unique sounds immediately, and in high-fidelity. Simply add a Grid device to your project and start patching. It's fun.

Construct a polyphonic synthesizer from scratch in one session. Create an adaptive audio effect with your signature sound. Experiment with generative drones until you find a new way to perform. Or simply create the undefinable. Patching is effortless, giving full rein to your creativity.

2 Mixer & Pitch Quantize

Both Pitches modules are connected to a Mixer, which pans the sources (panning the notes has an impact on the following oscillators) and sums both sequences, leading into a Pitch Quantize unit. Here we select only a few notes to set the flavor of the resulting sequence. This module takes care that wrong notes are filtered out.

4 Probability

The summed Pitches modules create ever-repeating sequences with a certain randomness. To even increase this we add a **Trigger Gate** running through a **Chance** module, which finally triggers a filters envelope. As the **Gate's** and **Pitches'** Phase is active (the violet ø icon) all modules run at the same host timing. The result is as simple as effective: Some notes will be played with closed filter, resulting in even more interesting patterns.

3 Oscillator & Filter

The Triangle oscillator receives its trigger and note voltages from **Pitch Quantize** and sends its audio out to a **Low-pass LD** filter. The filter gets a short impulse from its **AD**-envelope neighbour module, which opens the cutoff, resulting in a smooth and nice arpeggio.

5 Signal Output

The filters' output runs into an **ADSR**-envelope, which sends its signal to the output. Consider adding a **Delay** or **Reverb** device after the **Poly Grid** to add more space.

1 Pitches & Random

Berlin School Sound relies on proper sequences. So let's start with adding the **Poly Grid** device to a new track and add two **Pitches** modules. We shorten the first one to seven steps instead of eight and add some notes of our choice. The second Pitches gets a **S/H LFO** from the **Random** modules connected, which randomly changes the modules playback direction.

Fact Sheet

- Professional Digital Audio Workstation for Windows, macOS, and Linux
- Super-fast workflow for sound design, recording, live performance, and beyond
- A complete package with 80+ instruments and effects
- Enjoy over 10 GB of world-class sound content from Bitwig and selected partners
- Out-of-the-box support for standard audio interfaces and controllers
- A unique and highly flexible modulation system for unbound creativity
- Excellent hardware integration

GET YOUR HANDS ON:

CONNECT THE WORLD
[WITH BITWIG]

Bitwig Studio includes technology called the „Open Controller API". This allows anyone, from controller manufacturers to everyday Bitwig music makers, to create highly-detailed control scripts for your favorite controllers.

Bitwig comes with a huge selection of Scripts for well-known Controllers by Arturia, Nektar, Roger Linn and many more. All of them ready for instant use. Connect your gear, Bitwig will automatically detect it and fire up the script to get your controller included right away.
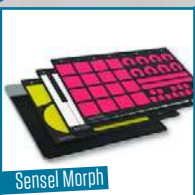
If that's not enough, have a look on the more than 70 user scripts on Bitwig.com, or create your own ones! The included Scripting Guide and Documentation will make this a breeze.
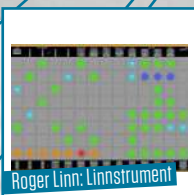
www.bitwig.com

WATCH THE GRID
VIDEO TUTORIALS

BIBIBIBIBIIIIEEEP
BIP
BIIIP

Nektar Impact LX25+

Sensel Morph

Roger Linn: Linnstrument

Arturia Keylab Essential Serie 49

Keith McMillen K-Board Pro4

Behringer BCR2000

Arturia BeatStep

Ableton Push

Midi Fighter Twister

Native Instruments Kontrol

Novation LaunchPad

Akai APC40 mkII

CABLEGUYS SHAPERBOX 2

SOUND DESIGN
SUPERHERO

ShaperBox combines six separate Cableguys effects in one intuitive and flexible plugin. The modules can be ordered by taste and offer three frequency bands each, what makes it easy to apply effects to individual sounds and selected frequencies ranges. This feature and loads of other flexible functions make the ShaperBox your go-to tool for mixing duties and creative sessions.
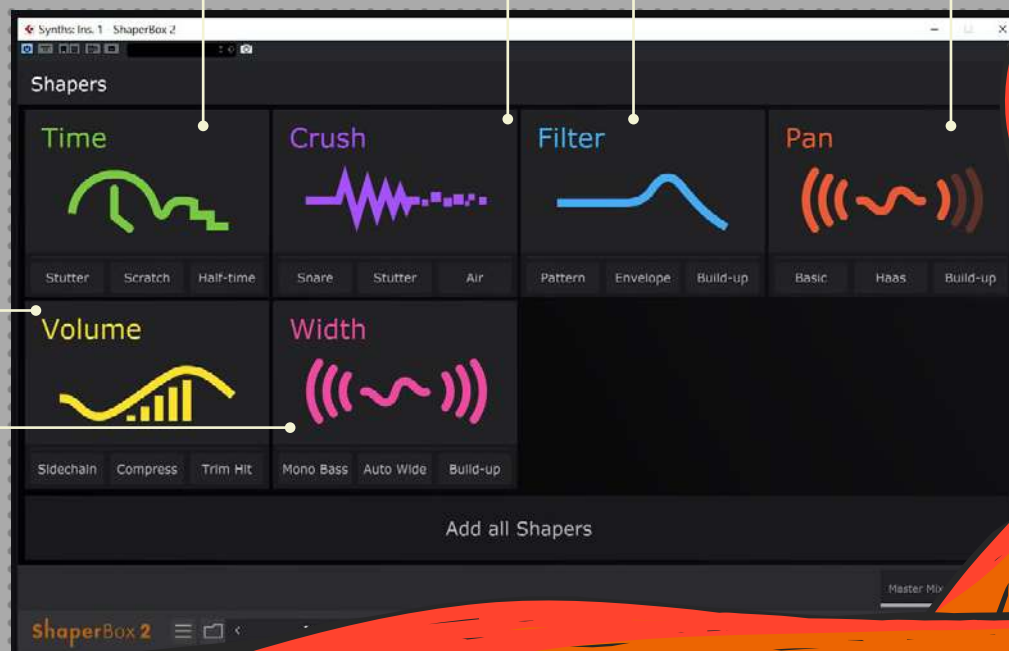
CrushShaper: The lo-fi expert

Fans of crunchy LoFi and distortion sounds will definitely enjoy the **Crush module!** This shaper allows you to modulate the distortion amount, the bit and the sample rate reduction as well as the effect intensity. How about turning individual drum hits into grainy LoFi sounds? Nothing easier than that! A light saturation of the high frequencies will refresh dull signals effectively.
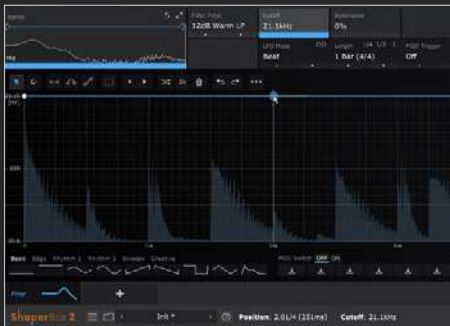
FilterShaper: Creative sound mangler

The powerful **filter** module of ShaperBox offers a wide range of different types: In addition to low, high, high and band pass with different slopes and characteristics, you can find notch filters and various phasers. Thanks to the flexible drawable LFOs and the envelope follower, powerful sweeps or insane wobbles are easy to create, as are complex and dynamic filter runs.

PanShaper: Stereo magician

PanShaper allows a flexible modulation of the stereo position. The psychoacoustic Haas effect can also be employed. For example, this module is useful to let only the hi-hats of a drum track move in the stereo panorama or to position individual drum hits at will. You can also create impressive animated basslines or vivid hooklines, while the lower frequencies always remains mono compatible.

TimeShaper: Audio time machine

In the Time module, the horizontal axis represents the temporal curve. The vertical axis, on the other hand, indicates the position in the incoming audio signal. With a curve in the form of a descending staircase, you can create stuttering and repeating effects. If you draw slopes, the pitch is altered. So you achieve tape stop and acceleration effects. Glitch and reverse effects are also possible.

VolumeShaper:
Your expert for pumping and gate fx

You can shape audio signals in pinpoint detail with the powerful drawable volume LFO and visual compressor on every band of ShaperBox 6. So you can create all kinds of stutter, pumping and gate effects, but also achieve distortion, bitcrushing and ring modulation. You can also use the compressor with its sidechain input for a selective dynamics processing, but also for ducking effects and de-essing.

WidthShaper:
Multiband stereo expander

WidthShaper is another useful stereo tool: You can use it to increase or decrease the stereo width with ease. An individual processing of the mid and side signals is also possible. For example, you can use the Envelope Follower to increase the stereo width of a mix when a specific Threshold value is exceeded. At the same time, you can ensure that the lower frequencies remain mono compatible.

1 Getting started

Load a simple drumloop into your DAW and activate ShaperBox 2 [1] as an insert effect. Now you can choose which of the six shapers you want to insert into the signal path. To get started, we recommend the **filter** module. Click in a free area of the graph (LFO Wave Editor) to create a new curve point for the LFO. Place the point at will.

2 Curvy!

The result is a smooth curve. Now, create additional curve points and place them as desired to get a more complex shape. Right-clicking on a point allows you to switch from the smooth gradient to more "defined edges". In this way, you can achieve both soft sweeps and abrupt jumps. If needed, you can delete a point by double-clicking on it.
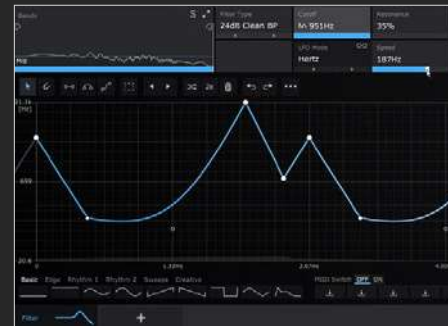
3 Filter experiments

Why not try different **LFO Length** values? You can create sweeps over several bars as well as fast rates in the audio range. It's also worth experimenting with different filter types and settings. Above the editor you will find various functions for editing the waveform [2]. Presets for different waveforms, rhythms and sweeps can be found under the editor.
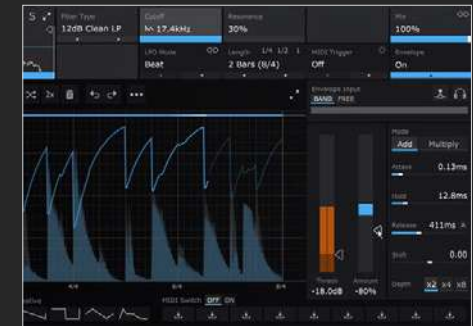
4 Envelope Follower

How about a filter effect that follows the input signal rhythmically? Just activate the **Envelope Follower** and select the Add mode. Set the filter frequency (**Cutoff**) to a low value. Adjust the parameters of the envelope follower until you like the sound of the result. Now select a high filter frequency and a negative **amount**.

5 Sidechain effect

Now the filter frequency is not increased, but lowered at signal peaks. Feel free to experiment with different filter types and resonance values, too. Do you want to create some classic sidechain effects? The **Volume** module of the ShaperBox is the first choice for this task. Click **New** in the main menu at the bottom left to create a new preset and select the Volume module.

6 Gated pads

For sidechain effects, a bassline or held synth chords are good input signals. Now, set Length to 1/4, select one of the sidechain presets of ShaperBox and adjust **Mix** as desired. To achieve rhythmically gated pads you can use a sawtooth or rectangular waveshape of the basic presets and set **Length** to 1/16. Adjust **Mix** to your liking.

7 Manipulate Hi-Hats

Do you want to reduce the level of individual hi-hat hits? To do this, just drag the right arrow in the **Bands** section to the left to set the crossover frequency. Select the **high** frequency band. You can also solo the frequency band by clicking on the S switch. Set **Length** to **1 bar** and draw the curve so that only too loud hi-hat hits are lowered.

8 Performance Effects

If necessary, adjust the crossover frequency again. As you can see, the creative possibilities of ShaperBox are almost endless if you combine multiple shapers and create different modulations. This also allows you to create stunning performance effects for complete mixes. Simply automate the master mix value to create fade-ins and fade-outs of the effects.

[1] A fully functional demo version can be found on www.cableguys.com.   [2] If you hover over the individual functions, short infos are displayed.

U-HE WIRETAP

EVERY MELODY DESERVES A RHYTHM

Wiretap is a two-channel Eurorack-module meant to be patched between a pitch CV source and its destination. Wiretap tracks pitch and sends triggers whenever it changes, so you can easily turn melodies into rhythms.

Wiretap's main job is to auto-trigger synth voices. Patched after a pitch CV source it tracks the incoming voltage and creates triggers / gates when the pitch changes. It also offers a pair of decay envelopes triggered by rising and falling voltages, but can alternatively be triggered by gate signals, either from within Wiretap itself or from an external source.

Tech insights:
Different from other slope detectors

Regular slope detectors recognize motion or "states" – rising, falling, moving, still, larger, smaller or equal – and set their gate outputs high according to to the motion or changes in state. As long a voltage is rising, the rise gate is high. But when a voltage jumps from one note to another, which is usual for sequencers and keyboards, a regular slope detector would send a very short gate. Wiretap works differently, as it examines the incoming signal for changes in state or motion, e.g. it triggers each time the signal starts to rise, fall, move or jump. The gate length can be set independently from the incoming signal using the Gate knob.

Multi-function envelopes

Wiretap's two envelopes are actually simple envelope followers with a very short attack and an adjustable release (decay) time. They can either be triggered from Wiretap's gates or from external sources. They hold while the gate is high and decay to 0V when the gate goes low.

www.u-he.com

Use case #1

Trigger voices automatically

Put Wiretap between a step sequencer (or a Sample & Hold etc.) and a synth voice, then trigger envelopes only if the pitch changes significantly. If the sequencer repeats the same note, only the first note is played.

Use case #2

Let it drum!

Send up to six trigger signals to your drums. As each change of incoming voltage creates a trigger or gate, you can easily set up automatic rhythms which are in perfect sync with your melody.
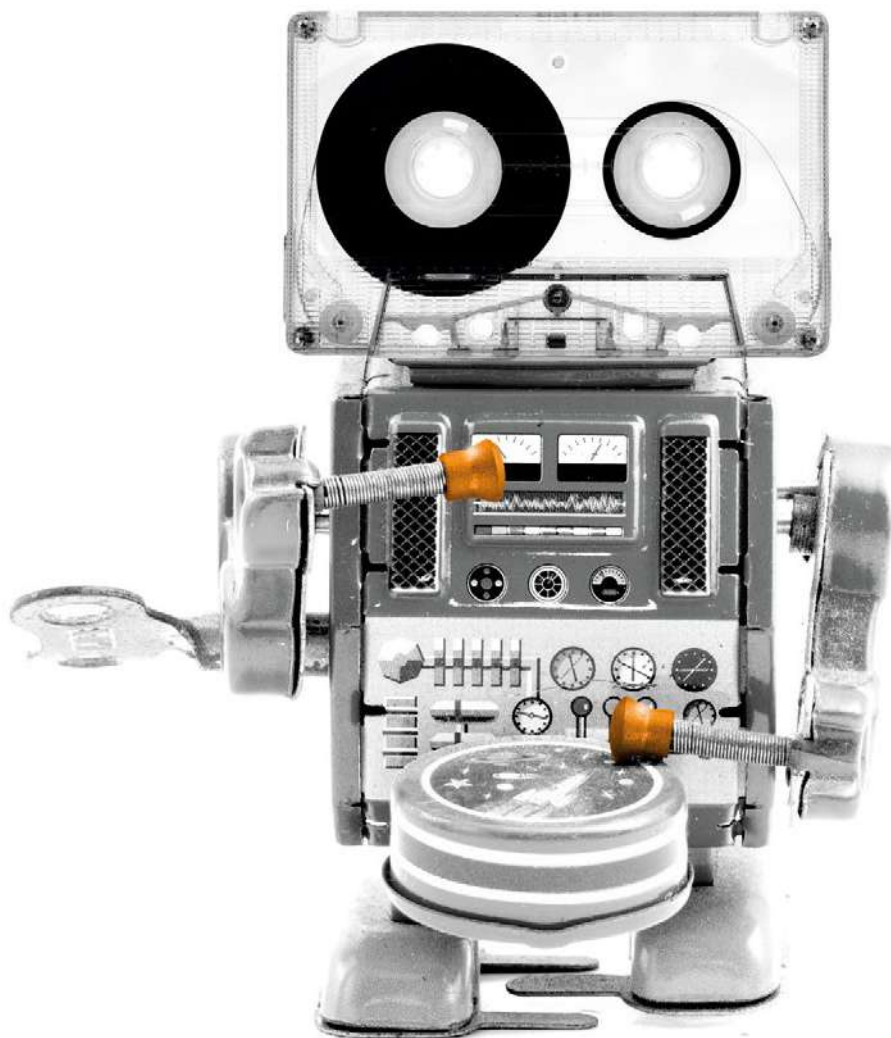
Use case #3

Down-only glides

If you run a pitch CV through one of Wiretap's envelopes, the Decay knob acts as a glide control. The glide only happens when the pitch goes down – when the pitch goes up, it jumps immediately.

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HARDWARE 2020

TOTAL SYNTHS

One thing is for sure: There was no better time for being a fan of synthesizer than today: Every month, exciting new models are released in all shapes and colors and in every price range. Whether you are planning your entry into the world of hardware synthesizers or want to expand your existing arsenal of sound generators with the help of a specialist: On the following pages we would like to help you to find the right tool for your individual requirements and desired sound. **by Marco Scherer, Mario Schumacher**

In the last year not only a lot of analog synthesizers have been released, but also some exciting digital sound generators and likewise interesting hybrids. While Behringer is releasing one low-priced analog synthesizer after another, the general trend seems to be going more towards digital sound generation. Special attention is paid to flexible waveforms of the oscillators. The wavetable synthesizer Modal Electronics Argon8 or ASM Hydrasynth with wave morphing or Korg's Wavestate with wave sequencing are just a few examples. Korg's synthesizers Prologue, Minilogue XD and NTS1 are particularly innovative with their digital user oscillator, which can be equipped with new oscillator and effect models. The concept has been very well received, as evidenced by the constantly growing range of oscillator models and effects from third-party suppliers: FM, wavetable, granular and Karplus-Strong synthesis are now also available for a small budget. It's also great that more and more sound generators come up with intuitive step sequencers and arpeggiators, making lively basslines, riffs and grooves possible without any additional hardware or software.

From monophonic to polyphonic

Most analog synthesizers are monophonic, which means that only one voice at a time can be played. Current examples are Behringer's Pro-1, TD-3, Crave and K-2 as well as the Moog Sirin. But also paraphonic models like Novation Bass Station 2, Moog Matriarch, Behringer Odyssey and Poly D as well as Sequential Pro 3 are becoming more and more popular. These can be played in two or several voices, with all voices sharing the same amplifier and filter with the respective envelopes and LFOs.

Is it important for you, that you can play an instrument polyphonically? Polyphonic analog synthesizers are significantly more expensive and rare due to their high production costs. Here each voice has its own oscillator, filter, VCA, LFO and envelope generator. The top class of polyphonic analog models are the eight-voice MFB Synth Pro, the 16-voice Moog One and Korg Prologue with 8 and 16 voices respectively. But it doesn't always have to be analog: Some digital polyphonic synths are available at significantly lower prices, just think of the ASM Hydrasynth, Elektron Digitone and Modal Electronics Argon8. Other interesting polyphonic digital and hybrid synthesizers are Nord Wave 2, Roland Fantom 6, Korg Minilogue XD and Teenage Engineering OP-Z.

With workstations such as the Roland Fantom 6, it is still common that they are multitimbral, which means that they can play several different sounds at the same time. So you can also create expressive layer and split sounds. The current analog synthesizers of this category include Elektron Analog Four, DSI Prophet REV2, Prophet 12 and Prophet X as well as Moog One. Nord's new synthesizer Wave 2 with its four layers joins the brigade of multi-timbral digital synthesizers, which also includes Teenage Engineering OP-Z, Korg Wavestate, Elektron Digitone as well as Waldorf Quantum and Kyra.

The right choice

But which synthesizer is the right one for your sound? Of course, the answer to this questions highly subjective. Besides the sound, the form factor and the feature-set are certainly important decision criteria. If you want to make music on stage, a device with an integrated keyboard is recommended, which should have as many playing aids as possible, such as modulation and pitch wheels as well as aftertouch. Synthesizers that offer an arpeggiator, step sequencer or MIDI looper allow you to create thrilling sequences and multi-faceted instrumental parts even in a live context. A direct access to the most important sound parameters is of course a must. You want to integrate your sound generator into your DAW studio or control it with a MIDI keyboard? For this purpose, the device should have a (USB) MIDI interface, which is the case for most synthesizers. Many synthesizers also offer CV/gate connectors that allow the integration into a modular system.

Nord Wave 2

Interview: Staffan Lindroth, Product specialist at Nord Keyboards

With the Wave 2, Nord is taking its synthesizer series, which is as iconic as it is successful, to the next evolutionary stage. On board is not only virtual-analog synthesis, but also frequency modulation, wavetables and samples. Thanks to its four parts, the sound generator with a 48-voice polyphony allows remarkably complex layer or split sounds. In our interview, Staffan Lindroth, product specialist at Nord Keyboards, gives exciting insights into what makes the Wave 2 so special.

Beat / The Nord Wave 2 is the latest generation of the successful Nord synthesizer family. Can you briefly explain its concept?
Staffan / The Nord Wave 2 combines virtual-analog, FM and wavetable synthesis with samples and it is similar to the original Nord Wave in this aspect. However, with the Nord Wave 2, four layers - essentially four independent synthesizers - are always available to combine different sounds or create splits. The LED faders give you full control of the level and pan position of the four layers. The Nord Wave 2 also features a new, advanced arpeggiator/gate section, a variety of new effects and a lot of additions in terms of sound generation as well.

Beat / Can you tell us more about the sound generation of the Nord Wave 2?
Staffan / The oscillator section has its own display, which makes it quick and easy to switch between the different oscillator settings and finding the exact sound you have in mind. As for samples, the Nord Wave 2 has 1 GB of sample memory. It comes with a wide range of sounds from the Nord Sample Library 3, including great new string sounds. Since this is designed as an open system, new samples can be downloaded for free of charge from our website or created by the user with our recently updated Nord Sample Editor 3.

As for the virtual analog options, there is a number of different categories, from basic waveforms to Shape, Sync, and Multi or Super options which cover a very wide range of both classic and more inventive and modern sounds, with the display giving you real-time feedback on both the waveform shape and other parameters. The wavetables provide an array of more complex waveforms, that couldn't be achieved using the virtual analog options.

With FM you get 5 distinct algorithms, either in harmonic or inharmonic mode, that are carefully selected to provide a great basis both for achieving classic FM sounds and to invite experimentation as well. Since there are four separate layers, you can of course create really complex sounds, especially when you start combining the different sound generation options.

Then there is of course the comprehensive filter section, which has a dedicated ADSR envelope, as well as an LFO, and a modulation envelope specifically for the oscillator section. In terms of effects, the Nord Wave 2 features a range of classic effects such as phaser, vibe and ensemble as well as an expanded delay unit with dedicated effects for the feedback loop, and a reverb unit with a range of exciting new options as well.

Beat / What performance features does the synthesizer offer?
Staffan / Like other Nord instruments, the Nord Wave 2 has vast options for what we call "morphing". This is done by assigning either the mod wheel, an expression pedal or aftertouch – or even keyboard velocity - to one or more parameters on the panel. This allows for creating very expressive patches, with a lot of real-time control. We also added an "Impulse Morph" button (familiar from the Nord Lead 4) which gives you instant morph control over pretty much any parameter on the panel – even changing the filter type, turning effects on or off, etc. etc.

The Arpeggiator/Gate section should be highlighted here as well, as it really adds a lot of new functionality. Apart from the "classic" arpeggiator options, there is a polyphonic mode which can act both as a "chord repeater" or play inversions of a chord, through a given range - especially fun and musical when using the new "Zig-Zag" setting. The gate setting, with adjustable "hardness", can be used both for simplistic "Trance" sounds or complex rhythmic effects, and especially benefits from the new pattern option – also available for the Arpeggiator/Poly modes.

The Pattern Editor lets you program your own patterns, with options for panning or accenting individual steps and provides a range of pattern presets as well. Also, the Nord Wave 2 is equipped with a 61 semi-weighted "waterfall" keybed, with aftertouch, which of course gives you both a larger range than a 49-key instrument as well as a more dynamic and expressive playing experience.

www.nordkeyboards.com

Korg volca nubass

Volca nubass is a bass synthesizer based on a vacuum tube inclding a sequencer. Thanks to the transistor-based ladder filter, its sound is aimed towards the TB-303. Its relatively simple sound generation is optimized for bass lines and is brought to life by the built-in sequencer with accent and glide. The plastic case is already known from the other Volcas, a small speaker is also included. Power is supplied by batteries or by a power supply unit, which regrettably is not included.

The sound generation of the volca nubass is based on a main oscillator with the waveforms square and sawtooth as well as a sub oscillator that plays one octave lower The oscillator sounds warm, round and altogether richer than the Volca Bass, the sub oscillator with saturation provides even more foundation when needed. The raw signal of the oscillators is shaped by a classic analog ladder low-pass filter with a clearly audible character. To modulate the filter frequency, the synth offers an envelope and an LFO. The analog distortion can be added with the drive control.

The volca nubass presents itself as a great all-rounder for synthetic basses of any kind. Classical 303 lines are created in no time at all and the small analog synthesizer can not only groove beautifully, but also chirp and scream. On the other hand, it can also provide a solid bass foundation for other music styles at low resonance. The sequencer inspires as a harmonious combination of TB-303 with accent, slide, transpose and the Volca series with parameter recording and skipping steps.

www.korg.com | Price: 199 Euro

Behringer Odyssey

The Behringer Odyssey is a replica of ARP's iconic cult synthesizer from 1972, featuring two oscillators with sawtooth and pulse waveforms and oscillator synchronization. Also included is a ring modulator and white or pink noise. This is followed by low-pass filter, a simple high-pass and an amplifier. As with Korg's replica, you can switch between the different filter circuits of the three Odyssey revisions.

As modulators, the instrument offers two envelopes with ADSR and AR characteristics, an LFO and a sample & hold module. If you play the Odyssey duophonic, very exciting results can be achieved, especially in combination with the good ring modulator. The Behringer clone also features the gain function of the Korg reissue. Furthermore, the sound generator integrates an inspiring step sequencer and a multi-effect device from Klark Teknik.

Behringer's Odyssey convinces with very good build quality along with a decent full-size keyboard, built-in step sequencer and arpeggiator as well as a modern analog sound with many sound possibilities. Whether creamy leads, metallic and bell-like sounds, funky basses, weird duophonic ambient sounds or pushing and aggressive bass lines and sync sequences are required: The Behringer clone masters all of these without any problems. Compared to the original from ARP, however, it goes much more in the direction of Hi-Fi sound. Nevertheless, the basic, powerful sound character with an emphasize on the mids of the Odyssey is clearly audible. And the price is typically Behringer. Absolutely unrivaled for such a complex analog synthesizer.

www.behringer.com | Price: 439 Euro

Korg Minilogue XD

The Minilogue XD is available as a keyboard and desktop version. Both versions combine two analog oscillators and one digital oscillator with an analog filter, a flexible step sequencer and high-quality digital effects. The two analog oscillators also allow for cross- and ring modulation as well as oscillator synchronization. A real highlight is the third oscillator, which allows the use of different digital oscillator models. It also features a noise generator, a model with two wavetable oscillators and phase modulation for crips FM sounds in the style of the Yamaha DX7. There's also a growing range of third-party oscillators and effects you can load into Minilogue XD, including the oscillator models from the Eurorack module Mutable Instruments Plaits.

The 12dB low-pass filter scores with a musical sound. In addition, the resonance is adjustable up to self-oscillation. So even kicking bass drums are possible here. The modulation section consist of two envelopes and an LFO. We really liked the polyphonic sequencer with 16 steps and parameter locks. Thanks to the motion record function, you can record every controller movement and switch action.

The multi-engine makes the Minilogue XD a real sound chameleon. The dev analog ice is a flexible hybrid synthesizer that can be used to create analog standards as well as expressive digital sounds. The basic sound is unique and slightly „cold". The very good sounding effects section with direct access to the relevant parameters is also a great enrichment, as well as the flexible step sequencer.

www.korg.com | Price: Keyboard/Module: 649 Euro

allrounder for basslines

hybrid sound design playground

ARP with sequencer and effects

Modal Electronics Argon8

The eight-voice polyphonic wavetable synthesizer Argon8 offers a characterful and flexible digital sound in a stylish design. In practice, it scores as a robustly manufactured sound generator with a very good keyboard and a straightforward operating concept. Its distinctive sound reminds of Waldorf synthesizers. Cutting leads, dry basses, chip sound sequences, ice-cold ambient pads and brilliant arpeggios are quickly created.

1 Flexible oscillators

Even at the oscillator level, Argon8 can be used to create complex and multi-faceted sound patterns. Two identically constructed wavetable oscillators form the foundation of the sound synthesis. For each oscillator, the synthesizer provides 120 wavetables, which are divided into 24 banks with five morphable waveform sets each. Fat and wide walls of sound are also possible, as the eight voices can be layered in different variations.

2 Modifiers and filters

Additional sound variations are provided by eight so-called modifiers that affect the oscillators directly, including ring, amplitude and phase modulation, oscillator sync, bit crusher, wave shaper and wave folder. To tame the harmonically rich sounds, a 2-pole multimode-filter with adjustable resonance is provided. If you crossfade between the filter types low-, band- and high-pass, interesting sound variations can be achieved.

3 Modulation and effects

With three envelopes, two LFOs and a modulation matrix you can create very moving, dynamic sounds. The effect parameters can be modulated, too. There is also an arpeggiator and a great 512-step sequencer, which allows you to record phrases and parameter progressions. We also liked the lush effects section of Argon8, which is an important part of the sound. Three stereo effects can be used simultaneously.

www.modalelectronics.com | Price: Argon8 (37 keys): 639 Euro, Argon8x (61 keys): 749 Euro, Argon8M (Desktop): 569 Euro

Twisted Electrons HapiNES

HapiNES is a small circuit board synthesizer that emulates the sound of legendary game consoles with four tracks. The compact device thus offers chip sound for your pocket. With four tracks including drum sounds, the soundtracks of classic console and home computer games can be authentically recreated. But modern productions benefit from the assertive 8-bit sounds as well.

1 Spartan hardware

HapiNES is delivered as a bare board, including a clip for batteries on the bottom for power supply. It is powered via a MicroUSB socket. Furthermore, editing and DAW integration is possible with a free VST/AU plug-in. The two mini jack sockets are not only used as input and output for audio signals, but also for synchronisation with any other equipment.

2 Four voices

The sound generation of the HapiNES is purely digital and is based on an 8-bit processor. HapiNES offers four voices, which are distributed over four monophonic tracks. So you can create four different sounds including synth drums. A triangle wave with adjustable decay time is available for bass sounds, while lead sounds and arpeggio can be created with the two square waves with a modulated pulse wave.

3 Flexible sequencer

For all four tracks, sequences with 16 steps can be recorded in real-time or via step recording. The 16 LEDs serve as running lights and indicate the currently selected step. Slide, rest, octave jumps as well as swing, reset, ratchet and random functions allow for lively sequences. Since you can link 16 patterns as a chain with up to 256 steps, you can easily create interesting variations of your sequences.

www.twisted-electrons.com | Price: 99 Euro

powerful wavetable synth

pocket-sized chip synth

ASM Hydrasynth

Hydrasynth is without a doubt the big surprise of the last few months: A flexible digital sound generator with an excellent sound and a very unique character. The complex possibilities of digital synthesis are amazingly comfortable to use. The ultimate highlight is the polyphonic aftertouch, which allows for very expressive playing and produces sonic results that are currently hardly possible with any other synthesizer.

1 Hail Hydra!

The Hydrasynth comes in a stylish and robust, well-build case with metal sides. The controls are kept nice and big and offer good haptics. The keyboard version has a ribbon controller and 49 keys with polyphonic (!) aftertouch for each of the eight voices. If a chord is held, this allows for example to fade in a vibrato or open the filter only on one or two notes.

2 Digital sound giant

Hydrasynth produces up to eight voices with wavemorphing synthesis, a mixture of wavetable and vector sound generation. The first two oscillators can crossfade between up to eight waveforms, selectable from an arsenal of 219 waves. The result can be further mutated with options such as sync, PWM and wavestack, processed by subtractive synthesis with two filters and then refined with the effects.

3 Filter, animate, arpeggiate!

The three oscillators are joined by a noise generator and a ring modulator. The two filters can be connected in series or operate independently in parallel. With its five envelopes, five LFOs and a 32-slot matrix The modulation section of the Hydrasynth has a lot to offer. The extensive arpeggiator and the really good sounding effects are great as well.

ashunsoundmachines.com | Price: Keyboard: 1399 Euro, Desktop: 899 Euro

Sonicware ELZ_1

Behind the cryptic name ELZ_1, there is a sophisticated and independent instrument for musicians who like multifaceted digital sounds. The sound generator is polyphonic with six voices and features nine flexible sound engines as well as an effect chain of up to four modules. In addition to the enormous sound and creative potential - far away from analog standards - the very good price-performance ratio is to be emphasized positively.

1 Road suitable sound giant

The stable metal housing of the ELZ-1 with its integrated keyboard and loudspeaker not only looks classy - everything is perfectly stable and seems to be made for eternity. In addition, the device has been constructed for mobile use. Power can also be supplied by four batteries. With the combination of sequencer and arpeggiator you can create exciting melodies or complete phrases.

2 Multifaceted sound engines

Three of the nine sound engines are responsible for the classic waveforms. In addition, there are engines for lo-fi and FM sounds as well as noise, wavetable and granular synthesis - in other words, everything that sounds digital, raspy, cool and weird. Each engine has an average of 16 to 20 parameters available. Simple noise can also be transformed into flute-like sounds.

3 Tone shaping and effects

Of course, flexible filters, envelopes and LFOs should not be missing either. The filter offers several modes and can be very powerful. From distortion, modulation effects as well as ring modulation to delays and reverbs, the effects section offers everything your heart desires. The manufacturer's product care also deserves a lot of praise: The synthesizer has already been given numerous new features since its release.

www.sonicware.jp | Price: 599 Euro

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KEYSTEP PRO
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Silky-smooth synth keys, the most addictive sequencer around, 4 polyphonic tracks, and unmatched connectivity. There's simply nothing like KeyStep Pro when it comes to getting everything playing together. Sequence all your synths, modular, and software.

Behringer Poly D

The big brother of Behringer's Minimoog clone Model D offers a keyboard with aftertouch and built-in effects as well as an additional oscillator for up to four voices. The fourth oscillator can also be decoupled from the played pitch. This is helpful if it is used as a source for frequency modulation of the other three oscillators and/or the filter. When you play the instrument polyphonically, the four oscillators are distributed accordingly to the keys pressed and sent through a single duo of filter and VCA. In the mixer, the noise generator can be added to the four oscillators and an external audio signal can be looped in. The 24dB low-pass filter sounds very powerful and can also be used as a high-pass filter. The resonance can be driven into self-oscillation.

The Poly D's 32 step sequencer can store not only individual notes but also chords. It is able to store 64 patterns. Pauses, accents, glides are programmable, there is even a ratchet function for fast note repetitions. The stereo chorus and the distortion effect are a great addition.

The Poly D scores with fat, polyphonic Moog sound at an unrivaled price. It can deliver all known and popular sounds of the synth classic in convincing quality. Highlights are the four separately controllable oscillators for unique paraphonic sounds. Using the built-in chorus and an external reverb, you can also create stunning chords and pads. Velocity and aftertouch allow for expressive playing, the polyphonic sequencer and the arpeggiator provide additional movement.

www.behringer.com | Price: 749 Euro

Korg Wavestate

With Wavestate, Korg reactivates its 30-year-old wave-sequencing synthesis. The manufacturer combines the synthesis form of the cult Wavestation from 1990, with modern features such as resonant filters, direct access via many controls and a much larger sample pool. Lots of transparent and expressive sounds delight the ear. From animated pads, cutting leads and wobble basses to modern rhythms, everything is possible. We also liked the possibility to mix synthetic and acoustic instruments within a wave sequence.

Up to 64 PCM samples can be arranged in a track in any order and in any direction. You can also use the sequencer to modulate sound parameters. In practice, this allows you to crossfade from a percussive rhythm to an ambient pad, for example. Even after several years of intensive use, you will certainly not have fully explored the modulation possibilities. The other side of the coin, however, is that you have to dive deep into the menus for the sound design. It's just too bad that the instrument has not been given a better keyboard with aftertouch.

It is almost unbelievable what Korg has packed into this compact digital synthesizer. The multi-track wave sequencer from Wavestate, combined with an extensive sample library, provides sounds, sequences and rhythms that bring back pleasant memories of digital classics. In addition, the synthesizer masters all kinds of modern sounds that can easily be used in current Pop, Electro, Hip-Hop and EDM productions.

www.korg.com | Price: 799 Euro

Roland Fantom 6

Digital sound generation in proven Roland quality, complemented by an analog drive circuit and filter and direct operation make the Fantom 6 an expressive instrument. The worksation excels both on stage and as a high-quality sound supplier and control center in the studio. The four partials either draw on the comprehensive pool of included samples or on the waveforms of the virtual-analog synthesizer. SuperSaw provides big dance sounds and oscillator sync, while cross and ring modulation create additional overtones. Both the digital and analog filters sound great.

The lightly-weighted synthesizer keyboard can be played very espressively and offers a pleasant resistance and a good velocity implementation. The control elements offer good haptics and a large color touch display, a multi-colored illumination as well as LED rings support the operation.

The Fantom 6 offers the classy Roland sound in proven quality, especially the digital filters sound excellent. In addition, its more intuitive than the competition, thanks to the large touch screen, the controller/fader matrix and are additional controls for the synthesizer. The icing on the cake and unique selling point in this section is the analog master effect with drive and the stereo multimode-filter, which adds a great touch to the overall sound. However, when playing sounds like many natrual instruments, you can notice that the sound generation has been around for about two decades. The well thought-out and direct operation by contrast, deserves a lot of praise by making designing sounds very intuitive.

www.roland.com | Price: 3.499 Euro

paraphonic Minimoog

complex sequences with the sound of the 90s

workstation with classy Roland sound

Interview:
Manfred Fricke
founder of MFB

Beat / *With the MFB Synth Pro, you expand your product range by a polyphonic synthesizer. How did the idea for it come up?*
Manfred / The idea of building a polyphonic Dominion has been around for a long time since Dominion 1 was released. It was clear, that the development effort would be very high and that producing such a device in the required quantities would mean a fundamental change for me. That's why I chose the less complex way with the polyphonic version of the MFB Synth II. Since the basic principle already existed, I only had to expand it to eight voices. With the Poly-Lite I had already gained experience with a four-voice version. A keyboard version is currently still a long way off, although the demand is huge.

Beat / *What makes the MFB Synth Pro so special?*
Manfred / Basically, there are eight extended and storable Minimoogs. Since no chipsets are used for the VCOs, the MFB Synth Pro has the charm of the 70s. It also offers features that few if any devices have, such as switching to DCO mode or mixing and modulating between waveforms. On one hand, there is a so-called cascade filter (VCF2), which is very similar to the Moog filter. As with the Dominion 1, which has twelve filter modes, it was important to me to have band- and high-pass in addition to low-pass. You can also do this with the SSI module (I realized this with the 24dB VCF SSI module), but the effort is too high. So it was more effective to add a second filter, which contains the three

types and has a clearly different character. This is a state variable filter with a slope of 12 dB per octave. In the development, the question arose whether the filters should be connected in parallel or serially. Both options make sense, so you can switch between both now. VCO 1 can synchronize the other two VCOs, a so called hard sync. And VCO 3 can modulate the frequencies of the other two VCOs. The ring modulators of the Synth Pro are digital.

Beat / *Can you tell us more about the sequencer and the digital effects of the MFB Synth Pro?*
Manfred / A special chip is responsible for the digital effects (reverb 1, reverb 2, pitch/delay, chorus/reverb), which can be additionally be integrated into the signal path. This is not a proprietary development, but a commercially available chip that has proven itself over many years. Since it is operated in parallel to the signal path, the analog structure of the MFB-Synth Pro is preserved. The sequencer is a simple step sequencer, but it can also be programmed polyphonically with up to eight notes per step.

www.mfberlin.de

MFB Synth Pro

eight voices of analog power

While the sound of the eight-voice MFB Synth Pro evokes pleasant memories of early polyphonic synthesizers, its preset memory and clever features put it at the cutting edge of the latest technology. In addition to versatile oscillators and filters, the desktop bolide has a great sounding effects section with reverb, chorus, delay and other effects. The sturdy metal case offers space for a wealth of controls, making sound design a pleasure.

1 From gentle to aggressive
The Synth Pro features three analog VCOs, which also allow for an particularly tuning-stable DCO operation. You can crossfade between the classic analog waveforms (including noise) and each oscillator has its own sub-oscillator. The sound spectrum is extended by oscillator synchronization and FM as well as ring modulation, so that even cutting, metallic and aggressive sounds are a breeze to synthesize.

2 Dual filter power
The polyphonic synthesizer features two analog filters: In addition to a low-pass filter based on the classic Moog cascade, there is a state-variable filter with low-, band- and high-pass modes. The possibility to connect the two filters serially or in parallel allows multi-faceted filter and stereo effects, especially when different modulations come into play.

3 Creative idea provider

The MFB Synth Pro also has no weaknesses when it comes to modulation: The two LFOs can be synchronized to the MIDI tempo and can be used as envelopes in one-shot mode. Thanks to the loop function, the three envelopes also allow for cyclical modulations. With the arpeggiator and the polyphonic step sequencer, there are also two excellent creative idea generators available.

www.mfberlin.de | Price: 1080 Euro

IK Multimedia UNO Drum

UNO Drum inspires as a drum computer full of character with hybrid sound generation at a reasonable price. The small plastic box offers a powerful analog sound, which is complemented by PCM samples in 12-bit/32 kHz resolution. The internal memory can store 100 patterns and drum kits. Cool kid: With its charming retro sound, this compact drum synthesizer feels at home in a variety of music styles.

1 Small, lightweight and mobile!

UNO Drum is very compact and lightweight. Since it can be powered via USB or even batteries, the drum computer is perfectly suited for mobile use. Beats can also be played directly via the multi-touch surface, which is not necessarily inviting for finger drumming, though. The lower buttons are used to program the twelve tracks of the sequencer.

2 Hybrid sound generation

UNO Drum cleverly combines analog and sample-based instruments. Twelve different drum sounds are available, of which you can play up to 11 simultaneously. The two kicks, snare, clap as well as open and closed hi-hat are analog generated. All other sounds are digital. 54 PCM samples are integrated in UNO Drum, but importing your own samples is not (yet) possible.

3 Smart sequencer

A real highlight is the 64-step sequencer. In addition to trigger notes, it also records several sound parameters per step. Together with performance effects such as stutter and humanize as well as analog compressor and drive, it enables powerful and flexible beats with a charming 80s and 90s touch. Parameter changes such as decay time or tuning can be recorded as well just like velocity.

www.ikmultimedia.com | Price: 305 Euro

Elektron Model:Cycles

With Model:Cycles, Elektron presents a slightly different groovebox with a very independent sound. The design of this compact device is already known from the sample-based groovebox Model:Samples. As in Elektron's Digitone, FM synthesis is used for the sound generation. Thanks to the sophisticated sequencer, original grooves, impressively animated sequences and percussive experiments are a breeze to create!

1 Six drum machines

Six different FM instruments set the tone in Model:Cycles. Besides kick, snare and percussion instruments there is also a voice for metallic sounds like hi-hats and cymbals as well as for tonal sounds like basses and plucks. Nice: With the chord instrument, you can also create chords of up to four voices. The sound of each voice can be adjusted quickly and easily with four controls.

2 Enormously vivid sounds

The six tracks of the powerful 64-step sequencer can control either the internal instruments or external sound generators. The parameter locks allow you to automate sound parameters per step or play an individual sound for each step. Impressive: You can also determine the probability and conditions under which steps are triggered.

3 Handling

Notes and parameters can either be played in real-time or programmed by step. As usual with Elektron, high-quality delay and reverb effects are available for the sound refinement. Model:Cycles makes the complex FM synthesis easy to use. With its unique sound character, it is without question an excellent alternative to analog and sample-based drum machines.

www.elektron.se | Price: 329 Euro

original drum sounds thanks to FM

hybrid drummer with retro sound

Teenage Engineering OP-Z

standalone creative power plant

Smart by design: The OP-Z combines a synthesizer and sampler with an integrated loudspeaker as well as a flexible Elektron-sytle sequencer, which can also control light, photos and 3D animations synchronously to the music. In terms of sound, this small creative instrument presents itself as original and inventive. The rich harmonic and punchy sound is a successful addition to the warm sounds of analog synthesizers.

1 Looks like a remote control!

The OP-Z is packed into an extremely compact housing with four flush mounted rotary controls. It is operated via 47 keys with symbols and the mini-keyboard underneath. Since the OP-Z does not have its own display, the iOS app is an important part of the operating concept. Thanks to its battery operation, it is an excellent performance machine to produce music on the go.

2 Sophisticated sequencer with 16 tracks

The sequencer of the OP-Z can play back 16 tracks with 16 steps each. The first eight tracks produce the sound, the other eight tracks allow you to manipulate the sound and control external equipment. The first four channels are reserved for drums. These are all sample-based and consist of

kits with 24 samples each. Each drum track can play two sounds at the same time.

3 Synth sounds and effects

Four more tracks belong to the synthesizer group and they are based on different digital sound generation methods, as specialized on basses, leads, arpeggios and chords. The drum and synthesizer sounds, but also your voice can be manipulated with the effects. It is also possible to integrate your own samples. Complex performances are also possible thanks to the option to record the played audio signal with a virtual tape machine.

www.teenage.engineering | Price: 599 Euro

Roland MC-707

23 years after the MC-303, Roland takes up the groovebox concept again and expands it with modern features like a clip-based sequencer and audio tracks with time-stretching. The 16 velocity-sensitive, multi-colored RGB pads of the MC-707 are used to trigger sounds or clips. 16 additional buttons map the steps of the running light sequencer.

Smart and flexible: Each of the MC-707's eight tracks can either be used for drums, synthesizer or audio. The groovebox can also be used as a looper, and imported or live recorded audio material can be time-stretched to match the song tempo. Each track records up to 16 clips (drum grooves, synthesizer phrases, audio loops), which can be combined as desired using the graphic display, similar to the Session View in Ableton Live.

Each sound is created from up to four partials that use PCM waveforms of synthetic and acoustic instruments. You can also use your own samples, ensuring that the MC-707 is ready for future music styles. The digital filters and versatile effects also have an outstanding sound.

With the MC-707 you can expect a clear and powerful hi-fi sound. The creation of classy sounding grooves is comfortably done in no time at all. In addition, the device impresses with a compact form factor and an intuitive operation. It allows even less experienced users to get started quickly and create their own grooves. The clip-based sequencer in Ableton style, in combination with the flexible assignment of the 8 tracks to drums, synthesizer or audio loop allows the creation of complete tracks.

www.roland.com | Price: 944 Euro

Behringer RD-8

As the most famous drum computer of all times, Roland's TR-808 doesn't need an introduction. With the RD-8, Behringer recreates the legendary device in detail. The RD-8 is about the same size as the vintage model, but is not quite as robust. The case is made of plastic, but leaves a rather durable impression. Small but nice add-ons, like a new tuning controller make the Behringer replica even more flexible than the original. For each instrument, you can choose whether it should be sent through the transient shapers and filters or unprocessed to the master output or one of the eleven individual outputs. The filter sounds rather unspectacular. It can be switched between low- and high-pass filter and has an adjustable cutoff frequency and resonance.

With the modern sequencer design, Behringer distances moved relatively far away from the original. With auto-fill, step-repeat, flam and probability functions, varied beats are an easy task. You can even record the filter frequency in the pattern. Each sequencer track can also have an individual length, which allows you to create intricately changing or extremely complex rhythmic patterns.

The RD-8 has the sound character and groove of the Roland TR-808, even if in direct comparison both instruments differ a bit in sound. The additional parameters of the instruments and the transient shapers extend the sound spectrum compared to the original. The Operation and the sequencer have been modernized and invite you to jam. Furthermore, the price-performance ratio is excellent.

www.behringer.com | Price: 319 Euro

Roland MC-101

The compact Roland MC-101 is based on the Zen-Core sound generation of the MC-707, but costs only half as much. The entry-level model of Roland's new generation of grooveboxes is robust and extremely compact. It offers four tracks for drums, synthesizer and audio. Each track records up to 16 clips (drum grooves, synthesizer phrases, audio loops) with up to 128 steps, polyphonically with up to 128 voices in total. Another great feature is the Looper with time-stretching and pitch-shifting.

Like the MC-707, this small model offers 3,600 synth presets and over 600 drum samples. Unfortunately, the MC-101 does not allow full editing of the sounds, but given the few controls and the small display, this would probably have been a torture anyway. We hope that Roland will release a software editor in the future. But there are a lot of good presets for all musical applications included, which can be supplemented with your own samples if necessary. The effects are also very impressive.

The MC-101 offers basically the same features as the MC-707: A flexible sound generation with a transparent and crisp hi-fi sound, paired with an excellent sounding filter as well as a very powerful sequencer for sophisticated and expensive sounding grooves, which you might not even expect from this small box. However, the compact format takes its tribute, the handling is far from being as simple as on the MC-707 and the editable parameters are much more limited. If you want to create grooves quickly and easily while on the road, you'll still get your money's worth, not at least because of the battery operation.

www.roland.com | Price: 483 Euro

the groovebox strikes back!

grooves like Roland's TR-808!

small Groovebox with a big sound

portable sample workstation

Polyend Tracker

The latest creation by Polyend transfers the concept of classic tracker software to a modern hardware instrument. Here, a powerful sound generation, consisting of a sampler as well as a granular and wavetable synth, meets a powerful sequencer and song arranger. An awesome feature is that you can also use the sequencer to control external hardware. Of course, it is also possible to play the integrated sound generators from a DAW.

1 Compact and portable

With its stable and compact design, Tracker is perfect for making music on the go, especially since it can also be operated with a USB power bank. 48 backlit silicone pads are used to record notes and patterns (in a specific scale, if required) and provide visual feedback. Audio, USB and MIDI adapters are included, as well as a 16 GB MicroSD card to store your samples.

2 Creative sound cosmos

The heart of the instrument is a large color display with eight keys. Sequences are programmed in the vertical timeline, which is typical for Trackers. Each Tracker project can contain 48 instruments and 256 patterns of 128 steps. There are eight tracks plus a reverb track, with a different instrument playing on each step and other effects that can be chosen. The extensive effect equipment definitely puts in an appearance!

3 Sound chameleon

You can use existing sound libraries as sound sources or record your own samples. A very original idea: The built-in FM radio can also be used as a sampling source. Flexible sample-editing tools, envelopes and filters let you turn any sample into an expressive, playable instrument. The built-in wavetable and granular synthesizer lets you create original new sounds out of samples.

www.polyend.com | Price: 499 Euro

Interview Polyend Tracker:
J. Tworkowski
Product Specialist at Polyend

Beat / Your new performance instrument was inspired by classic tracker software. What makes Polyend Tracker special?
Jacek / First of all it's the ease of use. Tracker is aimed at all DAW and hardware enthusiasts, from beginners to experienced professionals. It offers a fast, intuitive and goal-oriented workflow. The instrument shows that Trackers are by no means a relic of a past software era before DAWs. Polyend gives this popular music production concept a turbo boost - in hardware form! Immediacy and simplicity was the game with Tracker's sequencer. The workflow has been simplified so that users can now actually see the parameter's values when it's being adjusted. Navigated with a large dial and silicone buttons, new users needn't be too hesitant to get hands-on with the instrument.

Beat / Can you briefly introduce the concept of Polyend Tracker?
Jacek / The instrument offers the classic tracker workflow with modern additions. It has all the features of a classic tracker, including a vertical timeline. It also feels fresh and new due to its extensive sequencer functions, mechanical keyboard and new user interface. You can import or record samples directly into the hardware. And the bi-directional MIDI functionality ensures that Tracker will play nice with the rest of the gear in your studio.

Tracker not only looks slick, it's portable and can be used with any 5V/1A power bank. This makes it the perfect choice if you want to be able to start producing a track on the road and then finish it conveniently in your studio. So, the device is a complete musical solution and can be used to record a complete album from beginning to end. It features a sampler and a wavetable/granular synthesizer and even a retro FM radio. Highlights also include the powerful step sequencer and song arranger as well as the large screen, ergonomic keyboard and large controller for quick and easy navigation. There's also a performance mode that lets you change, rotate and expand your patterns in a live context. But Tracker's functionality is not limited to the composition and production phases. Rather, it integrates functions to master your tracks as complete audio files and render them into internal memory. You can use a return track, limiter and bit depth adjustments to get the most out of your completed projects, and export any song or pattern in WAV format or as nine stems (eight tracks and a reverb track).

Tracker is powered by a USB-C adapter and firmware upgrades can be installed via the MicroSD card. The operating system makes it easy to share projects, patterns and instruments. What I really like are the functions for quick and easy sampling and the randomization options to vary patterns, like fill and step tools. I find it very exciting how limiting to one instrument encourages creativity. Less is more!

www.polyend.com

Features
MPC One & Live mkII

Sequencer and sampler

Standalone and controller mode

8 CV ports

2 GB RAM, 16 GB hard disk

16 light pads

4 Q-Link controller

Touchscreen

USB ports for sticks and MIDI controllers

2,5" SATA ports (SSD/HDD)

SD card slot

Ethernet connection

3 internal synths in standalone mode

VST/AU support (with MPC software 2.0)

as VST/AU/RTAS plug-in usable (with MPC software 2.0)

WAV-, MP3-, AIFF-, REX-, SND-, OGG- & FLAC-support

MPC One

1 MIDI in and out

MPC Live mkII

2 MIDI ins and outs each

WiFi support

Phono input

Onboard boombox

MPC Live mkII

MPC One

Beat Recommended
06-07/2020

WIN AN MPC ONE NOW! YOU CAN FIND ALL INFORMATION ON WWW.BEAT.DE

Head-to-head comparison:
Akai MPC One vs. MPC Live mkII

The news about the new MPC One have just spread online. The fan community has been asking themselves what makes it different and special from the MPC Live, and its successor is already starting to step into the scene. But what are the differences between the models, how can they be integrated into modular systems and for which music styles are they an enrichment? All this and more will be clarified here… **by Marco Scherer**

Although MPC's have always been full-fledged music production workstations and theoretically capable of replacing a DAW in the studio, they have definitely earned their reputation as intuitive samplers for finger drummers. The Live and X models hit the market about three years ago, offering a standalone mode with internal synthesizers, massive effects and a touchscreen with integrated mini-DAW for the first time. While the older models were mainly popular in Hip-Hop, the newer ones established themselves as genuine alternatives for Techno, House and Electro.

With the MPC One, a more compact and lighter version is now coming onto the market, which is seeking the attention of users with many control elements and the classic MPC layout. But Akai doesn't stop there, because with the MPC Live mkII another new model will be released almost simultaneously. What else could be better at this point than a direct comparison test?

Features
As previously, the focus is on 16 drum pads, which are used to play samples, mute tracks, select patterns or trigger

There's a lot going on here: Six outs, phono-in, two MIDI ports, USB for removable drives and controllers and other connections offer the possibility to integrate the studio.

The connections of the MPC One are not as numerous as on the Live mkII, but should easily meet most requirements.

MIDI notes. The pads are surrounded by 16 Q-Link controllers, lots of buttons, the obligatory transport buttons and volume controls for the audio inputs. The Q-Link controllers perform different tasks depending on the section. For sampling, for example, they determine the start and end points of samples and loops. For effects, they adjust the settings of the respective parameters, or even global settings such as tempo, quantization or volume of the metronome. The MPC-typical data wheel is also present and is used to adjust parameters or scroll through lists and directories.

Like their previous models, the One and Live mkII each offer two USB 3.0 ports for removable hard drives, USB sticks or MIDI keyboards. So unless the keyboard requires a special USB driver, simply plug it in and start playing. Awesome!

The common features

The basic principle of both MPC's is similar to all previous models: They are a combination of sequencer and sampler, which allows you to use internal samples and synths as sound sources and also trigger external synths. The clip mode, similar to Ableton Live, allows loops to be played back in sync with the master tempo, and the CV outputs are connected to modular systems.

Speaking of Live, ethernet and WiFi also bring Ableton Link into the game, so your MPCs will play flawlessly and automatically with popular DAWs and other sound sources as long as they support the Ableton Link protocol. In addition, the MPC's offer up to eight audio tracks in standalone mode and 128 together with the software.

The differences...

... are listed relatively quick, because due to the identical operating system the functionalities of all current models are the same. The unique selling points are therefore to be found exclusively in the hardware. As mentioned in the introduction, the One offers the more classic MPC layout, looks more compact and has smaller pads, which play just as well as the pads of other versions. The Live mkII, on the other

hand, has more connections, an internal battery for eight hours of operation and, compared to its forerunner, more controls and an internally installed boombox. So does this mean that you can finally walk through the city with the MPC on your shoulder and let others enjoy your beats in the classic ghetto blaster style? Not necessarily. The sound is quite decent, but sadly very far away from being really loud. Nevertheless: If you produce on the road and get tired of the headphone sound quickly, this is a good alternative. Unfortunately, it's not possible to connect bluetooth capable smartphones to use the internal speakers. The bluetooth function is (in all models) exclusively for the use of MIDI controllers (e.g. Akai LPD8 Wireless or Akai LPK25 Wireless) and bluetooth keyboards for text input.

You will find a complete overview of the various features in table form below.

Handling

The Q-Link controls are integrated in all menus as practical helpers: Most functions per page are available in four lines of four parameters each. The active column is selected by switches above the controllers, so that four parameters can be combined via Q-Link. If this is still too complicated for you, just press the desired parameter with your finger and adjust it using the large main knob or - depending on the parameter - press it twice and then select an option from a drop-down menu. Long menus can be wiped up and down as usual on a smartphone. Overall, the operation looks modern, coherent and well thought-out. Although the extremely responsive touchscreen makes it much more comfortable to use than the established ones, beginners can quickly get lost in the jungle of options. Even MPC experts have a lot of new territory to discover. But after a few hours of intensive training you navigate through the many menus purposefully.

Samples...

... can either be recorded with the internal sampler and processed in the editor or conveniently loaded and previewed via browser, even while playback is running.

Thus spontaneous extensions of a live set are no big deal. Fantastic! The Looper is also practical for gigs: With it, the audio input can be equipped with insert effects, sampled on-the-fly loops or played backwards. The performance can also be recorded and saved as a sample.

The Sample editor offers both classic functions such as cutting, normalizing, thread, pitching and stretching, as well as slicing and looping. The touch screen shows its full potential here, as the waveform can be zoomed, pushed, cut and trimmed with the fingers. The haptic turns out very natural, the screen reacts immediately to every touch. For precise fine-tuning, all parameters can be adjusted with the rotary control.

The samples end up in a program that serves either as a drum kit or instrument. Drum kits consist of up to 128 pads with four layers, each of which can be loaded with a sample. instruments, on the other hand, consist of only four layers, whose samples can be played chromatically across the entire note range. Each pad has envelopes and an LFO for sound shaping, plus a variable, up to eight-pole filter with standards such as high-, low- and band-pass, as well as various formant types and a MPC3000 low-pass filter. In terms of sound, the filters can do anything from well-behaved to snappy and crisp. Additionally, each pad can use up to four send and insert effects. More on this in just a moment.

In the clip mode already mentioned above, up to 128 pads can be equipped with loops that automatically run in tempo sync. The loops are synced exactly to the beat. The loops can also be organized into groups so that for example several drum loops or vocals do not overlap. Well conceived and perfect for situations on stage! For external sound generators there are MIDI tracks which can be used to assign external sound generators. Thanks to MIDI outputs with 16 channels each, all kinds of equipment can be integrated. And last but not least, eight audio tracks (128 with the MPC software) are available for recording. However, their post-processing is limited to very basic functions and cannot be compared to a full-fledged DAW.

Facts
MPC One

Manufacturer: Akai Professional
Web: www.akaipro.com
Distributor: www.inmusicbrands.com
Price: 749 Euro

▲ Standalone mode
▲ Classic MPC layout
▲ Scales in pad perform mode
▲ Audio tracks
▲ Automation
▲ Clip playback
▲ CV outputs
▲ Live looper
▲ Connections for MIDI controller
▲ Ableton Link via network

Flexibility: ■■■■■■
Technique: ■■■■■■
Price/
Performance: ■■■■■■
Total: ■■■■■■

Facts
MPC Live mkII

Manufacturer: Akai Professional
Web: www.akaipro.com
Distributor: www.inmusicbrands.com
Price: 1199 Euro

▲ Standalone mode
▲ Self-sufficient operation due to boombox and rechargeable battery
▲ Variety of connections
▲ Flexibility
▲ Scales in pad perform mode
▲ Automation
▲ Live looper
▲ Ableton Link via network

Flexibility: ■■■■■■
Technique: ■■■■■■
Price/
Performance: ■■■■■□
Total: ■■■■■□

Alternatives

Pioneer Toraiz SP-16
970 Euro
www.pioneerdj.com

Elektron Analog Rytm MKII
1499 Euro
www.elektron.se

Internal synthesizers

Unlike older MPC's, the current series not only offers many internal effects, but also sound generators, namely Bassline, Electric and TubeSynth. The synthesizers offer an individual graphical interface, are amazingly flexible in sound and the handling is elegantly solved, because all controls can be adjusted either directly by touch or via the four Q-Link knobs. If the synthesizers are used intensively, the processor will sometimes go down on its knees, so regular bouncing of the tracks is a must. But since this is done with two touches there is nothing to complain about here.

Effects and mixers

All sounds are organized in up to 128 sequences. Each of them contains a maximum of 128 tracks, which in their turn contain a program for the sounds and a pattern. Depending on the track type, there is a maximum of four send and insert effects. There are over 50 filters, delays, reverbs, compressors, bitcrushers, distortion, phasers and flangers, as well as a transient shaper and sound emulations of older MPC models. There is nothing to complain about in terms of quality and, as in the program section, the filters sound excellent.

In order not to lose the overview with this sheer mass of options, all channel settings can be controlled via a channel mixer. The view can be switched between MIDI, audio tracks, programs, effect paths and the master channels. The mixer then offers options for routing, effects, etc. for the selected

Bassline

Electric

Tubesynth

view. With larger projects, this can be a little chaotic, especially if many effects are used.

Even more effects are available in XY pad mode. Here, the touch screen serves as the central control element for a handful of filters, delays and beat repeat effects, whose parameters are adjusted live by hand.

Sequencer

For many years MPC's have been partly idolized for their special timing. This should not change, because the current models offer the same options as their forerunners. And even a lot more. Recording is done on the fly, via step sequencer or in the so-called grid view, a piano roll view. There, notes can be drawn in or deleted with the finger, as well as transposed, moved and changed in length via several options. The editing is very smooth, but requires some patience for longer or extensive patterns, because here the small screen reaches its limits. Various quantization options allow you to straighten 'crooked' recordings in no time at all or to add the necessary swing and shuffle groove.

If you want to be on the safe side and avoid 'crooked' notes, you'll enjoy the pad perform mode. It assigns different scales to the pads so that only 'correct' notes of the respective scale are played. But the sequencer can contain not only notes, but also automations of many parameters. Each section that contains automatable parameters has an icon to activate read or write mode. To record an automation, simply click on the icon and then twist the parameter. This couldn't be done more comfortable on a hardware.

The Track menu provides further options for doubling or halving the pattern tempo, as well as a bounce-to-sample function that converts the pattern into an audio loop. Very useful! A similar function is also available for the entire project. With the exception that it can be exported as WAV, AIFF, MP3, FLAC and OGG files. If you don't want to switch sequences manually, you can also do this in the next sequence section via the pads. The next sequences start either at the end of the current sequence or as soon as the pad is touched.

MPC's and modular synthesizers

One of the most frequently asked questions online is: "How does the MPC work with a modular set-up? Both the One and the Live mkII offer four CV outputs that can be used to send either gate triggers or control voltages. Practical: The outputs are designed as insert channels. When using Y-cables, the four then become eight outputs. That's quite a lot.

Regarding to the type of signals, at first sight the MPC's are limited to pure notes, because controller movements are not transmitted, only the pitches of the pressed pads and this without velocity. At second glance however, it becomes clear that CV tracks also offer automation in the step sequencer, so that any pattern can be drawn or programmed with the finger. Since there are various presets with waveforms, simple LFOs and envelopes can be created easily.

This is certainly not comparable with free-running LFOs or real random patterns, here the Modular Support still has a lot of room for improvement. But this also applies to all other program types, because in terms of sound design MPC's are traditional, thinly equipped. User requests for pitch envelopes or free running LFOs have not been heard so far. Also CV inputs for triggering sounds of the MPC's through the modular system would be a great feature for future updates. But so far the Akai development support has been quite responsive, so chances are high to see more user wishes heard.

See the box below for all current updates on the Operating System.

MPC software

When it comes to software, progress has been made. Akai has developed the software version 2.8. The functions of the small DAW are the same as those of the MPC itself, but the display on the monitor is a bit more convenient. Furthermore, the software offers 128 instead of only eight audio tracks and allows the integration of VST plug-ins and AudioUnits. The factory equipment itself with numerous instruments and effects from AIR Music, Sonivox and Akai offers plenty of room for exploration and leaves nothing to be desired. Loom 2, Hybrid 3, the brand new drum

Current firmware update 2.8

Not only the new MPC's get a software update, but also the older models Live and X. And this update is really something special! While it was possible to use any class-compliant MIDI controller via USB with the devices from the very beginning, the MIDI section has now been considerably improved. The inputs and outputs can now not only be named as desired, but can also be permanently assigned to the individual tracks. Until now, only the active track was played from all inputs. A simple improvement with a big impact, especially for live performers. The new retrospective recording, as known from some DAWs, is also very powerful and completely unusual for groove samplers. So if you forgot to press record while recording the next hit hookline, you can now save the last 4,000 events with Shift + Record. We were also impressed by the other new features: Switching tracks can now be done via shortcut from any section, the pad perform mode remains active in main mode, MIDI tracks can be forwarded internally and the Q-Link knobs now provide visual feedback via pop-up windows when they are moved. All in all, this is a great update that has fulfilled many user wishes.al feedback via pop-up windows when they are moved. All in all, this is a great update that has fulfilled many users' wishes

synth 500 and many other high-quality sound generators are included.

The MPC itself functions as controller and audio interface. Transferring songs or projects between software and standalone mode requires caching them on a data medium and then uploading the project to the software. Apart from this small point of criticism, the software works flawlessly and does its job more as a groove studio than as a full-featured DAW.

Since the software is also available as a plug-in for all DAWs, similar to the principle of Native Instruments' machine, the MPC principle can be integrated into any existing workflow and setup.

Who are the new models suitable for?

If you want to enter the world of MPC's at a reasonable price, you won't go wrong with the One. Although it is not a lightweight, it is still handy and as flexible as all other current models thanks to the identical software basis. If you like bigger pads, want to sample outdoors or need a phono input, the Live mkII should please you. If an internal boombox is a reason to buy, this is the only model that comes into question anyway.

For users who already own a Live mkI an update might be less worthwhile. If you like to do extensive sound design and would like to have many controls to intervene directly on the fly in the sound, you will not be happy with the current versions. In this case, an X would be the only choice, even though it is anything but portable due to its weight and size.

Summary

With the new models and the software update also for the previous MPC's, Akai brings a fresh breeze into the series and goes back to the original idea: A drum sampler with sequencer as studio center. The various solutions in the shape of standalone operation of the hardware, the software DAW or even the MPC plug-ins mean that you are equipped for any set-up, whether with or without a computer. And the fact that even modular synths can be easily controlled is more than just a pleasant bonus.

The purchase of an MPC is no longer a stylistic question, due to the enormous number of features, the areas of application go far beyond the traditional finger drumming for which MPC's are so well known. Even if you don't want to work with samples at all, the latest devices come with an official sequencer that works with any equipment, whether CV, MIDI or USB. We say: Outstanding!

The features of current MPC models in comparison

Feature	MPC One	MPC Live mkII	MPC Live	MPC X	Force
Standalone	√	√	√	√	√
CV ports	8	8	-	8	4
MIDI in/out/thru	1/1/0	2/2/0	2/2/0	2/4/0	1/1/1
Audio inputs	2 (line)	4 (line/phono)	4 (line/phono)	4 (line/phono)	2 (line)
Audio outputs	2	6	6	8	4
Ableton Link	Ethernet	Ethernet/WiFi	WiFi	WiFi	Ethernet/WiFi
RAM	2 GB	2 GB	2 GB	2 GB	2 GB
HDD	4 GB	16 GB	16 GB	16 GB	16 GB
USB ports	1	2	2	2	2
Pad size	small	medium	medium	big	mini
Bedienelemente + Pads	34 + 16	33 + 16	27 + 16	92 + 16	71 + 64
Touchscreen	7 inch	7 inch	7 inch	10.1 inch	7 inch
Price	749 Euro	1199 Euro	945 Euro	1799 Euro	1039 Euro

The MPC X offers the largest touchscreen and by far the most controls and connections. With this feature-set, it offers a lot of comfort as a studio center, but isn't very portable because of its mass. The battery-powered Live models are ideal partners for working outdoors and on the road, without missing important connections. With its loop approach, the MPC Force follows an alternative concept compared to the traditional MPCs. Despite its low price, the One offers all the striking features and is therefore ideally suited as an entry-level model and for fans of the classic MPC layout.

Behringer TD-3

If you are familiar with the cult synthesizer Roland TB-303, you will immediately find your way around the TD-3. The basis of the pure analog sound generation is an oscillator, which provides either a sawtooth or square waveform. Its signal is fed into the low-pass filter, whose frequency and resonance can be adjusted with two additional controls. The characteristic whistling, chirping and screaming at high resonance is convincingly reproduced. The mini-envelope can only be adjusted in decay time and modulation strength.

The operation of the sequencer is also true to the original. A random function, directly accessible by pressing a key, provides the TD-3 with random patterns. Especially the mixture of slides and accents provides the incomparable groove. The filter input expands the possibilities compared to the vintage model, since a second oscillator can be added without much effort. However, the buyer has to accept the inexpensive manufacturing at this price. It is highly regrettable that the battery operation is not included, though.

As a faithful replica of the original TB-303 including sequencer, the TD-3 is, of course, primarily recommended for all those who like its typical chirping, screaming and roaring sequences with that special groove. With its very authentic sound, this synthesizer will find its friends especially in Acid House, Techno, Goa. The built-in distortion unit saves you an additional effect pedal and wiring and keeps your live setup organized. And thanks to the filter input and the additional connections you can do much more than just the typical 303 sounds.

www.behringer.com | Preis: 149 Euro

Behringer Crave

The analog desktop synthesizer Crave combines the oscillators of the Sequential Prophet with the filter of the Minimoog, the concept comes from the Mother-32 and the price from the Korg Volca. The signal path of the semi-modular sound generator is kept completely analog. An oscillator generates either a square or a sawtooth wave. A noise generator with white noise can be mixed in continuously. The Moog-style ladder filter can be operated as a 24dB low-pass or high-pass filter. With its slight, always harmonic distortions, the synthesizer delivers a pleasantly warm and round sound.

The LFO can also be used for pulse width modulation to make the sound a bit more fuller. You can also use it for frequency modulation of the oscillator and/or filter. An unusual but flexible sequencer and an arpeggiator bring the sounds to life. Thanks to the patchbay with 32 sockets, the Crave is recommended for integration into a modular system. It's just a real bummer that no installation in a Eurorack is possible.

Soundwise, the Crave doesn't have to hide behind its role model Moog Mother-32. Such a high-quality analog sound in a solid packaging has never before been available in this price range. Especially, the Moog filter replica taken from the Model D provides a powerful, organic sound, while the fast LFO in combination with the extensive patchbay extends the sound spectrum. Overtone-rich metallic sounds are just as possible as creamy leads or fat basses. Supplemented by a sequencer and an extensive patchbay, the Crave is a remarkable piece of equipment for a very reasonable price.

www.behringer.com | Price: 159 Euro

Behringer K-2

Hardly any other synthesizer polarizes more than the MS-20, whose sound is either loved for its aggressiveness and character or regarded as thin and annoying. The Behringer K-2 is a detailed replica of the semi-modular cult synthesizer in an Eurorack-compatible format. Two oscillators with a ring modulator first pass through a high-pass and then through a low-pass filter. This combination of two 12dB filters, which tend to produce a dirty and aggressive sound at high resonance, is the essential element for the special sound of the MS-20 and also the K-2.

In contrast to the original MS-20 and Korg's replica MS-20 Mini, the K-2 provides two filter circuits to select from. However, the synthesizer has only limited control over the very special screaming and distortion at extreme resonance levels. It's also a pity that Behringer didn't include a few modifications like PWM, FM, sync or a sequencer, as featured in Behringer's MS-1.

The external signal processor (ESP) is a wonderful playground for sound experimentation: It allows external audio signals to be processed by the K-2. With the ESP, you can also control the synthesizer with an instrument such as an electric guitar. In doing so, not only the volume curve, but also the pitch is detected.

The Behringer K-2 is the hi-fi version of the Korg MS-20. It sounds clean, powerful and noise-free and impresses with a more refined feel and finish than the Korg synthesizers. The basic sound character of the MS-20 is without question present. For a very reasonable price, you get an extremely powerful analog synthesizer with character.

www.behringer.com | Price: 309 Euro

TB-303 at a bargain price

hot competition for Moog's Mother-32

hi-fi version of the Korg MS20