

**"The users love it"** - With the 8bit synthesizer "πλ2"; Ploytec offers probably the smallest synthesizer in the world. We spoke with CEO Markus Medau about the fascination of 8-bit sounds and the beginnings of Baden-Württemberg's Ploytec company. (Alexander Cevolani in KEYS 07/2014)

#### **When was Ploytec founded and how did that happen?**

Markus Medau: Ploytec GmbH has just turned ten years old. It was founded after we already spent five years developing USB audio drivers. Those were already licensed by many well-known manufacturers. Until now, this has been our primary field.

#### **What product did you start with?**

Markus Medau: We initially started with "USB2 Audio Junction" and followed shortly with the "USB2 Launchpad" – two of the very first reference designs for USB 2.0 "Hi-speed" audio. Both were already running asynchronously, meaning, with genuine audio crystal and independently from the USB clock. The (2005) Launchpad had up to 32 inputs and 16 outputs at 96kHz.

#### **Your product portfolio includes the πλ2 8-bit synthesizer (released a few months ago), a latency meter, a MIDI clock-tap pedal, and a mastering plug-in – what is the impetus for such a variety of products?**

Markus Medau: The 34onell MIDI clock tap tempo pedal was (like the πλ2) originally a fun project I needed as a keyboardist at GEN:IX in Berlin. With the Latenc-o-meter, developers are able to measure audio delay time. Since there was no product available that could do this, we had to build it ourselves. The 700W mastering plug-in automates the job of selecting particularly loud passages in the audio editor from zero crossing to zero crossing and subsequently lowering the amplitude. This has nothing to do with conventional limiting, in which attack and release times change the adjacent waveforms as well. Adjustable plug-in parameters provide different strategies to iron out the resulting "kink at the zero line". To this day, no other plug-in in the market can do this. The technical implementation was done by "Intelligent Sounds & Music" in Cologne. ([www.ismism.de](http://www.ismism.de))

#### **The πλ2 (test in KEYS 2/2014), being "smallest synthesizer in the world" with 8-bit tone generation, has received much attention. How did you get this idea?**

Markus Medau: The idea of generating sounds from complex analog pulse waves, we call "Square Wave Synthesis", was sitting around here for many years. When we discovered a large supply of unneeded 8-bit micro-controllers in the fall of 2012, the practical implementation began, resulting in the πλ2 (pronounced "Pi L Squared"). Our technician, Felix Forscher, did extremely well in conditioning the limited MIDI power to ensure its suitability for audio.

#### **The πλ2 uses an 8-bit chip for the sound generator. 8-bit chips like the SID were installed in the computer classics of the 1980s, especially the C64. Does the πλ2 have a specific role model?**

Markus Medau: Honestly, no one here had thought of the old home computers or the MOD scene when the πλ2 was conceived. As soon as we showed the first prototype at the Musikmesse in 2013, many people mentioned the SID chip in the context of the πλ2. However, the sonic similarity comes neither from the waveforms or the features. We have unintentionally built the digital equivalent to the analog state-variable filter of the SID – which seems to be missing its software emulations. Together, with an innovative filter limiting strategy as well as the analog saturation level, sound-wise it takes a similar direction. But the πλ2 is an analog synthesizer and less of a gaming sound supplier.

#### **What causes such fascination with SID sounds?**

Markus Medau: Commodore had removed itself from the competition by allowing musician Robert Yannes to build an analog synthesizer chip. It should not be confused with the typically limited Gameboy and Atari sounds. Next, Robert Yannes established Ensoniq. Several years later, Elektron, one of today's most innovative synthesizer manufacturers, advanced with the "SID Station". Current electronic music would be hardly conceivable without such sounds – the characteristic filters hit the spirit of the times.

#### **How's the user reactions to the πλ2?**

Markus Medau: The users love it. We are very grateful for the many demo songs from artists like Kelvin Sholar, Kyle Geiger, Joey Davis, and just recently, Robbie Bronnimann and Andy Hunter. Sascha Konietzko of KMFDM has been a πλ2 fan since the beginning and did not let up until he held the first production unit in his hand. There are many friends of the small cube in Japan, where it was ultimately sold out by Christmas.

#### **Is a software offshoot of the synthesizer planned?**

Markus Medau: For the foreseeable future, it's unlikely. The analog component tolerances and sloping characteristics, as well as the 125 kHz filter sample rate, can indeed be simulated with a manageable effort. But the fine timing behavior of the 8-bit micro-controller (in which the events briefly stand on each other's feet from time to time) would first require us to emulate the micro-controller itself. Instead, the USB controllable πλ2 Leukos (in white) is coming by late summer. First pictures are on Facebook: [www.facebook.com/PLSquared](http://www.facebook.com/PLSquared)  
Inside there's a "Ploytec GM5" USB-MIDI chip, which not only controls the πλ2 Leukos, but also offers a MIDI Out for the original πλ2 - offering the user the choice between layering, more polyphony or duo-timbrality. We are planning further firmware updates for the πλ2: A firmware with "real" SID waveforms and features (e.g. the ring modulator) appears very desirable to me. But before that there'll be a firmware "tribute" to another great classic of the 80s sound chips coming soon.