

Retro Family Tree

✧ The road to affordable sampling was a long and winding one. In the first of two nostalgia trips, Jonathan Miller gets misty-eyed over the early days of American pioneers E-mu. . .

FAMOUS USERS

Quite a few of the initial Emulator sales were made to big names; the first production model being shipped to Stevie Wonder with Greek synth wizard Vangelis not far behind. Others eager to put E-mu's baby through its paces on record and on stage included Depeche Mode, OMD, Tangerine Dream and Kraftwerk.

In 1984, the Emulator II soon found favour with the new synth-poppers of the day, such as Howard Jones and Pet Shop Boys, while a big screen debut came when it offered up the legendary sound effects generator in *Ferris Bueller's Day Off* (1986). The Emux and its offshoots proved especially popular in the US, while even Phil 'anti-Fairlight' Collins couldn't resist the mighty Emulator III.

ONE NOVELTY HIT back in the 1980s had a lot to answer for, as it introduced the UK record-buying masses into the revolutionary characteristics of sampling. The cut-and-paste-style combination of looping news reports, synths and heavy beats of Paul Hardcastle's chart-topping 1985 paean to the Vietnam war, *19*, caused much consternation among the MOR rock relics of the day.

Phil Collins suddenly felt the need to stress on the sleeve notes of his huge-selling *No Jacket Required* LP that no Fairlights were used; just as Queen had denounced synthesizers a few years earlier. Here lay the roots of a popular misconception: that armed with a magical all-singing, all-dancing sampler – like Australia's high-priced CMI Fairlight or America's counterpart, the £100,000-plus NED Synclavier favoured by Hardcastle – any idiot could potentially hit recording pay dirt.

Testing this theory back in 1985 was impossibly expensive, but one US company was making inroads into bringing this divisive technology to the masses...

Born in the USA

Like many of America's much-lamented synth giants, E-mu Systems – Eμ, as they were then – started out as a small-town garage-based synth manufacturer; the expensive, custom-built modular variety. The fledgling company,

co-founded by Dave Rossum and Scott Wedge in Santa Clara, California, quickly found favour with underground luminaries like jazz keys man Patrick Gleeson and zany iconoclast Frank Zappa.

Unlike fellow Americans Moog and ARP, Eμ never set out to build commercially viable instruments, instead contenting themselves with upmarket modular monsters from 1973 to 1981.

✧ "E-mu never set out to build commercially viable instruments; they were content making upmarket modular monsters" ✧

It's a wonder they survived, but they had the foresight to patent a digitally scanned polyphonic keyboard, designed in 1973. They licensed this groundbreaking technology to Oberheim Electronics and, importantly, Sequential Circuits Inc (SCI), who handed over a princely sum after launching the hugely successful Prophet 5 programmable analogue polysynth in 1978. With flush pockets, Rossum and Wedge were now ready for a new adventure.

Ex-Tangerine Dreamer Peter Baumann wanted a monstrous computer-controlled analogue synth to assist him in his attempt at pop stardom. E-mu accepted his generous development contract to custom-build the sound generating hardware based on multiple voice cards. With 16 such cards duly shipped to Baumann by 1979, E-mu planned to develop Baumann's machine into a low volume product, to sell for £35,000.

The end of the Dream

Just one so-called Audity was completed and shown at the 1980 AES show, but Australia's Fairlight still stole the stage. And a timely event was about to force E-mu's hand into a last minute, radical change of tack. Three weeks after the show, SCI dropped an unexpected bombshell: no more royalties were due to E-mu. The Audity ambitions were swiftly written off and the pair promptly set about designing a simpler, lower cost version of the Fairlight. It was dubbed the Emulator and was launched in time for the February 1981 NAMM show.

To say Emulators sold like hot cakes is not strictly true, nor at £7,000 were they

particularly cheap by today's reckoning. Yet an eight-voice, eight-bit, 21kHz sampling instrument with 128Kb of memory capable of saving fixed length samples (four seconds maximum) on to five-and-a-quarter-inch floppy disks was a big deal in 1981 (even if editing functions were limited to adjustable playback start point and truncation of sample length). Initial units didn't have any kind

of VCA (voltage-controlled amplifier) so a sample would continue to play after a key was released, but this oversight was soon rectified.

A reggae loop was sampled off a local radio station in E-mu's then-hometown of Santa Cruz, to demonstrate the revolutionary looping function. It found its way on to Vangelis's soundtrack to Ridley Scott's 1982 film, *Blade Runner*.

Time to move on

Of course, technology stands still for no-one; by January 1982 E-mu had dropped the Emulator's price to £5,600 and were busy promoting an accompanying sample library. This move sustained sales until the introduction of its successor in 1984, the Emulator II. It was financed by respectable sales of a digital drum machine based on Emulator technology, called the Drumulator. Understandably, it succeeded in knocking the LinnDrum off its perch on account of being three times cheaper.

With the same £5,600 launch price as its predecessor, bigger and better was the order of the day with the Emulator II. A five-octave, velocity-sensitive keyboard meant the instrument was instantly destined for success among professionals. In addition to this, its memory was increased to a monstrous 512Kb (even the first IBM-compatible PCs only had 128Kb), fixed-rate sampling time rose to 17.6 seconds at 14-/15-bit (courtesy of a so-called analogue differential compounding algorithm), while the inclusion of MIDI, SMPTE, onboard filters, VCAs and independent LFOs (low frequency oscillators) for each of its eight voices all

✧ The original Emulator tempted OMD when they were boys



No. 9: E-mu samplers 1981-

Emulator

While under development, the first bona fide, low cost sampling instrument was known simply as The Sampler before that term was in regular use. E-mu's engineers were aware of Nyquist's Theorem (which states the minimum sampling rate should be twice the highest frequency in the signal). The fitting Emulator moniker was chosen from a thesaurus. Putting a

realistic second-hand price on this vastly out-moded yet historically significant instrument today is difficult; only 500 Emulators were manufactured between 1981 and 1984 so they're not exactly common, yet one was recently for sale on a website for £100. Presumably someone, somewhere got a genuinely collectable bargain!



Emulator II

Three Emulator II models were produced between 1984 and 1988. They were the 512Kb II single 5.25-inch floppy drive (a second onboard floppy drive could be added for £500, making copying disks easier); the dual floppy drive-endowed 1,024Kb II+ (courtesy of two onboard 512Kb memory banks) and the 1,024Kb II+ HD (with a 20Mb hard disk in place of the second floppy

drive). Around 2,000 units were sold. The fact that replacement, modern three-and-a-half-inch floppy drive kits are being sold by The Emulator Archive (www.emulatorarchive.com) is proof that Emulator IIs are still providing sterling service to presumably satisfied today. A supposedly pristine example was for sale online recently for £450.



Emax

E-mu's first mid-price sampler came in four 512Kb, 12-bit (compounded into eight-bit), 42kHz varieties, each available as a five-octave keyboard or 3U rack: the (original) Emax, the 20Mb internal hard disk-endowed HD, the HD SE (with additional, non-real-time additive synthesis facilities) and the SE Plus (with

an additional SCSI interface). In typical E-mu fashion it was possible to upgrade earlier models with SCSI (£140) and acquire the SE functions via a chargeable operating system update. It cost £2,199 at its 1987 launch but today you should be able to pick up a mint example for well below £400.



Emulator III

At its 1988 launch, the 16-bit, 16-voice, stereo, 44.1kHz Emulator III was, representing cutting-edge, heavy-weight (22Kg) sampling technology. It had a £10,500 price tag. Available in 4Mb or 8Mb versions with a built-in 40Mb hard disk, this hefty keyboard was a hit in top-notch studios and post-production facilities around the globe, selling a respectable 1,200 units in its five-year

production run. A £7,000 rack version briefly appeared but was redesigned and relaunched in 1993 as the fully-digital IIIx. The basic 8Mb XP cost £2,800, rising to £4,900 for the top-of-the-range, 32Mb Turbo XS with digital inputs and an internal 120Mb hard disk. Emulator IIIs have since changed hands for £350, with racks fetching more.



Emax II

Housed in a superficially identical casing to its namesake predecessor, under the bonnet the 16-voice, 16-bit, 39kHz Emax II is an altogether different beast. During its unprecedented seven-year (1989 to 1995) production lifespan, the instrument underwent several revisions. The original Emax II (keyboard and rack) was

still mono, with only 1Mb memory to boot; 2Mb stereo keyboard and rack versions came soon after, as did a 4Mb keyboard, with the Turbo versions finally closing the production line in 4Mb and 8Mb configurations. It was £1,999 new, today you'd be looking at £400-plus (depending on configuration).



Thanks to Rob Keeble of The Emulator Archive (www.emulatorarchive.com) for vintage image sourcing and assistance

helped in the sound sculpting and controlling stakes.

Having truly established themselves as undisputed leaders in the fledgling sampler market, E-mu's next goal was to bring the technology within reach of everyday musicians. This was finally achieved in 1987 with the introduction of the Emax (£2,100) and its 3U rack-mounting offspring (£1,900). Effectively a

repackaged Emulator II in a cheaper case, the source of such a cost-saving was its use of customised E-mu chips. Like the Emulator II, there were several Emax revisions, including one with a built-in 20Mb hard disk, culminating in 1989's 16-bit, 16-voice Emax II (boosted to 8Mb stereo status by its 1995 discontinuation).

For those with cash to burn, there was always 1988's £10,500 Emulator III,

replete with 16 separate, 16-bit voices (and outputs), analogue filtering, 40Mb internal hard drive and new-fangled CD-ROM-based sample library. By the end of the 80s, E-mu's sampling crown had all but been stolen by Japanese upstarts Akai's ubiquitous S-prefixed beige sampling boxes. E-mu, however, had another ace card yet to play, which we'll be looking at next month. **FM**

NEXT MONTH

Come back next month when Professor Miller completes his look at the E-mu sampler family, following the history of the ESI and e series samplers.