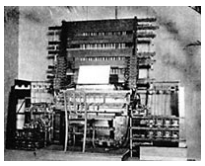
Tutorial: History of MIDI



The creation of MIDI in 1983 is closely tied to the development of music synthesizers, but it has spawned whole industries of interactivity far beyond the dreams of 1983.

Music Synthesizers: In the beginning

Electronic musical instruments had been around in some form since the late nineteenth century. The *Telharmonium* and the *Singing Telegraph* date back to the beginnings of electricity itself while throughout the first half of the twentieth century electronic musical contraptions were quite the rage in Europe , from the French *Ondes-Martenot* to the German *Pianorad,* to the Russian *Theremin* .

The word 'Synthesizer' didn't arrive on the scene until the 1950s with the RCA Synthesizer I and II, but it wasn't long before these room-sized pieces of engineering had been, themselves, 'synthesized' down into more acceptable components and indeed 'modules' thanks to the pioneering work of visionaries like Dr Robert Moog, Don Buchla, Haorld Bode, Pete Zinovieff, and Dave Cockerell.

Moog is generally, and appropriately, credited for taking the synthesizer out of the university laboratory and putting it in the hands of musicians. Certainly from the time of Walter Carlos' ground-breaking *Switched On Bach* recording (1968) to the release of the *MiniMoog* (1970) both musicians and the music-buying public became enamored – if not frankly dazzled – by the sonic possibilities now seemingly on the musical horizon.

As it turned out it was a false dawn. The synthesizers of the 1970s might have been unrestricted sonically but in terms of playability, stability, polyphony, and compatibility they were still very limited indeed.

Early integrated circuits-based synthesizers from Moog, ARP, and EMS opened the door but it was the arrival of Japanese companies like Korg, Roland, and Yamaha in the mid 1970s that converted potential into popularity.

Digitally Controlled Synthesizers

The popularity of synthesizers got a major boost in 1978 when micoprocessor-based instruments began to appear, spearheaded by a new California company Sequential Circuits. The Prophet-5, though still hugely limited by today's standards, offered reasonable levels of playability, stability, and polyphony, albeit at a hefty price at the time (around $4000). Soon Korg, Roland, and Yamaha's microprocessor-based offerings would slash prices in half, and by the turn of the decade the polyphonic synthesizer was firmly on the map for every self-respecting keyboard player from hobbyists to touring professionals. The days of the *Hammond* organ, the *Fender Rhodes* piano, and latterly the *Hohner Clavinet* were coming to an end.

Stability, playability, and polyphony continued to evolve in the early 1980s but *compatibility* remained a thorn in the side of manufacturers. The multifarious nature of synthesizer design meant that each manufacturer had been defining pitch and timing (Control Voltage and Gate) data in their own way. Once polyphonic, *digital* technology became available manufacturers they began to design unique digital interfaces that would, at the very least, allow you to connected several Korg, or Roland, or Yamaha synths together. Roland developed its *DCB* (Digital Communication Bus), Yamaha its *Key Code Interface* etc etc.

Visionaries like Dave Smith from Sequential Circuits, and Ikutaru Kakehashi from Roland began to worry that this lack of compatibility between manufacturers would restrict people's use of synthesizers, which would ultimately inhibit sales growth. Talk of a 'universal' digital communication system thus began circulating in 1981. Dave Smith and Chet Wood presented a paper that year at AES proposing a concept for a Universal Synthesizer Interface running at 19.2 kBaud, using regular 1/4" phone jacks. At the following NAMM show in January 1982 a meeting took place between the leading American and Japanese synthesizer manufacturers where certain improvements were made to the specification: increasing the Baud rate to 31.25 and adding the opto-isolation circuit.

MIDI is Born

MIDI (an acronym for "musical instrument digital interface) as its name was ultimately chosen, was first announced to the public in 1982, and by as early as January 1983 actually appeared on an instrument; the Sequential Prophet-600. Roland's JX3P followed hot on its heels, was 'connected' successfully, and a new chapter in the history of electronic musical instruments was born.

In 1983, the MIDI Specification was only about 8 pages long and defined only the most basic instructions one might want to send between two synthesizers -- things like how to play notes and how to control the output volume, etc. Very quickly, the arrival of this 'common (digital) language' created demand for new MIDI messages that enabled greater control of synthesizers but also for control of other recording gear and even stage lighting. MIDI also enabled computers to be applied to the music-making process. Although the way that MIDI works has not changed since 1983 (also almost preposterously inconceivable), the MIDI protocol has grown to encompass such additional concepts as: standardized MIDI song files (General MIDI , 1991); new connection mechanisms such as USB, FireWire, and wi-fi; new markets such as mobile phones and video games; and a whole world of 'alternative' and 'performance' based MIDI products.

The agreement to adopt a standard (and royalty-free) technology was an incredible achievement in itself – and substantially unmatched to this day – but it was also remarkable for what it then enabled. Sequencers, sampling, digital drum machines, dedicated computer control, ultimately a complete revolution within the recording industry... it is hard to imagine that any of these technologies or developments would have occurred, or certainly have been as wide-reaching, without the glue of

MIDI.