

CON BRIO ADVANCED DIGITAL SYNTHESIZER

REVIVING A SYNTH GEM

by Mark Vail



When we last visited the marvelous Con Brio Advanced Digital Synthesizer (Dec. '05), synthesist Brian Kehew — a member of the Moog Cookbook

and co-author of the fabulous tome *Recording the Beatles* — had been given one of the two existing Con Brio ADS 200s by film composer David Campbell. A quest to find another Con Brio led Kehew to one of its makers, Don Lieberman, who still owns the most portable version of the instrument, the unique and nearly full-functional 200-R. “I was within weeks of calling a recycler to take the Con Brio away when Brian contacted me,” Lieberman recalls. “It was taking up space in the garage, and I thought, ‘This is quite wonderful, but I have brochures of what we did and no one is ever going to care.’”

Kehew was stoked: “Like many people, I was in love with the look of the Con Brio since the first day I saw pictures of it in 1981. But we didn’t know until we finally got a sound from it late last year that it was so easy to use and had such great sound quality.”


To recap, the Con Brio was one of the first com-

The only Con Brio ADS 200-R ever made was stored in co-developer Don Lieberman’s San Jose garage from 1985 until synthesist Brian Kehew tracked Don down in 2007. Brian has owned one of the two ADS 200 units in existence since the 1990s. While much of the 200-R surprisingly still works, the 200 remains non-functional. If Don, Brian, and their friend Seilam Ismail can’t revive the 200, its 64-voice oscillator boards might find their way into the 200-R to double its voice count.

prehensive systems capable of synthesis, sequencing, multitimbral operation, and music printing. All user interaction with the instrument takes place via a control panel laden with knobs and buttons. There’s no QWERTY keyboard — on purpose. “A typewriter keyboard is extraordinarily cumbersome and non-musical,” asserts Lieberman, an amateur pianist who took lessons for 17 years. Before you assume the Con Brio’s 100-plus buttons would be daunting to deal with, consider that only active buttons are lit depending on the operating mode. How sexy is that? “Sections of the Con Brio’s front panel light up when you go from one mode to another,” explains Kehew, “which makes it very intuitive to work with. The sound-synthesis editor guides the user into areas where he or she can focus on specific sound parameters. It’s a very simple idea, but totally brilliant.”

Speaking of fast, the Con Brio responds to performance activity almost immediately. Thanks to DMA (direct memory access) and the TTL (transistor-transistor logic) circuitry that make up the Con Brio’s synthesis engine, it’s capable of consistently producing sound within only 0.003 of a second (3ms) of receiving note requests, whether individual notes or chords are played. In other words, minimal latency that compares very favorably to the speed of today’s soft synths on the fastest PCs. Relegated to less time-critical tasks such as the front-panel and envelope controls are five 6502 microprocessors — the same CPU used in the Apple II computer.

Not to be overlooked is the quality of the Con Brio’s marvelous sound, to which I can attest after hearing it in person at the Computer History Museum in Mountain View, California, in November 2007. “Whereas companies such as Fairlight used 8-bit D/A converters,” says Kehew, “the Con Brio has 16-bit converters. I used to play Synclavier a lot, but the Con Brio definitely has a much better sound quality. Its architecture is also a little more flexible and it’s much easier to work with.”

Read more at www.keyboardmag.com for further developments with the Con Brio. 

VITAL STATS

DESCRIPTION

Software-based music system that offers numerous types of synthesis, sequencing, music printing, and realtime control. The ADS 200 and 200-R each has 64 digital oscillators — theoretically expandable to 256, although it’s never been done because the dozen or so internal circuit boards were all wire-wrapped by hand — along with 128 16-stage envelopes, 16-bit D/A converters, two 61-note keyboards, a CRT video display, and a patchbay matrix with gate and CV ins and outs for connecting analog synth modules. Each 200 model also provides multi-timbral voice operation and 16-track sequencing.

PRODUCED

1977 to 1983. Development began in 1975.

TOTAL NUMBER MANUFACTURED

ADS 100, one. ADS 200, two. ADS 200-R, one.

MANUFACTURER

Con Brio, Inc., Pasadena, CA (no longer doing business).

INSIDER INFORMATION

During the mid 1970s, George Zweig, a Caltech professor of theoretical physics, offered lab space to Con Brio founders Tim Ryan and Don Lieberman (physics majors) and Alan Danziger (applied physics) in exchange for his use of their instrument to map the cerebral cortex of cats. . . . An ADS 200 contributed sound effects to *Star Trek: The Motion Picture* and *Star Trek II: The Wrath of Khan*. . . . Ryan later cofounded Sonus Corp. and MusicSoft, which became Midiman and then M-Audio, now a business unit of Avid, Inc. . . . Lieberman co-founded Corsair (www.corsair.com), the computer memory company, in 1994.

ORIGINAL PRICES

ADS 200, \$27,500. ADS 200-R, \$20,500.