# BEAT-IT: A Drum Sensor Interface for the Atari ST

If you have an Atari ST and know how to solder, here's what you need to start pounding out MIDI program numbers that'll turn your synth into a drum synthesizer.

*By David Snow*

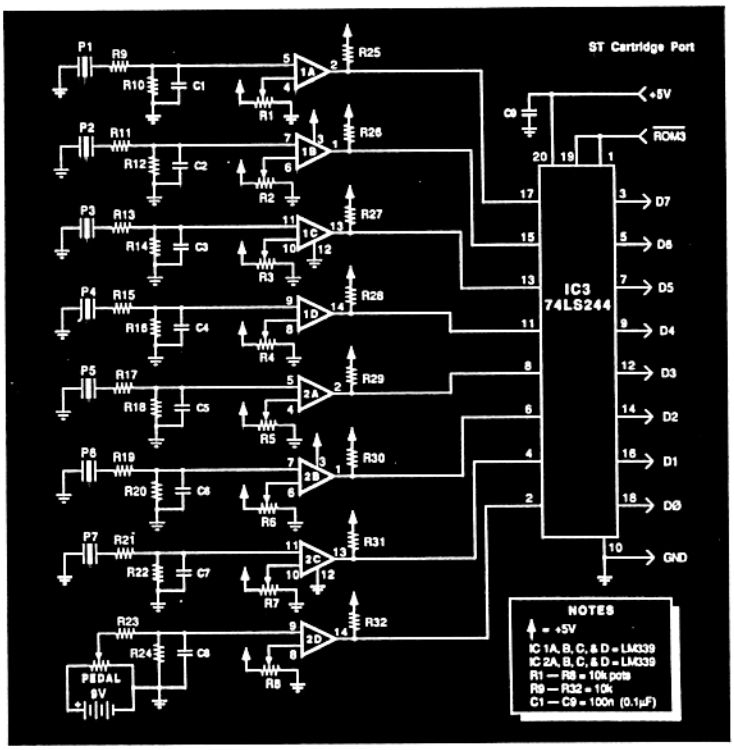


FIG. 1: Beat-It drum interface schematic.

You might think that percussionists are a well-adjusted lot, given that they regularly vent their aggression for fun and profit, and they are; it's just that some of them look and act like Animal from *The Muppet Show* (then again, he was a good drummer, wasn't he?). Hey, I'm not criticizing; I *want* to be like that. As a matter of fact, one can get pretty tired of being pigeonholed as some bow-tied, ivory-tower, pseudo-intellectual, button-pushing nerd. I want to roll. I want to get down, crank it up, kick out the jams, bite off chicken heads, and . . . you know what I mean. The problem is that it's just not spiritually moving to spend hours at a stretch entering step-time data into your sequencer with tiny, plastic buttons. You've got to keep in touch with the Big Reality, play your music in the Here and Now. For *that* transcendental purpose, nothing, you might say, beats a drum.

Since nobody's gonna let you beat up on the furniture, you have to get an instrument. Of course, money to indulge your muse is no object unless you run into a snag ("Hey Pop, how about 15,000 weeks advance on my allowance?"). Well, if the Real Reality says you need something substantial, but that Hot Rockers Drum Kit on sale at the local toy outlet isn't going to make the grade, don't panic.

You have a CZ-101 (or other multi-timbral synth)? You have an ST? You have a soldering iron? You're covered. Beat-It is a drum sensor interface that plugs into the ST's cartridge slot and turns that synth into a drum synth with eight, count 'em, eight different sounds available at your fingertips. The sensors (triggers) can be piezo elements, mics, pedals, all kinds of junk. The possibilities are mind-boggling, and the boggling follows forthwith.

## THE CIRCUIT

The interface circuitry (**Fig. 1**) is simple enough. Quad comparators IC1 and IC2 detect voltage inputs from the sensors. If the input exceeds the threshold set by trimmers R1 to R8, the comparator output goes high. Octal buffer IC3 has tri-state outputs that isolate the comparator outputs from the computer's data bus unless enabled by strobing pins 1 and 19 low (see also **Fig. 2**). The ST's cartridge port provides two decoding lines: ROM3, which goes low when reading from addresses $FA0000 to $FAFFFF, and ROM4, which goes low when reading from $FB0000 to $FBFFFF. By reading address $FA0000, one enables the octal buffer and loads the comparator states onto data lines D0 to D7.

The hardest part about building the circuit is obtaining a circuit card to mate with the cartridge port (**Fig. 3**), as the contacts use an unusual 0.079-inch spacing. I

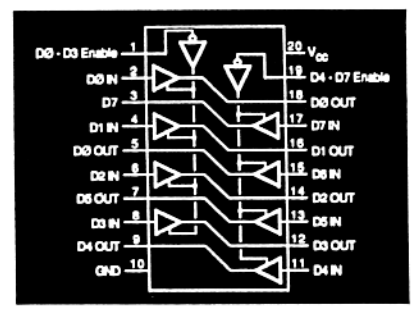


FIG. 2: 74LS244 Octal Tri-State™ Buffer pinout.