WIRED FOR SOUND

In the course so far, we have seen how a musical digital interface is used by producers in the studio and by musicians performing live. Now we consider some of the hardware and software that puts the MIDI in the hands of the home computer user, taking a detailed look at packages representative of current technology.

The Micon, or *MI*DI *con*troller, is produced by XRI Systems, and is fairly typical of the MIDI packages produced by the smaller software houses. It is designed for use with the Sinclair Spectrum, and consists of a MIDI interface and a software cassette. Its sequencer facility provides for eight separate tracks, each with a capacity for 2,951 events (notes, rests, etc.). Music is entered on the interfaced synthesiser's keyboard, and the Spectrum's Space key is used to define the number of events to be played.

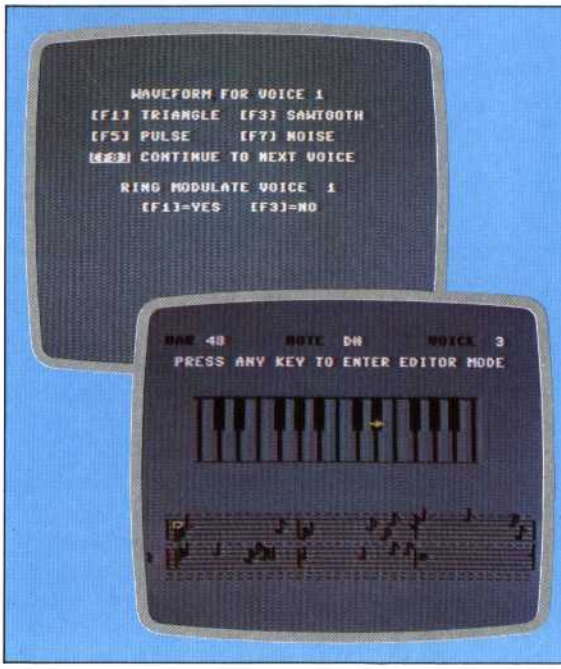
As the synthesiser is being used, the music rolls by on the screen in a crude form of standard five-line stave notation. This gives bass and treble clefs, the full range of durations (including dotted notes), sharps and flats, and staccato (very short note) indicators. The notation is poor on indicating rests — those durations where *no* note events occur, a crucial component of any musical composition — and the stems from the noteheads always point upwards, instead of up or down depending on their placement on the stave. In addition, sequences of short notes are not rationalised into groupings that reflect the metre or underlying pulse of the music. The result is hard to follow except as a rough guide, but it can be printed out using the ZX printer.

The main value of the display is evident when we come to editing the composition. The music is divided into bars, and, when a bar number is entered, individual notes can be deleted, inserted or altered by specifying the new note. Whole bars can be erased, and bar groupings can be repeated anywhere within the sequence. Up to 10 sequences — nearly 24,000 notes — can be saved on tape, together with the appropriate characteristics for replay. The tempo of the replay can be defined to within four milliseconds or controlled by a drum machine using a SYNC IN socket on the interface.

Micon also sequences in real time. In effect, it will 'listen' to a performance on a MIDI-compatible synthesiser, and enter all the data into the Spectrum's memory. It won't display a notation of the performance, but it is useful in two other ways. First, it enables keyboard musicians to hear a recording of their own performance, without having to worry about setting up input levels onto tape: its immediacy should be particularly valuable in music education. Secondly, providing the required music is 'under the fingers' of the performer, it alleviates much of the tedium of step-time sequencing. However, the performer still needs a metronome or drum machine pattern to play against in order to keep a steady tempo, as the sequence will otherwise be replayed with all the performer's timing errors. As with any MIDI system, the results obtained from Micon depend upon the design sophistication of the synthesiser it is interfaced to. Micon costs just over £100.

Jellinghaus Music System's MIDI package costs a little less than the Micon, but is designed for use with a wider range of machines: the Apple II, Commodore 64 and the Sinclair Spectrum. It is fundamentally similar to Micon, in that musical information is entered from the keyboard of the interfaced synthesiser. The main difference is that sequences are entered in real time only, and the screen display of the music is not in standard five-line stave notation.

Organising the music into bars is done by specifying a time-signature — this is simply the number of quavers or crotchets per group. Four time-signatures are available: three, four or five crotchets per bar ($\frac{3}{4}$, $\frac{4}{4}$ or $\frac{5}{4}$ time), or seven quavers ($\frac{7}{8}$) and, as with the Micon, performance tempo has to be co-ordinated by a separate metronome or drum machine. If the real-time performance



Sound Control

By taking advantage of the Commodore 64's sound chip, a BASIC program can be written to enter music in a visual format with a joystick, and have it played back. In the example shown here, a light appears on a graphic keyboard and can be moved up the scale by pressing forward on the joystick, or down the scale by pulling back. When you reach the desired note, you move the joystick from side to side to choose the duration of the note. The note is 'recorded' when the fire button is pressed, and you are ready to enter the next note in a sequence. (For a complete listing of this program, see 'Keyboard Capers' in Issue 3 of 'Your 64')

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