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COMPUTER BITS

By Carl Warren

Coming Attractions Plus a Tip

AS MANY of you would probably suspect, nothing in the realm of microcomputer systems or peripheral add-ons is really standing still. This past April at the West Coast Computer Faire in San Francisco, the crowd of over 20,000 was greeted by the introduction of a personal system dubbed Osborne-1. This Z-80 microprocessor-based system is from the Osborne Computer Corp., headed by Adam Osborne of microcomputer book fame. The unit, which is enclosed in a brushed aluminum weather-proof suitcase small enough to fit under an airline seat, is slated to sell for the surprisingly low price of $1795.

Even more startling is what this price includes. On the hardware side, there is a built-in 5-inch diagonal CRT monitor, two 5.25-inch single-density floppy drives, a full-sized keyboard with a 10-key numeric keypad, and an IEEE-488 and EIA RS232C interface. The software includes: Digital Research's CP/M operating system, Compiler Systems' CBASIC, Microsoft's MBASIC, Micropro's Wordstar word-processing package, with MailMerge option, and an electronic worksheet package from SORCIM called Supercalc that somewhat resembles Visicalc.

Attractive though the Osborne-1 may seem, don't get on the phone and try to order one. The company won't sell it direct (they plan to sell only through distributors) and production of the first units began only last month. Moreover, there is at least one peculiarity you should consider. The viewable display is 52 characters by 24 lines with a 128-character by 34-line expanded feature, which implies horizontal and vertical scrolling. A number of application software houses I spoke with view this unique display as a possible limiting factor, since numerous applications written originally for 80 x 24 full-view screens will have to be rewritten to include horizontal scrolling commands.

Furthermore, you might want to wait for other hardware options such as modem electronics, larger video monitors, and higher density disk drives, which, according to the company, are currently on the drawing boards. Expected introduction is late 1981 or early 1982.

PROGRAM TO SET UP A BUFFER

```
10 CLEAR 1000:CLOSE                    'SAVE SOME STRING SPACE
20 GOTO 220                            'GOTO THE MENU
30 GOSUB 200                           'SET UP THE BUFFER
40 R=R+1                               'SET THE RECORD COUNTER
50 INPUT "LAST NAME";N$
60 INPUT "FIRST NAME";F$
70 INPUT "AGE";A$
80 LSET LN$=N$: LSET N1$=F$:@
 LSET AG$=A$                           'LEFT JUSTIFY BUFFER
90 PUT #1,R                            'WRITE IT TO DISK
100 I=I+1
110 IF I=4 THEN 130 ELSE 40            'THIS IS TO ALLOW 4 INPUTS FOR DEMO
120 END
130 CLOSE                              'CLOSE THE FILE TO MARK THE END
140 INPUT"ENTER TO RETRIEVE";CC$       'LETS BE FANCY
150 GOSUB 200                          'GOT TO OPEN AND REFIELD THE BUFFER
160 FOR R= 1 TO 4                      'THIS SET NO OF RECORDS WE CAN GET
170 GET #1,R                           'GET THE RECORD
180 PRINT N1$;LN$;AG$                  'DISPLAY THE DATA
190 NEXT R                             'CIRCLE AROUND AND GET MORE
200 CLOSE                              'REMEMBER CLOSE THAT FILE
210 END
220 PRINT TAB(15);"(1) TO ENTER"
230 PRINT TAB(15);"(2) TO RETRIEVE"
240 INPUT C
250 IF C=1 THEN GOTO 30
260 IF C=2 THEN GOTO 140
270 IF C<1 OR C>2 THEN END
280 OPEN "R",1,"TREE.DAT"              'OPEN A RANDOM FILE NAMED TREE.DAT
290 FIELD 1, 15 AS LN$,@
 10 AS N1$, 4 AS AG$                   'ESTABLISH A BUFFER
300 RETURN
310 END
```

Some Programming Help. A few months ago, Edward Craig, Blytheville, AK, wrote about some difficulties that he was having converting a genealogy program from DEC BASIC Plus 2 to TRS-80 BASIC. Specifically, he was unable to get the program to read and write data.

Well, Bob, here, finally, is some help for you in solving your problem. Since I don't have the space to show you the entire program, I can give you some troubleshooting tips.

The program shown opposite is an example of how to set up a buffer and get information into and out of it. The most important point to notice is that I have written the buffer statement only once in the form of a subroutine. This way I can set up a menu as I did in line 20 and do one of three things: ENTER, RETRIEVE, or QUIT.

Another important point to remember when using random files is that you have to tell the computer where in the buffer you want them in terms of right or left justification (see line 80). Then some sort of record counter is used to keep track of what record is next. This is a neat program to experiment with when learning about using files.

Here is an experiment you might want to try. Change line 160 to read INPUT "ENTER RECORD NO"; N and change line 190 to a GOTO 160. This way you can choose the exact record you want.

Incidentally, I only used 29 bytes of the available 256 in the field statement so you can expand this. Try this out; I think you will be surprised at how fast you catch on.

Let's Talk Disks. Over the next several months, you are likely to read a lot about a number of high-density flexible media drives coming on the scene. Some of these have been mentioned previously in this column, and were seen at the National Computer Conference (NCC) held in Chicago. Among the new offerings set to be available to systems designers later this year are Remex's (Irvine, CA) 5.25-inch 1M-byte drive called the Pico. This drive fits in two-thirds the space required for a standard 5.25-inch floppy and is double-sided, double-density with 96 tracks per inch. You can't buy this drive yet, but expect it to start showing up in a number of systems by late fall or early '82. According to one industry source, both Heath and Tandy are giving it serious consideration as an upgrade.

Taking a little more bullish approach to high-capacity disk drives is Persci (West Los Angeles, CA). This company is preparing to launch production models of a 6.4M-byte, 8-inch drive sometime this fall. The unit, which was shown at NCC, comprises two 8-inch drives housed in a single 8-inch drive form factor. It employs dual heads for

(Continued on page 54)

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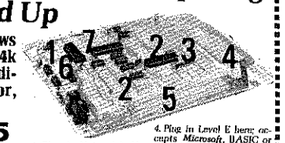

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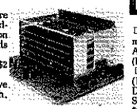

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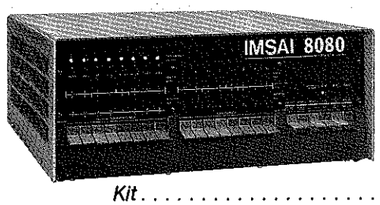

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each drive for double-sided, double-density recording. According to a company spokesman, the drive system is designed to directly replace previous Persci and other lower capacity drives without changing system mounting requirements. However, be aware that even if you can latch onto one of these drives, numerous software changes would be required to take advantage of the increased capacity.

The Persci drive, like the Remex, won't be directly available to the end user, but will be employed in various systems or as part of an upgrade package. Many industry watchers believe the Persci drive will find its way into a number of units such as those manufactured by Wang or Digital Equipment Corp.

Directly related to disk drive developments are controllers—the electronics that permit the computer to read and write data on the disk, format the medium and locate specific information. Since this is an important area of concern, many companies are vying for a piece of the pie. One such company is Magnolia Microsystems.

You are already familiar with this Seattle, WA manufacturer if you own a Heath system and have purchased their zero-based CP/M package or Winchester controller. What Magnolia is preparing to offer, by early fall, is an 8-inch disk controller for the H-89 that allows using a wide variety of drives including standard Shugart 8-inch units. The manufacturer says the idea is to open up other avenues for adding 8-inch floppies to Heath systems.

Functionally, the Magnolia controller will support CP/M and permit the use of the Heath 5.25-inch controller. It will not, however, support HDOS.

Answers to Your Questions. First I have to apologize. Since I'm not able to answer your letters directly, using this column seems to be the best way, especially since many of you are asking similar questions. One such question that has arisen is: "How do I get in touch with *Micro Media Magazine*?" Well, apparently a typographical error occurred when we last mentioned this magazine; but I can assure you that they are alive and well and issue No. 4 of their disk-based magazine is out and is chock full of useful information and software tools. The address is *Micro Media Magazine*, 1316 Elmhurst, Garland, TX 75041, or phone 214–840-1477 and ask for David Alford.

Regarding conversion software, there currently is no universal conversion package available. There is one that will convert from TRS-80 to Apple to Atari, and I can assure you that slowly but surely it's on the way. In fact, what I identified as the best way to perform this unique function was to write it to run on Micronet. Right now I'm not sure whether or not it will be a BASIC or Fortran program or a little of both; but expect to see it available sometime before year's end. ◇

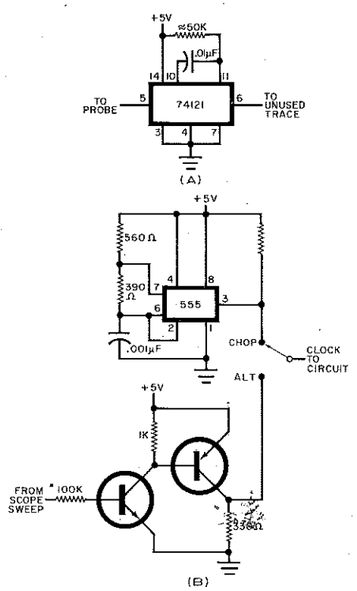
COMPUTER SOURCES

By Leslie Solomon
Senior Technical Editor

Hardware

Glitch Finder. We have been using the multi-trace logic display (February 1981, page 60) for quite a while now for troubleshooting logic displays. Recently however, a problem occurred. Some logic did not work properly even though the display showed that all the correct inputs were present. Changing the suspected IC did not cure the problem so we decided that a high-speed "glitch" was present, but our scope could not display it.

What was needed was a "glitch finder" that could signal the presence of such an invisible glitch by showing its presence on screen. The circuit shown at A does this.



The 74121 is wired as a one-shot that accepts a brief positive-going trigger and delivers an output pulse whose width is about 7 to 10 microseconds — a clearly visible pulse. The output of the glitch finder is applied to one of the unused traces, while the input at pin 5 is probed to the data line under test. In operation, you will see the glitch-finder pulse located under the positive-going edge of each pulse on the data line under test — including the "invisible" glitch. Since some one-shots are more "sensitive" than others, you may have to try several 74121s before you find one that will respond to a glitch that is only a few nanoseconds wide.

The circuit at B illustrates both a "chop" clock oscillator and a technique for using the scope sweep as the "alternate" trigger source. This modification allows using either clock source to trigger the multitrace display, contingent on the speed required to observe the multitraces on the scope.

Software

6800 Diagnostics. The programs in this package are designed to run under FLEX Operating System and include a versatile memory diagnostic utility and a disk repair utility that includes three diagnostics to report unreadable sectors

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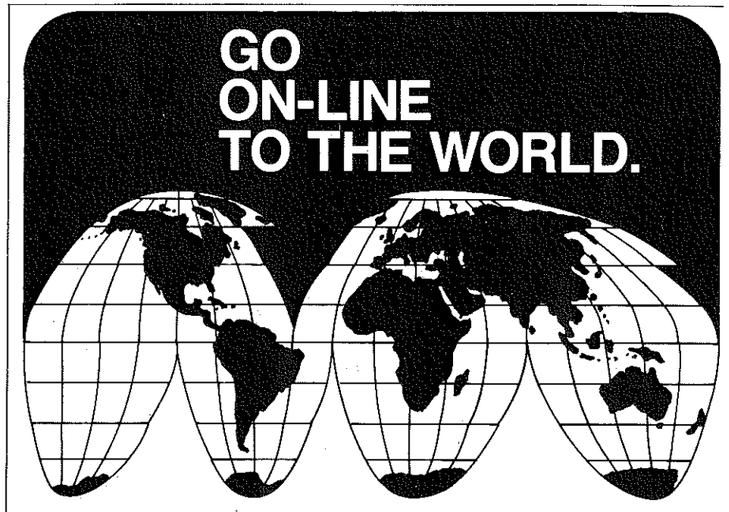

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