

SUPERLETTER

Serving SuperBrain[®] Owners and Users Around the World

Feb/March 1982
Vol. 2 No. 1

Looking forward, I see a year that can be filled with important information to help you use your SuperBrain or CompuStar computer more efficiently. Here are some topics that we feel need investigation and your input.

SPECIAL INTERFACING the SuperBrain with various types of hardware and hard-disk systems, other than the Intertec products. For example, do you know of a SuperBrain working with a Corvus, Morrow Design or other hard disk system? What about interfaces with teletype machines, TV monitors, security devices, home appliances, or even speech synthesizers.

(The article in this issue by David Storti on the SuperBrain marriage with the ESCON typewriter system is a good example of an interface that you, our readers, have expressed an interest in.)

MODEMS. What brands do you use? What are the costs? The problems? The advantages? What modifications have you made?

APPLICATIONS. Do you know of any interesting uses of the SuperBrain in educational environments, farm forecasting, monetary forecasting, games and scientific or other experimental areas?

SERVICE. Send us the information you know about or may have regarding regional and national service centers in the United States, Europe or other parts of the world. We'll collect it, organize it and list all of it in one special issue. We'll need the facts on the numbers of technical personnel available, the size of the facilities, hourly service bench rates, shipping instructions, and special services that are offered. This international service listing could turn out to be one of the most important issues of the year.

Many of you have asked about games that can be played on the SuperBrain. We have found NEMESIS by SuperSoft Associates.

It is a Dungeons and Dragons game that will consume your imagination and free time. DUNGEON MASTER is an optional accessory that permits you to completely create new obstacles and mazes within NEMESIS. We are now offering both in SuperBrain formats at \$40.00 and \$35.00 respectively.

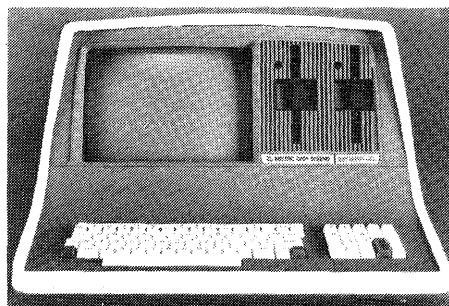
Regarding the differences between IE's S/BE-4 DOS and the new 3.1 DOS by Intertec, here are some important differences: IE's is much faster; you can program many keystrokes with theirs and only one within the Intertec DOS. The IE DOS supports the Corvus hard-disk, while Intertec's doesn't. Auto-repeat is not programmable with Intertec's and they don't have a communications buffer or a spindle-motor speed-check. The Intertec DOS does have a built-in on-screen clock, however, with their auto-repeat and other features.

Remember, some back-issues are still available for those of you who want to have them for your library. The cost including shipping is \$3.50 an issue.

Stay in touch with us and let us know what you're up to with your SuperBrains and CompuStars. It's your input that always makes the best news for this publication. And that's the way it should be.

Albert Abrams

EDITOR



Technical Corner

HARDWARE INFORMATION ON THE SUPERBRAIN

Second in a Series

by Jonathan W. Platt

Special thanks to
Paul L. Kelley, Ph.D.

Copyright Jonathan Platt, 1982

The CRT Display System

The display system consists of three major chips: the DP8350 CRT Controller (CRTC); the CRT-8002 Video Generator (VDAC); and the MM5035 80 bit x 8 shift register.

The CRTC generates all the timing to display 24 rows of 80 characters each. Each scan row is divided into ten scan lines. During the first scan line of a row, a horizontal blank signal is generated causing a BUS REQUEST to CPU-1 and an interrupt. The controller takes the buses and reads 80 characters from the CRT memory map which begins at F800H (the upper 2K of RAM).

The address at which the CRTC begins reading the 80 characters is determined by the Row Start Register (RSR) of the CRTC. The RSR is the working register for the CRTC address counter. It determines the first video character address on a scan row to scan row basis. The 80 characters are loaded into the 80 x 8 shift register. The data in the shift register is then used by the CRTC during the next 9 scan lines to produce one row of video characters. The video generator supplies character font and other character attributes discussed later. There are 24 DMA cycles (or horizontal blanks) per frame.

There are a total of 25 interrupts generated - one for each scan row as described above and one more during vertical blanking. During the first 24, the interrupt routine in the SuperBrain's

Continued on Page 2

Superletter is published, bi-monthly, by Abrams Creative Services. Mailing address: P.O. Box 3121, Beverly Hills, CA 90212. Phone: (213) 277-2410. Copyright © 1982 by Abrams Creative Services. All Rights Reserved. No part of this newsletter can be copied by any means without prior written permission from the publisher. Editor: Albert Abrams. Advertising & Subscription: Linda Patchell. (SuperBrain[®] is a registered trademark of Intertec Data Systems, Inc. CP/M[®] is a registered trademark of Digital Research, Inc.)

Technical Corner, Continued from Page 1

monitor sets or resets PPIC-1 (character blanking) depending on whether that row is displayed or not. The monitor knows if there are any characters on a given line. If not, that line is not displayed. During the 25th interrupt (and BUS REQUEST), the interrupt routine initializes the CRTC address registers to the top-of-page and also updates the cursor address.

There are 60 vertical blanking interrupts per second at 60 Hertz. The line frequency is very useful for implementing a system clock. Any routines which implement auto-repeat or buffered type-ahead should also be done in the vertical blank section of the monitor.

The CRTC has 3 registers: the Top-of-Page Register (TOPR); the Row Start Register (RSR); and the Cursor Register (CR). These three registers may be changed under program control during either a vertical blank or horizontal blank. Looking at PPIB-2 will differentiate between a vertical or horizontal blank. It will be set for a vertical blank, reset for a horizontal blank. A load to a CRTC register is accomplished by setting PPIC-0 and then moving the register select as data to a location in memory corresponding to the desired register value between zero and 2K. The CRTC data lines are A0. All of the CPU's address bus and the register select lines are D0 and D1 of the data bus.

After loading the desired registers, PPIC-0 must be reset. Care must be taken not to enable the register load from a program in the first 2K of memory. The address lines in this area are write-only to the address/data lines of the CRTC while the register load is enabled.

Register Load Table

<u>D0</u>	<u>D1</u>	<u>PPIC-0</u>	<u>Register Access</u>
0	0	0	No Select
0	1	0	Top-of-Page
1	0	0	Row Start*
1	1	0	Cursor
X	X	1	No Select

*During vertical blanking a load to the RSR will load the TOPR.

For example, to place the cursor at the beginning of the second row the code would be:

```
MVI  A,1      ;Set register load mode
OUT  PPICW    ;Control Word to PPI sets PPIC-0
LXI  H,80     ;Addresses start at zero-so 2nd row.
MVI  M,3      ;This will send the Cursor
                ;\Register Select via the data
                ;\lines, and the address to the
                ;\CRTC via the address lines.
```

Any other of the three registers may be loaded here as well.

```
XRA  A
OUT  PPICW    ;Disable register load mode
```

The beginning of the screen's memory map is at F800H (the upper 2K). The addresses held in the CRTC registers may be thought of as indexes from this address into the screen map.

The TOPR holds the address of the first character of the first video row. This register allows display scroll with the CRTC without the use of external memory address adders.

The RSR is the working register for the CRTC address counter. It determines the first video character address on a row to row basis. Modification of this register will modify the address counter outputs at the start of video on the next row. If the RSR is never externally loaded, the CRTC address outputs will be sequential from row to row from TOPR contents at the start of the video page. With external loading, row to row non-sequential operation of the CRTC address outputs is possible, thus row to row edit capability. A load to the RSR during vertical blanking will also load the TOPR.

Intertec has written their software such that the screen map is sequential in memory from row to row. So they only load the RSR (and thus the TOPR) during a vertical blank. They keep account of scrolling by adding 80 to the Top-of-Page after every scroll. There are over 25 lines of storage available in 2K of memory. The other method of row to row loading of the RSR (a nonsequential memory map), although it creates a bit more overhead in the interrupt routine, can make line insert/delete trivial and fast whereas if line insert/delete were done with a sequential map, a block move and probably padding to the terminal would be necessary at high baud rates.

I have written a non-sequential memory map monitor for the SuperBrain which works well with line insert/delete. A curious problem arises, however, with the location of the cursor on the screen which I have not been able to solve. The cursor block is displayed seven scan lines too early. Obviously some sort of timing problem, but still very mysterious.

The CR holds the present address of the cursor. When a match with the CR and the address register occurs a pulse will appear at this output at that video character time (character field width) for every line in that row.

The video generator supplies the character font to the CRTC for display to the screen. The Line Buffer Clock from the CRTC tells the shift register to send a character to the video generator. The video generator then sends the dots of that character for the working scan line to the CRTC.

The video generator also controls various character attributes. Strike-through and underlining are available although they have no real use since the entire row is underlined or struck through; no one single character can be selected. Blinking is also available and can be done from character to character by setting the high bit of that character in the screen map. There is an undocumented escape sequence to turn blinking on and off. They are:

<ESC> will blink every subsequent character printed to the screen.

<ESC> will turn it off. Blinking characters will remain blinking. Reverse video is not controlled through the video generator but can be accomplished by setting PPIA-7. No escape sequence exists in Intertec's software for setting this, although in their infinite ability to plan ahead and not carry through, there is a sequence to turn it off. It is <ESC><N>. It may also be turned off, of course, by resetting PPIA-7. Starting with DOS 3.1, Intertec has changed the escape code's meaning to turn blink mode off. So instead of adding a reverse video sequence, they have chosen to ignore the concept completely.

The video generator has four modes, of no obvious use, except Internal Mode. Internal character mode is the normal operating mode. The modes are:

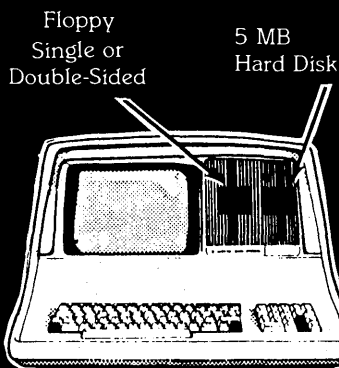
<u>Mode</u>	<u>PPIA-0</u>	<u>PPIA-1</u>
Wide Graphics	0	0
Thin Graphics	0	1
External Character	1	0
Internal Character	1	1

Continued on Page 8

SUPERBRAIN™ 5 MB Plus (K System Five)

Now available INTERTEC's amazing SUPERBRAIN with built-in 5MB Hard Disk Storage. The K SYSTEM FIVE looks and operates like a normal SUPERBRAIN but with the advantage of 5 MB hard disk storage and hard disk speed that are immediately available to the operator.

Kramer Systems International, Inc. has successfully installed COMPUSTAR™ and SUPERBRAIN™ Systems worldwide.



Kramer Systems International, Inc. is an authorized established distributor for the complete Intertec Data Systems product line. We have a proven record of providing full support and service to all of our customers.

Superbrains
Computars
Disk Storage Systems
Printers
Software

Maintenance & Support

Modular replacement is available to all customers with 48-hour response in most cases. Our maintenance personnel are experienced professionals who have trained government and commercial technicians in the repair and maintenance of the Superbrain and CompuStar.

Dealer and International inquiries invited.
Available on the GSA schedule.



Kramer Systems International, Inc.
8403 Dixon Avenue
Silver Spring, Maryland 20910
(301) 585-7480

Call today for additional information

—Guest Article—

A SUPERBRAIN AND A SELECTRIC: A MARRIAGE THAT WORKS

by David Storti

The ELF 1 Interface, priced at 'under \$600', is intended to inexpensively convert a Selectric I, II or II typewriter into a letter quality printer. Since, for example, a NEC Spinwriter can run close to \$3,000, Escon's idea is a very attractive one to anyone doing word processing on a SuperBrain or CompuStar on a budget, particularly if one already owns a Selectric.

Recently I bought and installed an ELF 1 in my eight-year-old Selectric II and connected it via the serial port to my quad SuperBrain. Despite problems that resulted in an eight week hiatus between purchase and the day I got the first perfectly printed sheet (discussed below), I believe the unit does exactly what it is supposed to do, does it well, and, if some serious limitations are acceptable, should definitely be considered when shopping for a printer.

THE COMPANY

Though the ELF 1 is made by Escon, my unit came from IPEX International, (213) 710-1444, a Calabasas, California distributor for Escon. Throughout the period of getting the unit up and running, the people at IPEX were helpful, cooperative and patient. Because they were pleasant and obviously trying hard, they made the somewhat painful process of getting the printer up and running much easier.

OPERATION

The ELF 1 works in a very straightforward manner: an electronic interface takes ASCII output from the SuperBrain, translating it into on/off voltage levels used to activate one or a combination of solenoids installed in the typewriter. The solenoids are connected in turn to lever assemblies which, when pulled, trigger the correct latches for the required character. Six latches control character selection and six more are used to activate shift, tab, carriage return, space, backspace and print (which must be activated once for each printed character). The unit draws its power from the typewriter, so it is only on when the typewriter is on.

HARDWARE

As delivered, the unit consists of three manuals, a pre-assembled electronic interface, twelve solenoids with their attendant mounting hardware and lever assemblies, and a PC board with ribbon cable attached - used to terminate the solenoid wiring. All necessary wires and cables are included.

The components all seem to be of good quality and the sheet metal and aluminum mounting brackets are heavy gauge and well-designed. One touch I liked was the inclusion of spares for some small Selectric parts that tend to get lost in assembly.

CONSTRUCTION

Installing the unit consists of taking the case off the typewriter, doing some minor disassembly, screwing the mounting brackets (with attached lever and solenoid assemblies) into existing holes in the typewriter frame, running the solenoid wires and soldering them to the PC board, tapping into the typewriter's power cord (for 120 V to power the electronic interface), and then reassembling the typewriter.

The assemblies are designed to fit into already existing spaces in the typewriter mechanism, so no modifications to the case are necessary, and only very minor modifications to the machine itself.

Assembly was reasonably painless, but if the thought of tinkering with the mechanics of a thousand dollar typewriter is daunting, the factory will do the work for you for \$150.

If you elect to do the installation yourself, get the big service manual from IBM (about \$7.50). As I read the Escon manuals now, after the fact, they are complete and to the point, but in the actual process of installation I was often confused by them, particularly when trying to find a specific IBM part for the first time. There is nothing actually bad about the manuals, but neither do they follow the Heathkit

Continued on Page 7

SUBSCRIPTION RATES

U.S. 1 yr. (bi-monthly) \$20.00
Canada & Mexico \$20.00
All other Foreign \$35.00 Airmail Only
Back Issues \$3.00 - Feb/March -
April/May - June/July Aug/Sept -
Oct/Nov - Dec/Jan 81-82

Write To:

SUPERLETTER, Circulation Dept.
P. O. Box 3121
Beverly Hills, California 90212

SuperClassified rates are:

\$4.00 per line
(3 line minimum - 5 words per line.
Please note: Publication of all Super-
Classifieds are dependent on dates of
receipt of copy and payment and
space availability.)

Mail to: SuperClassifieds
P. O. Box 3121
Beverly Hills, CA 90212

—New Products—

MIKEN OPTICAL COMPANY

53 Abbet Avenue
Morristown, New Jersey 07960
(201) 267-1210 or (201) 543-7372

Contact: Robert J. Lurie

SOFTWARE: Markets IBIOS, an interactive BIOS for CP/M. It overcomes CP/M's most serious weakness as a single user operating system. CP/M locks you into a running program without giving you any way to interrupt it. The only commands you can execute are those that conform to the provisions of the program with respect to function, syntax, and time of issuance.

IBIOS requires no interrupt hardware. Nevertheless, with IBIOS you are able to interrupt any program that performs any I/O. You define the IBIOS command functions and command syntax. IBIOS then lets you execute these commands almost immediately from any program environment. With IBIOS you are at all times just a keystroke or two away from accessing your calculator, debugger, or monitor in high memory, reassigning your I/O devices, bank-switching your memory, write protecting your disks, turning your drive motors on or off, disabling your keyboard, or displaying time and date.

IBIOS is completely transparent not only to the currently running program but to CP/M itself. It loads automatically and fits into the space that CP/M assigns to BIOS. Positioned at the bottom of the program hierarchy, IBIOS puts you in continuous control of your computer and lets you define its functionality.

Installation requires a knowledge of assembly language programming and CP/M system alteration procedures.

IBIOS is available in the form of annotated 8080 source code listings, complete with command examples, for \$60.00 – U.S.; \$75.00 – foreign, single user non-commercial use only.

THE DATALEX COMPANY

1431 Twelfth Avenue
San Francisco, California 94122
(415) 665-4467

Contact: John J. Tibbetts

SOFTWARE: The new DATALEX Extended BIOS Includes the following features:

- conforms to the full p-System "ADAP-TABLE" XSBIOS specification as documented in the "UCSD Pascal User's Manual".

- much faster disk writes.
- high-speed console and remote queuing (64 character queues) to provide accurate type-ahead and communications capabilities.
- "Repeatomatic" keys which perform a key repeat function by holding the key down. The time parameters of this key repeat are configurable by the new CONFIGURE program.
- Pascal programmer access to all the system functions which previously required "assembler" programming, including:
 - physical disk I/O
 - disk formatting
 - baud rate setting
 - remote port checking and access
- implementation of the Pascal Time function. This requires no SuperBrain hardware modification. The clock is driven by the CRT hardware and, in most instances, is accurate within 30-60 seconds to the hour.
- newly-revised documentation.



—Potpourri—

Disk Treatment

The single largest cause of user problems encountered by our readers is mishandling of floppy diskettes. Please be sure to observe the following rules when handling diskettes.

Don't bend or fold a floppy disk. This sounds like a reasonable rule, but it is the one most violated by users.

Don't underestimate the ability of the U.S. Postal Service to fold your diskette for you. If you must mail a disk, be sure to put a piece of *corrugated* box cardboard on each side of the diskette. The corrugations on the two pieces should be aligned at 90 degrees to each other. The thin cardboard backs of writing tablets are *not* sufficient protection.

Don't expect to get away with ignoring the last paragraph. The Postal Service considers **DO NOT BEND** stamps a challenge.

Don't leave diskettes lying around outside of their protective envelopes. When they are in their envelopes, store them *vertically* in a cool, dry place.

Don't touch the magnetic surface of the diskette. Fingerprints almost invariably destroy the readability of your data.

Don't write on a label that has already been applied to a disk. The pressure of the pen will imbed dust particles in the magnetic surface and drastically reduce the reliability of the diskette.

Don't expose a diskette to magnetic fields. Electric motors and the degaussing coil around color-TV picture tubes are the greatest offenders.

Control Characters in Submit Files

CP/M 2.2, Submit Patch #1

SUBMIT does not allow any control characters in .SUB files. Certain control characters are recognized by SUBMIT when preceded by an up arrow. The two characters "↑z" should be interpreted by SUBMIT as a "control Z".

The following procedure using DDT will fix this problem. Make sure the listing shown here matches yours before patching.

```
A<ddt submit.com
DDT VERS 2.2
NEXT PC
0600 0100
-1441
```

0441	SUI	61
0443	STA	OE7D
0446	MOV	C,A
0447	MVI	A,19
0449	CMP	C
044A	JNC	0456
044D	LXI	B,019D
0450	CALL	02A7
0452	JMP	045E
0456	LDA	OE7D
0459	INR	A

```
-s442
0442 61 41
0443 32 .
-g0
```

```
A>save 5 submit.com
A>
```

ZED IS HERE

ZED makes your SuperBrain a full-function word processor with exceptional ease of use and these special features:

COLOR-CODED CUE CARDS eliminate control character commands and menus. Just point with the cursor and type; fast on-screen word-wrap always shows how your text will look. Full disk scrolling. Complete User's Guide.

TELECOMMUNICATIONS: Send, receive and edit files at the touch of a key.

ZED'S VIDEO CALCULATOR: Let Zed do the arithmetic in your documents.

PROGRAMMABLE KEYS: Save time by storing commands and phrases for playback.

All for only \$195. Turn your SuperBrain into a really SUPER workstation with ZED... from:

Roytek
P. O. Box 92
Arlington, MA 02174
(617) 646-4137



Custom engraved to your specifications FAST!

We stock blank keytops for Cherry Electrical Products, Keytronics Corp., and other keyboard manufacturers.

**Also, For your word processor . . .
Don't ever forget a Command Again!!!**

Keytop kits available for Spellbinder, Magic Wand, and other word processing packages. For your Exidy Sorcerer, Superbrain, Zenith Terminal or ?????

Any questions?
Call or write:

Arkay Engravers, Inc.

2073 Newbridge Road
PO Box 916
Bellmore, N.Y. 11710

(516) 781-9859

Pictured: MAGIC WAND KEYPAD KIT FOR "SUPERBRAIN"

Letters to the Editor

This letter is an account of one system house's effort to use the SuperBrain to market its software system. This letter is also a request for help in solving two basic problems still haunting the SuperBrain.

In order to tailor the SuperBrain to meet our specific requirements, we have modified each unit to date as follows:

- A PC board attaches to the main board and
 - 1) doubles the size of the standard font to yield 40 x 24 characters, and,
 - 2) generates characters in reverse video.
- A PC board with a ten-year battery-operated time-and-date clock can be used as a software controlled timer to start and stop computer.
- A full keyboard cover with lock and key limits access.
- A drive cover conceals the drive discs.
- All key topping on the numeric pad is special for the application.
- The EPROM has been reprogrammed to stop the disc drives after three seconds of inactivity.

As of this writing, North Ridge Data maintains 55 SuperBrain (DD & QD) sites. Since the first installation in February of

1980, we have repaired the SuperBrain power supplies approximately 150 times. In spite of the twelve different line filters and suppressors we have tried, the rate of power supply failure has not sufficiently decreased. If anyone knows of someone who has successfully externally fused the SuperBrain unit, we want to know.

The most severe hardware deficiency which threatens the success of our entire effort is the non-recoverable disc read errors. Essential and non-recoverable elements from our disseminated data bases are lost daily relegating reliability to a laughing matter.

As a solution to our CRC problems, we have concluded that a phase-lock-loop data recovery circuit must replace the present Intertec circuit. If someone has a PPL circuit, please contact this writer before we get deeper into our own development.

With these power supply and data reliability problems solved, we look forward to receiving years of tolerable service from our SuperBrains.

NORTH RIDGE DATA
1700 Southwest 12th Avenue
Boca Raton, Florida 33432
(305) 392-6740

Do you have any suggestion as to how a SuperBrain owner might gain access to the CP/M Users Group library? This library seems to have a large amount of useful software for a relatively low price. I have written to CP/MUG, who reply

that they do not distribute in Intertec format. Is there anything to do next? Do you know of a SuperBrain user or users group which might be working on this?

Sincerely,

Jeff Bangert
721 Tennessee
Lawrence, Kansas 66044

Editor's Note: Soon, we will be providing an 8" "down-loading" service to our readers. One of the first assignments will be to transfer the CP/MUG library to 5 1/4" SuperBrain format. There will be a small fee for this service. We'll be announcing it shortly.

Please alert your readers that there is a problem with Structured Systems Group software. It is great software, friendly as hell, and my NAD and Q-Sort work wonders. The problem is with that of the line which requires a "CRT.DEF" configuration. In my case it is Letterright. It prints fine and does great mailmerges, etc., but it is impossible to use in composition. There is no SuperBrain.DEF configuration for it. SSG ships about a dozen CRT.DEF programs with the heavy software, and only one will even shape it up on a SuperBrain CRT, that being the one for ADDS terminals. But it will not work on the command lines; for example, "erase to end of line." SSG has even been nice enough to offer to write one for the SuperBrain for my benefit and for future customers, but they need the CRT data for the SuperBrain. Intertec does not supply it in the quantity necessary to do the configuration, and refuses to supply it because it is "proprietary."

Continued on Page 8

SET FIRE TO YOUR PAPERWORK.



If your office is piled up with paperwork, you need the Spellbinder Word Processing System. Spellbinder puts the heat on almost any paperwork task, saving you time and increasing your output.

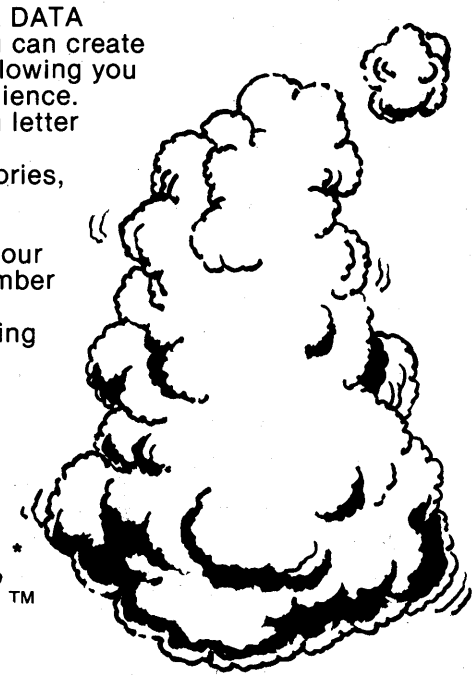
SPELLBINDER IS WORD PROCESSING. You won't find a more sophisticated word processing package. And you won't find a system that's easier to use. The result? You get the impressive benefits of top quality word processing *quickly*. The effect on output is significant.

SPELLBINDER FOR OFFICE & DATA MANAGEMENT. With Spellbinder you can create files for frequently used office forms, allowing you to fill in information blanks at your convenience.

You can merge selected mailing list information into a form letter for personalized mass mailings. And Spellbinder will sort information from a customer list in up to 19 different categories, plus order by zip code or alphabetically.

CUSTOM FEATURES AUTOMATE SPECIAL JOBS.

Spellbinder's macro programming features lets you shape your text into any format required by your business. You can number the lines on legal documents, print in two columns or in patterned shapes, or create custom page headings for running pagination.



LEXISOFT, INC.

Spellbinder™
*A lot hotter than plain word processing.

SPECIAL OFFER! SuperBrain formatted, SB/E Prom compatible, Spellbinder software is now available to Superletter readers at a subscriber discount price of \$345. List price is regularly \$495. Call (213) 277-2410, or write to: Spellbinder Offer, P. O. Box 3121, Beverly Hills, California 90212.

Guest Article, Continued from Page 3

model of absolute clarity for the absolutely inexperienced. And if you run into problems with the typewriter itself (as I did) the IBM manual is invaluable.

Once everything is installed, the solenoid linkages need to be adjusted. To help with this, the electronic interface has two test routines programmed into it. The first repetitively operates each solenoid, either alone or in combination; the second types all characters, first shifted, then unshifted, over and over. Using the first test, the linkage between each solenoid is accomplished by bending the heavy gauge wire with two pairs of pliers until it is just the right length. This may sound cumbersome, but in fact this kind of linkage is sturdy, very reliable and once set, can't slip out of adjustment.

Once the adjustments are correct and the second test pattern will run correctly, the typewriter can be closed and the unit connected to a computer. A DIP switch sets the interface's BAUD rate: up to 9600. I have had the best luck with mine set to 110, even parity, and XON/XOFF handshaking.

PROBLEMS

I mentioned earlier that it took eight weeks to get the first perfectly printed sheet: true enough, but the fault lay with my typewriter, not with the ELF 1. My machine is about eight years old, and because I earn my living at it, it has seen hard usage and not enough preventive maintenance. Some parts were worn, others were dirty, and all had more play in them than a new typewriter would have. It typed perfectly, but when I finished the installation and started printing out a file, I found that the typing element's home position had been knocked out of adjustment. This meant that the element wasn't rotating far enough each time a character was selected, and all printout was garbage.

I suspect the reason for the problem was an odd bit of aluminum, possibly shaved off a fitting, that fell into the works and caused one of the rotate latches to bind. Eventually it was knocked loose and dropped out, returning everything to normal. Whatever it was, the lesson here is to be sure that your Selectric is in very good shape before interfacing it. While the mechanical forces the interface generates are not great, any weaknesses in your machine could lead to rather strange and frustrating results. A full service job on the typewriter cleared up the problem. It works beautifully now.

REAL COSTS

The ELF 1 is advertised as 'under \$600'. That's true, but a bit misleading. If you

need to underline, you need the bell, backspace and tab option for \$65. Unless you can wire an RS232 cable yourself, you need to buy one from them for \$30. With California sales tax (6%) added in, the total bill came to \$731.40. Adding in the \$75 service charge for IPEX's work on the typewriter itself, plus the \$36 for the adjustment my own service man made, my total cost to get the interface running was \$842.40 — not counting 160 miles worth of gas. It was not IPEX's fault that my Selectric was in such bad shape, but I suspect many typewriters have seen the same hard usage, so I would strongly recommend having any older machine serviced before attempting the installation. It will up the cost a bit, but it may well save money later (particularly if you aren't within driving distance of Calabasas, California).

LIMITATIONS

If this type of interface to your SuperBrain is to be of any value, its limitations must be acceptable. First of all, it's slow: 12.5 cps or about 150 words per minute. Compare that to 55 cps (660 wpm) for a NEC Spinwriter. It won't print bidirectionally

either, which means time wasted on carriage returns. And since a Selectric II won't do proportional spacing, text can only be justified by inserting full spaces between words. In short, the output copy will look typed, not printed. If that and the slow speed are acceptable, the ELF 1 will be useful.

As far as reliability is concerned, it's too early for me to tell. If I have problems, I'll report it here in Superletter.

SUMMARY

In conclusion, the ELF 1 is a well-designed and executed unit that seems to do the job it was designed to do very well. The problems I had with my Selectric were, I suspect, very atypical (as IPEX kept insisting) — nevertheless, have your machine serviced thoroughly before installation. The IPEX people do their jobs well and are a pleasure to deal with. If you have or can get a Selectric I, II or III and can live with the slow speed and non-proportional printing, this might be exactly the way for you to get letter quality printing from your SuperBrain at a bargain price.

SUPERBRAIN OWNERS—

You've made a smart move buying Intertec's powerful SuperBrain*. Now activate all of its capabilities by installing SB/E*, a Super Bios and EPROM software/firmware set. Here are just a few SB/E features:

- greater disk capacity
- faster disk access (75% faster on copy, 500% on seeks)
- 35 programmable keys
- auto repeat on all keys
- real time clock
- automatic spindle motor shut off
- more reliable operation
- standard CP/M*, not a "compatible" derivative

We also offer special keycap support for word processing, and interfacing for hard disk. Our communications software package, IE/Modem*, allows file transfers between a CP/M* based computer system and another computer system.

Hundreds of our SB/E sets are in everyday use—at government agencies, leading universities, and Fortune 500 companies—in America, Canada, Europe, Africa, and Australia.

Literature available on request. Call or write for further information. (Dealer inquiries invited).

*trademarks of Intertec Data Systems, IE Systems, and Digital Research

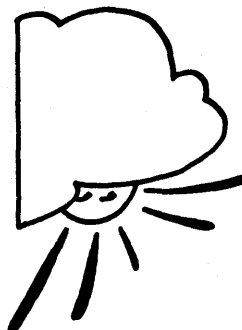


IE Systems Inc.

Information Engineering

Box 359 Newmarket, NH 03857

603-659-5891



FIRST CLASS

SUPERLETTER
P.O. Box 3121
Beverly Hills, CA 90212

Letters to the Editor, *Continued from Page 5*

One problem, as an example, is that you type your input line, then do a return to enter it into the copy block. Great. However, it still remains in the input line and you never really know when typing over it where the new line ends and the old line is still viewed. It is slow and torturous to say the least.

I know you would want to be alerted to this problem and maybe be able to get the necessary data to create a CRT.DEF for SuperBrain use of SSG software.

Thanks for the great newsletter – it is read over and over again and I appreciate the ads. But, particularly, to be able to get software that will work on the SuperBrain will be a great long-term benefit from you.

Sincerely,
Edward F. Sayle
2522 North Upland Street
Arlington, Virginia 22207

Editor's Note: A copy of this issue which includes your letter and the CRT data in the "Technical Corner" is being sent to Heather Shanklin at Structured Systems Group. Stay in touch with us and SSG as the problem is examined by their technical staff.

SuperClassifieds

SACRIFICE PRICE for never-used Peachtree programs for 64K DD SuperBrain! P/R, G/L, Power Text, A/P, A/R, Magic Wand (2), Inv. Mgt., Mail Address. **\$200.00** per program, or **\$1,200** for all. Manuals never opened. Call **Jim Rachels, ABS Sales, (919) 895-2878.**

CP/M Software, SB/E Proms, Graphics Packages and much, much more are now available to SuperBrain owners at special discount prices. To order, call: **Abrams Creative Services, (213) 277-2410.**

Great Programming Aid – PEARL Level III program with complete documentation available at substantial discount below list. C-Basic language required. Language disc and manual also available if needed. Strictly new merchandise. Contact **Cedar Micro Systems, 9818 Cedar Drive, Overland Park, KS 66207 (913) 648-3899.**

Technical Corner, *Continued from Page 2* The Keyboard

The keyboard is attached to the Keyboard Encoder – the only chip central to serving the keyboard. The PPI contains all the status information output from the KB Encoder. Four ports are associated with the keyboard – the actual character port from the encoder (port 50H) and three test ports on the PPI. When PPIC-7 is set, new character tests may be done at PPIB-0. The Data Ready (DR) line on the encoder will set that bit when a new key is depressed. This prevents multiple inputs of a character. PPIB-1 will be set if a key is currently down. This is essential for character repeat. Resetting, then setting PPIC-7 will enable the new character test. This should be done immediately after any NEW character is input.

Editor's note: The "Hardware Information on the SuperBrain" may be purchased in its entirety from Jonathan Platt for \$50. He also has "SOS," a new BIOS for the SuperBrain. Write to:

Jonathan Platt
Pine Villa Apt. 114
200 East University Blvd.
Melbourne, FL 32901 (305) 724-6148