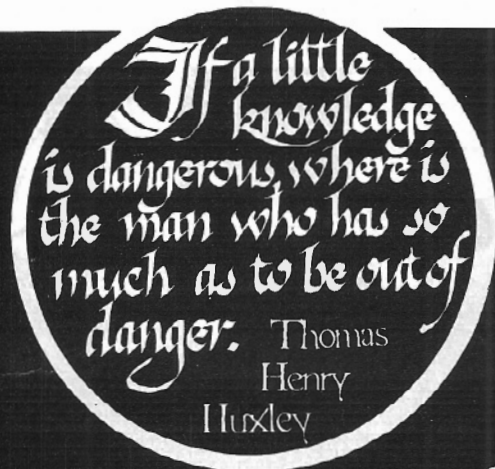


# two/sixteen<sup>TM</sup> magazine

Volume 2, Number 2

September-October 1983

The journal for business, professional, and scientific members of the TRS-80 community



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## Notes and Comment

### Tandy Restructures Computer Marketing

Following the announcement that Jon Shirley, formerly vice president of computer marketing for Tandy, was to become president of Microsoft (effective August 1), Tandy announced some organization changes that could have beneficial effects for those of us who use their computers in business. Ed Juge has been named director of merchandising, business computer products. Mark Yamagata has been named director of merchandising, personal computer products. This new emphasis on business products as a separate entity could mean significantly more attention to the rather different needs of the II/12/16 user. Let's give Tandy all the encouragement we can in this direction.

### Xenix Programs Available

Tandy now offers a range of Xenix applications:

General ledger	\$599
Payroll	699
Accounts receivable	599
Accounts payable	599
Order entry/inventory control	599
Multiplan	349
COBOL development system	699
BASIC interpreter	299
TRS-XENIX development system	750

These programs may seem expensive compared to the 8-bit single-user systems we're accustomed to seeing. The most useful of them for the money may be Multiplan, a "second generation" spreadsheet program. We haven't reviewed it yet. What's missing (and may make many of the above programs unnecessary) is a data base system. It's rumored that a version of Data Ace for XENIX will be available (from Radio Shack) late in the year, and that it will include the ability to access the data base from host languages (such as FORTRAN, COBOL, or BASIC) subroutine calls. With this feature, many users with programming ability will be able to develop their own custom-tailored business systems so rapidly that they will neither need nor want expensive package programs.

### UNIX Information Sources

A new UNIX magazine has been launched. *UNIX REVIEW* is \$23 per year (\$43 foreign), and is published bi-monthly beginning with June-July,

1983. The subscription office is at 76th Avenue S. E., Mercer Island, WA 98040, (206) 232-6719.

Two bookstores that specialize in mail-order sales of UNIX books are:

The Cucumber Bookshop  
5611 Kraft Drive  
Rockville, MD 20852  
(301) 881-2722

The UNIX Bookstore  
(A Division of ITS)  
47 Potomac Street  
San Francisco, CA 94117  
(415) 621-6415

### BASIC To C Language Translators

For those interested in getting more bang out of BASIC (and who can get hold of a C compiler), a BASIC-to-C translator may be a big benefit. Two vendors who offer such products are:

Rob Coben  
Polymorphic Systems, Inc.  
P. O. Box 237  
Holmdel, NJ 07733  
(201) 671-7100  
Cost: \$895

Edward J. Rathje  
JMI Consultants, Inc.  
1422 Easton Road  
Roslyn, PA 19001  
(215) 657-5600  
Cost: \$300

### More XENIX Information Requested

In the early days of XENIX, we got a number of phone calls complaining about various things it did or didn't do. Lately, we've had many favorable comments (some extremely so) about XENIX, but almost nothing in writing (one theory is that XENIX users are too busy happily working away to have time to write anything!). If you have had any significant experience with XENIX, please write us about it. If you can, please write an article, but otherwise, just send a brief letter outlining your results.

Many people call to ask whether XENIX is worth the relatively high cost. It's usually a matter of balancing cost against benefits, and we need to know more about experiences with various kinds of application.

### OASIS and TURBODOS, Too

Once in a while, we get a call from an OASIS or TURBODOS buff. We have the impression that these users are

enthusiastic and get a lot done. But if you are one of these, please write to us about your experiences. Most II/12/16 users are not even aware that these operating systems are available.

### **New Model 16B**

In late June, Tandy announced the 16B, which is essentially a Model 12 upgraded to a 16 at the factory. We get many phone calls asking for advice on whether or not to upgrade a II to a 16, whether to buy a new or used 16(A), and other similar matters about obtaining more computer power. In my opinion, the 12 or 16B are the only rational choices for long term (over one year) use. Their large-capacity double sided disks make a II upgrade comparatively less cost effective. The 16(A) has significantly less board capacity, and the boards are difficult to install. Its keyboard has fewer function keys and most people consider it less comfortable to use. So, if you can afford them, stick with the 12 and 16B when you need more capacity. Forget the dinky-disk LISA and PC, too.

### **New RS Hard Disk?**

Rumors have been around for months that Radio Shack would introduce a somewhat larger hard disk about now. The current rumor is that a 30 megabyte hard disk is imminent. This notion is reinforced by Radio Shack's "sale" price on the 12 meg drive. Historically, sale prices on this sort of equipment have been an almost certain sign of immediate obsolescence. We've heard nothing about any new backup method (backing up 30 meg on floppies is quite a chore) or the expected price.

### **CP/M-68K**

TriSoft is expecting a version of BASIC to be available soon for CP/M-68K. Also expected is a dBase II version. For more information about CP/M-68K matters, call Jim Knox or Julian Henry at (800) 531-5170. TriSoft is in Austin, Texas.

### **New Pickles & Trout CP/M 2.2m**

We've just bought a copy of this new CP/M 2 version, but haven't had time to check it out yet. It has a new comprehensive set of menus to make CP/M functions readily usable by the most inexperienced user. Among other interesting features are the ability to

program each of up to 16 keys to translate to another character, the ability to program five "new" keys (control-1 through control-5) to produce character strings (up to 79 characters on a single key, with a 128 character maximum for all five keys), and eight new utility programs that provide a variety of new functions. Finally, there's a completely new manual which is considerably improved. Prices are \$200 for the floppy disk version, \$250 for the RS hard disk version. If you currently have P&T 2.2e, upgrades are \$50 to \$80. Pickles & Trout is in Goleta, California at (805) 685-4641.

### **Memory Upgrades**

We've heard from a reader that Bob Snapp is offering to upgrade Model 16 RAM cards from 128K to 512K (yes, 512K on one board!) for \$800 (or \$700 to upgrade from 256K to 512K). This compares to Radio Shack prices of \$1200 or \$900, respectively, and the RS method requires an extra board slot (and has no parity checking). Bob Snapp is one of the most respected vendors in the micro business. We hear many good reports about his product support, with no adverse criticism, so you may feel confident that these unusual products will perform. He is in Cincinnati, Ohio at (513) 891-4496. (Bob also sells, at \$99, software which allows partitioning of a Radio Shack hard disk between TRSDOS and XENIX.)

### **And More Boards (For MS-DOS Or CP/M-86)**

Here's something to put in that extra board slot you've just freed up! If you've yearned for some of that mass of software that's been developed for the IBM PC, this may be the answer. The Veritas 8088 DPO (dual processor option) board is available in either of two clock rates (5 MHz or 8 MHz) and two RAM options (128K or 256K) at prices ranging from \$999 to \$1649. RAM upgrade kits (to 512K and 1 Mbyte) are expected to be available this year. This is a lot cheaper than buying a PC, and the resulting machine should be a much better overall performer. With this board (and the requisite operating systems), a Model 16 will run almost any major software available. Just the thing for the user

who is not overwhelmed by having a zillion operating systems to keep track of. For more information, contact P. M. Laczko at Veritas Technology, Inc., 2375 Zanker Road, San Jose, CA 95131, telephone (408) 263-0646.

### **A User Requests Help**

We recently received a letter from a naval architect who apparently has considerable computer experience but has encountered several problems which he cannot resolve, though they appear to be of general significance to any similar scientific user. We will paraphrase the writer's problems and request that anyone who has answers to them will please write to us:

There is no apparent way to avoid loading the entire FORTRAN library when link/loading FORTRAN relocatable files, even though the LINK-80 documentation states that the FORTRAN library is searched to satisfy missing globals.

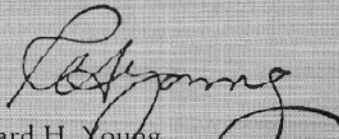
Similarly, it is apparently impossible to construct a library of relocatable modules that has been generated with MS Assembler which loads only required modules, although it is possible to do so with modules generated by MS FORTRAN.

Is there a fairly direct way to locate (within a loaded program) the entry points for the FORTRAN library subroutines?

Are there patches available for modification of FORTRAN error severity (fatal to warning and reverse) and for change in the maximum number of error warnings?

### **Wayne Green Cashes In**

In late May, Wayne Green, Inc. (publisher of the Model II users' favorite magazine, *80 Micro*) was purchased by International Data Group (publishers of *InfoWorld* and *Computerworld*, among others). The transaction was said to be valued at \$60,000,000. Wayne Green will continue to be president and chief executive officer of the new division, and threatens to introduce several more new computer magazines in the near future. ■

  
Richard H. Young  
Editor-in-Chief/Publisher

# CONDOR 20-3

## Not quite an eagle but it's sure no turkey

BY I.B. KAZIN

**C**ONDOR is a relational Data Base Management System (DBMS) that runs under CP/M. It is easier to learn but has fewer capabilities than some of its competitors. It is available either as 20-1, which is severely crippled in terms of its abilities, or as 20-3 which gives a relatively complete DBMS system suitable for most business applications. The program still has some "bugs" which will, I hope, be worked out through revisions of the software. Its documentation has been recently rewritten and is now very satisfactory.

I would recommend it for users who are non-programmers but have need to develop systems that are not excessively complex and who are willing to put up with its limitations and an occasional "bug". Primary among the limitations is that all data verification, other than determination of type and minimum/maximum amounts, must be done in batch mode rather than during data entry.

You can do better than CONDOR, but not without getting more involved in the nuts and bolts of programming.

**There are very few innovative users of microcomputers who will not sooner**

I. B. Kazin  
1500 Worcester Road  
Framingham, MA 01701

or later decide to develop an application which cannot be satisfied by any program available off the shelf due to one limitation or another. What is needed is a way to tell the computer exactly what is wanted, and this is what programming is all about.

Once you make the decision that an application program must be written in order to get a computer to do exactly what you want, it is possible either to hire a professional programmer and have him write it for you, or you can try to do it yourself. A few years ago, the second alternative was not really viable because learning traditional languages such as FORTRAN or COBOL to the point where you can write reasonably good programs takes years, not days. BASIC, which is easier to learn, is not really a suitable language in which to write most applications due to many inherent limitations. DBM systems are the solution. It is now possible to do a really professional job of developing an application much more easily, cheaply, and quickly than going to a professional.

It is a truism that the more flexible a language, the more difficult it is to learn. DBMS are easier to learn than traditional languages because they are less flexible. CONDOR is easier to learn than more advanced DBMS because it is not capable of writing applications as tailored as the others can. But what can take months to learn to accomplish with a traditional language can be learned in weeks or days with these systems. DBMS handle

many of the laborious aspects of programming with such ease that novices can be expected to learn a program such as CONDOR well enough to accomplish significant projects in a matter of days.

What is essential, of course, is a thorough understanding of the desired results and how information will have to be input and processed in order to reach that result. There may never be a program capable of accepting a series of report formats and proceeding to design a system. That remains the work of humans.

**Data Base Management Systems** can be divided into four levels based on programs currently available. The lowest level is represented by Profile, with or without its Plus and other options. This level can be characterized by relative inflexibility, limited data entry verification, and ease of learning.

The second level is where we find CONDOR 20-3 and several other unsophisticated relational DBMS. While these are more difficult to learn than Profile, the power they provide is well worth the effort. They are not anywhere near the ultimate in flexibility or speed, but it is possible to use them to develop significantly complex applications with a reasonable amount of effort.

The third level begins to feel more like traditional programming and can be represented by dBase II and FMS-80. These involve writing programs with macro commands that can manipulate

up to 19 files at the same time and allow complete data entry verification at the cost of more study and effort.

The fourth level is the ultimate, and its cost reflects it. MDDBS is the most powerful and complex system available and must be used along with a traditional programming language. These two factors put it beyond the reach of most microcomputer users.

While CONDOR does not rank in terms of power and flexibility with those programs on the next two higher levels, it has certain advantages over both in terms of speed and capabilities. dBase is limited to handling two files at a time, with each having a maximum of 32 fields, while CONDOR's two open files can each have up to 127 fields. That is not to say that CONDOR does everything dBase does and more; there are advantages and disadvantages indigenous to each. There is no question that FMS is more powerful than either with its ability to handle 19 files at a time and virtually no limitation as to the number of fields. Its problem is one of speed. In any event, CONDOR is a reasonable choice between ease of learning and performance capabilities.

CONDOR is available in two levels, but I will speak here of Level 3 only since Level 1 is incapable of doing most of the things a serious user would want in such a system. The limitations in Level 1 are so great that I do not feel it would be worth buying unless you were fairly certain you would be upgrading to the full system and were willing to put up with a less useful system until such time as you did.

The following list of commands, which contains both explanations as to limitations and positive points, should give a basic understanding of what CONDOR will do easily, will do with difficulty, and will not do.

#### **DBMS**

A .COM file used to load the CONDOR shell.

#### **DATE**

Set or view the system date. This is stored in such a way as to make it very convenient for the system to do date arithmetic, i.e. the number of days between dates.

#### **DIR**

View disk directory from within CONDOR.

#### **LOG**

Log a new disk into the computer without leaving CONDOR.

#### **RENAME**

Change name of database or file.

#### **SET**

Set operating parameters, including such things as date presentation, automatic search of disks, etc.

#### **TERM**

Defines system video terminal.

#### **READ**

Transfers records from an ASCII file to an existing database. This is very important for communicating with files generated other than by CONDOR. You might, for example, want to work on the same file with BASIC or a word processing program that can read ASCII files. Four different formats are available so that reformatting before the translation is minimized.

#### **WRITE**

Transfers records to an ASCII file with the same features.

#### **COPY**

Copies a database or file as a backup procedure.

#### **DIC**

Views entries in database dictionary. Each database is defined in terms of the names of the data file, input form file, output form file, data definition file, and index file. Note that there can only be one of each of these for each database. While it is possible to get around this limitation, it is not a particularly desirable feature.

#### **RUN**

Starts processing a command procedure which has already been defined using either ED or another text editor. The procedures are read sequentially with no GOTOs, although nested conditionals are possible. These procedures are interpreted and performed until reaching an end or ABORT statement, or until an error is returned in response to some procedure. Almost any of the commands listed here can be used within such a procedure.

#### **ABORT**

Stops a run command.

#### **RESTART**

Continues processing a command procedure after abnormal end.

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**HELP**

Displays a user created menu or help messages. This is the method by which a user can go about his work without having to deal with the CONDOR itself. By preparing a series of "Help" screens which can be linked to one another, and each of which calls for selection of an option by the user, it is possible to implement options that run command procedures, call up other help screens, exit the system, make backups, etc.

**DEFINE**

Creates a new database, describes or redefines an existing one. This is done by describing a data input screen for the database and then describing the fields in terms of the character of each field and limits which must be met during the verification process. Ac-

command is very important and allows CONDOR to be used in a relatively unstructured environment. You can begin to write an application with relatively limited knowledge of what will ultimately be required of it and then add or delete fields from the databases as required.

**SAVE**

Several types of operations redefine and establish records in a database called "Result". SAVE copies this database to another name (which can be on another diskette) so "Result" can be used for another function.

**ENTER**

Inserts new records into a database in accordance with the input form and data definitions.

**COMBINE**

Attaches records of two databases, assuming they are defined identically, to create a result database.

**POST**

Updates one database with records from another, based upon matching a key field which must be present in both files (i.e., updating inventory availability file by reducing quantity available based on a withdrawals file). It is necessary to verify by doing a COMPARE that all records in the transaction file have matching key items in the receiving database.

**JOIN**

Attaches data items of two databases by matching values and creates a result database with the non-redundant fields from the two files. This is one of the most powerful "relational" database commands since it allows you to keep the minimum amount of information in your longest files which can then be sorted or selected from and then combined with the rest of the data required for reports.

**PROJECT**

Creates a result database of items selected from an existing database. This is also a very useful command in that it allows you to get rid of unnecessary fields before sorting or creating a new database.

**COMPARE**

Compares data item values in two databases for match or mismatch creating a result database. Another of the "relational" commands, it is essential before POSTing to verify that all transaction records have records with matching keys in the database being posted to.

**SELECT**

Selects records by matching up to 32 logical conditions. It is not possible to have both "AND" and "OR" conditions within the same SELECT statement.

**SORT**

Sorts database records by one or several fields. This facility is particularly well developed; it's capable of handling up to 32 fields in any order, and the speed of execution is very good. Since the records themselves are reordered, indexes are invalidated by SORTing. Some of the limitations of the SELECT feature noted above can be overcome by the use of dummy fields which are "CHANGED" as required and then the records SORTed

“ *The best thing about Condor, besides its speed, is the naturalness of the commands that drive it.* ”

ceptable data types are Alphabetic, Numeric (fixed point), Alphanumeric, Date, or Dollar. Numeric and Dollar data can be given upper and lower limits which are user specified.

The definition phase also allows the definition of the index for the database which specifies the inclusion or omission of duplicate keys. Indexes can be made up of several fields, as long as the total length of these fields does not exceed 127 characters.

**EMPTY**

Eliminates all records in a database, but leaves all screen reports and data and index definitions.

**DESTROY**

Eliminates a database or file, including definitions.

**FORMAT**

Creates or revises a form or help screen.

**REORG**

Reorganizes the structure of the database's adding/deleting fields. This

**UPDATE**

Reviews and, if desired, changes any value in any record in the database (except for key fields in indexed files). By use of a WHERE clause, it is possible to be selective about which records will be called up for updating.

**COMPUTE**

Computes data item values in a database, setting a specified field in each record equal to a literal value or to a value computed from other fields in the record.

**CHANGE**

Changes a specified field in each record in the database.

**DELETE**

Deletes records meeting specifications. Similar to CHANGE, but instead of changing a value if the field contains that value, DELETE deletes the record.

**APPEND**

Attaches records from one database to another, assuming that the databases are defined identically.



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Most database systems consider rows of data fields as records. The 3-D concept promoted by Abacus says to consider an entire report as a record. Therefore, visualize "pages" of reports stacked-on or scattered-around your desk; these would constitute your database.



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Each Product has a simple Question & Answer procedure to assist you in organizing your report processes. You can create a complete reporting network from a spreadsheet database. They have the ability to "remember" the steps they went through to create the final reports. You can use your spreadsheet program to recalculate new data, then use our products to regenerate all new reports in one single step. Also, you can set-up special formulas to calculate additional data fields within the new reports. You can customize titles, row and column headings, footnotes, etc. for each report.

Both products include sample sessions which are easy to understand, allowing the average person to learn them in only 15 minutes. They are both compatible with dBase II™ (IBM), PFS Graph® and a host of popular products.

Abacus Associates is dedicated to producing products that allow users to create customized reporting systems tailored to the way they manually organize their data.

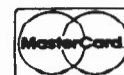
Please order either Viz-A-Merge or Viz-A-Con directly from Abacus Associates. Send your check or money order to Abacus Associates, 6565 W. Loop South, Suite 240, Bellaire, TX 77401, or credit card customers may CALL TOLL FREE (800) 547-5995, ext. 170. In Nebraska, (800) 642-9606, ext.170.

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With Viz-A-Con (Namely-A-Consolidation System) you can add 3-Dimensional capability to your spreadsheet program. As a Report Writer to your database, Viz-A-Con allows you to select records ("pages"), get sub-totals and totals for all number fields, and have customized labels on the final report. For example you can perform hierarchical consolidations (Dept., Div., Company) or time period roll-up (Day, Week, Month, Qtr., Year). You can consolidate up to 50 files in one process and you can tie together as many as 80 processes in one group. Then play "what if" with VisiCalc and regenerate all reports in one single step.



into an appropriate order based upon the value of the dummy field or fields. There is one serious limitation to the SORT facility in that it can not handle any file more than 128k bytes in length. To handle any file larger than that, it must be broken into parts, each part must be SORTed independently, and they must be rejoined in the correct order using the APPEND command.

## INDEX

Creates or rebuilds an index file which allows programs to locate a particular record quickly. Since recreating an index does not change the physical location of a record, it can be done relatively quickly. Only one index is allowed for each database, and each index is limited to a single field, so the facility is fairly limited in terms of its capabilities.

## LIST

Views all records of a database in sequence.

## DISPLAY

Views selected records from a database.

## TITLE

Prints report headings, comments or other information for all printing jobs not involving the REPORT generator.

## PRINT

Prints records of a database in sequence.

## STAX

Views or prints statistics on selected data items.

## TABULATE

Summarizes and prints specified data items from a database. This is a joy to use. When combined with COMPUTE, all you have to do is specify the fields to print and the fields to perform arithmetic on, and it does the rest. The database must be in the properly sorted order before invoking TABULATE.

## REPORT

Creates, revises, and prints reports using the report generator which is in some respects very convenient and in other respects limiting. What is good about the report generator is that you create the report specification right on the screen. Assuming that the names of your field descriptors are short enough, you can lay out your report very precisely. The greatest problem is

that if you make a single small mistake in laying out the report during the on-screen definition phase, you are going to waste a lot of time during the second phase because you are going to have to do it all over again.

**There is no way to affect any single field within a particular record without going into the UPDATE mode — a relatively slow process. All other activity occurs at the database level. Commands in the form of: "Do this to database1 where this field is equal to variable2" are about as complicated as possible, and add to CONDOR's ease of learning and use. You can, of course, view a record and change it, even calling up each record where one field contains a particular value so that a change can be made to another field.**

☞ *Novices can be expected to learn CONDOR well enough to accomplish significant projects in a matter of days.* ☞

Another notable feature is that you can call other programs from within CONDOR without exiting, as long as the called program does not exceed memory which is reduced by the size of the CONDOR "shell". This is very convenient for using text editors, stat commands, etc.

There is no data security involved in CONDOR other than having to supply the license number that comes with the software packaging. While this can be effective in preventing total access, once someone is inside this trap they can do whatever they want with any file.

**CONDOR is fast. I have been dealing with DBMS for a long time on Model IIs, and I was surprised. Sorting a 2000 record database can be accomplished in less than two minutes. TABULATING and COMPUTING the sorted records is limited by output speed; with a printer buffer of sufficient capacity, the CALCULATE and PRINT job can be done in about the same period of time.**

Data entry is a breeze. There is an automatic repeat mode which allows you to keep the information from the

prior record available (although not selected fields — only "all" or "none"), and an auto default mode in which case those fields for which you have entered a default entry in the field definition phase of database creation receive that default unless you enter something else. CONDOR's limited on-line error checking is capable of providing users with an understandable "what's wrong" message.

Unfortunately, it is not so helpful in some other respects. CONDOR does not anticipate user errors, and it does not attempt to resolve any problems for the user. It does, however, always give you a second chance before destroying a database.

Error checking before executing a command is extensive and error messages are clear and in plain English.

**One feature worth noting is the ability of a system designer to produce systems that look extremely friendly to those who use the completed system. This is accomplished through the use of help and menu screens which are all the end user can be programmed to see. Menu screens can give as much description per choice as the designer desires and allows the user to choose between two or more alternatives which can either cause a series of commands to be processed (including bringing the user back to another menu screen at the conclusion of the job) or can cause a transfer directly to another menu screen (or out of the system, of course). Help screens are just that, screens full of information the user can call up when needed.**

**Both David Kruglinski, author of *Data Base Management Systems: A Guide to Microcomputer Software* (published by Osborne/McGraw-Hill which I highly recommend to anyone who wants to do more of a comparison between CONDOR, FMS-80, DBASE II, and MDBS III than is possible in a magazine article) and I came across bugs in the system which were more annoying than deadly. We have both experienced little luck in getting quick solutions from the manufacturer.**

In my case, the problem is fictitious records getting into the database at a rate of approximately one per hundred records entered. The fictitious records generally generate large negative numbers for all numeric fields and do not meet the screening criteria for

entry data and are, therefore, easy to select out of the database. This "bug" is not so fatal as to cause me to not use the system, or even not recommend it, but annoying none the less. I trust that future revisions will correct the problems.

**The best thing about CONDOR**, besides its speed, is the naturalness of the commands that drive it and their syntax. Assuming that you name your databases and fields intelligently, you can pretty much think in a limited version of English and tell the machine how to do a series of operations without much trouble. Consider the following list of commands using a database I will call TIMEDATA, which contains fields named WEEK, JOBNUMBER, REG(ular)TIME, OVERTIME, TOTALTIME, and EMPLOYEE:

```
DEFINE TIMEDATA
ENTER TIMEDATA
UPDATE TIMEDATA
COMPUTE TIMEDATA ST (SO
  THAT) TOTALTIME = REGTIME
  + OVERTIME
SORT TIMEDATA BY WEEK,
  JOBNUMBER, EMPLOYEE
TABULATE TIMEDATA BY WEEK,
  JOBNUMBER, EMPLOYEE AND
  COMPUTE TOTAL REGTIME,
  OVERTIME, TOTALTIME
SELECT TIMEDATA ST WEEK IS
  LESS THAN 26
SORT RESULT BY JOBNUMBER,
  EMPLOYEE
TABULATE RESULT BY
  JOBNUMBER, EMPLOYEE AND
  COMPUTE
TOTAL TOTALTIME
```

You can understand what will result from running this series of commands. There are, of course, a few commands where you will want to refer to the reference manual to make sure of the syntax and/or available options, but generally speaking, most of the commands are very natural.

Even better, once you have a sequence of commands to do a certain job correctly, it is possible to create a command file which can be run whenever required. It is even possible to create command files with run time naming of variables so that universal procedures are made available. Users can then supply variables during run time using the same sequence at different times with different databases and variables.

**CONDOR'S documentation has just** been thoroughly rewritten. In my opinion they should send a free copy to all registered owners; the previous version was absolutely awful. The new version is much better.

There are now two attractive binders: the first is a User's Guide providing an excellent description of relational databases in general, and a most thorough guided tour of CONDOR and its facilities. The second is a Reference Guide which goes through all the commands and error messages explaining each one in a systematic manner.

Those taking the time to go through the whole Users's Guide should be able to get a good understanding of what is do-able. There are, of course, many tricks of the trade that make life easier and make the seemingly impossible merely difficult, but it is possible to use CONDOR to do some really substantial work without such expertise.

**Two of the more frustrating experiences** in setting up an application using CONDOR involve the initial definition of the databases and using the report

generator. Both are accomplished in two steps. First the basic information is input directly on the screen with full editing capabilities for cursor movement, insertion, and deletion. There are some nice touches, such as a grid, that can be turned on or off to help in data placement. When the user completes the first phase a second phase, consisting of supplying additional information and verification and correction of data entered in the first phase, is done in a question and answer, accept/redo cycle. It is unfortunate that CONDOR is not a little more friendly in allowing users who make a mistake in the first phase to insert fields or change field names once the secondary phase has begun. A great deal of time can be wasted in getting things almost perfect and then having to redo a long and arduous process of definition because of a simple but fatal error.

Aside from these relatively minor complaints, which really call for no more than painstaking attention to detail in the initial definition of data entry and report forms, I have no complaint with the difficulty level in learning how to use the system. Most

BOOT ERROR DC

PLUG YOUR MOD II  
DISC EXPANSION UNIT INTO THE  
SeeBee UNIT AND FORGET ABOUT  
THE BOOT ERROR DC MESSAGE

*"In my opinion, all users of older Model II's... should get a SeeBee as cheap insurance against the dreaded Boot Error."* R.H. Young, Editor/Publisher  
Two/Sixteen - Jan-Feb 1983

*"SeeBee performs as represented. It's a better mouse-trap..."* C.R. Perelman  
Product Review, 80 Micro - July 1983

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of the commands are abortable by pressing the break key so you don't wind up having to wait forever in order to make another try. As it is relatively fast, even the absence of a method of aborting certain operations is relatively painless.

Technical support from the publisher, CONDOR Computer Corporation of Ann Arbor, Michigan was very good, with the exception of helping to find newly discovered bugs. As often happens with new programs, these have to wait to be resolved by future revisions. It was easy to get through to the technical people; they generally had good solutions to the problems I raised and did not make me feel like an idiot when I asked what must have seemed to them to be really stupid questions. They were also not embarrassed to say that they would have to check something out and call back, which they did reasonably soon thereafter.

Since I spend a great deal of my time developing applications, I have found a place for CONDOR in my tool box. There are many uses for a program which can provide a quick solution to a problem that does not require more sophistication than this program can offer. Once you know how to use it, applications can be developed quickly and in such a manner that non-data processing personnel can be handed a few diskettes and simple instructions and be expected to proceed from there relying upon the menu and help screens for additional instruction. For applications with more rigorous requirements, more sophisticated programs are available.

If, however, you are only going to buy one database management program, you are going to have to decide between CONDOR and several other programs, each with its advantages and disadvantages. I would strongly recommend your purchasing the book mentioned above by Mr. Kruglinski which should be invaluable in making such a decision. I have not yet found the perfect DBMS for microcomputers — easy to learn, powerful, versatile, fast and error free. You must decide on the most important features and choose the one that will best meet your needs.

CONDOR may be the one for you if you don't want to get involved in programming, if you want something fairly easy to learn, and don't mind the limitations. ■

## SOFTWARE REVIEW

# SCREENPIX

## Allows you to use your computer's graphics capabilities

BY ARNOLD FISCHTHAL

Screenpix is an excellent piece of software. It is a general purpose TRSDOS Z-80 machine language utility, designed to allow you to create, store, and then recall pictures using any of your computer's 256 displayable characters.

Although Screenpix contains many more commands and features than are capable of being described in this review, creating with this flexible program is easy to do.

Screenpix comes with a complete and highly readable 109-page manual which takes the first time user very slowly through all the steps needed to create the first screen. The manual includes a complete chapter for the beginner, a chapter of advanced features, and a chapter for reference describing all the commands, their uses and implementation, as well as chapters on customization and hints on drawing. A full table of contents also enables the user to quickly find that fact needed to accomplish some feat of artistic endeavor.

I spend an entire paragraph on the instruction manual only to emphasize the fact that in an industry where good manuals are not merely a necessity, but sometimes as important as the product they describe, the Screenpix manual rates a 10+.

Arnold H. Fischthal  
Advanced Data Design, Inc.  
184-08 Tudor Road  
Jamaica Estates, NY 11432

The actual creation of a picture involves designating which of the 256 characters you want to use to draw. The arrow keys move you around the screen, while pressing the appropriate keys will either draw or erase any character. Ten characters can be specified for quick recall which enables you to change from one character to another simply and quickly while drawing. A help screen is immediately available to show all 256 characters, their numeric codes, and the Screenpix creation commands. Various cursor movement commands are available which simplify cursor positioning on the screen.

Screenpix also provides ten screen buffers. When working on a picture, you can save your intermediate results and then continue to change the picture. Screens can also be saved to disk and retrieved for later use. By defining an "edit rectangle," work can be done on only a portion of a particular screen or on the entire screen, if desired. You can continually move and/or duplicate a particular object all over the screen by defining the appropriate edit rectangle. The entire screen image (or any portion of it) can be placed in inverse (any characters already in inverse will then be displayed in normal). The screen can be flipped to give mirror images either horizontally or vertically. Using the "write" command, text can be easily added to any screen for labeling or descriptions. Two or more screens that have been saved in buffers can be superimposed on each other and the result saved or rearranged in any way to better achieve a desired affect.

An automatic grid is available that can be displayed to provide an aid for making scaled drawings. In fact, the

characters that make up the grid can be changed to other characters to form a border around the screen which can then be saved as part of the picture. Any characters on the screen can be globally changed to any other by the "replace" command of Screenpix.

**Pictures that have been saved to disk** are accessible from BASIC programs, and sample programs to do this are included on the Screenpix disk. However, one of the programs illustrates opening the picture file normally, i.e. with the OPEN command. Painting the picture on the screen using this method takes almost one minute. The other program uses a machine language routine to do the file access and screen painting. It is much quicker but uses up almost 3K of memory for the routine and picture.

By using the steps outlined in the chapter, "Advanced Features," you can merge various pictures into one disk file for easier access and to conserve disk space. The chapter, "Customizing Your System," allows you to modify the keystrokes you would use to perform the various tasks in Screenpix. Finally, there is the chapter on "Drawing Hints" which explains how the

screen is arranged into scan lines and pixels and how each of the graphics characters is built from them.

Although the manual states that the screens can be used for animation and games, the Models II/12/16 were not designed with games in mind. I have reviewed several game packages, as well as written some games of my own. If you're planning to use graphics in any games you're designing, you might end up with an annoying screen flicker when switching screens and/or a slowness of screen movement for animation due to the inherent slowness of the BASIC interpreter and floppy disk I/O.

The flexibility and ease of use of Screenpix make it a highly desirable tool if you consistently need to build screen pictures. As previously stated, the manual is excellent, and combined with its many features, I would give Screenpix a rating of 10. ■

Screenpix is available from:

Dataright Software  
P. O. Box 1402  
Hillsdale, NJ 07642  
201/560-8440  
COST: \$150.00

## Tip for Model II Users

BY JOHN ESAK

One of your subscribers asked in a letter for sort routines. No sooner said than done! We are happy to oblige with this little gem. Used as a sort module, it will do very nicely with any BASIC requirements. Play with the code a little and you could almost get it to wash dishes. For instance: change the "<" (less than) symbol in line 90 to a ">" (greater than) symbol and the program will sort in descending order. Change the top number in line 10 for increasing input. (It is set now for 5 inputs just to demonstrate how it works.) The program will take and sort all words and numbers, even mixtures!

```

SORT/BAS          90 IF A$(I) <= A$(I+1) THEN 130
5 CLS,CLEAR       100 TS=A$(I)
10 DIM A$(50)     110 A$(I)=A$(I+1)
20 FOR I = 1 TO 5 120 A$(I+1)=TS
30 N=N+1          130 NEXT I
40 INPUT A$(I)    140 NEXT J
60 NEXT I         150 FOR I=1 TO N
70 FOR J=1 TO N-1 160 PRINT A$(I)
80 FOR I=1 TO N-J 170 NEXT I
  
```

# SCRIPFIX\*

One of the weakest points of Model II Scripsit is the fact that if something happens to glitch **ONE** of the documents, the whole document menu is **UNUSEABLE**.

The only advice that Fort Worth has to offer is to make backups. That advice is certainly the best, and as long as you do it often enough you'll never need **SCRIPFIX\***. **BUT**, what if you're like most of us and forget, or maybe you were in a hurry and just skipped the backup process the last few times and **THEN** something happens. Disaster . . . Sometimes it's not even just a matter of retyping, which is bad enough, but it could be that creative work is lost. Oh! It's such a sad thing to see a grown-up cry!

Well, dry away the tears, because, now, there's a solution to this all too frequent problem. **SCRIPFIX\*** restores your files to a readable state. After a Scripsit disk has been worked on by **SCRIPFIX\***, the Scripsit menu will once again be readable. Even files which you purposely deleted will be shown in the menu. So, if you accidentally delete a document that you wanted, **SCRIPFIX\*** will get it back for you.

If all the documents in a full file had to be retyped, it would take a typist 20 hours averaging 50 words a minute just to key it in, no proofreading or editing. **SCRIPFIX\*** takes about 2 minutes.

**SCRIPFIX\*** pays for itself the first time you use it! Compare the cost of 20 hours of typing to the **SCRIPFIX\*** low price of \$69.95!

Remember, that fatal glitch could happen at any moment! Will you be ready?

Don't delay—Get up to date! Tandy has published 80 Patches for Model II Scripsit. We have placed them all into a single **DOFILE** and tested them. Save hours of typing. Order **SCRIPSIT PATCHES\*** today! Write or phone:

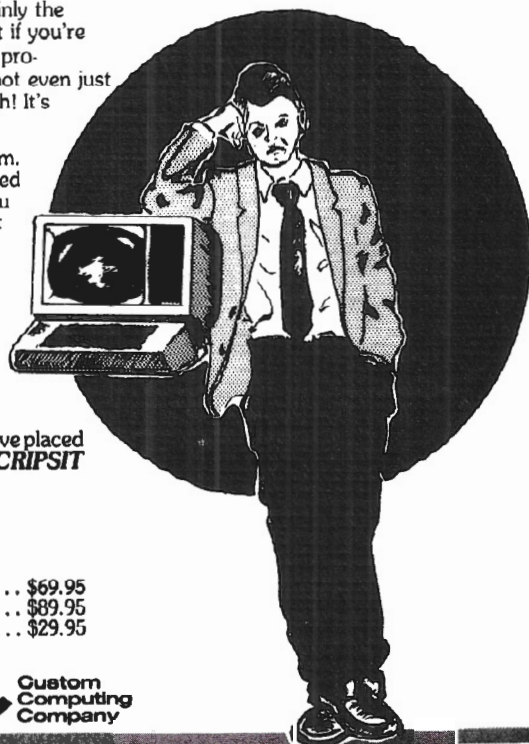
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Phone (914) 471-9318

**SCRIPFIX\*** v. 1.0 for all versions of SCRIPSIT\* except SCRIPSIT HD ..... \$69.95  
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# Special Feature

SEPT/OCTOBER 1983

No. 98

VOLUME No. IXXVII

## SCRIPSIT Receives Mixed Reviews From Two/Sixteen Readers

*Compiled by Barbara S. Albert  
Editor, two/sixteen*

**I**n our last issue (Vol. 2, No. 1), we printed the first installment of a Special Feature, written by you for others like you, on the subject of SCRIPSIT, Radio Shack's astounding, powerful, and perhaps more than just a little perplexing word processing software package.

Without further ado, let's proceed to Part Two of the SCRIPSIT review, as constructed from *two/sixteen* magazine reader responses.

**FROM: Hans J. Rumland, Apartado 1343, Santo Domingo, Dominican Republic:**

Here are my SCRIPSIT comments which are for the beginner because I am still very much a beginner.

### *SCRIPSIT Garbage Collector*

At times when you start to type on a seemingly blank screen, SCRIPSIT puts a long line of dashes on the screen, just like in the "insert mode." This line of dashes can be temporarily eliminated by using the <F2> key. However, as soon as you start to type again, Bang, there are the dashes again. This means that there is something further down the page that is visible to SCRIPSIT but invisible to you. You can get rid of the garbage up ahead by moving the cursor to the point where you wish to start to type, and then type in <ESC> D B <F2>. This will clear the screen below of all prior code. If you want to see the code before wiping it, you can go to the "full video mode" by typing <CTRL> V. You will then see that there is indeed some code ahead of the cursor position.

### *Format Versus Back-up Utilities*

The two utilities FORMAT and BACKUP offer the same services on the CRT. You can select FORMAT, and it will produce the formatter followed by the backup routine. Or you can select BACKUP and get the same utilities: formatter followed by backup.

If the unwary user starting out with an unformatted disk uses the FORMAT utility and continues with the backup offered by FORMAT, he will end up with a blank directory on the screen. The copy of the disk will have most of the system files and none of the documents! If you go to TRSDOS and use the ANALYZE command, you will find that DOCUMENT/CTL (the "document control" file) extends to track 76. The regular SCRIPSIT disk (the one that was supposedly copied faithfully by the BACKUP utility) started out with the DOCUMENT/CTL extending to track 68, followed by three short programs: EXECMD/DOS, PRINTER and UPGRADE.

You certainly did not get a perfect copy of the original disk. The only reference to this difference in the two utilities is a note in the SCRIPSIT manual to the effect that people who use their own printer drivers must use the BACKUP utility.

Since the FORMAT backup wipes out the UPGRADE also you will not be able to use the copy you made for upgrading SCRIPSIT 1.2 material to SCRIPSIT 2.0. I don't know what the program EXECMD/DOS does, but it is gone also.

If you want to be sure to make a perfect copy of your disk, you should select the BACKUP utility. It lets you format (or skip formatting) and then gives you a complete backup.

Note: I have only one drive so what is said here applies strictly to formatting and backup in Drive 0.

### *Justification Of Right Margin By Space Insertion*

Sometimes when printing a document using the "space insertion" option, you find the words on the last line separated by an excessive amount of spaces. This means that you forgot to end the page with <ENTER>.

SCRIPSIT needs the <ENTER> code as a signal to accept the last line as the end of a paragraph and to advise the printer not to try to justify the last line.

### *SCRIPSIT 2.1*

If you do all the official and mandatory PATCHes given in the RS Service Bulletins 4531-01 through 4531-14, you will end up with SCRIPSIT version 2.1, dated 10/16/1982. There will be, however, a slight difference from the SCRIPSIT 2.1 release version which you should get if you buy SCRIPSIT now. The release version has two new programs: DEFAULTS, which transfers disk defaults between SCRIPSIT disks and PRTPCH, which patches print character width and backspace distances for different printers.

DOCUMENT/CTL, which contains all system defaults and trailing documents, has been reduced in size by 5 grams in the release version of SCRIPSIT 2.1. This is to accommodate DEFAULTS and PRTPCH and will allow installation of the SCRIPSIT Spelling and Hyphenation Dictionary plus the SCRIPSIT Utilities in any order of installations.

### *Index Page*

I have found it useful and time saving to use the first page of each SCRIPSIT document as an index page. This is especially handy when you mix correspondence with different people in one document, when you deal with multi-chapter documents, or when you have a lot of data tables in a document.

The index allows you to go directly to the page you want without having to step through the document, page-by-page.

\*\*\*

**FROM: James D. Seymour, 260 Riverside Drive, New York, NY 10025:**

*What I Don't Like About SCRIPSIT*

Let's get some unpleasantness out of the way. There are two things about SCRIPSIT 2.0 that absolutely infuriate me. The problems arise when editing a pre-existing document. First, when you are working on a document and "Get" the same page, anything you have done is erased. Now, you might say, why would anyone want to "Get" the same page they already have. The answer is that it can happen accidentally.

For example, let's say I am working on page 3 and want to find out how long the document is or how it ends, so I type <ESC> Utilities Get End. Now, if it happens that there was no page after page 3, executing this string of commands brings the *original* page 3 to the screen, in effect erasing any changes I have just made on the page.

Second, and this is only annoying, not serious, if you are on the top line and press arrow-up, or if you are on the last line and press <ENTER> or arrow-down, the page is laboriously stored on the disk and you go the adjacent page. Nine times out of ten I do not want this to happen, I just want to go to the next *line*, if any. When the first mistake happens, one can say that I was just being careless, for a look at the bottom of the screen will tell me that I am already one Line 1. However, there is no way to know that you are on the *last* line of a full screen except doing a "hold-down", but that gets you to the bottom of the page which may be far below what you wanted.

One thing that I miss with SCRIPSIT is the ability to quickly go directly from a document to TRSDOS READY and back. Most software, such as VisiCalc and Videotex, have this feature. Incidentally, one of the many things the manual doesn't tell you is that you can go directly to TRSDOS READY when booting up by pressing HOLD *immediately* after entering the date.

*Some Helpful Tips*

Trial-and-error turned up this method to have a string at the end of a

paragraph print flush right. First, you change one of the "Control-x" print control codes to send an "uncounted blank space" to the printer. I use the xR ("right") for this, which is coded: 1 0 20. In the document, the format line should have no "a" or "@". Now, to end a paragraph you type:

```
<Control X> R <Control t> [string]
<ENTER>
```

You may have to change the disk's tab-align character to something innocuous (I use <Control-hyphen>). You will probably have to reformat the paragraph (<ESC> D P F) — though this can be avoided if you put the Control-t in after you have done everything else.

One set of problems with SCRIPSIT derives from the fact that SCRIPSIT is a "closed system" and cannot be integrated with other software and data unless they are specifically made for SCRIPSIT or the convert utility is used. We aren't told much about all this in the documentation, and the Model II manual is too technical for many of us.

For example, suppose you want to incorporate addresses, etc. from Mailing List II into SCRIPSIT. After much experimentation, I devised the following method.

From TRSDOS READY:

```
SPOOL ON
SPOOL N,F=(make up a new file
name):drive
MLS (etc.)
```

Then print the labels or whatever — they will go to the new file. When you are finished:

```
SPOOL OFF
```

Then open a SCRIPSIT document and CONVERT the file from ASCII to SCRIPSIT.

\*\*\*

**FROM: Joel Samoff, Associate Professor of International Development Education, Stanford University, School of Education, Stanford, CA 94305:**

I have been using SCRIPSIT for approximately one year. As well, there are some 25-30 other people who use

SCRIPSIT in my department, including faculty, support staff, and students, I have been somewhat involved in training new SCRIPSIT users.

*Comments Gleaned From Collective Experience*

The most serious limitation has to do with the keyboard, not the software. The goal for a serious typist is never to look at the keyboard, which is impossible, due to (1) the location of the <F1> and <F2> keys, (2) the location and lay-out of the arrow keys, (3) the availability of only one <CTRL> key (thus making it awkward to type <CTRL> + any key to be pressed by the left hand) [to a lesser extent, there is a similar problems with the <ESC> key], and occasionally (4) the proximity of the Back Space and Break keys. It is difficult to believe that keyboard designers actually test their keyboards with serious typists.

The advice to new SCRIPSIT users with the most immediate usefulness has proved to be: "Avoid the <CONTROL> key as much as possible." In practice, striking (correctly) two keys simultaneously is both more difficult and slower than striking two keys

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sequentially. Hence, typists who use <ESC> sequences in place of <CTRL> sequences (1) type more quickly, (2) type more accurately, and (3) get less irritated by the disruption of their typing rhythm caused by the need to coordinate the <CTRL> and another key.

The suggestion for which new SCRIPSIT users have been most grateful has proved to be: Create user-defined strings to operate the deletes (and other regularly employed editing routines). For example, I use <ESC> 6 as Delete Word (<ESC> D W <F2>), <ESC> 7 as Delete Sentence (<ESC> D S <F2>), and <ESC> 8 as Delete paragraph (<ESC> D P <F2>).

Since I frequently transfer files across systems, I have regular Global Search and Replace operations for which I also create strings. For example, I use a string to substitute SCRIPSIT's underline symbol for whatever was used on the other system (here, { = begin underline):

```
<ESC> 9 = <ESC> U G F { <ESC> C  
<ESC> _ <ESC> 9
```

(that is, call the search menu, specify find {, cancel the search, substitute <ESC> underline, call itself again). Note that SCRIPSIT's search routine's inability to search and replace for an <ESC> or <CTRL> character complicates this task.

Since I also define strings for frequently used headings, list formats, and the like, the 20 user-definable keys are too few to meet my needs.

### SCRIPSIT's Most Frustrating Features

The feature of SCRIPSIT I find most frustrating is its page focus. It is often important to be able to see the bottom of one page and the top of the next at the same time, which SCRIPSIT does not permit. I much prefer editors where pages are defined by markers.

The feature of SCRIPSIT I find second most frustrating is its treatment of unused spaces (that is, locations to which no character or space has been assigned). SCRIPSIT requires that those spaces be opened, even though on the screen they may look perfectly available (say, between tabs in the middle of text). SCRIPSIT's distinction between a nothing and a [blank] space is not intuitively clear to new users.

### The Most Troublesome Features Of SCRIPSIT

The ease with which SCRIPSIT converts a simple error into a big problem (for example, a Disk Drive Not Ready may lock up SCRIPSIT, requiring a re-boot, which often scrambles something).

The fragility of SCRIPSIT when the disk (that is, the DOCUMENT/CTL file) is nearly full: problems that would otherwise be trapped, avoided, or otherwise managed often scramble a document or all documents.

The lack of some easy way to copy a set of documents without backing-up up the entire disk.

The lack of some easy way to copy part of a document (more than one page but less than the entire document).

The slow speed and clumsiness of the SCRIPSIT Dictionary.

The difficulty in moving SCRIPSIT-origin ASCII files to another system, due to SCRIPSIT's handling of hard and soft carriage returns.

Overall, my experience with both large and small computers is that most software and often documentation authors write for an audience that is either familiar with computers or at least comfortable with them. Those users who prefer to treat computers as a convenient tool for getting their work done — like typewriters or calculators — are much less well served.

\*\*\*

**FROM: Robert E. Bowley, CCS, CSI, Brooks, Borg and Skiles, Architects-Engineers, 700 Hubbel Bldg., Des Moines, IA 50309:**

You may be surprised to learn that the utility necessary for putting SCRIPSIT 2.0 "DOCUMENT/CTL" without program files on an auxiliary drive is built into the SCRIPSIT program. Instructions for using this utility are in the SCRIPSIT 2.0 Manual, starting on page 65.

If, when using the SCRIPSIT "FORMAT DISKETTE" utility, you respond "N" to "Will this diskette be used on drive 0 (Y or N)?", SCRIPSIT will produce the DOCUMENT/CTL file ONLY on the designated drive, with

the size expanded to fill the entire disk (1875 recs vs. 1085 recs on a SCRIPSIT Drive 0 disk.)

The SCRIPSIT program disk can reside in any preceding drive (I usually use Drive 0), but it cannot be write protected. I often will have both 10 pitch and 12 pitch documents on the same text disk and will change program disks according to which set of SCRIPSIT defaults is needed.

I regularly use this system to store my text base in conjunction with PROFILE+. I store introduction and footnotes in two separate SCRIPSIT files. In use I print the PROFILE+ report to a named SPOOL file, on a separate TRSDOS formatted disk that I use for this purpose only. I assemble the parts into the final report on a different disk, by first copying the introduction, then picking up the PROFILE+ SPOOL file with SCRIPSIT CONVERT using the V option. Finally I use SCRIPSIT ASSEMBLE to generate a second SCRIPSIT file with the footnotes added. If the footnotes are short, the last step can be eliminated by MOVEing them from before to after the PROFILE+ report. At this point, the preliminary partial document can be deleted from the disk.

\*\*\*

**FROM: Gerald Lippey, The Lippey Company, 210 South Bundy Drive, Los Angeles, CA 90049:**

### Request For Help

We are aware of SCRIPSIT's ability to format a non-system disk and also a disk with a smaller DOCUMENT/CTL file. In fact, we use both of these options.

What we wish to do is operate SCRIPSIT with the program disk residing in a drive other than 0. I placed a non-system SCRIPSIT disk in Drive 2, a full SCRIPSIT program disk in Drive 1, and our regular system disk in Drive 0. When I keyed SCRIPSIT:1 or STARTUP:1 from TRSDOS READY, the Drive 0 light soon came on and SCRIPSIT informed me that it could find a file.

If it is really possible to operate with the SCRIPSIT program disk in a drive other than 0, I am anxious to learn what we are doing differently. My efforts indicate that SCRIPSIT either



insists upon reading a SCRIPSIT program or file (I suspect the DOCUMENT/CTL file) from Drive 0 or insists upon writing to Drive 0.

### Shared SCRIPSIT Tips

Here are a few things we've learned about SCRIPSIT that you may not be aware of.

To key ahead when operating with the directory, make the following patch:

```
PATCH SCRIPSIT/SYS
R=5,B=116,F=CF,C=BF
```

I don't believe it is mentioned in the manual that STARTUP HHHH... will send the hex characters following it (HHHH...) to your printer. Also, STARTUP turns Verify Detect Off (and when you depart from SCRIPSIT, it is not turned back on).

If you get into trouble and need to reclaim presumably lost documents, the following knowledge is invaluable. (It's assumed that you have a decent ZAP program, and some familiarity with the way the Z-80 handles 23-byte

integers.) The first record in the DOCUMENT/CTL file has the following important fields:

BYTES	DESCRIPTION
7,8	Record # of last document
9,10	Record # of first document
15,16	Number of documents
31,32	SCRIPSIT's notion of the disk password (8ED5 = PASSWORD)

The record numbers given above and below point to records that contain this information:

2,3	Record # of previous document
4,5	Record # of the next document
6-21	Document name in ASCII
196,197	Document password (00BE means none)

(In all of the record numbers referenced above, the first record is number zero).

The password for SCRIPSIT/SYS is NOMOLOSS (no foolin!)

**FROM: Paul Naitoh, Ph.D., Applied Psychophysiology Group, 4446 Marseilles St., San Diego, CA 92107:**

I tried to use PROOFREADER and GRAMMATIK with SCRIPSIT 2.0 (before I purchased Radio Shack's Hyphenation/Dictionary). I feel that PROOFREADER and GRAMMATIK from Aspen Software Company are great programs. Unfortunately, their power is much less with SCRIPSIT than with WordStar and other word processing programs. When running them, I had to convert the SCRIPSIT document into an ASCII file. This ASCII file is worked over by PROOFREADER and GRAMMATIK and a "marked text" file is outputted. Then this ASCII text is converted back into SCRIPSIT. Once I get back to the SCRIPSIT document format, I use Global Search to look for editorial marks placed by the programs, e.g., ?#. One very serious problem is that I cannot use the PROOF EDIT program with SCRIPSIT text (PROOF EDIT is the interactive correcting program that is part of PROOFREADER). Also, in the process of translation, all of the

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special key combinations in SCRIPSIT (such as Control X) are lost in the ASCII file. Also lost is the number of lines per page, because when converting ASCII files back into SCRIPSIT, SCRIPSIT fills the maximum number of lines per each page.

I just wished to tell you that SCRIPSIT text can be "proofread" by PROOF-READER/GRAMMATIK with patience. Perhaps the nicest aspect of the combination of SCRIPSIT and PROOF-READER is that you need to have only ONE disk drive — yes, only one — to do a job of proofreading.

#### *A "Messy" Solution To a Problem*

Occasionally I wish to combine three separate documents into one document with the pagination all correct. This can be easily done with the ASSEMBLE utility. But suppose you wish to insert one document into the middle of another document. ASSEMBLE will not do this; it simply appends the document to the end of the previous document. My solution is a mess, but it works.

I type my table and store it in a document named NICETAB, and now I wish to place this NICETAB on page 44 of my SCRIPSIT document FUNSTRY. What I do is to append the NICETAB at the end of FUNSTRY. Then, I use the GET routine to create page 44.1. Then I go back to NICETAB (now at the end of and part of FUNSTRY), place my cursor at the top of the page, define the entire page with CONTROL/DEFINE/BELOW, and MOVE it to page 44.1. After a successful transfer of my table (formerly NICETAB) to page 44.1, I conjure up the NUMBER utility to re-number 44.1 as 45, etc. If you have multiple pages of tables to insert, you have to create multiple pages, such as 44.1, 44.2, etc. Perhaps someone has a better way???

\*\*\*

**FROM: E.T.Cox, 124 Division St. N., #102, Kingsville, Ontario, Canada:**

#### *SCRIPSIT And Line Printer IV*

In January 1981 when I bought my Model II and Line Printer IV (hereafter LPIV), they were advertised as the most economical combination to realize the word processing capabilities of SCRIPSIT 1.0. SCRIPSIT seemed to be just right for my printer. The only thing I wished for at that time was the

ability to use different pitches (print sizes) in the same line.

When I upgraded to SCRIPSIT 2.0 in March of 1982, I was dismayed to find that my printer no longer right justified by character increment. (I had not gotten around to reading the back pages of the new SCRIPSIT Reference Manual).

After some calls to local Radio Shack stores, I was informed that SCRIPSIT 2.0 worked fine on LPIV without any patches, so I should have my printer repaired. I tried to reason with them that a printer that worked fine with SCRIPSIT version 1.0 was not likely in need of repair when it lost a function with version 2.0.

Later I found the four SCRIPSIT patches and one Start-up patch on pages 73 and 74 of the Manual. The Start-up patch for LPIV did not work, but I found out that the Line printer VIII patch seemed to work for my printer. A letter to Ft. Worth about the problem brought the enlightening information that some printers cannot right justify by character increment.

Some months later I stumbled upon the default print codes on page 68 of the manual. After searching printer and operating system manuals on page 79 of the Pickles and Trout CP/M 2 Manual I found the hex equivalents to the SO, SI, DC1, DC3, and DC4 used in the printer manual. The correct Start-up patch uses 1B14 not 141B. The double width characters and Spanish nya were soon operating. I also discovered that my printer underlines beautifully with Ctrl X U and Ctrl X O. However, the pitch switches were ignored. More phone calls sent me to making all the SCRIPSIT 2.0 patches.

After spending a day feeding single sheets for a 75 page document, I decided to try the back-ground printing feature. I have this feature working at 16.7 cpi and only with right justification. Unfortunately, all my long documents are printed at 10 cpi. After numerous phone calls dating back to late November 1982 about pitch switching and background printing, I am still waiting for some real help.

\*\*\*

**FROM: Loring Mandel, P. O. Box 104, Halesite, NY 11743:**

#### *A Unique Application*

I would like to tell you a little bit about my particular application of SCRIPSIT. I am a professional dramatist, having written plays for television, the screen, and the stage. I've been doing so for almost 30 years. While no one can really speak with authority about a word-processing program without working with it for a long period, I am taking the liberty to make comparisons on the basis of what other scriptwriters have told me of their programs.

Major statement: none of the other well-known WP programs can do what SCRIPSIT can for the particular problems of scriptwriting. From what I've been told of Easy Writer and WordStar, script formatting and revising can be a tedious and clumsy process. Not so with SCRIPSIT.

A script page has three different formats. Think of them as three columns of different widths, stacked with the narrower columns within the broader. The broadest column of text is for stage directions, the next narrower is for dialogue, the narrowest is for specific directions for actors. The character's name is at a tab location common to all three formats. In order to compose a page of script, the writer must constantly shift from one format to another in order to get word wrap-around. And with SCRIPSIT's format recall feature, accessed by the Model II's user keys, the entire process is actually easier than it would be on a regular typewriter. I am told that changing the format is a much more cumbersome matter with other WP programs.

But the initial writing of the script is not where SCRIPSIT is most important: revision is. With the other WP programs, adding text to dialogue or directions is slowed by the need to reformat the added material to conform to the particular margins of the block of text you're adding to. With SCRIPSIT, the added material automatically conforms to the margins of the text block being revised. For the usually complex format variety of a script page, this asset is enormous, and saves extraordinary lengths of time.

I was first encouraged to buy the Model II and SCRIPSIT by a Los Angeles screenwriter, and at least three others have purchased it after trying it on my machine. ■

# ELIMINATE TRSDOS ERROR MESSAGES

BY LANCE MULLER

After lots of days debugging various purchased programs, I became tired of the same old " \*\* Error xx \*\* " Model II TRSDOS message. So, I took some time to make this little DO file which reflects a more "proper" relationship for when your computer is pointing out your programming errors.

From TRSDOS READY, type:

BUILD ERRORMSG

When the prompt starts, begin <ENTER>ing the following lines (␣ indicates a space, per RS conventions):

```
CLS
PAUSE — CHANGE ERROR MESSAGE TO ' ERROR #xx, MASTER '
PATCH SYSRES/SYS A=13FC F=2E14223014 C=2B14000000
PATCH SYSRES/SYS A=140F F=2E C=2B
PATCH SYSRES A=1423 F="␣*␣*ERROR␣␣␣␣␣*␣*␣"
C="␣ERROR␣#␣␣␣MASTER␣"
```

PAUSE — COMPUTER WILL NOW RE-BOOT TO GET THESE CHANGES INTO CURRENT RAM  
RESET

After you've checked to be sure everything <ENTER>ed correctly, at TRSDOS READY, type:

DO ERRORMSG

Follow the prompts to get the error message changed.

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# LAWYERS ACCOUNTING SYSTEM

## Total law office management

BY BARBARA S. ALBERT

If I were to list in descending order of importance the three things attorneys practicing in the United States today hate the most they would be: (1) losing cases, (2) losing money, and (3) losing time needlessly in the pursuit of managing their practices.

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Lest you think The Technical Services Group is a newcomer to the computer field, their credentials prove otherwise. They have been in the business of inventing and developing proprietary software for over 15 years. They have designed, developed, and installed software that is in use in over 1,000 computer operations world-wide.

Their latest contribution to the software industry, The LAS package, includes the following capabilities:

- \*Time accounting and billing
- \*Escrow and disbursement accounting
- \*Immediate Client/matter inquiry (See Figure One.)
- \*Complete accounts receivable
- \*Practice management reports
- \*Calendar and docket control
- \*Multiple format invoicing

- \*Word processing (Fully interfaced with Scripsit, Westlaw, and VisiCalc)
- \*Spelling and hyphenation dictionary

The LAS is a "vertical" software system, as opposed to VisiCalc or Scripsit which are "horizontal" software programs. The horizontal program is designed to perform one function. The vertical program is a total office management system, a completely integrated set of programs (300 of them) fitted together to provide for any eventuality that may arise in the office.

Probably the biggest headache in a lawyer's office is time keeping and its associated function, billing. And one of the biggest fears an attorney has when it comes to investing in a computer system for his office is "will it be able to handle my billings?" We've all heard the stories of lawyers who were talked into buying computer systems and discovered much too late that the system was woefully inadequate for the needs of their offices. The LAS provides for both attorney and clerical staff time accounting. The system provides reports detailing how much time was spent on each case, by which staff member, at what billing rate and personnel cost and whether the client had been billed. The five different statements generated by The LAS will never leave you feeling "caught short."

The most common statement form, the Summary Form, lists total fees charged, total expenses, and total disbursements. If necessary, a previous balance is shown. Payments received and credits granted are always shown. (See Figure Two.)

Statement Type 2 provides an itemized listing of each service rendered, but instead of listing a price for each individual item, only category totals are shown.

Statement Type 3 adds the date for each of the itemized items as shown in Statement type 2, and Statement 4 adds to this information the number of hours and/or disbursements (costs advanced).

Statement Type 5 is a complete, detailed invoice that indicates each service performed, the time spent in the performance thereof, and the charge for each service. It also sets forth expenses and disbursements.

Even with such comprehensive billing abilities, there has to be someone out there who is saying, "Yes, but I need such-and-such. Can The LAS do that?" The answer is yes. No matter what the unique requirement may be. At any time, during any part of any procedure, you can enter the system and override the defaults and change any items. You are in control of the system and not vice versa.

So maybe you're impressed by The LAS's billing capabilities. But what else can it do? The LAS is able to produce over forty different reports! These reports range from listings of clients, cases, and employees to month-to-date and year-to-date statistics sorted by employee showing the percentage of the firm's total business performed by each and the percentage of each matter-type worked on by each employee. And

at any point in the proceedings you can get a hard copy print-out of the report you wish to see by typing an "H".

Management reports include productivity statistics, billed and unbilled fees and expenses, complete accounts receivable (two different types of receivables: case level and client level), activity by case and/or client, aged trial balances, and cash/checks received.

The system stores detailed time entries by matter-type (i.e., family law, Workman's Compensation, bankruptcy, etc.), as well as all the information related to the client's financial records with the firm.

**Another important concern for attorneys shopping for a law office management system is how difficult will it be for the staff to learn and how difficult is it to recover from the errors they will inevitably make?** This concern was taken into consideration when The LAS was designed. The system is entirely menu-driven, meaning that the secretary or bookkeeper need only type "M" at TRSDOS READY, and the various and helpful menus will guide them from there. And The LAS

includes an "Automatic Recovery" feature which, when invoked, goes through a check-list of possible occurrences which could have caused a loss of data. According to sources at TTSG, no data has ever been permanently lost by any user of The LAS.

To accommodate all the features of a system this comprehensive, you need to have a 12-meg. hard disk. And in case you fear you might over-load The LAS, you won't unless you exceed 1000 clients who have a combined total of 4000 cases, and 40 timekeepers who generate 22 time transactions per day with six weeks between billings. Of course, these are only representative figures to illustrate what The LAS can do. The system can be expanded by adding another hard disk. ■

The LAS is available from:

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LEGAL ACCOUNTING SYSTEM

CLIENT RECORD INQUIRY 2

Client No 6004 Client Name Franklin Motor Works, Inc.  
 To the Attention of Harold Franklin, Jr. Phone No 516-421-8100 Ext 010  
 Responsible Attorney Number 5007 Responsible Attorney Initials SQM

		Date Last Active 81/12/16			
Month to Date:	Total Time:	28.50	Year to Date:	Total Time:	32.90
	Time Value: \$	3420.00		Time Value: \$	3948.00
	Disbursed:	2300.00		Disbursed:	2750.00
	Billed:	2450.00		Billed:	3145.00
	Unbilled:	3270.00		Unbilled:	3553.00
	Credits:	0.00		Credits:	127.40
	Received:	1903.21		Received:	2363.90
	Balance:	546.79		Balance:	653.70
	Cost:	1932.64		Cost:	2197.81

Record # 00001 Screen # 2 > Enter Selection .

FIGURE ONE.

The LAS has two Client Record Inquiry Forms. These forms contain the totals of all case activity for all cases open for the client.

Swift & Monroe  
 Attorneys at Law  
 124 Madison Avenue  
 New York, N.Y. 10010  
 (212) 675-5333

Stmt No: 6  
 Resp Atty: 5003

Stmt Date: 03/01/83  
 Page 1: 1

Palmer Manufacturing Inc.  
 1800 Concorde Avenue  
 Bronx, NY 10046  
 ATT: Ed Palmer

Re: Chicago Steel Company Client No.: 6001 Case No.: 7003

THIS STATEMENT REFLECTS CASE ACTIVITY AS OF 03/01/83

Previous Balance \$	0.00			
Total Payments Received \$	0.00			
Total Credits \$	0.00			
Total Fees \$	738.00			
Total Disbursements \$	41.00			
Previous Balance	- Payments	- Credits	+ Charges	= New Balance
0.00	0.00	0.00	779.19	779.10

FIGURE TWO.

This is an example of the most common statement form, the summary form.

# Correction To Microstat Review

BY RICHARD JENSEN

Following publication of my review of Microstat from Ecosoft, Inc. ("Microstat: An Interactive General Purpose Statistics Package," Vol. 2, #1, p. 46), the publisher came out with a revision that settles one of my complaints.

In the review, I wrote: "... there is no provision for reading data in ASCII format that may have been generated from another project or downloaded from a mainframe computer."

Ecosoft's revision enables me to say that Microstat can now handle data files (in ASCII format) prepared by a text editor, dBase II, or a BASIC data entry program.

Microstat (ver. 3.01) is available from:

Ecosoft, Inc.  
P. O. Box 68602  
Indianapolis, IN 46268

Richard Jensen  
University of Illinois at Chicago  
P.O. Box 4348  
Chicago, IL 60680

# Tip for Model II Users

BY DEAN R. LAMBE Ph.D

Your Drive 0 (Drive A) may become unreliable after long use and show the following symptoms: rapid on-off cycles of the read/write arm with a "ping-pong" or a clicking sound. Slow response during familiar operations with the drive light on for an unusual amount of time. Strange pauses during back-ups or long printing operations. Errors 4 and 5 on occasion, even though the operation is finally completed. Complete lockup with Drive 0 still on.

This is a hardware problem! Vibrations from disk drive on-off cycles has created a poor contact in one of the circuit card plugs or one of the plugs to the disk drive circuit board. Before you ship it off to the repair center (and especially if you are out of warranty), open the top half of the case, carefully un-plug, then re-plug the ribbon connectors and other plugs to the disk drive. Put the case back together, power-up, and run a back-up and other common operations. If the problem has not been eliminated completely, you may have to replace the whole ribbon cable to the drive, but chances are good that this simple "kick here" fix will work. While this problem definitely occurs in the Model II, I have heard that it happens to other TRS-80 models as well.

Dean R. Lambe, Ph.D.  
Route 1, Northlake Drive  
Vincent, OH 45784

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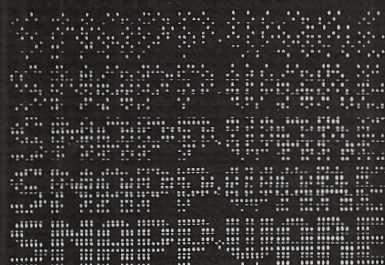
Microsoft uses a 'variable length string' in the BASIC interpreter. Each time the string is assigned a new value, it is relocated in a string pool. Periodically the string pool must be reorganized and condensed into a single contiguous area. Performing this string space reclamation is time consuming and inefficient because this approach evaluates and collects each string individually. The time required is roughly proportional to the square of the number of active strings in the resident program. During reclamation the system seems to 'lock-up' and does not respond to the operator until the process is completed.

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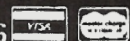
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# BANK SWITCHING

*If you have ever exhausted the available memory space for a program in your Model 16, you've probably wondered how to access the extra memory in the 16-bit half of your computer.*

BY CHARLES A. WILDE

If you have ever exhausted the available memory space for a program in your Model 16, you've probably wondered how to access the extra memory in the 16-bit half of your computer.

There is a way to get at that extra memory, and there are ways for Model II and Model 12 owners to get extra memory for their 8-bit programs as well.

The Z-80 accesses memory a single eight bit byte at a time (hence the term 8-bit processor). It uses 16 bits to address memory, so it can select one of 65,536 bytes for a memory access operation or memory cycle. (These 65,536 bytes are commonly referred to as 64K. "K" is a common way for computer programmers to refer to the number 1024, and 64 times 1024 is 65,536.)

The way for the Z-80 to access more than 64K bytes of memory is for it to play a kind of shell game. The idea here is that an address in the range of, say, 0 to 2K will normally select a particular byte out of one group of memory bytes. The Z-80 program can execute a special instruction so that later on, if the same address is used, it will select a byte out of a different group of memory bytes.

There is no restriction on how many

groups of memory bytes the Z-80 program can choose from, as long as only one group is associated with a given memory address at a time.

The groups of memory are commonly called memory banks, and the Z-80 program is said to do a "bank select" when it executes the special instruction to associate a memory address with a memory bank.

Radio Shack computer designers made heavy use of the bank selection scheme to expand the power of the Z-80. First, we'll review the hardware

design, then look at the way currently available software makes use of that hardware.

The basic Model II hardware design is the simplest. With 64K memory installed, two areas of that 64K are bank switched (see Figure 1). When the power is turned on or the RESET switch is lifted, the first 4K of addresses will select bytes out of the boot ROM. The boot ROM program will read the first track of the diskette in drive 0 into low page RAM memory starting at address 4K and following. This first track contains a secondary

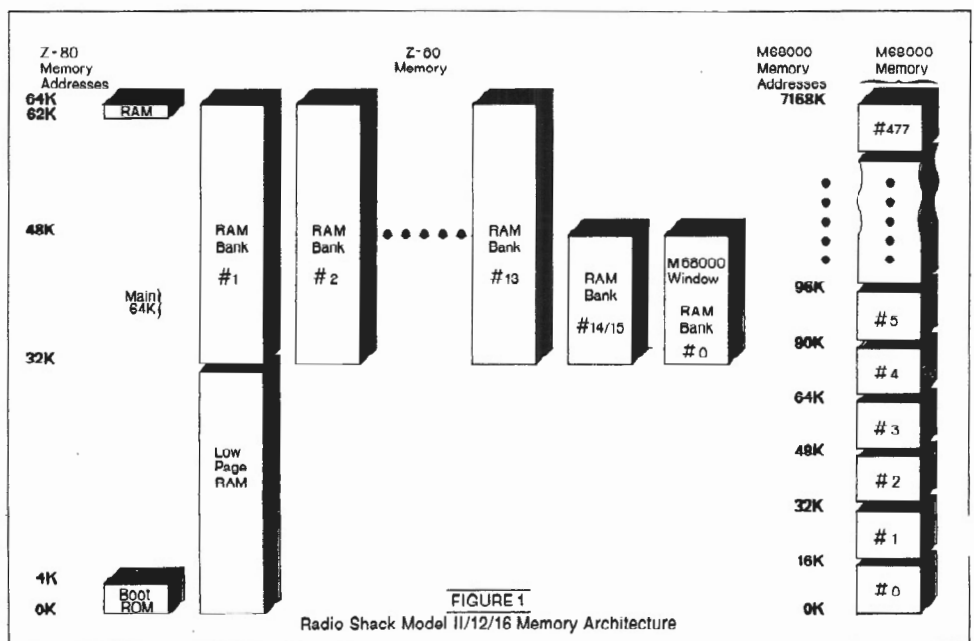


FIGURE 1  
Radio Shack Model II/12/16 Memory Architecture

bootstrap program which will select banks so that the first 4K of addresses will select bytes out of the low page RAM memory.

In a similar fashion, the last 2K of addresses for 62K to 64K can be bank switched under Z-80 program control between video RAM and the currently selected RAM bank. The CRT hardware constantly scans the video RAM to determine what characters to display on the CRT screen. Whenever the operating system program wants to modify the CRT display, it will switch the video RAM bank on (which also disables the 62K to 64K part of the currently selected RAM bank). After it has updated video RAM, it will switch banks again so the 62K to 64K part of the currently selected RAM bank is again accessible.

**Additional memory can be added to the Model II** in the form of 64K memory cards. These cards are identical to the main 64K memory card (which is low page RAM and RAM bank 1), except that jumpers on the memory card are set differently so the added card becomes RAM bank 2 and RAM bank 3. Up to four 64K cards can be added to the basic Model II, depending on the number of free board slots and power supply capacity. These memory boards (Radio Shack catalog number 26-4105) are the same ones used for the enhanced VisiCalc program.

With the Model II/16 design, the first 4K of addresses can be switched either to the BOOT ROM or the low page RAM. The addresses between 4K and 32K will select only low page RAM. The addresses between 32K and 64K will select alternate RAM banks or the M68000 RAM window, depending on which RAM bank number is specified by the Z-80 program. With the Model 12/16B design, a mode is available that allows addresses from 0 to 32K to select RAM banks for possible future compatibility with CP/M Plus and MP/M.

RAM bank 14/15 is a special 16K bank that is present on a Model II/16 when a Radio Shack hard disk is installed and is contained on the hard disk interface board. It is also standard equipment on a Model 12, even if no hard disk is installed. It differs from the other RAM banks only in that it is 16K rather than 32K and that either bank address 14 or 15 will select it.

If a hard disk is installed on a Model 12, then the 16K memory bank on the

hard disk interface board is set with an address of 6/7, instead of the usual 14/15.

**The Model 16 contains at least two memory boards, a 64k 8-bit memory board and a 16-bit memory board containing 128K which can be expanded to 256K.** The Model 16/16B also contains the M68000 16-bit processor. This processor has no input/output (I/O) capability of its own and is totally dependent on the Z-80 program for I/O. The Z-80 program uses a RAM window to load the operating program into the M68000 memory and to subsequently fetch I/O requests and data from the M68000 program.

The last Z-80 RAM bank to be discussed is this M68000 RAM window. It is quite different from the rest of the RAM banks because a second level of bank switching occurs with its use; it is selected as if it were RAM bank zero. Then the Z-80 program selects which 16K segment of the M68000 16-bit CPU memory it wishes to operate on. Once this is done, the Z-80 program can select bytes in the 16-bit memory segment just as easily as it selects bytes in its own 8-bit memory. Thus the Z-80 program can, with appropriate bank selection, freely operate on up to 7 megabytes of 16-bit memory as well as all of the 8-bit memory installed in the machine.

**The TRSDOS 2.0 operating system** makes no use of any RAM banks other than RAM bank 1. It does allow the enhanced VisiCalc program to switch in RAM banks 2 and 3 for expanding the VisiCalc spreadsheet size.

The TRSDOS 4.X operating system stores operating system program overlays and buffers in RAM bank 14/15, if present, or in the M68000 RAM window if RAM bank 14/15 is not present. It also allows operation of enhanced VisiCalc in banks 2 and 3 and in the M68000 RAM via the RAM window. Neither of the TRSDOS 8-bit operating systems allow user programs access to the alternate RAM banks.

**The ATON CP/M bank switched operating systems** make full use of all bank switched RAM and M68000 memory for user programs and operating system functions.

ATON CP/M is supplied in three versions. The first version (Level I) operates in RAM bank 1 and allows user programs with specially written



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# BANK SWITCHING

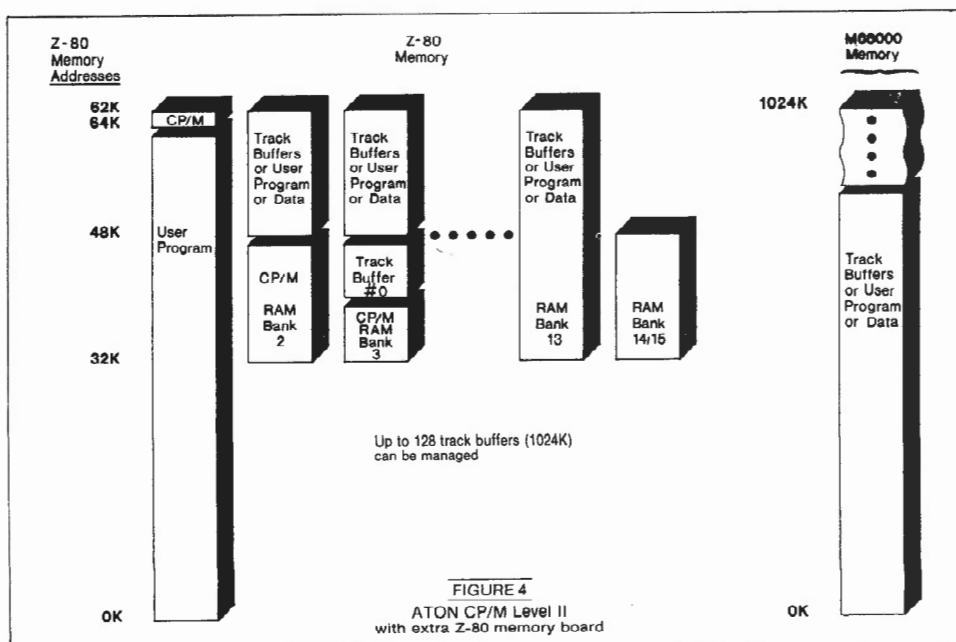
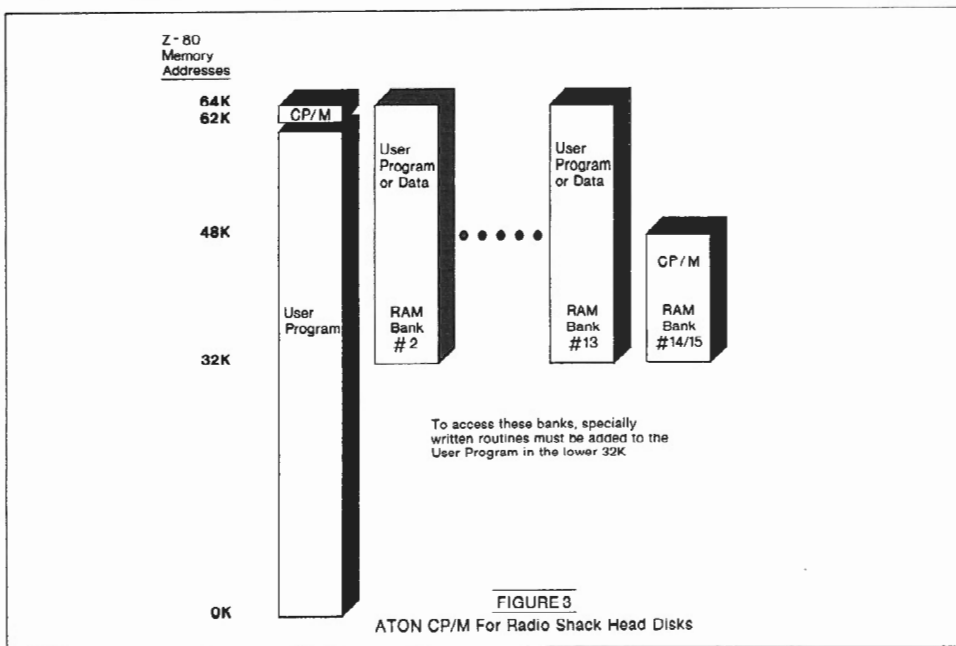
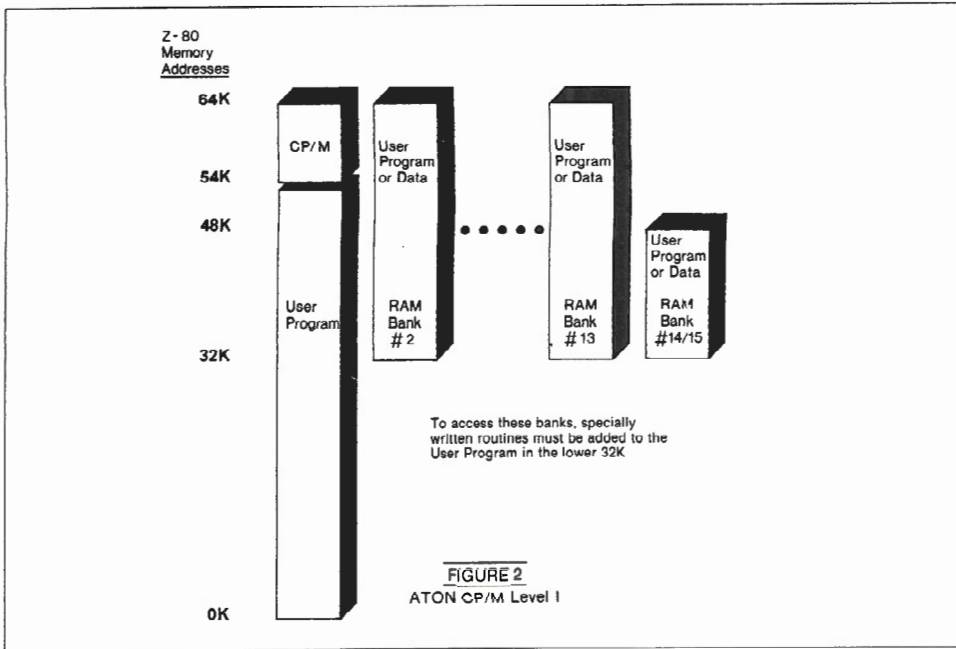
routines to access any of the RAM banks (see Figure 2).

The second version is for systems with a Radio Shack hard disk (see Figure 3) which can share CP/M and TRSDOS or CP/M and XENIX. Because the 16K RAM bank 14/15 is automatically included with a Radio Shack hard drive, most of the hard disk CP/M operating system is placed in this bank. Only 2K of the main 64K is required by CP/M. Therefore, 62K is left for user programs such as SuperCalc, Multiplan, etc. This means that spread sheet sizes will be 8K larger on the hard drive system than in the first version of CP/M. Other programs, such as WordStar, use this extra space to advantage by reducing the number of disk accesses.

The CCP portion of CP/M is also stored in bank 14/15 so that the CP/M warm boot procedure doesn't need to go to disk to retrieve it. This speeds up job processing, especially SUBMIT files. The hard disk system also allows user programs with specially written routines to access any of the RAM banks.

The third version of ATON CP/M (Level II) fully exploits both the Z-80 RAM banks, as well as all the M68000 memory in a variety of ways. Like the hard disk version, it stores most of the CP/M operating system in alternate memory banks and only 2K of the main 64K is required for CP/M. User programs with specially written routines can access not only any of the RAM banks, but they can also access all of the M68000 memory.

Most of the Level II ATON CP/M operating system code is placed in two alternate 16K banks. These can be in an extra 64K memory board (see Figure 4) or be part of the M68000 memory (see Figure 5). If both an extra 64K board and M68000 memory is present, ATON CP/M will be loaded into the 64K board, since the Z-80 can more efficiently execute program code out of the Z-80 board. Some Model 16s and Model IIs with only the 16 bit upgrade require the extra Z-80 board for Level II operation because of a hardware memory timing problem. This problem appears to be resolved in the Model 12 with the 16 bit upgrade and the Model 16B.



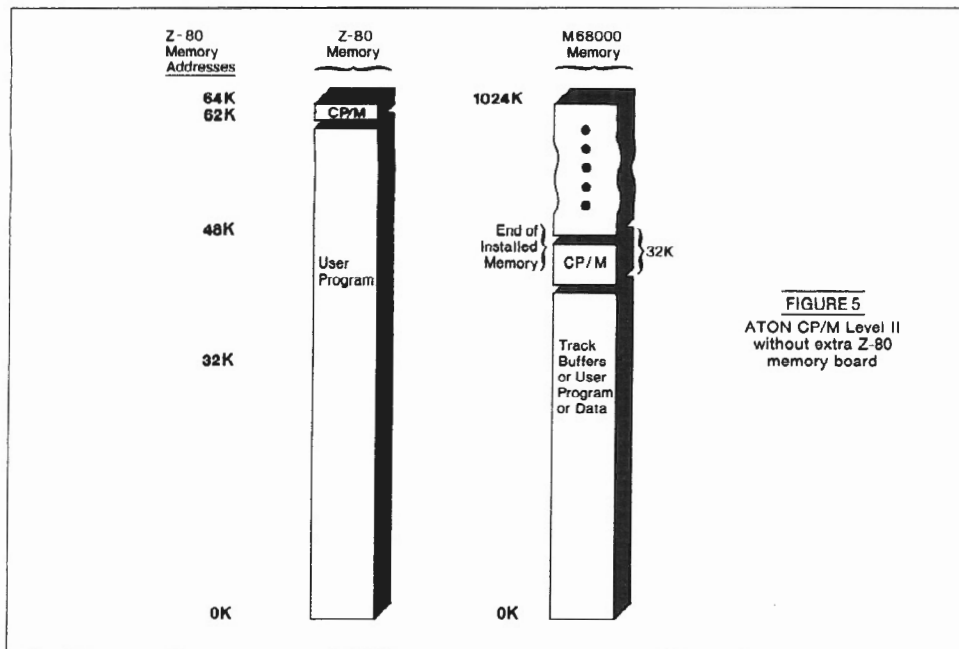


FIGURE 5  
ATON CP/M Level II  
without extra Z-80  
memory board

dependent on the application program being run and how much memory is available for track buffering. On a Model 16 with 256K RAM, a one hour dBASE II file indexing run can be reduced to 10 minutes! Other run time improvements may be less dramatic. The Level II system with floppies can often out-perform a hard disk system, and its average performance seems to be equivalent to the hard drive system.

The Radio Shack hardware is powerfully designed and is very reasonably priced. However, all that hardware power is wasted unless a lot of attention is paid to the design of the software operating system! ■

**Charles A. Wilde, President**  
**Aton International, Inc.**  
1765 Scott Blvd., Suite 119  
Santa Clara, CA 95050

The most exciting feature of Level II ATON CP/M is the way it makes automatic use of all the extra memory in the machine to speed up user programs with a disk cache buffering scheme. Whenever a 128K byte disk record is needed, CP/M reads in all the data bytes from an entire 8K disk track into a RAM memory track buffer in one revolution of the diskette. When other 128 byte records are needed from that track, the data transfer goes to and from the RAM bank rather than the much slower diskette drive.

The Level II ATON CP/M can manage up to 128 track buffers (a total of 1 megabyte of RAM!) located in Z-80 RAM banks and M68000 memory. When all of the track buffers are in use and a new track is needed, ATON CP/M decides which of the currently used buffers will be used for the new data. If the currently used buffer has been modified because the user program has issued a write command, then ATON CP/M will write out the modified track data to the diskette before reading in the new track data. Because ATON CP/M can read or write an entire 8K track in one diskette revolution (one-sixth of a second), a read after write check is done on directory track writes and optionally on all disk write operations. This read after write check guarantees a high level of disk reliability without greatly slowing down disk performance as would be the case on other CP/M systems.

A special "learning" technique is used by the ATON CP/M track buffer

manager so that it will tend to keep the most frequently used disk tracks in RAM memory. This can be seen when the same user program, with the same disk, will execute faster each time it is run because CP/M is learning how to process disk requests more efficiently.

This learning technique does, for example, give a high priority to keeping the disk directory in memory because it is frequently accessed by both user programs as well as the operating system.

This disk cache buffering scheme is extremely powerful because, unlike "semidisks" or "RAM drives", it is completely automatic and requires no modifications to user programs or operating procedures. Standard programming tools, such as program overlays and chaining, can be used to extend the size of a user program. With any other CP/M system, these tools would slow down the user program by a large amount because the disk would be accessed each time a program overlay was required. With ATON CP/M, however, the program overlays are read into a RAM bank by the operating system only once. Thereafter the overlays are moved from the RAM bank to the main 64K memory whenever they are needed. Because the RAM to RAM transfer is many times faster than a disk to RAM transfer, the program overlays have a minimum effect on program run times.

The actual speed improvement that Level II ATON CP/M will give is

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# VIS·A·CON:

## A consolidation system for the serious VisiCalc user

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BY RALPH GANDY

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**H**ave you ever found yourself replicating VisiCalc models in order to calculate summary totals? Are you constantly worried about running out of memory because you have expanded a model to create "balance forward" totals? Or perhaps your models are so large you find yourself doing consolidation totals with a calculator while you silently curse the limitations of your computer. If so, take heart. Viz.A.Con can help you.

**Viz.A.Con is a system of programs** written in RS-BASIC which can combine sets of data from a VisiCalc model into a single summary data set. The system consists of seven program files, the first of which is a "DO" file that loads the main menu program and begins execution. The main menu program controls the chaining of three additional program files. And the remaining two files are work files used to hold data during the consolidation process. These seven files must be on the system disk in drive zero for Viz.A.Con to function. The Viz.A.Con program disk also contains several demonstration files which can be used to familiarize yourself with the program.

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**Viz.A.Con does its consolidations** by operating on VisiCalc data stored in the data interchange format (DIF). If you are familiar with VisiCalc, the set-up of your data for use by Viz.A.Con is fairly straight forward.

First, set up a VisiCalc model with all headings and formats defined, but without data or formulas. This "empty" model is saved in DIF format and is used by Viz.A.Con to format its consolidated output. Next, add the formulas to your model. This copy is saved in standard VisiCalc (VC) format and it becomes your base model. The last step, while still in VisiCalc, is to add the base level data to your model (one set at a time) and save each set in DIF format.

Once your DIF files have been set up, you are ready to run a Viz.A.Con "consolidation process". From TRSDOS READY, load the "DO" file that brings up the main Viz.A.Con menu by typing "VCON". The first screen is a menu offering four choices. Selecting Option One allows you to build a "consolidation process" in which you are lead through the building process by a series of screen prompts. This prompter session asks for the names of the DIF files you previously created, and Viz.A.Con does require that you specify the print format DIF file first when building a consolidation process. Your responses to the prompter session are used to build a DIF file which contains the sums of the position equivalent cells from each of your specified DIF files.

During the summation process, Viz.A.Con shows you on the screen which files it is using and what progress it is making. This is a nice feature as the program is not fast, and the changing display reassures you that things are still progressing.

Upon completion of the consolidation process, Viz.A.Con can print the newly created consolidated DIF file. The output will be in the format specified by the VisiCalc DIF format print file.

You may also use this newly created DIF file as input to other consolidations. This gives Viz.A.Con the ability to do multi-level consolidations.

The other menu options allow you to print previously created consolidation reports, or to print previously saved responses to a prompter session, or to exit to the system.

**After this brief overview, you may be** wondering of what real use use is this program? The main use I have found for Viz.A.Con is doing budget consolidations. I have set up my department budget on VisiCalc using the standard format required by our corporate accounting department. Other departments are also required to use this same format. My boss has several departments reporting to him, and he needs to supply a consolidated budget for his division. With Viz.A.Con, the consolidated budget was easy. I entered my department data in VisiCalc and saved it in DIF format. I repeated this process for each department in the

FIGURE 1.

Item 1 Salesman	New Sales	Total Sales	% New	
1	100	1000	10%	
2	500	1000	50%	
Item total	600	2000	30%	
Item 2 Salesman	New Sales	Total Sales	% New	
1	200	1000	20%	
2	500	2000	25%	
Item total	700	3000	23%	
Company Total (Items 1+2 as output by Viz.A.Con)				(correct)
Salesman	New Sales	Total Sales	% New	(percent)
1	300	2000	30%	15%
2	1000	3000	75%	33%
Co. total	1300	5000	53%	26%

division. Viz.A.Con was then called on to calculate the division budget. It was able to output the consolidated division numbers in the required format, and it saved time.

Another benefit of this system is that only one copy of the complete model needs to be available. All other work can be done by overlaying the DIF files and the standard model, thus saving memory and disk space.

While exploring other uses for this program, I found one problem that could be either an annoyance or a major inconvenience. Viz.A.Con sums things you may not want summed. Since it uses position equivalent cells in a DIF file, it blindly sums all cells containing numbers. If the number happens to be the result of a formula whose consolidated value is not the sum of the individual data sets, Viz.A.Con does not know the difference and sums the cells anyway. The consolidated values for those cells are worthless (See Figure 1).

The only way to get correct values in the consolidated file is to take it back into the VisiCalc model and do a recalculation. This becomes time consuming if many of your models contain calculations like this. It can also lead to error if the percentages or whatever are not off by enough to be obvious to the user of the output. To eliminate this problem, I have developed the habit of only saving "summable" data in my DIF file and always returning to VisiCalc for recalculation and printing.

Viz.A.Con is useful, but it does have its limitations. As just discussed, Viz.A.Con sums values blindly by position. If your models run toward the complex, you may find this a limitation.

I have not found the fifty file per consolidation limit to be a problem.

The programs themselves present several inconsistencies which I found annoying. The most annoying of these was the necessity of supplying file extensions in response to the "file not found" error message. During the prompter session, Viz.A.Con supplies the file extensions. If a file name is specified incorrectly, an error message is produced. To recover from the error, Viz.A.Con requires you to supply the corrected name, but this time it also requires the file extension. Since I had been advised by the documentation to "browse through this manual and run the program using the Sample Sessions", it took me awhile to figure out I needed the missing extension. My suggestion would be "read the documentation completely and then run the sample programs". Viz.A.Con also supplies a help function. If you forget the correct spelling of the file name, you can type a "?" and Viz.A.Con will display the disk directory. However, it makes no attempt to list only those files with valid file extensions. Rather, you get the whole directory. It seems to me that a more professional approach would be to display only files usable by Viz.A.Con.

Another area where this program could use a little polish is in its documentation.

The documentation consists of 30 pages (not counting sample sessions or appendices) divided into four parts. It has a table of contents but no index. Part 1 delves into the concepts behind the program; Part 2 describes the operational requirements of the system; Part 3 leads you through a prompter session, and Part 4 is a list of error messages.

It is my opinion that documentation should be organized for the user. Information should be presented as the user needs it. Examples should be provided and the documentation should be in a tutorial style. It should also contain either a quick reference card or an index to aid the user in locating information quickly.

The Viz.A.Con documentation fails to meet my expectations, and I find its major weakness to be its organization. All the information is there, but where?

My conclusion after reviewing the product is that Viz.A.Con would be useful if you are doing financial type consolidations, such as my budget example. For these uses it is straight forward and fairly easy to use. It offers a convenient method for consolidating VisiCalc data sets produced by the same model. If your uses run to the more complex (ratios, percentages, etc.) as mine do, you may still find this program useful, but it won't be nearly as easy to use.

Overall, the program is good; however, the documentation could be reorganized to help the first time user. ■

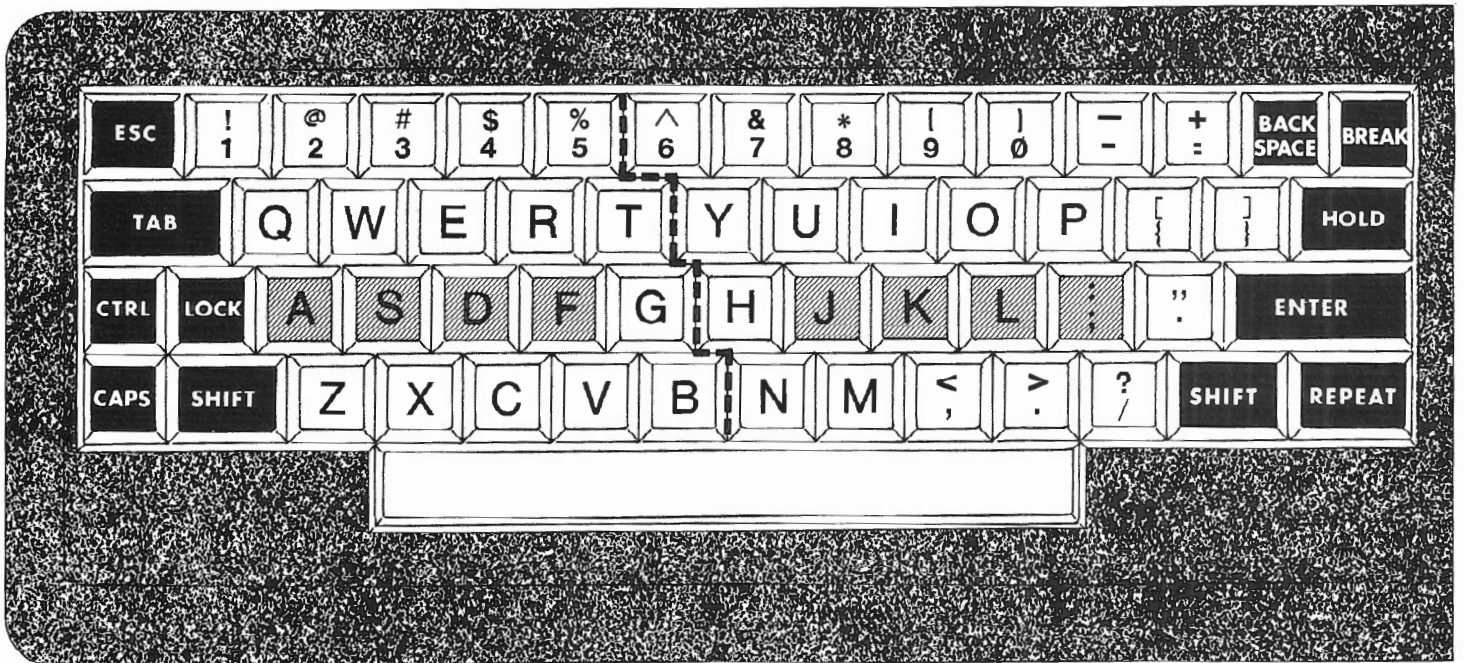
Viz.A.Con is available from:  
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# MASTER YOUR Q • W • E • R • T • Y

BY WALDO T. BOYD

**P**roliferation of personal and small business computers has placed the QWERTY keyboard on desks and tables before thousands of users who have never taken a typing course. Almost everyone who has self-learned to type uses some form of "hunt and peck," an anachronism in this new era of man-machine interfacing. Touch-typing, the standard system of keyboarding by learned positional response using eight fingers and one or two thumbs, has increased the typist's output two- to four-fold over that of hunt-and-peck artists who generally use no more than two fingers on each hand.

Added advantages accrue to the touch-keyboard user, such as the ability to keep one's eyes on the work rather than having to glance quickly to the keyboard and back to the copy. Finding your place on the worksheet after a keyboard glance can be tricky and time-consuming.

Now that words and numerals appear on the screen instead of directly on paper, the user has an added incentive to learn to touch the keys without having to glance or keep eyes glued to

the keyboard. At the same time, the screen offers an excellent means to learn the touch system "the easy way." All that is needed is a chart to view, on screen, with dynamic invitations to touch keys, and feedback to indicate correct and/or incorrect responses.

**In touch-keyboarding, the four fingers of the left hand are placed over the A, S, D, and F keys. The G and H keys are left open between the two index fingers, and J, K, L, and ; are covered with the fingers of the right hand. The touch must be light, very light, as you will discover. The right thumb (for right-handers; left thumb ok for Southpaws) rests above and operates the spacebar.**

With fingers placed as above, this position is called the HOME ROW position. It is well to practice coming into this position without looking at the keyboard. It's easy: lightly run the fingers of both hands from the top of the keyboard downward, without pressing the keys. As you feel the third row under your digits, touch your two index fingers together over G and H keys, then withdraw them simultaneously into correct position over the F and J keys. A few practice sweeps and you will find HOME ROW with your eyes closed, no problem.

The left hand controls the keys indicated in the left half of the chart (see Figure 1) and the right hand controls the keys to the right of the dotted dividing line. That's all there is to it, except lots of practice. After you start, don't go back to the old hunt-and-peck, no matter how slow the touch system seems at first. You will gain speed and accuracy quite rapidly, once you pass the 5 to 10 word per minute plateau.

One more instruction: The SHIFT keys are operated by the little finger of the hand *opposite* the hand touching the desired letter to be capitalized. This will take some getting used to, but will soon become "second nature."

**To help you undertake the conditioned-response learning that is necessary to master your keyboard, Program 1 places a chart of the keyboard on screen. The key to be touched is highlighted, and appears in upper or lower case as appropriate. Touching any other key than the one highlighted, including the necessity to shift to upper case for capitals and other characters, will not have visible effect on the presentation.**

Three choices are offered in the MENU: continuous random presentation of letters to be touched, covering the entire keyboard of alphanumeric and auxiliary characters; groups of three or groups of four letter-numeral-character mixes. Each group is repeated 10 times for up to 100 times, but can be terminated at any point by touching <ENTER>. The final MENU selection ends the exercise.



Following a touch of <ENTER>, or if 100 groups of ten are completed, a notation appears giving the total number of keys touched, with indication of those touched in error.

Because accuracy is paramount in all keyboarding, no indication of speed is included in this program. Even the fastest keyboard artists will not be able to outrun the flashing highlighted keys.

The first 35 lines of the program contain instructions and the MENU. Lines 360 through 890 lay out the keyboard on screen, with keys in relative positions found by the fingers.

Line 900 loads an array with alphanumeric characters to be placed in keys as selected at random. Lines 1100 and 1110, activated by the GOSUB of Line 910, secure the keyboard on screen, preventing scrolling that would otherwise occur as the program action gets underway.

Lines 1340 through 1560 select the groups of letters to be shown on the keys graphically. PRINT@ statements place these letters on their respective keys throughout the program. Lines 1000 and 1010 count and collect the correct and incorrect responses, respectively, for presentation by Lines 1030-1050.

This program is a condensed keyboarding tutorial that will produce surprising results if persistent efforts are made to avoid the self-defeating "cheating" of looking at the keyboard instead of the graphic chart. Learning the touch system of keyboarding will not interfere with learned responses gained over years of two-finger hunting and pecking, although touch progress will be much faster if the old ways are abandoned en toto.

Do not become overtired while practicing. It is better to spend 15 minutes of sprightly effort than to try to drag oneself past hours of laborious, inattentive repetition. ■

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```

10 CLS :PRINTTAB(10)STRING$(60,"=")
20 PRINTTAB(10)STRING$(19,"=") MASTER
   YOUR KEYBOARD " STRING$(19,"=")
30 PRINTTAB(10)STRING$(21,"=") " by Waldo
   T. Boyd " STRING$(21,"=")
40 PRINTTAB(10)STRING$(22,"=")
   Copyright 1983 " STRING$(22,"=")
50 PRINTTAB(10)STRING$(60,"=") :PRINT
60 PRINT :PRINTTAB(33) "=== M E N U ==="
70 CLEAR 1000 :DIM A$(100), B$(100),
   C$(100),B(100)
80 PRINT :PRINT :PRINTTAB(10) "SELECT
   ONE: "
90 PRINTTAB(15) "EXERCISE 1 === PRACTICE
   RANDOM ALPHANUMERIC < AN >:"
100 PRINTTAB(15) "EXERCISE 2 ===
   PRACTICE 3-STROKE SEQUENCES < 3S >:"
110 PRINTTAB(15) "EXERCISE 3 ===
   PRACTICE 4-STROKE SEQUENCES < 4S >:"
120 PRINTTAB(15) "RELAX!===TAKE A
   WELL-EARNED BREAK OR QUIT < END >:"
130 PRINT :PRINTTAB(47);:INPUT
   "SELECTION ";KB1$
140 CLS:IF KB1$<>"AN" AND KB1$<>"3S" AND
   KB1$<>"4S" AND KB1$<>"END" THEN 80
150 IF KB1$="END" THEN END
160 PRINTTAB(5) "An alphanumeric
   keyboard will appear on the screen.
   Letters
170 PRINT "on the keys will be
   highlighted one by one, some upper
   case, others
180 PRINT "lower case. If you touch the
   correct highlighted key on your board,
190 PRINT "the next letter will appear.
   A tally will be kept of 'hits' and
200 PRINT "'misses.' Accuracy should be
   emphasized rather than speed." :PRINT
210 IF KB1$="AN" THEN 350
220 IF KB1$="3S" THEN 240
230 IF KB1$="4S" THEN 300
240 PRINT "You have selected the
   three-character repetitive exercise,"
250 PRINT "strongly emphasizing accuracy
   over speed. Trigraphs will be re-"
260 PRINT "peated ten times each, for a
   total of 100 sets of three
   characters."
270 PRINT "You may stop at any time by
   touching < ENTER >, and your accuracy"
280 PRINT "score will be indicated on
   screen." :PRINT
290 IF KB1$="3S" THEN 350
300 PRINT "You have selected the
   four-character repetitive exercise,"
310 PRINT "strongly emphasizing accuracy
   above speed. Each set of four"
320 PRINT "characters will be repeated
   ten times, for a total of 100 sets."
330 PRINT "You may stop at any time by
   touching < ENTER >, and your accuracy"

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340 PRINT "score will be indicated on
   screen." :PRINT
350 LINEINPUT "WHEN YOU ARE READY TO
   BEGIN, TOUCH < ENTER >.";DUMMY$:PRINT
360 IF KB1$="3S" THEN PRINTCHR$(26) "ONE
   MOMENT PLEASE" CHR$(25):GOSUB 1340
370 IF KB1$="4S" THEN PRINTCHR$(26) "ONE
   MOMENT PLEASE" CHR$(25):GOSUB 1420
380 CLS : DEFINTC,S
390 FOR W=1 TO 4 '==Keyboard graphics
   follow
400 IF W=1 OR W=2 THEN U=72
410 IF W=2 THEN V=3
420 IF W=3 THEN V=4 :U=66
430 IF W=4 THEN V=7 :U=60
440 FOR X=1 TO U
450 IF Y=1 THEN PRINTTAB(V) CHR$(128);
460 IF Y=2 OR Y=3 OR Y=4 THEN
   PRINTTAB(V) CHR$(150);
470 IF Y=5 THEN PRINTTAB(V) CHR$(129);"
   ";
480 Y=Y+1 :IF Y=6 THEN Y=0
490 NEXT X :X=0 :Y=0 :PRINT
500 FOR X=1 TO U
510 IF Y=1 THEN PRINTTAB(V) CHR$(148);
520 IF Y=2 OR Y=3 OR Y=4 THEN
   PRINTTAB(V) " ";
530 IF Y=5 THEN PRINTTAB(V) CHR$(148);"
   ";
540 Y=Y+1 :IF Y=6 THEN Y=0
550 NEXT X :X=0 :Y=0 :PRINT
560 FOR X=1 TO U
570 IF Y=1 THEN PRINTTAB(V) CHR$(131);
580 IF Y=2 OR Y=3 OR Y=4 THEN
   PRINTTAB(V) CHR$(150);
590 IF Y=5 THEN PRINTTAB(V) CHR$(130);"
   ";
600 Y=Y+1 :IF Y=6 THEN Y=0
610 NEXT X :X=0 :Y=0 :PRINT
620 PRINT :IF W=2 GOTO 720
630 IF W=3 GOTO 770
640 IF W=4 GOTO 820
650 FOR X=2 TO 54 STEP 6
660 Y=Y+1
670 PRINT@79+X,Y;
680 NEXT X
690 PRINT@136,"0"; :PRINT@142,"-";
   :PRINT@148,"=";
700 Y=0 :PRINT
710 PRINT :NEXT W
720 FOR X=4 TO 74 STEP 6
730 READ Y$:DATA "Q","W","E","R",
   "T","Y","U","I","O","P","{","}"
740 PRINT@321+X,Y$;
750 NEXT X :Y$=""
760 PRINT :PRINT :NEXT W
770 FOR X=8 TO 72 STEP 6
780 READ Y$:DATA "A","S","D","F",
   "G","H","J","K","L",";","'"
790 PRINT@558+X,Y$;
800 NEXT X

```

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The object of a game is to amass treasure for points or accomplish some other goal such as preventing the destruction of the automated nuclear plant in Mission Impossible. Successfully completing a game, however, is far easier to state than achieve. In many cases you will find a treasure but be unable to take it until you are carrying the right combination of objects you find in the various locations.

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```

810 PRINT :PRINT :NEXT W
820 FOR X=10 TO 66 STEP 6
830 READ Y$:DATA "Z","X","C",
"V","B","N","M",".",",","/"
840 PRINT@799+X,Y$;
850 NEXT X
860 PRINT :PRINT :NEXT W
870 FOR I=1 TO 6 :READ CD(I) :NEXT I
880 DATA 6,14,62,27,207,201
890 PRINTTAB(21)"KEEP EYES ON CHART!
TOUCH <ENTER> TO END"
900 GOSUB 1140
910 GOSUB 1100
920 IF KB1$="AN" THEN X=RND(90)
930 IF KB1$="3S" OR KB1$="4S" THEN GOSUB
1500
940 L=INSTR(A$(X),"X")-1
:K=LEN(A$(X))-INSTR(A$(X),"X")
950 IF LEN(A$(X))<=6 THEN K=2
960 PRINT@VAL(LEFT$(A$(X),L)), CHR$(26)"
"(CHR$(VAL(RIGHT$(A$(X),K))))" ";
970 PRINT CHR$(2) :FOR S=1 TO 7 :PRINT
CHR$(13):NEXT S
980 Z$=INKEY$ :IF Z$="" THEN 980
990 IF ASC(Z$)=13 THEN 1020
1000 IF ASC(Z$)=VAL(RIGHT$(A$(X),K))
THEN J2=J2+1 ELSE J3=J3+1
1010 IF ASC(Z$)=VAL(RIGHT$(A$(X),K))
THEN 1070ELSE 970
1020 PRINT CHR$(25) :CLS :PRINT :PRINT
:PRINT
1030 CLS :PRINT "CORRECT KEYING = "J2
1040 PRINT ".....ERRORS: "J3
1050 PRINT :PRINT :PRINT
1060 INPUT "TOUCH < ENTER > FOR MENU.";
:RUN
1070 PRINT@VAL(LEFT$(A$(X),L)),
CHR$(25)" "
(CHR$(VAL(RIGHT$(A$(X),K))))" ";
1080 GOTO 920
1090 IF KB1$="AN" THEN GOSUB 1100
1100 J=0 :FOR I=1TO6 STEP2
:CV(J)=CVI(CHR$(CD(I))+CHR$(CD(I+1)))
:J=J+1 :NEXTI
1110 Y=0 :DEFUSR3=VARPTR(CV(0))
:Y=USR3(0)
1120 RETURN
1130 PRINT@Q,CHR$(26)" 1 ";
CHR$(25) :GOTO 980
1140 FOR X=1 TO 90
1150 READ A$(X)
1160 NEXT X :X=0
1170 RETURN
1180 DATA 81X49,87X50,93X51,
99X52,105X53,111X54
1190 DATA 117X55,123X56,129X57,
135X48,141X45,147X61
1200 DATA 81X33,87X64,93X35,
99X36,105X37,111X94
1210 DATA 117X38,123X42,129X40,
135X41,141X95,147X43

```

```

1220 DATA 324X81,330X87,336X69,
342X82,348X84,354X89
1230 DATA 360X85,366X73,372X79,
378X80,384X91,390X93
1240 DATA 324X113,330X119,336X101,
342X114,348X116,354X121
1250 DATA 360X117,366X105,372X111,
378X112,384X123,390X125
1260 DATA 565X65,571X83,577X68,
583X70,589X71,595X72
1270 DATA 601X74,607X75,613X76,
619X58,625X34
1280 DATA 565X97,571X115,577X100,
583X102,589X103,595X104
1290 DATA 601X106,607X107,613X108,
619X59,625X39
1300 DATA 808X90,814X88,820X67,
826X86,832X66,838X78
1310 DATA 844X77,850X60,856X62,862X63
1320 DATA 808X122,814X120,820X99,
826X118,832X98,838X110
1330 DATA 844X109,850X44,856X46,862X47
1340 FOR Y=1 TO 100
1350 FOR X=1 TO 3
1360 R=RND(90)
1370 B(Y)=R
1380 NEXT X
1390 K=0 :X=0
1400 NEXT Y
1410 X=0:Y=0 :RETURN
1420 FOR Y=1 TO 100
1430 FOR X=1 TO 4
1440 R$=CHR$(RND(26)+64)
1450 K$=K$+R$
1460 NEXT X
1470 B$(Y)=K$ :K$=""
1480 NEXT Y
1490 X=0:Y=0 :RETURN
1500 IF B1=0 THEN GOSUB 1560
1510 B=B+1 :IF B>3 AND KB1$="3S" THEN
B=1 :B1=B1+1 :IF B1>10 THEN B2=B2+1
1520 IF B>4 AND KB1$="4S" THEN B=1
:B1=B1+1 :IF B1>10 THEN B2=B2+1
1530 IF B2>100 THEN 1020
1540 X=B(B) :IF B1>10 THEN B1=0
1550 RETURN
1560 FOR B=1 TO 4 :B(B)=RND(90) :NEXT B
:RETURN

```

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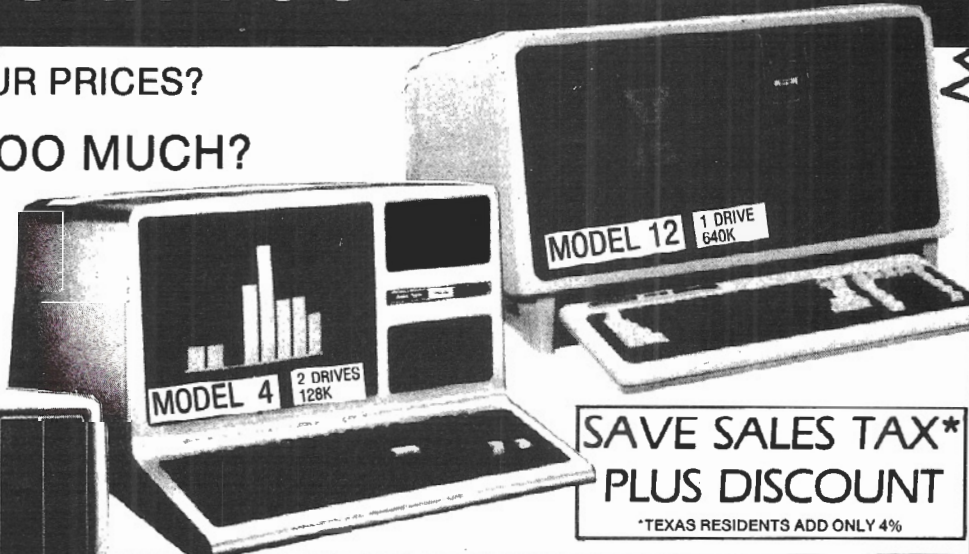
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# ZIP:

## The programmer's programmer

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BY DR. DAVID A. GASH

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**"REPLACE YOUR PROGRAMMER FOR \$395.00!"** read a sign in one of the booths at this year's Spring COMDEX show in Atlanta. Needless to say, I didn't buy it — the software or the hype.

The software being advertised, which shall remain nameless, belongs to a genre of systems usually (and erroneously) called "program writers." The majority of these systems promises computer novices that by using the software, they will be able to write their own applications programs without help from a professional programmer. These systems usually turn out to be data base managers of some type, and, in all fairness, data base systems can allow the inexperienced computer user to "write his own programs," in a manner of speaking. They can allow him to design his own records and files and let him process those files in a usually somewhat limited number of ways.

The beauty of these systems is that they take care of the tedious input/output routines required with micro-computers; that is, the keyboard input is handled automatically and usually

---

David A. Gash, Ph.D., President  
Creative Micro Systems, Inc.  
1010 Guaranty Bank Plaza  
Corpus Christi, TX 78413

---

verified to some extent, and screen and printer output is generally simple to set up.

Still, for any kind of complex processing at all, a "real" programmer is needed. The hang-up, though, even for the professional, is that pesky I/O — the boring but necessary screen displays, input verification, and inevitable echo-to-printer function. These things must be done before he can get down to the real meat of the program, the processing.

Enter ZIP, a program designed not for the novice user, but for the professional programmer writing custom applications in MBASIC, CBASIC, or dBASE II under CP/M who could use some help with I/O. ZIP is not a "program writer," but a true "code generator" which creates independent, executable blocks of code to handle keyboard input and verification, screen printing, and hard-copy output which the programmer can insert into his own programs as simple subroutines.

ZIP was written by Hal Pawluk, a marketing/advertising specialist. After having taken a programming course in PL/I, he wrote a few programs for personal and business use. In the process, he began to understand the I/O hassles mentioned above, and undertook to effect a solution. The result was ZIP.

Let's see what ZIP does and how. ZIP is installed with a simple program called ZIPIN, which allows the user immediate

installation from a menu of 22 popular terminals, or the system may be custom-installed without undue difficulty. Although it's best to use the default values for certain items the first time through, ZIP may be completely or partially re-installed at any time, or even temporarily modified during screen editing. For custom installation, only the bare minimum of screen codes — the clear screen and cursor positioning sequences — is needed.

ZIP presents you with a blank screen to work on which may be set to any size from 24 to 88 lines long. To use it, you simply type what you want to appear on the screen (headings, comments, prompts), along with the names of the data variables you want to display, print, or input; ZIP takes care of the rest. You use the ZIP screen like a text editor — the standard keys (backspace, return, tab, etc.) all act just like they should, and the arrow keys present on most terminals allow direct cursor movement. The regular "type-over" mode may be toggled to "insert" mode, and special features, such as text centering and drawing and erasing horizontal and vertical lines, are supported.

Standard keyboard characters (";" and "@") are used as special symbols to tell ZIP "write code to input a value to this; variable" or "print a variable's (or an expression's) value here." These characters, like all other ZIP commands, are user-definable, even in mid-session. The maximum length of the input variables may be specified by

the user or allowed to default to whatever space is available on the line. Source code may even be embedded in the screen itself; ZIP will add it to the generated code at the appropriate point (and, of course, will not print it on the screen during execution).

A nifty item called the "ZIP Talker" lets you know at what row and column you are positioned at all times, and displays various informative messages from time to time. (We'll see the "ZIP Talker" again later on.)

**When you have "painted" the screen** into the exact form you want, you save the form with "/S." ZIP asks you for a file name and creates (1)<name>.ZIP, which, although an ASCII file, should not be changed in any way; (2) <name>.ZPR, a printable file which can be edited with a text editor; and (3) the heart of the system, a<name>.BAS file containing the BASIC code to display/print/input the screen text and variables (a .CMD or .FMT file is created for dBASE II users).

At this point you may even use the same form to create another subroutine — for example, one to print a form to the screen and another to print the same form to the printer (a regular nightmare, as most programmers know). To avoid conflict with the first one, you can specify the line numbers for the blocks of code, although ZIP will automatically increment the line numbers of subsequent code blocks created within the same session.

ZIP can also load in an old file for modification and re-generation of the input/output code, making the rearrangement of fields on the screen (another nightmare) a snap.

**"GOSUB 10000" — that's it. Honest!** ZIP's generated code is an independent subroutine that does all the necessary screen/keyboard/printer I/O. You just merge it into your existing program and use it. For screen and printer displays, you do the GOSUB and go on with your program; for inputting screens of information, ZIP prints the screen, then positions the cursor at the first character of the first input field. Fields may then be input as desired. All the keys and functions work as they did during the screen building process: arrow keys, insert, delete, everything. The ZIP Talker even appears in your program, asking if you're finished and displaying messages at appropriate points.

Data validation is easy, and is best done after the entire screen has been input. All you need to do to re-input incorrect data is set a variable equal to the number of the invalid field and do the GOSUB again. You don't even have to number or count the fields yourself; ZIP inserts the field numbers as comments in the code so you know which one is which. The second time around, ZIP allows input only on the specified field; more validation may be done if desired, and as many calls may be made to the subroutine as needed, until the data is satisfactory. After input, the variables are available to the mainline program for normal processing.

The net result? Clean, simple, and effective input.

**ZIP is a programmer's utility, so I feel** some specific comments are in order concerning the code it generates. I have only the MBASIC version (which is, in Mr. Pawluk's words, "the biggie" in terms of features), so these comments will pertain to that generated code.

ZIP takes advantage of MBASIC's long variable name feature: since the period (".") is an acceptable variable name character (making names such as "TOTAL.AMOUNT.DUE" valid), ZIP generates curious, but valid variable names such as "R.." and "C..". These variables look rather strange when the code is listed, but they effectively avoid conflict with any of the programmer's other variables.

Further, ZIP always uses type identifiers for each variable ("R..%", "Z..#") so that the programmer may use DEFINT/SGL/DBL/STR statements without fear of conflict. These two ideas ensure that ZIP's variables will be unique to its portions of the program.

ZIP's input routine is coded at lines 65000 and above, again so as not to conflict with the mainline program; the print routines will be placed at line 10000 and above automatically, or the user may specify any beginning line number as each block is generated.

ZIP's code is directly executable by the MBASIC interpreter and compilable by the BASCOM compiler. The only error generated is a "^ND" ("not dimensioned") message on the array "CTLS..\$." (This is a warning message only and may be ignored — the program will link and execute properly anyway.)

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# ZIP: Continued

The code is transportable in two different ways: ZIP may be re-installed on a different machine and the code re-generated, or the generated code may be modified slightly to use the programmer's own cursor positioning routines. The code generated by ZIP is different for each application, and as many blocks of code may be generated as needed to do the program's I/O.

Another point very worthy of note: there is no royalty whatsoever on the generated code.

The "ZIP Talker" mentioned earlier may also be used in the applications program to send messages to the screen. While not a major feature, it is a handy one that can save the programmer the time and trouble of doing it himself — which is, after all, the basic idea behind ZIP.

I've used ZIP for about three months now, and I have no complaints about its operation or its performance. I have even made a couple of minor changes in the generated code without problems. Its market is vertical, but not severely limited; people who write custom applications for a living should love it, but it's also extremely useful for those who just write an occasional program for themselves. And, although it wasn't expensive to begin with, it's priced even better now: just \$79 for the MBASIC or CBASIC version (that's one-half of the original price!) or \$39 for the dBASE II version. (Incidentally, Ashton-Tate, Inc. thought so much of the product that they now include a free copy of ZIP with every sale of dBASE II for CP/M machines).

So, while the day of the "\$395 programmer replacement" is still quite a way off (I hope!), ZIP is a great first step. If you do any amount of programming at all, you won't believe the time and trouble ZIP can save you. In my opinion, it's the most useful utility for professional programmers on the market today, period. ■

ZIP is available from:

**NEXUS Software**  
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## S R E V I E W O F STRUCTURAL COMPUTER PROGRAMS

BY H.B. WARNER III P.E.

**S**tructural engineering is one of those crucial building design disciplines that makes itself visible to the public only when something goes wrong. As when a building collapses.

Preventing building collapse is (naturally!) the bottom line objective in structural engineering, but there's a lot more to it than that. A considerable amount of technical expertise and number-crunching is required to choose and design the right structural solution. The software programs from EASI Software, Inc. in Jackson, New Jersey, provide some invaluable help to the engineer by substantially reducing the hours of calculation he must expend when determining the correct structural solution.

EASI Software, Inc. has developed a number of software programs which design firms, such as ours, will find useful. Structural engineering is a part of most of the \$50 million worth of construction projects we design each

year at The Durrant Group, a 90-person, full service architectural, engineering, and construction management firm with offices in Madison, Wisconsin and Dubuque, Iowa.

Here are a few thoughts on several programs I found to be most helpful.

**The EASI-SCLM (Structural Steel Column Design)** program is very simple and rapid; it saves a substantial amount of time over manual calculation. The program interactively prompts the user for input data. All the user has to do is provide short answers to the program's questions. Input includes axial forces and moments, laterally unsupported lengths, and effective length factors. The program will select the lowest weight column that satisfies the design criteria and print out the column depth and flange width to enable the user to compare the column size with geometric design requirements. The user may easily review other column selections which also meet the design criteria by pressing <Carriage Return>. The program will list the next largest cross-sectional area column which satisfies the specified design requirements.

In a manner of minutes, the user has at his fingertips a choice of columns meeting his design requirements. By contrast, it might take 1-1/2 to 2 hours to manually arrive at a single column

**H. B. Warner III P.E.**  
Vice President  
Durrant Engineers, Inc.  
Dubuque, IA and Madison, WI



selection for a typical column design involving combined axial load and bending design.

The only serious drawback to this program is that it still uses the old steel shapes. The tables should be up-dated to the current steel shapes to make this program applicable for today's usage. In fact, the program authors do indicate they are refining the program to include the current steel shapes and also, to provide the option of inputting one's own tables. Otherwise, this is a good, quick steel column design program.

**EASI-SCLM Structural Steel Column Design Program: \$100.00.**

**EASI-SLAB (One-Way Slab Design)** is very beneficial if the design conditions meet the key criteria for using the ACI moment and shear coefficients.

The following design criteria for using this program must be met: there must be two or more spans; the spans must be approximately equal, with the larger of the adjacent spans not greater than the shorter by more than 20%; the load must be uniformly distributed; and the unit-live load must not exceed the unit dead-load by three times.

The engineer works interactively with this program, using a very easy-to-use format. EASI-SLAB will quickly determine both the slab thickness and steel reinforcement requirements for each support negative moment and mid-span positive moment of each slab span.

**EASI-SLAB Structural 1-Way, 2-Way Concrete Slab Design Program: \$100.00.**

**EASI Two-Way Slab Design** is another useful program that uses the ACI Direct Design Method to compute slab thickness and reinforcement steel required for two-way concrete slabs.

The engineer works interactively with the program using easy, straight forward data entry. He can move rapidly from a corner slab to an interior slab or from an interior slab to an exterior slab using the program's "new problem" option which allows a completely new problem to be entered without having to re-boot.

The program output includes the slab design moments and the area of steel

required for the column strip and middle strips of a two-way slab. The program also outputs the beam design moments. However, it does not compute the reinforcing steel and shear design for the beams. The resulting beam design moments can be input, along with the shear loading, into a separate program, the Structural Concrete Beam Design (EASI-CCBM) program.

**EASI-SLAB Structural 1-Way, 2-Way Concrete Slab Design Program: \$100.00.**

**EASI"2" is well-named.** This program is an excellent, easy to use, finite element analysis program that will analyze space trusses, plane frames, grids, space frames, and membranes and rods. The user operates interactively with straight forward data entry. The output will display displacements, forces, and moments in elements, and forces and moments in boundaries.

The program is very valuable as a general structural analysis tool in which the user need be concerned only

with modeling the structure. The computer will quickly perform the otherwise time-consuming mathematical manipulation needed to obtain the structural solution. The upshot is a considerable savings of time for the engineer doing the number-crunching. Time saved can be spent on engineering design — and, of course, on preventing building collapse.

**EASI"2"** is available to run under TRSDOS or CP/M with MBASIC.  
Cost: \$125.00

**In conclusion, the new programs offered by EASI Software, Inc. don't take all the effort out of structural engineering, but they streamline it considerably.** Design firms around the country should find some real value in several of these programs. ■

For more information, contact:

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# P MOST EFFECTIVE PREVENTIVE MEDICINE

BY ROBERT D. LANGER

**P**reventive Medicine is one of those things like Mom and Apple Pie; you would be hard-pressed to find anyone who'd speak against it. One problem with buzz-words like this one, though, is that ten people using the same term may have ten entirely different definitions. For our purposes, let's broadly define preventive medicine to include the range of therapeutic and educational interventions which may minimize or eliminate the development of disease. Unfortunately for most physicians, implementation of significant preventive measures in their practices has been quite impractical. If done on a person-to-person basis it takes substantial amounts of time and is usually not covered under standard medical insurance programs.

**Here is one area in which the power and efficiencies of the microcomputer can really shine.** Since the knowledge base involved in specific aspects of prevention is readily definable, and, in most circumstances, can be applied to individual cases by following a logical sequence of "and/or" and "if/then"

decisions within this body of knowledge, relatively simple programs can (and have been) designed to implement a number of preventive medical modalities. This deductive process is quite different from the monstrous problem involved in developing "expert" diagnostic software in which clinical inductive reasoning with an almost limitless universe of knowledge requires extremely complex software which utilizes advanced artificial intelligence techniques and vast on-line data base libraries.

In the medical office or clinic a microcomputer can provide reliable interactive preventive services on a volume basis with minimal overhead. The nominal expense involved can be billed as a specific educational service or may be included in the fee for a more complete evaluation.

**In our office we use the computer to generate personalized diets for patients who are either over or underweight.** The routine first calculates ideal weight based on height, body build, and sex; it then calculates ideal caloric intake for appropriate weight loss (or gain) based on activity level and age. It provides a break-down of the daily calories in terms of proteins, carbohydrates, and

fats, and makes general recommendations as to the kinds of foods which should be eaten. It also provides general guidelines for exercise to promote appropriate weight loss and conditioning. A second "maintenance" diet to be used once ideal weight has been attained is generated at the same time. A patient or member of my staff can run this routine in less than three minutes, and I or my nurse can reinforce it easily in a few additional minutes. The patient goes home with personalized printed instructions which have proven to be highly effective in motivating our patients to follow the prescribed program.

**Another extremely time consuming task which is often incompletely performed due to hectic schedules is that of compiling a full and complete history to be used to target preventive health interventions for an individual patient.** In fact, even if this information has been gathered, it frequently is not applied due to inadequate time to properly evaluate it.

Here again, the computer can be a marvelous assistant. A patient or a member of the office staff simply responds to a series of branching logic

questions which "tailor" the history to the patient's age, sex, and accumulated previous responses. After gathering all pertinent information, the computer compares it with established guidelines for preventive services based on the recommendations of major authorities, such as the American Academy of Pediatrics, the American Cancer Society, and the Centers for Disease Control. All necessary preventive measures which should be done immediately are flagged and the patient is given a print-out which identifies procedures to be done at specific intervals in the future to safeguard his or her health. The rationale for each intervention is also explained so that compliance may be enhanced by understanding. This information can then be added to the patient's clinical medical record to optimize care in the future.

Using such a routine in our office has allowed us to streamline the history taking phase of a complete history and physical, and has both increased the thoroughness of our histories and increased practice revenue through the identification of additional cost-effective yet important exams and procedures.

Still another excellent preventive medical application for the computer which is available from several sources is the Health Hazard Appraisal. These programs utilize branching logic questionnaires to collect information on lifestyle and health history. Comparison is then made to actuarial data from widely accepted studies, such as the long term evaluation project for cardiovascular risk in Framingham, Massachusetts, and standard mortality tables to generate a current "risk age" and an achievable "risk age" for the patient. These "risk ages" may be compared to the patient's true age to determine the degree to which unhealthy habits may reduce life-span. For example, a forty-five year old man who smokes and has uncontrolled hypertension may have the same statistical risk of dying as a healthy fifty-three year old. Specific suggestions are generated which would enable the patient to lower his or her risk and (statistically speaking) reach the achievable risk age. People with excellent health habits and lower than the usual risk factors may actually have a risk age of several years less than their actual age. Personalized print-outs from these routines are

given to the patient as a means of motivating positive changes in life-style.

In our office all of the above routines have met with very favorable reaction from our patients. The personalized print-outs in particular seem to be very powerful in motivating patients to adopt better health habits. Time saved by the automation of these routines also allows more time to be devoted to other aspects of the patient encounter including education, in-depth responses to patient questions and concerns, and reinforcement of important recommendations. We are also able to provide services which would otherwise not be practical. The computer is, after all, another tool which has numerous applications in clinical medicine; ten years from now your physician will probably find it as indispensable as his stethoscope. ■

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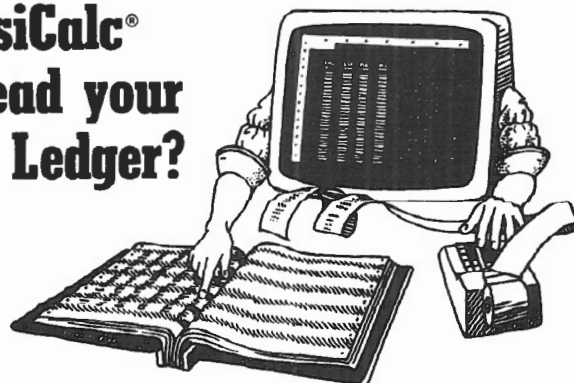
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# JUDGING COMPUTER POWER, CHIP DESIGNATIONS AND CLOCK SPEEDS



---

BY JIM KLOOSTERMAN

*Have you ever walked into a computer store or opened a magazine and encountered sales claims about the wondrous power of the new XYZ computer? Is there some way to cut through the "hype"? A way to get a quick, factual feeling for what the new computer might really do?*

**T**here is, and it's remarkably simple. Just ask for/look for the Technical Specifications. Radio Shack is more open about these than many manufacturers; their specs are listed in fine print in the catalog beside each computer. In a Computer Wonderland Store, it may be harder to get the salesperson to show you those details in writing. Make him do it! Be as insistent as you need to be; swear you won't listen to claims till you've seen those specifications! If it's a magazine article, search for the specs. They should be there, although perhaps in bits and pieces. If they're not, assume the author is ignorant or the manufacturer has something to hide!

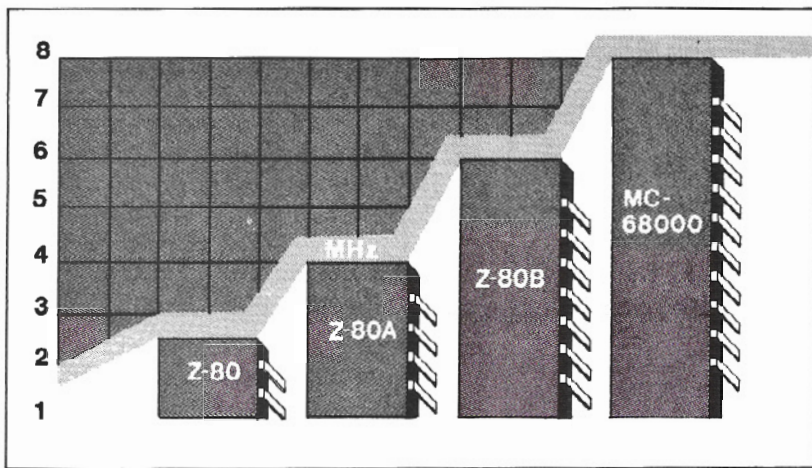
All computers sold today, even "toys", are more than sufficient Turing Machines. Mr. Turing proved long ago that a "machine" with a certain minimum set of "facilities" is *theoretically* capable of computing the answer to any computable problem within some finite period of time. Of course, that time may vary from microseconds to millions of years — in theory!

Therefore, the practical question in computer evaluation is simply: How fast/slow is it for your own particular range of problems?

Even determining the answer to that question can be a formidable chore involving careful definitions of both problems and computer capabilities. Fortunately, for most micro/mini computers, there is a quick approximation, based on a coarse ranking of comparative computer capabilities and of problem sizes.

Taking the latter issue first, compare your problems with those of someone who is successfully using computers in a similar business the size of your own. If his XYZ computer is big and fast enough, then a computer of similar or greater capability should do a good job for you, too — even if it's not the same brand! That's assuming, of course, you can locate as good or better software for a ZYX Computer and can equip it with RAM and bulk memory of comparable size/speed.

☛☛ *When two different computers use the identical CPU-Chip, they may still differ in clock speeds.* ☛☛



Estimating comparative computer power is easier. The capability of any computer in terms of pure number-crunching speed depends upon just three factors: architecture, clock-speed, and software-efficiency.

Software-efficiency is really tough to evaluate but, in theory, anything XYZ programmers can do can be done by ZYX, too. The trouble is, they may not have applied the time and effort to do so for your application.

Computer architecture divides neatly into two areas for "CPU on a chip" machines. One is the architecture of the central processing unit (CPU). The

other has to do with how the CPU is integrated into the rest of the system. A great majority of small computers use one of only a half-dozen CPUs. That enormously simplifies coarse comparisons of CPU architecture.

Precise evaluation of system architecture soon gets very complex. However, it's obvious a system requiring the attention of the CPU for many "house-keeping tasks" will be slower than a system using that same CPU along with a number of auxiliary chips to free the CPU from details, such as

printer input/output. If you need details about a computer in this area, don't bother with salespeople; you'll need to get such information from a competent, trouble-shooting technician for that model of computer.

Finally, there's clock speed. It has nothing to do with TIMES\$! All internal logic within a computer is synchronized by clocking pulses derived from a single source. The basic frequency of the "clock" is stated in the specifications. Typically, it might be 4 MHz. That's "four mega-Hertz," which means there are four-million clock pulses per second. Elderly fans of radio can think of it as "4 Mc," or "four megacycles." The newer MHz abbreviation officially honors the pioneering investigations of Henrich Rudolph Hertz into his "hertzian waves" — now known as radio-frequency waves.

A clock-speed of, say, 4 MHz implies the computer can accomplish some "fundamental operation" in one-quarter of one-microsecond — one-quarter of one-millionth of one-second! Exactly what such a "fundamental operation" might be varies somewhat, but it usually means a micro-machine-language CPU command, such as "fetch

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a unit of data from RAM" or "shift an internal register one bit-position to the right or left." Any good assembly-language description for a particular chip will detail exactly the number of clock pulses for each CPU command (usually in an appendix).

The main point is that when two different computers use the identical CPU-chip, they may still differ in clock speeds. If so, then the computer with the higher clock-speed (all else being equal) will offer proportionally higher number-crunching capabilities.

The real secret to "quick and dirty" evaluation of the capability of a small computer lies in learning two things: the designation of the CPU-chip and the clock speed. Just those two items from a specification allow you to roughly classify the computer — often far more accurately than the promotional literature or a pitch from the salesperson.

Popular CPU-chips are designated by a number, often with prefix and suffix letters and sometimes also by still more numbers/letters. The main CPU-chip number or "family" designation is typically 6809, 8080, 80, 8086, 8088, 68000 — in order of increasing power. Where used, the prefix letter(s) indicate the company which developed the chip. Common letters are Z for Zilog, MC for Motorola, and INS for Intel.

Sometimes a suffix letter denotes the maximum clock-speed that a particular CPU-chip is able to handle. This can vary for CPUs of the same number! In the case of Z-80, no suffix letter usually means a maximum speed of 2.5 MHz; Z-80A means 4 MHz; and Z-80B means 6 MHz. Note: a computer may utilize a CPU-chip with a clock speed

☞☞ **Radio Shack's  
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lower than indicated by the suffix letter — but not higher!

Finally, other numbers/letters may designate related chips in the same family as the CPU-chip. Such chips may or may not be used in a computer's architecture, but are intended for such use.

The Model II is a Z-80A, 4 MHz computer. On first evaluation, that is sufficient to roughly classify its power compared to, say, a Model III which is a Z-80, 2.03 MHz computer, or a Model 16 which is a MC68000 6 MHz computer, or IBM 9000 Instruments Computer which is a MC68000 8 MHz machine. To be sure, there are many details of system architecture and software efficiency that may also affect a computer's capability. Generally, however, those will not be sufficient to move a computer from one class to another as per the above determination. They may be important for the relative ranking of computers within the same "class."

So that's the secret. Simply find the CPU-chip designation and clock-speed for any small computer, and you can "classify" it yourself. No outside help needed.

The Model II actually contains five chips of varying Z-80A family desig-

nations. It also uses two chips from outside that family — one of them from another CPU family! The Z-80A is the actual CPU chip. A Z-80A SIO serves as Serial Input/Output controller chip; a Z-80A PIO is the Parallel Input-Output controller chip; a Z-80A CTC is the Counter/Timer Circuit chip; and a Z-80A DMA is used as the Direct Memory Access chip. Those are all Z-80 family chips.

The Floppy-Disk Formatter/Controller chip is a Western Digital FD1791-1. Even more curious, the CRT (video) controller chip is a Motorola MC6845, which seems to be part of the MC6800 family, but an early predecessor family to the much more powerful MC68000 CPU-chip now being used in the Radio Shack Model 16s! ■

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# SPELLBINDER

## Painful word processing

BY DEAN R. LAMBE

**W**ere that prolific wordsmith, Charles Dickens, writing today, I am sure that he would retire his quill pen in favor of a keyboard. And Dickens comes to mind as I consider the following tale of two word processing systems, SCRIPSIT and SPELLBINDER. For the latter, I can only conclude: It was the best of programs; it was the worst of programs.

I was initially pleased to receive SPELLBINDER for review. As a writer my business is words, my end-product is words. Anything that will increase the efficiency of word production is greeted with eager fingers, and over a year ago I joined the ever-increasing number of professional writers who have chucked their typewriters for CRTs, floppies, and high-interest payments. My choice followed the best advice: After extensive comparison shopping, I picked the software first, then the hardware. Since SCRIPSIT only runs in the TRSDOS operating system, a Radio Shack Model II moved into my office, and I have yet to regret that choice.

A few months ago, however, I began to research a book proposal on word processing and noted the great popularity of CP/M among businesses and professionals. Am I missing something, I wondered? So when the editors of *two/sixteen* asked me to take a look at a CP/M-based package that the three-page "Spellbinding Highlights" calls "a lot hotter than plain word processing," I thought it would be a wonderful learning experience. Learn something I did — but the experience was hardly wonderful.

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Before discussion of the feints and foibles of SPELLBINDER, let us consider the basic requirements of good word processing software, factors that should be important for both the office secretary and the executive who makes the purchasing decisions. While I now write science articles and science fiction, I was trained as a psychobiologist and spent many years teaching courses in psychophysiology. I know a thing or two about the man-machine interface, and offer the following criteria for good software:

1. The user should be able to move from a standard typewriter to word processing with a minimum of negative transfer. Skills learned on the former should not interfere with requirements of the software, e.g., the <BACKSPACE> key ought to backspace.

2. Losing text from RAM or disk should be as difficult as losing a typewritten document, and accidental loss of text with a single command or keystroke should be very difficult (ideally it should happen only during nuclear war).

3. The command structure for basic writing, editing, and printing functions should be logical and mnemonic. One cannot do what one cannot easily remember. <CTRL-P> is a sensible command associated with printing; <CTRL-q fy> is not.

4. Within the constraints of the standard QWERTY keyboard (an admittedly-bad piece of human engineering), commands and function switching operations should utilize the most coordinated finger movements, e.g., <ESC SHIFT+> is a very awkward sequence, while <CTRL-j> is one of the easiest.

5. On-screen help messages and reminders should be available on com-

mand, and should indicate the actual keystrokes required for each function or operation.

6. The disk directory of document file names should not be easily confused with operating system files. The directory should allow names and descriptions of files that are long enough to specify documents clearly and completely, i.e., awkward abbreviations like LETANC will probably not be recalled as "letter to Acme Nut Company" two months from now. A separate log of disk file names should not be necessary.

7. Date and time stamping should be possible for document files.

8. Documentation should be clearly written, should avoid unnecessary references to machine language and "hidden" machine processes, and should be fully indexed. The documentation manuals should be designed with both the initial training period and future "refresher" referencing in mind. A quick reference card or chart is recommended.

As we shall see, SPELLBINDER fails to meet almost all of the above criteria.

On paper, this word processing package appears to be the greatest thing since the invention of . . . eh, paper. The designers of this software have attempted a "one size fits all" approach with a very versatile program that may be configured for a wide range of keyboards and printers. Those of us who must visit "Big & Tall Shops" have reason to be skeptical of this orientation.

All standard word processing features are included in SPELLBINDER, from full cursor control through automatic word wrap to text block manipulations and search/replace functions. Extensive

print formatting and printing choices are supported, but many of these options only work with the more expensive precision letter-quality printers (this rules out *all* Radio Shack printers; more on this problem below). The program permits a wide range of user-modification in terms of commonly-used key sequences, printer font changes, and customized sub-programs for specific database management operations.

**SPELLBINDER exceeds the range of most word processing systems with its macro features.** There are about a dozen pre-programmed "Load and Go"

be created, deleted, overwritten for correction, and new text may be inserted. If you want to do anything else, the Command mode must be switched on with a <CTRL-q> (or the <F1> function key, but you cannot get back to the Edit mode with the <F1> key). Thus documents may be created in the Edit mode only and minor editing changes may be made there.

For search and replace, block deletions, block moves, and all printing commands, however, the Command mode must be used, and while the text is still on the screen, no changes can be made

While writing in the Edit mode (where the cursor homes to and text begins in the left middle of the screen), one has the choice of five "cursor modes" (<CTRL-o>): CHAR, WORD, SENT, PARA, and MARK. These labels appear next to the cursor line- and column-position numbers in the information line at the top of the screen, and indicate that the arrow keys will move the cursor forward (or the delete command will destroy) one character, one word, one sentence, etc. This feature speeds cursor movement, and when deletion of text is desired, a prompt REALLY?(Y/N) appears when this mode setting involves more than 1K of text. It is such a comfort to know that only about 170 words can be lost accidentally for failure to note that the cursor mode was not CHAR when you planned to delete only one character.

From the Command mode, pagination, title lines, headers and footers, and all print format settings are chosen with "y-tables" and "yt-tables." These tables are menus that tailor the text to the desired hardcopy appearance, and consist of a series of numbers. Margins, amount of text per page, and line lengths are set in numbers that correspond to tenths of an inch, which is a nice touch if you have print wheels with different type styles — until you discover that every ruler in your house is calibrated in eighths of an inch and a metric ruler is even less helpful. On the plus side, the title table allows for even-odd page differences, so text may be fed to a phototypesetter with the largest margin in the appropriate place for a bound report or book.

As with many other "dot commands," the print format may be embedded in the text (with a "fetch y" command) as, for example, the following line: .y 2 0 1 90 110 0 0 1 0 65 2 1 1 0 30 5. While this procedure allows for any number of format changes within a particular document, and permits permanent formatting of the text as it is saved to disk, such a string of 16 numbers will not mean much to a secretary next month when she has to decide whether segments of the report to the chairman of the board need to be re-formatted for the stockholders' report.

All the canned "Load and Go" macro-features seem to work as advertised, but some are a bit strange. Several macros are rather limited in their database management capabilities, and are probably best thought of as models for program options that individual users would customize for their specific needs. Mail Merge, Alpha Sort, and Cue Sort, for example, are limited to a relatively small number of records, and

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*☹☹ I was left with the feeling  
that what configuration had been  
done for R/S hardware was  
an afterthought. ☹☹*

---

macros that handle common business needs, like mail merge, standardized forms, boilerplate documents, alphanumeric sorts, patch print, and in-text mathematics. Thus, in comparison with TRSDOS-based software, it appears that SPELLBINDER includes all aspects of SCRIPSIT, part of PROFILE II, and part of VISICALC. Additionally, with the "M-Speak interpretive programming language" and a manual that is available at extra cost, the user may write other macros to further customize and extend the capabilities of SPELLBINDER. Mind blowing, right? Well, wait until you try to use this turkey.

**SPELLBINDER arrives only partially configured for the TRS-80 Model II.** The user must complete an initialization sequence with answers to prompts about type of terminal, number of drives, brand and model of printer, and several less obvious things about which the user is invited to guess. Once these choices have been made correctly, the proper configuration can be saved to disk, and "SB" is all that need be typed to enter the program from the CP/M system prompt. (In all fairness, SPELLBINDER is apparently sold by computer stores where the dealer is expected to tailor the configuration at time of sale.)

**Once SPELLBINDER is loaded and running,** the user encounters two modes of operation: Edit and Command. Within the Edit mode, text can

without return to Edit mode. If this sounds like trying to write with a pencil which has a cap that must be removed before you can use the eraser, you are beginning to understand the special joys of SPELLBINDER. Needless to say, the text may be saved to disk only in the Command mode, and an interesting variety of letters (w,r,g) will display text on the screen after it has been saved (with the command, gd).

Before the text leaves RAM for the disk, a file name of eight letters and an optional three-letter extension is called for, and it does not matter whether caps or small letters are used for file names, for whatever is typed will be converted to caps in the disk directory. Document file names are freely mixed with SPELLBINDER system files and macro files in the directory. Once the text file has been opened and read and/or written to a second file, an automatic backup is made, so the original, say TESTTEXT, becomes TESTTEXT.BAK. While this feature may save the bacon of the novice who confuses "qd" with "gd" and permanently kills a valuable text file from disk, the automatic file backup also allows the user to read the same document three times and bump the original right off the "one plus copy" cliff. A rose by any other name may smell as sweet, but a file that does not receive a new name each time it is closed may vanish.



would not handle the customer or client lists of most small businesses. Also, these macros seem slow, and while I made no stopwatch comparisons, the sorting routines appeared to be no faster than similar BASIC programs.

The Key Phrase macro supports user-defined keys for commonly-used phrases of up to 75 characters. Forty phrases may be created and saved in this way, while larger amounts of boilerplating may be done with the macro of that name.

The Calc macro has some very interesting features. Numbers may be manipulated directly within the text, and most mathematical functions may be performed on those numbers. Two memory registers store values or constants, and in conjunction with other macros, operations may be performed on rows and columns of numbers just like those of electronic spreadsheet programs. Unfortunately, Calc does not do division. No problem, merely multiply by the reciprocal. (Quick, ask your secretary to define the reciprocal of a number, and then wonder how she would find one without a disk calculator.)

With an open text file, all macros are brought into a holding buffer with the command ad (not to be confused with the command da, which deletes everything in RAM) and the name of the macro file. The macros may then be switched on or off with the CONTINUE key (<CTRL-a>, or <F1 key> (most of the time). Problems occur when you have called up a macro and then either want to stop using it or use another macro. Apparently the only way to empty the macro buffer is to save the document file to disk and load it again. Macro buffers also seem to overlap text block holding buffers, so block moves and mathematics (or mathematics and mail merge, for that matter) cannot be done without a trip or two to the disk and back.

**When a document is first written, all text remains in the RAM "workspace" until a specific command is given to save to disk. Since SPELLBINDER system routines occupy a large amount of memory, a given document is limited to less than 30 typewritten pages before a "memory full" prompt calls for a disk operation. Long reports would have to be written in pieces, therefore, and those in areas with occasional power failures would risk**

the loss of large amounts of "unsaved" text.

Text may be saved to a disk in any drive, of course, but unless the user is careful to first specify a drive letter before the file name, the document may be routed to the wrong disk. SPELLBINDER assumes that the last disk accessed is the intended storage disk, and it is all too easy to forget that the directory of the disk in drive C was consulted while the order to the Fumble Finger Keyboard Company was written. Thus, the Fumble Finger folks may get their letter, but the letter writer may never find it again because it went to drive C instead of drive A.

Although previewing of formatted text is possible before the document is fed to printer or disk, and page breaks are visible at that time, the orientation of SPELLBINDER is toward whole document lines, rather than discrete pages. Remaining memory levels and amounts of disk space used are given in "letters" or bytes, and estimation of the actual size of a printed document requires a bit of mental arithmetic.

The distinctions between Read files, Write files, and the terms "open," "close," and "get" must be mastered

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carefully, for it is all too easy to save a document under the wrong file name. If a previous file is open, LETTER.BOB for instance, the "workspace" may be cleared of all text, and INVOICE.JOB may be created and saved. BOB gets a surprise and becomes JOB, and the user must fumble through the manual to find out how to change a file name.

**The SPELLBINDER manual is quite uneven in helpfulness and readability.** A 73-page Tutorial section is designed to acquaint the novice user with the system, and a few days' work with those examples should yield an average business letter in about twice the time that it could have been written on a typewriter (normal, for no one should buy word processing just for production of short letters). Explanations and guidelines in the Tutorial are presented reasonably well, but the user learns little more than how to replace his typewriter. The more powerful aspects of word processing and printer control are left to the general reference section, where the lack of an index and cross-references is a serious omission.

A six-page "Quick Reference" section outlines the Edit and Command mode operations and the in-text embedded commands, but the definitions are often too terse to help the perplexed. Short of gluing these six pages around the keyboard, it is difficult to imagine how they are in any sense "quick."

The discussion of the "Load and Go" macro-features, while quite important for the general user, suffers from a high level of "computerese" (and a large number of typos). Those with no other experience on database management programs will find these sections tough sledding indeed.

The remainder of the manual, perhaps ten percent, is devoted to system applications, peripherals, and the "M-speak programming language" for the macros. No doubt these final sections are of interest to (and readable by) programmers and systems customizers. When I asked friends who are professors of computer science about the very cryptic, condensed "M-speak language," however, they shook their heads and wondered why anyone would bother learning such an odd-ball tongue when good business programs are readily available in standard languages.

**As if I have not found enough fault with SPELLBINDER already,** there are several truly irritating aspects. I wrote to and then waited and waited for a reply from the SPELLBINDER vendor, Lexisoft, Inc. Finally they replied. No,

they had not done much with the Model II function keys, and as for the printer "handshaking" problem, they advised helpfully that I get another printer.

My Daisy-Wheel II, and in fact all R/S printers as I understand it, has an automatic, hard-wired line feed after every carriage return. No problem as long as I was willing to put up with double-spaced printing (copy goes to editors that way, no sweat). Given the way that Lexisoft prides itself on the versatility of SPELLBINDER, however, and the ease with which it can be configured to most any terminal and printer (or so they say), Lexisoft's "hohum" attitude is bizarre.

**I was left with the feeling that what configuration had been done for Radio Shack hardware was an after-thought, an unfinished job.** Certainly, the <BACKSPACE> muddle is a nightmare. In the Edit mode, the <BACKSPACE> key does nothing; one can only go left with the left arrow key. In Command mode, <BACKSPACE> works, but it does not delete; deletion often requires extra keystrokes to close up blank spaces. Reach for the wrong key 20 times a day, and learn the true meaning of negative transfer. The <HOLD> key rarely does anything useful, <F2> does nothing at all, and the function of <F1> may or may not equal <CTRL-a>. Apparently, Lexisoft believes in saving some keys for a rainy day.

The location of the cursor information line is disturbing. While many word processing programs put that line at the top, rather than the bottom of the screen, the actual SPELLBINDER placement gives a constant flicker of changing numbers "out of the corner of the eye." The information line, as well as the "user guides" at the bottom of the screen, may be turned off permanently, but then one could easily get lost in a forest of text.

**The same command letters are often used for totally different functions:** "d" for "done" (save) and "d" for "delete" seems particularly dangerous. "Y" either gets you the print format table or indents a block of text, depending on the circumstances. "U" enhances text with underlining, boldface, etc. or "Unholds" a block of text in the storage buffer for a block move. All commands are followed by <ENTER>, except for requests to view the disk directory. In that case, if you follow the acquired tendency to hit <ENTER> after the drive has been specified, the disk directory will list to screen and disap-

pear in an eyeblink. Directory calls require a special hold on the right pinkie finger.

Time and/or date stamping of files does not seem to be possible, and the automatic backup of files with the same name is more of a dangerous nuisance and a waste of disk space than a positive protection.

Within two weeks of purchasing SCRIPSIT, I was doing everything I wanted to do reliably. Only once have I lost a SCRIPSIT document (and the folks in Ft. Worth apologized and sent me a patch so that will not happen again). After a month with SPELLBINDER, I was still destroying text; once I lost one document while trying not to lost another.

**I have spent more time testing SPELLBINDER than I might have,** for I wanted to be fair. While I have used WORDSTAR, this is the first CP/M-based software with which I have written extensively, and I wanted to make sure that the operating system had little to do with the limitations of SPELLBINDER. I am satisfied that CP/M is not the problem. Also, while the printer "handshaking" difficulty rules out those with Radio Shack printers, initially I thought SPELLBINDER might be a good buy for those with NEC, Diablo, Qume, or C. Itoh hardware — especially if their other software was in CP/M. No way. Unacceptable. Not recommended.

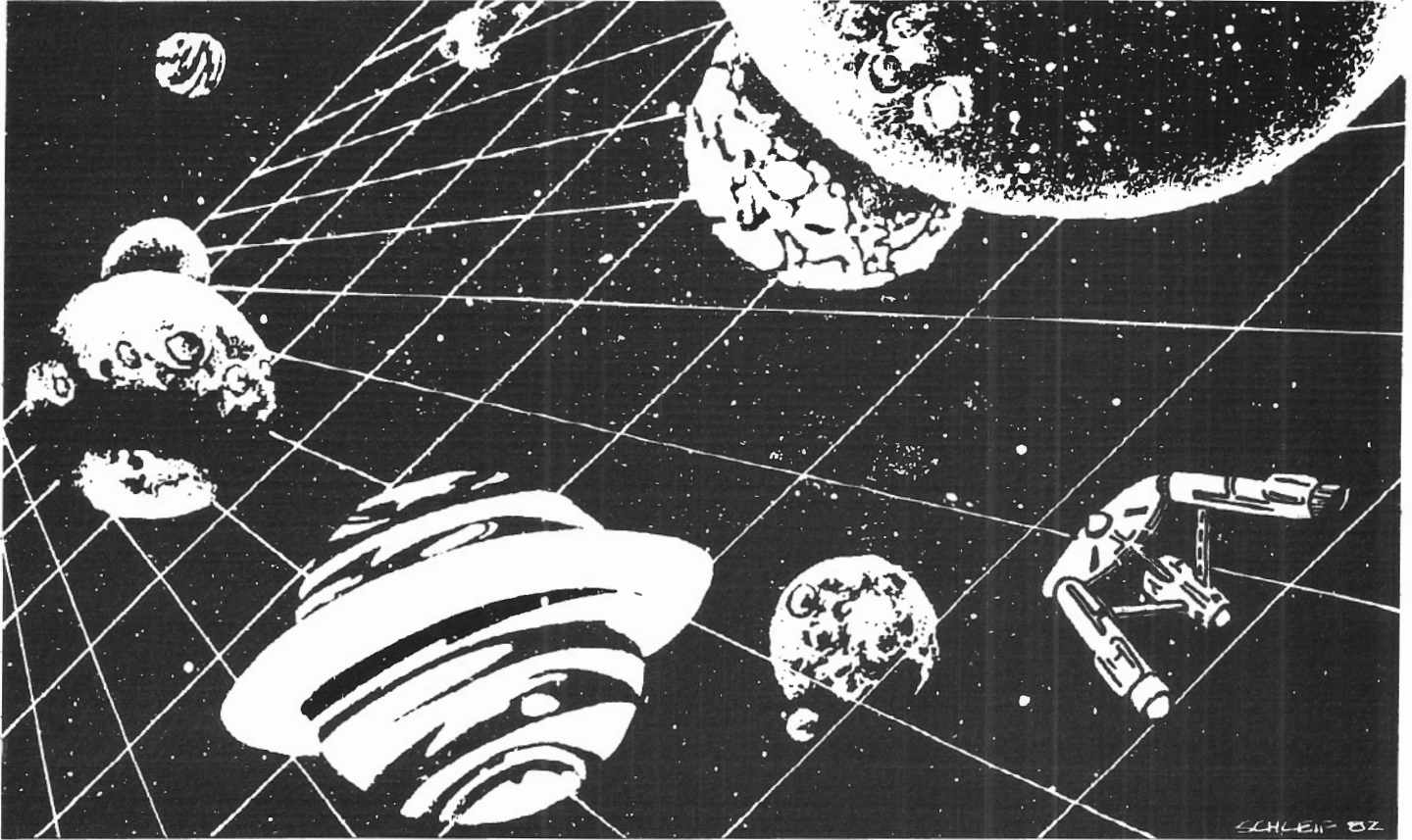
Harsh words, but as with book reviews that I write, I hope the criticism is both constructive and informative for reader and writer (in this case, programmer) alike.

Writers hate to type; they especially hate to retype. Many computerized writers are far ahead of most businesses in terms of the "paperless office" (and the only paper this review will ever see is the pages in your hands). Three years from now, when an editor wants to reprint one of my stories, I expect to execute a few keystrokes and provide the original copy. I would not have that confidence with SPELLBINDER, and while it is awfully hard on trees, I do not blame those who continue to fill cabinets with paper when their words are produced on such awkward software. ■

SPELLBINDER is available from dealers or from:

**Lexisoft Inc.  
Box 1378  
Davis, CA 95617  
Call: 916/758-3630  
Cost: \$495.00**

# STARSHIP I

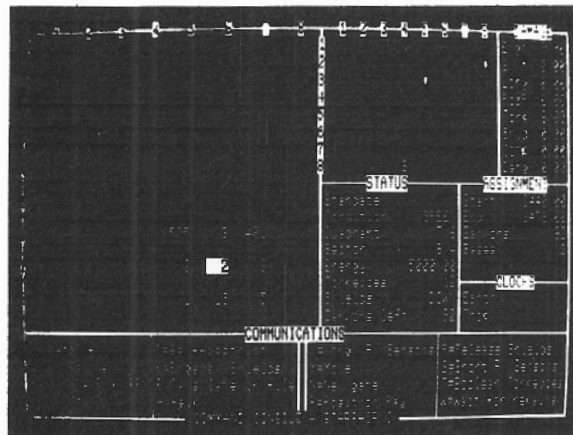


STARSHIP/I (copyright registered) is a save-the-galaxy type game based on the venerable STARTREK games which have been played on large mainframes for more than ten years. It is specifically designed for the RS Model II and features a constant console display with no scrolling. Each game begins in a randomly arranged galaxy of 64 "quadrants," each containing 64 "sectors."

STARSHIP/I is a "strategic" game (as opposed to "tactical" games which involve reflex action but little thought). However, STARSHIP requires quick thinking, as all events are timed. Because STARSHIP is written in the RS BASIC interpreter language, users can modify the source code or use sections of the code as models to learn techniques which can be used to produce games of their own design.

STARSHIP comes with a disk instruction file which can be listed on your printer. It can also be listed on the screen at the beginning of a session. In addition, STARSHIP contains a few undocumented "surprises" at advanced levels of play (there are ten levels of difficulty). These surprises may be analyzed by reviewing the source code, then modified or deactivated if desired.

Games may be saved in files at any point for later play or for "duplicate" games in which several players start with the same layout and position and compete for the highest ending score.



starship I

STARSHIP/I was sold for several months at \$50 through leading computer magazines. It is now available to two/sixteen subscribers at the special price of \$30, including air mail (anywhere) in protective Kangaroo mailer.

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