

ADVANCED

T.M. FORMERLY TWO/SIXTEEN

COMPUTING

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

INSIDE:

AN OVERVIEW OF PROFILE 16

Profile II Plus for XENIX

14

HOW TO GET MORE OUT OF P&T CP/M 2.2m

A Unique CP/M System

18

HOW TO RECOVER A CRASHED SCRIPSIT DISK

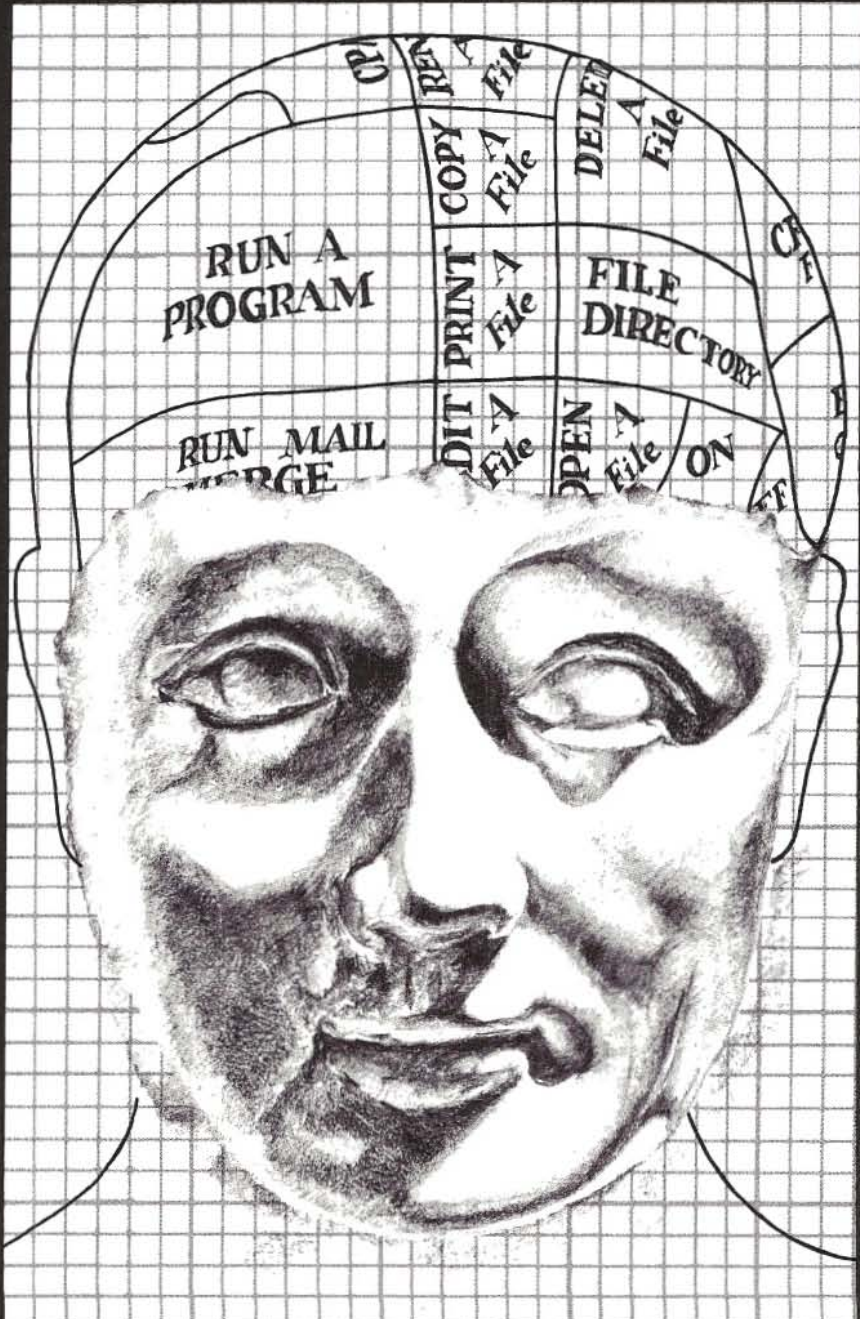
Fix the DOCUMENT/CTL
File

24

BANK SWITCHING ON THE MODEL II

Using TRSDOS 2.0a

38



HACKER'S GUIDE TO WORDSTAR

Create a customized version of WordStar 3.3

4



Investments. Tax Shelters. Financial Press Releases. New Companies and New Products. Government Regulations.

It's all on NewsNet. The world's largest computerized database of specialized business newsletter information. News you can use (often before it's printed!) in areas important to you: Investment, Taxation, Banking, Finance, Hi-Tech R & D, and much more.

Look at industry events from the inside. While they're still news. Hot new fields: Fiber Optics and Lasers (5 newsletters on NewsNet!); Satellite Communications (3 specific services on NewsNet and a dozen more that cover the field!). The publications specialists read: reviews, industry overviews, forecasts.

NewsNet's database—more than 175 business services AND PR Newswire AND UPI News—is available to anyone with a microcomputer, terminal or word processor, equipped with a modem. *You don't need to subscribe to any publication online.*

Search for *any* keyword or phrase. All back issues fully indexed for rapid access: a company or product name, a person, a more complex string of words. The name of a competitor or new business contact. Scan story headlines as they're delivered to you; read or print out any you choose. *NewsNet becomes your personal research department!*

Hundreds of news releases every day, from more than 7,000 news sources on PR Newswire alone! And NewsNet's "NewsFlash" service searches everything for you, automatically, at no extra charge, to find your chosen keywords and phrases. *NewsNet becomes your personal clipping service!*

All this, and affordable. Standard usage rates start at \$24/hour during workday hours, at 300 words/minute. Read only what you know is important. No membership fee. No hookup charge. The low monthly minimum is \$15.

Call NewsNet today.

NewsNet: On the mark. Ahead of time.

800/345-1301

NEWSNET

(In PA call 215/527-8030)

For the Business Information Edge ■

945 Haverford Road, Bryn Mawr, PA 19010

ADVANCED T.M.

COMPUTING

STAFF

Publisher **Richard H. Young**
 Managing Editor **Barbara S. Albert**
 Art Director **Timothy P. Schleif**
 Advertising/Circulation Director **William R. Holland**
 Technical Specialist **Mark A. Ingoglia**
 Administrative Assistant **Fay L. Smith**

Typesetting by **Forry & Hacker Lititz, PA**

Printed by **Forry & Hacker Lititz, PA**

Advanced Computing (ISSN 0736-8194)
 is published bi-monthly by
Advanced Computing
 131 East Orange Street, Lancaster, PA 17602
 Entire contents copyright 1984
 by Richard H. Young
 All rights reserved

Telephones

Editorial Staff **717/397-3365**
 Classified Advertising **717/397-3789**
 Display Advertising **717/397-3789**
 Subscriptions **717/397-3364**

Annual Subscriptions

Third Class **\$30 In U.S.**
 First Class **\$36 In U.S.**

Visa and MasterCard Accepted

Foreign Subscriptions

Canada and Mexico **\$36 U.S.**
 Other Foreign **\$47 U.S.**
 Air Mail Foreign **\$67 U.S.**

Drawn on U.S. Banks

Send all subscription correspondence,
 including change of address (with label) to

Advanced Computing

Box 1216, Lancaster, PA 17603

Advanced Computing

welcomes letters to the editor.
 All letters sent to the magazine become
 the property of **Advanced Computing** and
 are subject to publication unless
 otherwise requested by the author.

CONTENTS

EDITORIAL

Notes & Comment

Richard H. Young

2

FEATURE

Hacker's Guide to WordStar

Robert P. VanNatta

4

"Any modifications are made at your own risk on a trial and error basis.
 Therein lies the art of hacking."

SOFTWARE

Review of T/Maker III

Richard Trahan

10

"T/Makes III combines word processing, spreadsheet capabilities, list
 sorting/tallying, and bar charting into one complete package."

An Overview of Profile 16

William J. Clemo III

14

"Profile 16 is Profile II Plus with all the enhancements you could ever
 dream of for your TRS-XENIX multi-user system."

Review of SL-Micro

Richard Jensen

32

"Most users will find SL-Micro quite satisfactory for the production of
 routine statistical analysis of small or large data sets."

The CP/M Workshop

Mark Bennett

46

"Making the transition from TRSDOS to CP/M doesn't have to be
 difficult or painful, if you have The CP/M Workshop to get you started
 and help you over the rough spots."

OPERATING SYSTEMS

How To Get More Out of Pickles & Trout CP/M 2.2m

Christine Pickles

18

"Pickles & Trout CP/M 2.2m includes many features which make it a
 unique CP/M system."

Converting Model II BASIC Programs to XENIX MBASIC

Anthony Lawrence

34

"MBASIC for Model 16 XENIX systems is similar to Model II BASIC, but
 the differences can cause problems and confusion."

SERVICES

CompuServe: Become a Frontiersman In the Land of Nighttime (Part Two)

Paul Naitoh

20

"In this installment of his CompuServe series, Dr. Naitoh shares some
 tricks he has learned, as well as practical advice concerning Electronic
 Mail, SIGs, and DOWNloading programs."

TUTORIAL

How To Recover A Crashed SCRIPSIT 2.0 Diskette

A. F. Niessner, Jr.

24

"By using SPATCH/BAS, a crashed SCRIPSIT diskette can be quickly
 searched and the directory pointers in the DOCUMENT/CTL file listed."

Bank Switching on the Model II

Jerry Lippey

38

"The Model II is configured to switch among up to 15 banks of upper
 32K memory, and Mr. Lippey tells us how to accomplish bank switching
 on the Model II running under TRSDOS 2.0a."

HARDWARE

Look At Veritas Dual Processor Option

Robert P. VanNatta

42

"Our Model II/12/16 computers are going to be worth a whole lot more
 if they have an upgrade path to the current state-of-the-art software,
 which the Veritas DPO will provide."

>>>New name

Considerable confusion has arisen during the last two years about the name two/sixteen. Several people have suggested that it sounded like a magazine for young women. We are almost always omitted from listings of computer magazines in other publications. And new computers, such as the 12 and 2000, make the 11/16 numbers less significant than they were in the beginning. So we've changed the name, effective with this issue, to Advanced Computing, which seems to more accurately reflect the nature of our coverage. We are continuing to use the sub-head "The journal for business, professional, and scientific members of the TRS-80 community."

>>>New service

An expanded service is now available to subscribers. A detailed description was included with the last issue of two/sixteen and in a subsequent mailing. (If you have any questions about this service, please call me at (717) 397-3364.) Until March 1, 1984, we offer a 10% discount plus a refund of all two/sixteen magazine subscriptions paid to date. Please consider this special offer if you are a serious Model 11/12/16 computer user. Naturally, those subscribers who do not elect to take the new service will continue to receive Advanced Computing as if nothing had happened.

>>>Tandy Model 2000, etc.

I've got mixed emotions about this machine. As Radio Shack salesmen will tell you, it isn't an IBM clone. In fact, many of the most popular IBM PC programs (like Lotus 1-2-3, VisiCalc, and WordStar) will not run on the 2000 (according to Tandy literature, although I've been told that many of these programs can be run by using fairly simple, if unconventional, loading methods). Also, some believe that future versions of any incompatible programs will be modified so as to be compatible with the 2000's Intel 80186 chip as well as the PC's Intel 8088. There is widespread belief that the 80186 chip will be used in a large number of new computer designs, and that developers of most new business software will be sure to include the 80186 chip among its target CPUs.

Reports are that the 2000 performs mixed compute/input-output benchmarks in one-half to one-third the time required by the IBM PC. The 2000 handily beats the IBM PC on nearly every significant specification, including standard RAM (double), maximum RAM (20% more), disk capacity (standard is more than double the PC's optional-at-extra-cost maximum), CPU chip data path (double), clock speed (almost double), available board slots (double), color resolution (four times as great), number of colors (double), and keyboard features. Considering the relative prices, why would any informed user buy an IBM PC?

I'm also pleased to see that the machine is labelled TANDY rather than Radio Shack. This should improve its saleability to senior business executives who think of Radio Shack as a not-very-serious supplier of radio hobbyists' supplies.

Many of us who like to prognosticate believe that XENIX will be made available soon for the 2000. (UNIX-type systems are definitely being developed for other 80186-based machines.) However, the 2000 is currently limited to a single 10 megabyte hard disk. This is insufficient disk storage, in my opinion, for a multi-user XENIX system, but I'm told that there is no technical reason why additional hard disks could not be provided in future.

At the moment, it looks like the Model 16B remains a better buy than the 2000 for the serious business user who needs a lot of storage and multi-user capability. However, users who can live with the storage limitations may find the 2000's gra-

phics, along with the mass of MS-DOS software available, an irresistible temptation.

Advanced Computing will be covering business, professional, and scientific applications on the Tandy 2000.

>>>Other hard disk notes

A Chicago reader advised us in late December that a Center manager has told him that the long-rumored 35 megabyte Radio Shack hard drive will be released in March. No price estimate.

Pickles & Trout CP/M users who are considering the new Radio Shack 15 Mbyte hard disk should be aware that the 15 has a different controller than the 8.7 and 12 Mbyte hard disks and that a new hard disk driver module will be required. P&T is developing the required module.

>>>XENIX

We're not yet running a Model 16 XENIX system at Advanced Computing, but we plan to put one up in January. In the mean time, nearly all the reports we have from XENIX users are overwhelmingly positive, in spite of some vexing problems, such as multi-user print spooling, which are expected to be fixed in the next release, due soon.

Many XENIX users have called to inquire about availability of XENIX application software in addition to that available from the Shack. Because UNIX is described as a "universal operating system," one might reasonably expect that most of UNIX/XENIX application software should run on machines which use a UNIX-like operating system. To find out if this hypothesis is valid, I've had a few lengthy phone conversations with UNIX/XENIX software developers around the U.S. and Canada, with encouraging but inconclusive results. While no definitive tests have yet been made, some application programs (including some language compilers) are expected to run on TRS-XENIX without modification. Other applications (including some data bases) are expected to require "porting" to the 16, but probably at modest cost (perhaps \$10,000 cost to a program licensee, who would then sell the program to end users).

It looks like there is a great deal of development going on in the UNIX world. (AT&T is expected to announce a line of business oriented micros running under UNIX sometime in January.) We should expect a wide variety of language, data base, and application program software to become available in 1984.

I'm going to stick my neck out and predict that by the end of 1984, UNIX and UNIX-like operating systems will be the de facto standard for business, professional, and scientific processing, and that most sophisticated application programs will be developed under UNIX.

Once again, I recommend that anyone who is using XENIX or seriously contemplating its use should subscribe to:

UNIX REVIEW
2711 76th Avenue S.E.
Mercer Island, WA 98040
(206) 232-6719

Subscriptions are \$23 per year (six issues). The October/November, 1983, issue contains 96 pages of useful information, including many ads for UNIX products.

XENIX users have inquired about the availability of suitable word processing capability for XENIX systems. Rumor (albeit rather authoritative rumor) has it that attempts to adapt Scripsit to XENIX have been very unsatisfactory and that it

will be quite a long time before any usable Scrip-
sit will emerge. In the meantime, we've learned
of the availability of two products, a full screen
text editor (EMACS) and a word processing system
(LEX68) that may fill the bill. Both have very
impressive specifications and are available from
UniPress Software, Inc., 1164 Raritan Avenue,
Highland Park, NJ 08904, (201) 985-8000.

>>>Statistical data and analysis programs
Data from the 1980 census, historical time-series
data on population, housing, and the economy, and
a directory of programs for statistical analysis
are now available on-line (300/1200 baud) from The
Glimpse Corporation, 105A Oronoco Street,
Alexandria, VA 22314, (703) 836-6800.

Michigan State University has published an
annotated directory of 268 statistical programs
for microcomputers, with special attention to IBM,
Apple, and CP/M operating systems. The full
citation is "An Annotated Directory of Statistical
and Related Microcomputer Software for Socio-
Economic Data Analysis" by V. Kelly, R. D.
Stevens, T. Stilwell, and M. T. Weber, Michigan
State University International Working Papers #12,
1983, pp. 165, \$7.00. It may be ordered (check or
M. O. must accompany) from the Department of
Agricultural Economics, Agriculture Hall, Michigan
State University, East Lansing, MI 48824-1039.

>>>Tandy Computer Customer Support Groups
In December, Tandy reorganized its customer sup-
port along software lines and published the
following telephone numbers:

Productivity and Special Applications
(817) 338-2390

This includes VisiCalc, Multiplan, Profile,
SCRIPSIT, SuperSCRIPSIT, Business Graphics
Analysis, Medical Office System, Time
Accounting, etc.

Accounting Software
(817) 338-2391

Operating Systems & Languages (II/12/16)
(817) 338-2392

Communication Software
(817) 338-2394

>>>FORTRAN-77 for CP/M-68K
SVS FORTRAN-77 is described as a full ANSI compat-
ible compiler (as contrasted to the 'subsets' or
'limited implementations' previously available).
Run-time performance is said to compare favorably
with much larger machines. A "compute-bound"
benchmark in common use is the "Sieve of
Eratosthenes" (which computes prime numbers).
Comparative results on this benchmark are:

IBM 3033*, FORTRAN	2.1 seconds
Model 16, FORTRAN-77	7.6 "
DEC PDP-11/34, FORTRAN	30.0 "
Apple, FORTRAN	509.0 "
Model II, MBASIC	2250.0 "

* For those not familiar with IBM model designa-
tions, the 3033 is a very large, multi-million
dollar main frame computer.

FORTRAN-77 requires the CP/M-68K operating system
and a minimum of 256k memory. It sells for \$495
from TriSoft, 4102 Avenue G, Austin, TX 78751,
(800) 531-5170 (in Texas, call (512) 453-2233.

>>>Another COBOL programming service
We've been advised by SARJ associates of Washing-
ton, D. C., that they offer custom COBOL program-
ming services, including custom modifications to
the Radio Shack "3-disk" accounting system. For

more information, contact Rich Hanson, president,
SARJ Associates, 4229 Brandywine St. NW, Washing-
ton, D. C. 20016, (202) 363-5722.

>>>Users' Group in Montreal

The Montreal TRS-80 Users' Group has been formed
by Saturnus True Data Services, Ltd., which out-
lines some unusual services which are offered to
members. For instance, if a member's equipment is
"down," MTUG arranges for the use of another mem-
ber's equipment. A discount purchasing plan is
included, along with a bulletin board which in-
cludes electronic mail and a classified ad sec-
tion. For more information, contact Willem P. H.
Bagchus, vice president, Montreal TRS-80 Users'
Group, 1176 Phillips Place, Suite 201, Montreal,
Quebec, Canada H3B 3C8.

>>>Model 16 memory upgrades from Snapp

Bob Snapp is offering a series of memory upgrades
for the Model 16. The most interesting of these
provides up to one megabyte of memory plus up to
nine users on a Model 16a (or upgraded II). This
is done by moving the 68000 memory cards from the
regular card cage to a private cage, freeing up
two slots and equalling the capacity of the 16b.
The entire upgrade, including two 512K memory
boards and two multi-user kits, costs \$3700 less
whatever trade-in applies to the existing boards.
The upgrade must be performed at Snapp's office in
Cincinnati. Freight and insurance in both direc-
tions is included.

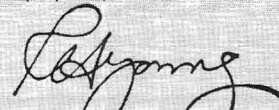
Also offered separately are the K512 board which
contains a full half-meg on a single board (at
\$1200 less any applicable trade-in), the K256 (at
\$500), and a set up upgrade chips to convert a
128K board to 256K (at less than half the Shack
price). Multi-user boards (Shack manufacture) are
available at \$300 complete with three extender
cables and the patches necessary to extend XENIX
1.3 from six to nine users.

>>>PC Telemart software marketing pilot test

Twelve Radio Shack Computer Centers and four Computer
Departments in the Washington, D. C., area are
participating in a pilot test of a revolutionary
new method of software selection and purchase.
Here's how it works: there is a kiosk set up in
the middle of the Computer Center; it is fitted
with microcomputers which you can use to access a
remote computer which contains a data base of
available software (from outside vendors as well
as Radio Shack). You enter data about the soft-
ware (application, operating system, host compu-
ter, etc.) you need. The system lists all avail-
able software which meets your specifications,
along with its features, reviews and evaluations,
and costs. If you find what you need, you can
order it on the spot with your credit card. We
understand that future enhancements will be added
to the system, including the ability to download
and demonstrate the software on the kiosk's
micros. If the pilot test works, PC Telemart
kiosks will be turning up wherever Tandy micros
are sold. I'm convinced that the idea is right
for the current market, and believe that it will
be a great service to users as well as a very
powerful sales aid for Tandy computers.

>>>Investment portfolio analysis system

INVESTMENT MATRIX consists of an investment data
base manager, a portfolio manager, and a portfolio
analyzer. It can project after tax cash flows,
internal rate of return, and net present value for
the portfolio as a whole. Available for CP/M
systems at \$399 from Financimetrics Inc., P. O.
Box 1788, Lafayette, CA 94549, (415) 376-9455.


Richard H. Young
Publisher

Tired of looking at the WordStar logo every time? Make it disappear! Want to make the arrow keys work like arrow keys when using WordStar? Read on to find out how to achieve these results and others by using CP/M's Debugging Tool DDT to get to the heart of WordStar.

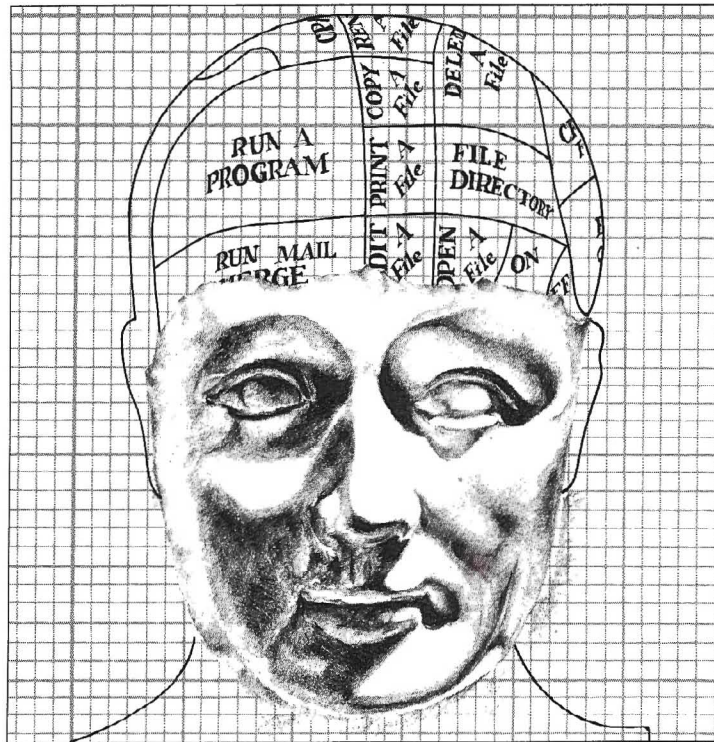
HACKER'S GUIDE TO WORDSTAR

BY ROBERT P. VANNATTA

If you are determined to be a hacker, one of the things you have to get comfortable with is DDT. Skill at using DDT is not easily acquired, and few "Idiot's Guides to DDT" are to be found. One of the reasons for this lack is that DDT has so many diverse uses. You can use it to write and modify programs, trace the execution of programs, disassemble programs, move files from one place to another, or examine the contents of your memory.

If you are going to use DDT, the first thing you need to understand is the use of the SAVE command. It is a built-in command like DIR and REN, but is not so well understood.

SAVE is used to write a portion of memory out to a disk file. In CP/M 80, SAVE will always start at 100h in memory and extend upwards a distance, determined by the number immediately following the word SAVE. The most difficult part of using SAVE is computing the size of the SAVE command necessary. For reasons now lost in history, the size of the SAVE command must be entered as a decimal number. Nearly everything else you will see with respect to DDT will be in HEXIDECIMAL numbers. So, you are going



to need a conversion chart showing HEX and Decimal equivalents. Fortunately, tables with this information are readily available and are included in the back of nearly every Radio Shack operator's manual (usually in an appendix).

The SAVE value should be the decimal value of the high-order byte of the highest address that you want saved. This is a mouthful, but here is an example that might make it easier.

Set up a disk for experimentation that you don't value too much (in case of disaster). This disk should include DDT and several other files. Just for fun, have an empty disk available as well. For this

first example, we are going to play with STAT.COM. Enter the command:

```
DDT STAT.COM
```

Don't put any quote marks or anything else with it. You may use drive references if necessary or convenient. If all goes well, you should get echo like this:

```
DDT VERS 2.2
NEXT PC
1580 0100
-
```

If that famous user-friendly "7" appears instead of the words NEXT PC, you are supposed to understand that the filename STAT.COM wasn't found.

The numbers are telling you that the file you loaded went into memory from 0100h to

1580h. For our purposes, the most important number is the high-order byte of the first number. In plain English, this means the first two digits or the 15.

Exit DDT by hitting <Break> (Control C), which will take you back to the operating system without delay.

At this point you are ready to experiment with SAVE. You know that 15 is the magic number, but first, it must be converted into a decimal number. After reviewing the table of equivalents, you will find that 15h converts into 21 in decimal. So, enter the SAVE command by typing at the A>

```
SAVE 21 SS.COM
```

Robert P. VanNatta
222 South First Street
St. Helens, OR 97051

When selecting a filename, be careful to use a new filename because if you specify one that already exists, you will overwrite and destroy any file on the drive with the same name.

You should now have a perfectly functional copy of STAT.COM written on your disk under the name of SS.COM. Don't test it out just yet because if you do, you will destroy the memory image.

Put another disk in your computer. You can swap disks in drive A:, or if you have multiple drives, insert a disk in another drive. Hit the BREAK key as necessary to inform the operating system of the disk change. Now do the SAVE routine again. Enter once again

SAVE B:SS.COM

You can use DDT to write and modify programs, trace the execution of programs, disassemble programs, move files from one place to another, or examine the contents of your memory.

You can save the same memory image as many times as you like, under as many file names as you like, without any limitation relative to disk swaps. This is also one of the few ways to move a file from one user area to another. To do this, simply change user numbers between saves.

Stay with it until you master using the SAVE command because if you don't figure it out, anything you might do with DDT is going to be a waste of time.

We are now ready to attempt a simple patch to demonstrate our abilities. Our first task is going to be to patch DDT itself so that the DDT VERS 2.2 will read ddt vers 2.2. Specifically, we are going to endeavor to change the first "D" in DDT to "d". To do this, we use DDT to load DDT.COM as follows at the system prompt A>:

DT DDT.COM

Note that the high-order byte is 14 (See Figure 1) so we will be using 20 as our SAVE parameter when we get done. Enter the letter "D" to display some memory on the screen; you should get

12 rows of numbers. To the left will be a 4-digit number, which is the address of the first byte on that row, followed by 16 numbers, all of which are in HEX notation. To the right will be the ASCII translation (if any). A period will appear for any character that does not have an ASCII VALUE.

Beginning on the third line, right after the number 0130, you should see the words DDT VERS. We are going to guess that this is where the similarly worded message is stored. To prove our guess, we are going to change a character of that message, exit DDT, SAVE the file, and check it out.

We must compute the address of the byte we want to change, which isn't too hard if you can count to 16 in Hex nota-

tion. The third row, for example, will contain addresses 0130 to 013F. In this example, the first "D" of DDT appears in position 0130.

Accordingly, we are ready to start the actual patch. Enter:

S0130

to SET a value at address 0130. The value of that address will now appear on the screen with the cursor beside it. You are expected to enter a new value. The value echoed should be a 44 as that is the Hex value of an upper case D. Since we want to change this to a lower case d, enter the number 64. As soon as you push <Enter>, the value of the next address will be echoed, and the process will repeat itself until you enter a "." to signify that you are done.

Since we are only patching one byte, enter a period in response to the second 44. We should have something looking like this:

- S0130
44 64
44 .

MODEL II

Professional Software Systems Now Available

Municipal Utility Billing System

- Handles Billing for Five Services (Electricity, Water, Gas, Garbage, Sewer)
- Revenue Analysis
- Delinquent Lists

Voter Management System

- Precinct/Poll Listing
- Demographic Analysis

Computer-Aided Order System

- Performs On-Line Sales Order Entry
- Produces Invoices/Sales Journal
- Generates Sales Analysis
- Designed for Mail/Direct Order Firms



For Details Contact
SOUTHERN CENTER
FOR RESEARCH & INNOVATION
P. O. Box 1713
Hattiesburg, MS 39401
TELEPHONE 601-545-1680
TELEX 585400 SCRI US HATI
CABLE SCRI US

COMPUTER COMPATIBILITY PROBLEMS?

File Conversion Services

Convert your software or data files from one computer for use on another computer.

- TRS-80 Models III, 4, II, 12, 16
- IBM and Other Microcomputers
- Most Mini/Mainframe Computers
- Diskette ↔ Magnetic Tape
- Diskette ↔ Diskette

The Glimpse Corporation

105A Oronoco Street
Alexandria, VA 22314

(703) 836-6800

We Make Small Computers Produce!

We are now ready to check out our handiwork. Return to the system via <Break>, and save with

SAVE 20 DX.COM

DX.COM should be a patched version of DDT.COM. To test our work, load DX. DX.COM should be a perfectly working version of DDT.COM, except that the first D of DDT VERS should appear on the screen in lower case.

Think for a moment what would happen if you put the hex value of the operating system's "clear screen" code in this location instead of a lower case d. Let's try it.

Use the same patch routine again, except this time put in a 1A (if you have Lifeboat or ATON CP/M) or a 0C (for Pickles and Trout CP/M). The screen should clear itself each time you load this newly patched version.

By using this technique, a brave hacker will find that he can patch his frequently used programs to clear the screen or otherwise initialize the terminal. I have occasionally found that a thoughtful programmer has left one or more line-feeds (0Ah) right in front of the copyright notice on the program. It is often possible to change one of them to a clear screen code, thus getting the program to clear the screen instead of simply rolling down a couple of lines when it loads.

Any such modification is obviously made at your own risk on a trial and error basis. Therein lies the art of hacking. You don't really know ahead of time whether a particular modification will work or not, but with lots of trials and lots of errors, you can learn all sorts of interesting things.

The following remarks are written specifically on the assumption that you have the current version of Pickles and Trout CP/M (2.2m) and WordStar 3.3. It is believed that these patches will work on earlier versions of P & T CP/M. Some of them will work with Lifeboat and ATON CP/M as well. It is further assumed that you have a working version of WordStar 3.3. Pickles and Trout has a patch dated August 12, 1983 that must be installed to get Version 3.3 to work with the video board; it should be installed before attempting the following hacks.*

One thing you can do to WordStar to make it a little easier to use is to adjust the timing. WordStar has several built-in delays which are easily adjustable, and one of those delays controls the time that you must stare at the logo and the copyright notice. The other major delay controls the time sequence between help screens. Once you have used WordStar a few times, you will likely find the long delays in loading the main menu maddening. The remedy is as follows:

```
-S02B2
02B2 40 00
03B3 09 .
```

In this example we have patched a single byte from 40 to 00 and then signified that patching was complete by entering the period.

Any modifications are made at your own risk on a trial and error basis. Therein lies the art of hacking.

This patch is useful on any WordStar installation of version 3.3, regardless of whether it is on Radio Shack equipment or not. It will send you zipping right past the logo and copyright notice. Similar results may be obtained on Version 3.0 by patching address 02D2 to zero (any smaller number will cause a proportionate increase in speed). All of these patches are installed using DDT, and

you must execute an appropriate SAVE command at their conclusion.

The next thing you might want to do is to suppress the display of that rather ugly logo altogether. This patch will work on any 8-bit installation of WordStar 3.3. The patch is:

```
-S410F
410F CD 00
4110 CD .
```

The logic of this patch is built around the fact that the logo display is simply a long string, and it seems that WordStar uses a null byte (00h) as a string terminator. By simply patching the first byte of the logo to null, WordStar is fooled into displaying nothing.

Immediately following the logo is the traditional installation message and serial number display. It, too, has been cluttered up with about 10 lines of obnoxious messages that you will rather not read more than once. The following patch will take care of that message:

```
- S3F1D
3F1D 20 00
3F1E 54 .
```

With the installation of these two patches, the startup display of WordStar 3.3 will be the same as it was with previous versions of WordStar. If your timing patch was successful, you should reach the main menu almost instantly after you start to load the program. No painful waits. It should be noted, however, that reducing the built-in timing delays will make WordStar seem somewhat jumpy. Those same delays that annoy an experienced operator are confidence builders for the inexperienced. The contents of the timing byte merely control the size of the delay loop.

*To patch P&T CP/M 2.2m or 2.2H so that WordStar version 3.3 will work, first execute WINSTALL. Then (1) select the Pickles & Trout terminal option, (2) leave the printer options unchanged, and (3) exit WINSTALL using the "A" option. Patch the WS.COM file this procedure created.

Execute the PATCH utility. The file you wish to patch is WS.COM. Press <ENTER> when asked if you wish to use a file or type in the patch directly, and then type in the following code as prompted by the line numbers:

```
Line 1 --> RAC IIO ARA CIL OHR ALF
Line 2 --> CKE OOR ACK KML QAC IGM
Line 3 --> IML QAC IIL CQA CKE NJJ
Line 4 --> JQA CCK OFQ ACJ PPP QAJ
Line 5 --> ACK PAK AKU PEO GCC
```

You may use WINSTALL.COM to install any WordStar option except a terminal driver on this newly patched version of WS.COM.

I use zero for maximum performance, but if you find the sudden screen changes unnerving, you can adjust the number to suit your preference.

The byte immediately prior to the timing byte described above (02b1h) is also a timing byte. It is normally 19h and controls the time delay between help-screen changes. It may be similarly adjusted to your personal preference.

The next problem with WordStar relates to the fact that MicroPro does not support arrow keys or special function keys. This is a policy decision on their part and is understandable considering the massive lack of uniformity that exists in the industry relating to special purpose keys.

There are a couple of approaches possible with respect to arrow keys and the like. First, you can (if you have ATON or P & T 2.2m) redefine the operating system so the arrow keys generate the values WordStar expects for cursor movements. The second choice is to change WordStar so it matches the operating system. The disadvantage of changing the operating system is that you may find the changes made to ac-

commodate WordStar mess up some other program you may want to use. If you elect to customize WordStar, you can avoid that trap. The threshold question about the arrow keys must be: "What would you like them to do?"

The question is interlocked with the problem of doing something about a delete key. The default installation implements the down-arrow key (1Fh) as a destructive backspace and the ^Q (arrow down) as a delete-line-left command. This, of course, duplicates the use of the control dash (^-) key, but the latter is relatively inconvenient to use, particularly considering that the destructive backspace is a very frequently used command (at least by strike-over typists like yours truly).

My solution is to redefine the backspace key (^h) so that it is destructive (i.e., "gobble left"). This will free up the down arrow key to be defined to do what arrow keys ought to do, and still leave you with plenty of ways to move the cursor to the left without "gobbling." The ^S key will, of course, do the job, and, if you have a Model 12, so will the <F8> key. Similarly, if you have Pickles & Trout CP/M, the <HOLD> key will

also generate a Control S, unless you change it.

To modify the backspace key in WordStar version 3.3, use the following patch. Incidentally, this patch and the others given here will work with any variant of CP/M but are only usable with version 3.3 of WordStar. The ATON patch for WordStar 3.0 includes some of the same ideas I have described, and does implement the arrow keys, although in a slightly different way than that discussed here.

```
-S04A3
04A3 DA 43
04A4 63 68
04A5 04 .
```

To make the ^QH (backspace) function as a delete-line-left, patch as follows in version 3.3:

```
-S0522
0522 1F 08
0523 44 .
```

Now that we have fixed the backspace key to do our deleting, we can feel free to define the arrow keys as we see fit. The common implementation of arrow keys is to set them up so that they move

SCRIPFIX*

One of the weakest points of Model II Scribes 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 Scribes disk has been worked on by **SCRIPFIX***, the Scribes 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 Scribes. We have placed them all into a single **DOFILE** and tested them. Save hours of typing. Order **SCRIPSIT PATCHES*** today! Write or phone:

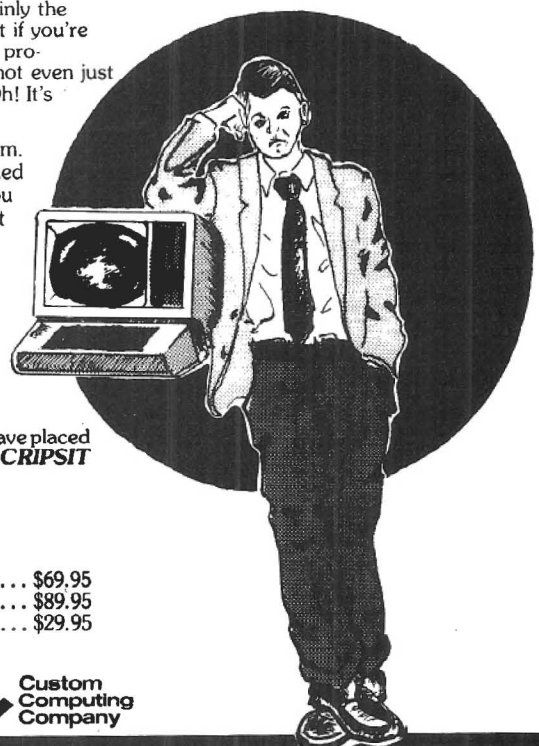
34 Scenic Hills Drive
Poughkeepsie, New York 12603
Phone (914) 471-9579

SCRIPFIX * v. 1.0 for all versions of SCRIPSIT * except SCRIPSIT HD	\$69.95
SCRIPFIX HD for SCRIPSIT HD	\$89.95
SCRIPSIT PATCHES for SCRIPSIT * 2.0	\$29.95

Master Charge and Visa welcome
Certified Check, Money Order or C.O.D.
Add \$4.00 Shipping and handling!

* Trademark of Tandy Corporation
* Trademark of Custom Computing Company

**Custom
Computing
Company**



the cursor a single space in the direction of the arrow. I have studied the use of WordStar for several years, however, and am convinced that this is not the most efficient implementation. With respect to the left and right arrows, it strikes me as redundant to implement them as a ^S and ^D. The reason for this is that the ^S and ^D keys are easy to reach, not to mention the fact that if you have a Model 12 you have the <F8> and <F3> keys available.

It seems more reasonable to utilize the left and right arrow keys to move the cursor to the end of the line (^QS and ^QD). I find myself using these functions frequently, and they are quite awkward to use. Also, by implementing the arrow keys, you are replacing a three-key combination with a single key.

I have experimented with the idea of using the up and down arrows to move the cursor to the screen limit, but there just doesn't seem to be much demand for that function. I have accordingly stuck with a single line up and a single line down for the up and down arrows. Anyhow, patch as follows (Vers. 3.3 only):

```
-S0655
0655 00 1C
0656 00 00
0657 00 67
0658 00 64
0659 00 1D
065A 00 00
065B 00 49
065C 00 64
065D 00 1E
065E 00 00
065F 00 B4
0660 00 64
0661 00 .
```

```
-S0547
0547 43 9A
0548 68 64
0549 07 .
```

Patches always seem a bit mystical, but the foregoing keyboard modifications are really quite simple, and, with a little imagination, you can make up your own patches to change the keyboard if you don't like my suggestions.

The main information that you need to know in order to hack your own patches to the keyboard is that WordStar contains a keystroke dispatch table beginning at about 0489h. The table consists of four byte sequences which extend to 0655h. The first two bytes of the set are the values of the keystrokes and the second two bytes are the dispatch address of the function. Beginning at 0655h are a number of empty bytes which may be used for defining additional keys.

I obtained the information, for example, for the left arrow patch by reading down the table to 04B9h where I found the sequence: 11 13 67 64. This tells me that the ^QS function is called at address 67 64. Accordingly, I implemented the left arrow key, which generates a 1C, by adding onto the end of the table the sequence 1C 00 67 64.

If I had wanted the left arrow to perform a character left (^S), I would have looked at 049C and found the sequence: 13 00 DA 63. This would have told me that the dispatch address for ^S is DA 63. Accordingly, if I were to patch at 0655 the sequence 1C 00 DA 63, the left arrow key would move the cursor left one character.

For those of you still using older versions of WordStar, you need to know that the keyboard dispatch table is almost the same, but not quite. The addresses for Version 3.0 are a few bytes

I have two bits of advice about hacking: (1) make lots of backups, and (2) keep lots of records about what you do.

different. For example, the keyboard patch area for vers 3.0 begins at 0649h and at 063Dh for version 2.2. If you can learn to read HEX dumps, you can modify any version of the WordStar keyboard anyway you want.

The final modification that I shall discuss is only relevant to memory-mapped installations of WordStar. WordStar annoyingly leaves the screen cluttered on exit to the system. If you are using a standard terminal emulation installation, you can solve this problem by simply putting your terminal clear screen code into the the terminal de-initialization location (vers. 3.3 only). Unfortunately, the memory-mapped installations ignore all the terminal codes so this technique will not work with the P & T memory-mapped installation. This doesn't mean it can't be done; it just means it's more difficult.

The basic tidbit of information you need in order to develop a patch to clear the screen is that WordStar version 3.3 always calls address 028A before shutting down (02A7 on version 3.0).

At that address, you will normally find a C3 followed by two other numbers. If you use the DDT L command, DDT will disassemble the code for you. You do it as follows:

```
-L028A
028A JMP 02D2
(several more lines will follow)
```

This is telling you that as a part of the shutdown routine, WordStar makes a Jump to address 02D2. What we have to do is divert control to our special clear screen routine and then redirect control to the target address found at this location.

The next task is to find a safe place to add a few lines of code. The official location for terminal patches begins about 02E0h; however, in all the memory-mapped installations on the Radio Shack equipment, you will likely find the first part of this area full.

No great magic is involved in finding a place to put some code. In version 3.3 with P & T, the empty space beginning at 02f1 may be used. In Version 3.0 and P & T, I put the patch down in the printer patch area at 0660h because the terminal patch area looked like it was full. With Lifeboat and ATON (vers. 3.0), the patch went in at 339E. I selected this area because it immediately followed the standard Lifeboat shutdown patch located at 336D and appeared to be empty.

A word of warning is in order about slamming in patches here and there, however. The mere fact that you find a hole in the code with a batch of null bytes in a line does not necessarily mean that the area is unused. Check out your results very carefully.

Now comes the time to do a little assembly language programming and maybe get ourselves in a lot of trouble. We will use the "a" command of DDT. (The example is for Vers. 3.3 with P & T CP/M.)

When using the "a" command of DDT, you are expected to enter the "a", followed immediately by the address at which you wish to work. Once this is done, you are expected to enter standard

8080 assembly-language commands and conclude with a "." when done.

Our first task will be to transfer control from 028A to a location where there is more space, since we can't do what we need to do with only three bytes of space. This is accomplished with the following:

```
-A028A
028A JMP 02F1
02A0 .
```

What we have just done is to insert the logical equivalent of a GOTO statement at our intercept point. Execution will JUMP to address 02F1 (for better or worse) whenever WordStar goes into the exit mode.

We are now ready to assemble a clear screen command:

```
-A02F1
02F1 MVI E,0C ; put ^L in register E
02F4 MVI C,02 ; select CP/M function 2
02F6 CALL 0005 ; goto CP/M entry point
02F9 JMP 02D2 ; send the program on about
02FA . ; its business
```

A more cautious programmer might have added a few more lines of code to this routine to save all the registers before executing this routine. If you disassemble the subroutine at 02D2h, you will see how this is done. I have not done this because the intercept vector is a documented location for inserting such routines, and because my years of experience have disclosed no adverse effects from my failure to do so.

It is my notion that if you will take the few hours necessary to learn to use

DDT, you will find yourself richly rewarded. You may not like the particular patches I have described here, but at least part of this article is intended to provide some tips on how to develop your own patches.

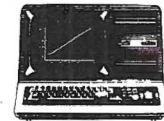
I have two bits of advice about hacking: (1) make lots of backups, and (2) keep lots of records about what you do. These two procedures can save you from re-inventing the wheel later. The screen dump feature of P & T 2.2m is ideal for keeping records of hacking attempts. As soon as you enter the patch, and while it is still showing on the screen, you can simply dump the screen to the printer and bingo, you have a paper record of exactly what you did. ■

TCBUG FORMS SPECIAL INTEREST GROUPS

The Tandy Computer Business Users Group is forming various special interest groups (SIGs). At this time, the proposed groups are Cobol, Communications, Super Micros, XENIX, and Micro Hardware/Software Comparative Studies. If you are interested in joining one of these groups, send your name, address, telephone number, and the SIG you wish to join to:

Director,
TCBUG Special Interest Groups
Pueblo International, Inc.
G.P.O. 3288
San Juan, Puerto Rico 00923
Attn: James E. Larkins

```
A>DDT DDT.COM
DDT VERS 2.2
NEXT PC
1480 0100
-D
0100 01 BC 0F C3 3D 01 43 4F 50 59 52 49 47 48 54 20 ....=.COPYRIGHT
0110 28 43 29 20 31 39 38 30 2C 20 44 49 47 49 54 41 (C) 1980, DIGITA
0120 4C 20 52 45 53 45 41 52 43 48 20 20 20 20 20 20 L RESEARCH
0130 44 44 54 20 56 45 52 53 20 32 2E 32 24 31 00 02 DDT VERS 2.2$1..
0140 C5 C5 11 30 01 0E 09 CD 05 00 C1 21 07 00 7E 3D ...0.....!..=
0150 90 57 1E 00 D5 21 00 02 78 B1 CA 65 01 0B 7E 12 .W...!..x..e..~.
0160 13 23 C3 58 01 D1 C1 E5 62 78 B1 CA 87 01 0B 7B .#.X....bx.....{
0170 E6 07 C2 7A 01 E3 7E 23 E3 6F 7D 17 6F D2 83 01 ...z...#.o}.o...
0180 1A 84 12 13 C3 69 01 D1 2E 00 E9 0E 10 CD 05 00 .....i.....
0190 32 5F 1E C9 21 66 1E 70 2B 71 2A 65 1E EB 0E 11 2...!f.p+q*e....
01A0 CD 05 00 32 5F 1E C9 11 00 00 0E 12 CD 05 00 32 ...2_.....2
01B0 5F 1E C9 21 68 1E 70 2B 71 2A 67 1E EB 0E 13 CD ...!h.p+q*g.....
-S0130
0130 44 64
0131 44 .
-^C
A>SAVE 20 DX.COM
A>DX
DDT VERS 2.2
-^C
A>
```



Best Prices On TRS-80 Computers

Our 6th year of discounts
Ed or Joe McManus
Fgt. Prepaid. Save Tax.
Toll Free 800-231-3680
Marymac Industries, Inc.
22511 Katy Fwy., Katy
(Houston) Tx 77450
1-713-392-0747
Telex 774132

See us in the Wall Street
Journal every Tues., Wed., Thurs.



DESIGNED BY LAWYERS FOR LAWYERS

Legal Software
For Models II, 12 & 16

- Docket Control/Calendar System
- Fully Integrated Time/Account/Billing System
- In-house Retrieval System
- Substantive Systems

Microlaw of California, Ltd.
819 F Street
Sacramento, CA 95814
(916) 447-8270

MODEL 16 and enhanced MODELS 2 & 12

MEMORY TEST PROGRAM

Detect those bad 64k chips before your warranty expires or programs crash due to bad memory.

PAYS FOR ITSELF - Written in 68000 assembly - Super Fast. Will detect memory size and test all memory installed.

\$39⁹⁵ - \$2.50 P/H Includes
Users Manual
N.J. Residents Add 6% Tax

80 COMPUTER SERVICES

834 Lois Drive
Williamstown, N.J. 08094

VISA (609) 728-3527 MasterCard

REVIEW OF T/MAKER III

T/MAKER III combines word processing, spreadsheet capabilities, list sorting/tallying and bar charting into one complete package. Taken separately, each individual function is out-performed by other programs available. The real power of T/MAKER III lies in the integration of its components.

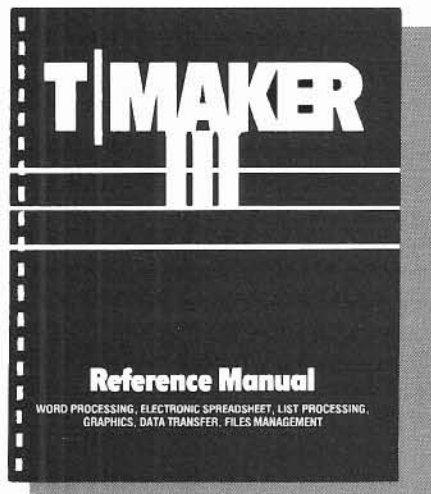
BY RICHARD TRAHAN

T/Maker III is an integrated word processor, spread sheet, file and list processor, and graph generator.

Distributed on CP/M, it must be configured for the target computer, for which a comprehensive utility is provided. Because of the complexity of the BIOS (Basic Input/Output System), configuration is not a trivial task and must be done by someone well versed in the intricacies of the operating system. If the Model II/12/16 user is lucky enough to be using Lifeboat CP/M, configuring is easy, since Model II Lifeboat is on a list of standard systems for which T/Maker III will provide the correct parameters automatically.

For any other CP/M, however, system parameters must be denoted manually which proved to be quite an ordeal for the Pickles & Trout CP/M used for this review. Problems were compounded by the fact that the Model II CRT code sequence given in the manual is wrong; a careful reading of P&T literature was necessary to remedy this. Once done, however, T/Maker III worked smoothly and efficiently and is friendly enough to be operated by non-programmers.

Printer setup is another chore for owners of the R/S Daisy Wheel or any other sophisticated printer. All of the



special control sequences needed for underlining, boldface, superscript, subscript, proportional spacing, and special characters need to be entered into a printer translation table, and the user is responsible for designating the text codes corresponding to these functions.

Print commands include some very handy features which allow the user to start a new page depending on how many blank lines are left on the current page, place a text line on a specified paper line, send the print image to the screen, selectively exclude pages without aborting the print process, print several documents without user intervention, and avoid line "windowing" in which the first line of a paragraph is stranded on the bottom of a page.

File chaining allows segments of various files to be linked and printed, much like the boilerplate utility found in other word processing programs. A

panelling feature allows documents wider than the page to be printed on separate sheets.

The editor is screen oriented, using a 300-character wide slate of height limited only by memory, over which the 80 x 24 window may be scrolled in any direction. A 68000 CPU will allow lines 400 characters wide. The usual WP functions are provided: insert and delete lines and characters, cut and paste, search and replace, set and clear tabs, define macros, break and join lines, center, reformat, forced end of page, blocking, headers and footers, and jump the cursor by entity. There are no alignment tabs or hyphenation capabilities.

String replacement works on all occurrences of the target; if you want to replace only the first few occurrences, you must do it manually or use a macro with a repetition count. Only one macro can be stored at a time. Both overstrike and insert modes are available, and autowrap may be turned on or off. Autowrap does not close up lines when deleting in a backwards direction. A table mode allows lines wider than the screen to be typed, and full column manipulation is provided.

The keystrokes often bear no mnemonic relationship to their functions which makes it difficult to memorize them, but a utility is provided to redefine keys and make them behave more like editors the user is already accustomed to. As a start, it is suggested that cursor movement control keys be

Richard Trahan, President
DATARIGHT Software, Inc.
203 Main Street, Suite 43
South Bound Brook, NJ 08880

replaced by the HOLD and arrow keys.

Because of the gyrations CP/M must go through to display characters, upward or sideways scrolling require screen repainting which is annoyingly slow. Users of Model II dedicated word processors will have to change their editing habits to avoid these movements frequently.

Frame mode freezes row and column labels so these remain stationary while scrolling through the rest of the slate. Split screen labeling and scrolling is not available.

The spreadsheet capability works a little differently than most others. The row and column layout is set up in the editor, with the addition of special symbols placed in the top and left margins that direct the various computation procedures; then, separate utilities operate on this file.

A full range of arithmetic, trigonometric, and transcendental functions are provided, and there is great

flexibility in ordering computation. Features include horizontal, vertical, or mixed order, suppression of zeroes, growth rates, straight line and compound projections, rounding to any granularity, iteration, and invisible columns. A column is invisible when it is used to hold intermediate results but printing is not desired.

A COMBINE command will merge the spreadsheet in RAM with an identically formatted spreadsheet on disk, with some limited computation done between corresponding cells. This could be used, for example, to sum monthly ledger totals into a yearly total.

The list processing utility consists of eight commands that perform various functions on a text file. ARRANGE reorders the sequence of columns in the working area. (If the reader acquires T/Maker III, take note that the examples in the tutorial will not work for this function because the listed parameters are wrong.) FIND and REPLACE are self-explanatory string functions, and DROP is similar to

FIND and delete. KEEP discards all lines except those containing a specified string. MATCH reports the differences between two files. SORT allows ascending or descending, numeric or alphabetic sorting based on the contents of any field, as determined by column boundaries. TALLY counts like elements in a specified field, and can also total these if they are numeric.

The bar chart utility, brazenly called graphics, creates a chart based on the values in either one column or one row of a table, but BAR commands can be concatenated to produce rows of related bars. The chart itself can be edited before printing. It is easy to prepare tables suitable for both the COMPUTE and BAR commands, so extensive reformatting is not necessary. Various options are available: scaling the width and length of the bar, spacing between bars, space allocated to name and value labels for each bar, scroll enable/disable, and many others. Sets of bars from different files may be stacked in printed output. For example, you might want to compare

'EASI - Draft 2000'

Computer Aided Drafting System

EASI - Draft 2000 is a menu driven 2D graphics package written in MC68000 assembly language. It provides FAST user friendly interactive display functions that are found typically on systems costing several times our (under \$20,000) introductory price.

Hardware includes:

TRS-80 Model 16B
Vectrix high resolution (672 x 480) color monitor
Summagraphics digitizing tablet
Houston Instruments plotter (24" x 36" paper size)

Software features:

Multiple active drawing viewports
Multi-layered drawings
Graphic symbols and figures with transformations
Stroked text (can be user definable)
Circles, arcs, ellipses, and curve generation
Pan and zoom windowing
Background plotting
Dynamic rubber band line
Powerful drawing editing functions

EASI Software, Inc.

3425 East 117th Drive 2891 Livonia Center Rd.
Denver, Colorado 80233 Lima, New York 14485
(303) 451-6484 (201) 367-5735

WE CAN MAKE YOUR COMPUTER USER FRIENDLY

**WITH CUSTOMIZED SOFTWARE
FOR MODELS 1, 2, 3, 4, 12, 16, 2000
ON OPERATING SYSTEMS**

TRSDOS, XENIX, CP/M, MS-DOS

**ALSO AVAILABLE
PROFILE 2 & 3 ENHANCEMENTS
DISPLAY, ADVANCED FILE DEFINITION, MATH 64
8 LINE REPORTS TRANSFER, PROPACK, ETC...**

**WE ARE THE PROFILE 16
EXPERTS**

**CALL OR WRITE US TODAY
M & M Technologies Corporation
P.O. Box 237 DEPT-TS
HERNDON, PA. 17830 (717) 758-9260**

Profile, TRSDOS, Profile-16
MSDOS, XENIX
CP/M
Smallware

TM Tandy Corp.
TM Microsoft
TM Digital Research
TM Small Computer Corp

data across several months, each month consisting of a set of bars and residing in a separate file.

A set of file management commands perform a variety of functions: CLIP discards all of a file above the top line displayed on the screen. CREATE establishes a new file. DATA establishes a default disk drive. DELETE removes a file from the disk. DO executes commands from the edit file. FILES lists the T/Maker III files on disk. GET loads a specified file for editing. INFOR displays statistics on the working file. INSERT adds a disk file to the current working file. LIST views a disk file without disturbing working RAM. MERGE superimposes a disk file on the working file. NOTABS and TABS control the saving of tab characters. RENAME, RESET, SAVE, STOP, and WAIT are self-explanatory.

The Data Transfer utility has two commands, LOAD and UNLOAD, used to combine or separate tables from data. This allows creation of a table template, or mask, that can operate on many sets of data. It also permits different computation schemes to be applied to the same set of data; if there is a change in data, only one file need be changed.

T/Maker III is not a paging or virtual system, i.e., it deals only with files small enough to hold in RAM. Despite T/Maker III's many powerful features, this single shortcoming disqualifies T/Maker III from serious business or professional use. Nor does file chaining save it; spreadsheet computations are severely limited by the size of the sheet -- only 21 calculation lines can be "active" at one time.

Even worse, a successful spreadsheet computation can result in a RAM image that can be saved to, but not recalled from, disk. The program should never allow this to happen; if you save it, you ought to be able to get it back. I spent two hours putting my year's business statistics into a spreadsheet, only to be left with an unretrievable file.

As with most applications programs, the file structure is not revealed, making it impractical for a programmer to pare T/Maker III output down to readable size. As a general rule, it is unwise

to use any program whose data file structure is unknown and which does not have a two-way conversion utility like Scripsit's CONVERT or VisiCalc's DIF.

Taken separately, the functions of T/Maker III are outperformed by other programs available for the Model II. The editor is no match for SCRIPSIT, and the spreadsheet is not VisiCalc.

The real power of T/Maker III lies in the integrations of its components, especially the user-defined layout of the spreadsheet.

The manual is well written, and except for some frustrating errors in the tutorial section, appears to accurately represent the behavior of the program. It was printed on an Epson, and the small type, which abounds, is difficult to read; this manner of printing is incongruent with a program of this magnitude.

T/Maker III is available for: CP/M-80, CP/M-86, and MS-DOS; these versions require 250K disk storage. T/MAKER III is also available for PC-DOS which requires 128K for one-double sided disk drive; two single-sided double-density disk drives are needed for 300K disk storage.

T/MAKER III
T/Maker Company
2115 Landings Drive
Mountain View, CA 94043
415/962-0195
Cost \$275.00

MODEL II & 16 OWNERS

Enhancements to enable your Radio Shack Single Drive Basic Programs to do more for you and custom written programs.

Radio Shack
General Ledger
Payroll
Accounts Payable
Custom Programs
Hotel Reservation Systems
Financial Eval. Calculations

Write To:

Joseph W. Brooks, Accountant
24 Woodland Terrace
Lake Placid, NY 12946
(518) 523-2320

We use all in our business and support all systems.

UTILITIES BILLING PROGRAMS

- GAS
- WATER
- SEWAGE
- GARBAGE

TRS-80 MODEL II, 12, & 16
Goodmans Computerized
Business Services
Paul G. Goodman
Box 203
Miami, Tx. 79059
(806) 868-5661

PROFESSIONAL SOFTWARE TRS-80® MODEL II & 16

NOW AVAILABLE!

DISK SORT 2.0 FOR HARD DISK OR FLOPPIES. NEW! UP TO 15% FASTER **\$119.95***
TRSDOS: 2.0a & 4.1 COMPATIBLE. FILL IN THE BLANKS & GO TO IT.
WILL SORT ANY RANDOM FILE. OUTPUT OPTIONS: TAGS, TAGS & KEYS, OR COMPLETE FILE.
1,000 REC'S. SORTING 15 BYTES, INCLUDING ALL DISK I/O = 2 MIN. 33 SEC'S. (FLOPPY)
HARD DISK IS MUCH FASTER! NON-STOP JOB STREAM EXECUTION.

BASIC CROSS REFERENCE • SAVE HOURS! **\$59.99***
• SEE USED LINE #'S/NAMES AT A GLANCE • PRODUCES NICE PROGRAM LISTING
• OTHER OPTIONS INCLUDE MAKING NEW PROGRAMS, DROPPING REMARKS.

CUSTOM PROGRAMMING/SYSTEMS DESIGN

DOC. ONLY \$10.00
DEDUCTIBLE ON
PURCHASE

* PLUS POSTAGE AND HANDLING. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

TRS-80 & TRSDOS
ARE REGISTERED
TRADEMARKS OF
TANDY CORP.

GOOD-LYDDON DATA SYSTEMS
5486 RIVERSIDE DR. • CHINO, CA 91710 • (714) 980-4563

M/C VISA
ACCEPTED.

Custom Computing Company hears what computer users want and need.

Introducing FRIENDLY Menu* ...A new way to display, in your own words, and readily access programs currently available in your system.

Imagine, no more inefficiency and aggravation. No more trying to remember or figure out the names given to programs you are using.

Friendly Menu* lets you call them anything you want and gives you easy access to them, too!

Look at these features:

- available for the Model II, XII and XVI
- includes several utilities and samples

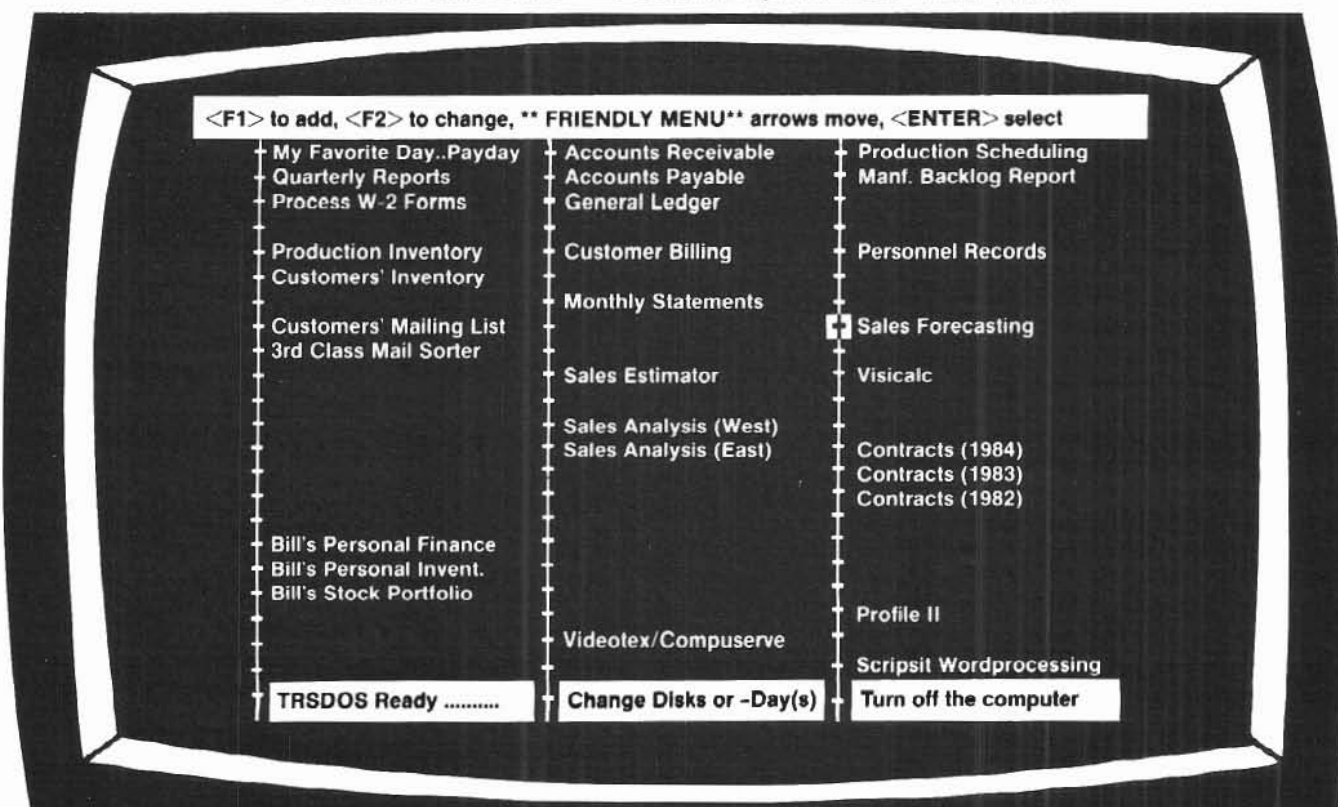
- room for up to 66 entries
- 3 permanent entries—TRSDOS READY, CHANGE DISKS, SHUTDOWN COMPUTER
- provisions for add, delete, edit, change or move names anywhere in the menu
- Friendly Menu* for TRSDOS 2.0a or b (floppy version) \$69.95
- Friendly Menu* for TRSDOS 4.2 Hard Disk Version \$89.95

What are you waiting for? Order yours today! Call our order phone collect 914-471-7526



Custom
Computing
Company, Inc.

34 Scenic Hills Drive • Poughkeepsie, New York 12603



MasterCard and Visa welcome. Certified Check, Money Order or C.O.D.

Add \$4.00 for shipping and handling.

NYS purchasers add 5.25% sales tax.

*Trademark of Custom Computing Company

AN OVERVIEW OF PROFILE•16

Profile 16 is Profile II Plus with all the enhancements you could ever dream of for your TRS-XENIX multi-user system.

BY WILLIAM J. CLEMO, III

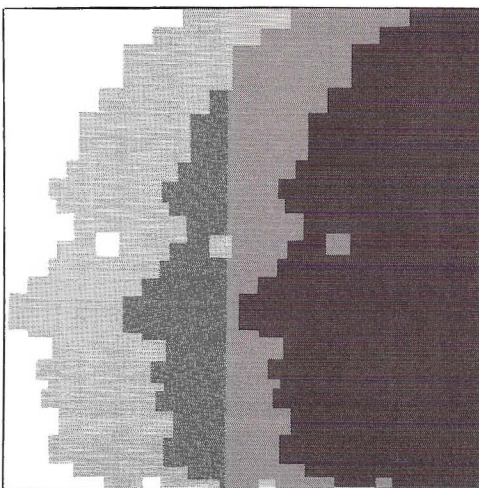
Profile 16 was not meant for the user who only wants to convert from manual filing and indexing into a computerized system; that would be a gross under-usage of the program's capabilities. Profile 16 is intended for use by the imaginative and experienced Profile II Plus user.

Profile 16 running on XENIX allows multiple users to access and update the same file at the same time. Other users are automatically locked out (by "record lock-out") if another user is accessing a record. Lock-out occurs on the record level, not the file level.

Profile 16 is user friendly to the point that you cannot get lost anywhere within the program. The program is menu driven. Prompts are provided at every screen to lead you deeper into the program or back out to the Main menu. There are no commands or keystrokes to memorize and no stabs in the dark to see if "maybe this will work." Each screen is labeled as to what you are doing or where you are.

It's possible to have up to 16 million records per file, 999 fields per record, and up to 4,608 characters in each record. The only limitation on the number of files you can have is the amount of free disk storage you have left. Any field within the file can be sorted or selected. Each file can be password protected to insure data integrity and prevent accidental deletion.

William J. Clemo III
M & M Technologies Corporation
P. O. Box 237
Herndon, PA 17830



You can begin work in Profile 16 with a very simple data file structure and then build this data file into a complex and powerful system. A default screen and report are created automatically when you set up your file so you can have a working system in just a short time.

Profile 16 gives you all the full screen graphics that the Model 16 is capable of. You are allowed to have up to 200 fields per screen, and the number of screens you can have is limited only by the amount of free disk space left.

Profile 16 has 17 system maintained fields, some of which are "date of last update," "date last batch updated," "created by whom," "last updated by whom," and "time last updated." This gives you an idea of who is using the system most effectively and allows you to track the input trail of data.

The math functions added to the system allow for four function math (+ - * /) and conditional math on numeric

fields, date fields, and time fields. Time fields can be converted from hour and minute to decimal format (12:30 → 12.5). Other math functions added are accumulators for cumulative totals, maximums, minimums, and averages. Mass recalculations can be done on all records or a selected group of records.

Output processing allows you to create mailing labels, single page reports, multiple page reports (255 columns by 255 lines) or free form reports (invoices, checks, statements, etc.). This gives you the option of running Profile 16 as your accounting system or using Radio Shack's accounting packages. The report format allows you to specify any graphics character your printer can print. Each report can have up to four subtotal levels (any number of fields can be subtotaled) and one grand total. Mailing labels can be printed horizontally or vertically. You can print reports, labels, invoices, or any other type of output to the screen or printer or batched mode to the printer. More information from other files can be brought together to create one report.

Profile 16 also gives you conditional processing. This allows you to write a processing route for someone to follow.

Conditional processing is the added programming language of Profile 16. Profile 16 gives you If, Then On, Gosub, Return Goto End logical conditionals within each processing statement (AND NOT OR). If you know anything about BASIC programming, this part is a piece of cake to use.

Profile 16 has 18 system edit types built-in (12 types of date fields and two types of time fields are included). Through the define processing option on the main menu, Profile 16 gives you another additional 26 screens besides the 10 screens you can set up with the define screens option.

You can set up user menus so the user does not have to see the Profile 16 menu. Each one of the user menus can lead through a processing mode to let you enter only certain information on that screen. Multiple files can be accessed to display each screen of information.

You can manipulate your files to create small spin-off files, purge off empty records, write new records in a particular order, purge outdated records to a new file or out of the original file, combine files together to create a new file, or add new data items to an existing file without having to recreate the file. Profile 16 lets you look for and organize records by associated groups of information, as well as individual fields.

Profile 16 is data transferable to Multiplan and the soon-to-be released SCRIPSIT-16 (we keep hoping).

Let's go through a point-by-point comparison of the features provided by Profile 16 versus Profile II Plus with enhancements.

Files: Profile 16 has increased the number of fields to 999 from the 99 fields of Profile Plus. The number of characters per record has been increased from 853 to 4608. The key segment is no longer limited in size to 85 characters but can be up to 512 characters in Profile 16. The record and field sizes can be changed even after data is entered into the file. The number of segments per file has been reduced to two on Profile 16 from four segment files of Profile Plus.

A full screen is used for setup of 16 fields at a time instead of each separate field one at a time. (Advanced File Definition and Shuffle show 32 fields when setting up a screen, but the file has to be redone to change one field.)

This gives you the opportunity to view larger segments of the file structure and edit each item individually. The whole file doesn't have to be deleted to restructure one field. On Profile 16, the file is automatically restructured when the fields are changed. The field types are set up when the file is created and not on the screen formats as in Profile Plus. Profile 16 allows up to 200 user defined field types. This gives you the flexibility to set up any type of record you might need. You can set up dummy or reserve fields to be used later with 0 field length. Temporary processing fields are now available.

Associated fields now have subfields per associated field in Profile 16.

There are 17 system-maintained fields in Profile 16 versus the one system-maintained date field in Profile Plus.

The number of records has increased from 64 thousand on Profile Plus to 16 million on Profile 16. The files no longer need to be expanded. The "Add Record" option automatically expands

B.O.A. SYSTEMS ENHANCEMENTS TO RADIO SHACK SOFTWARE

ACCOUNTING SOFTWARE:

Why lose valuable detail information after closing the monthly accounting period? HISTORY FILE modifications available to the following packages will allow retention of all detail information on a Year-to-date basis, with associated reporting:

- *General Ledger* (26-4501) — History of all Posted Documents \$100
 - *Accounts Receivable* (26-4504) — History of all Posted Transactions \$125
 - *Accounts Payable* (26-4505) — History of all Posted Invoices \$100
 - *General Ledger* (26-4501) — Modified to include Budgeted or Forecasted data, with Month/Year-to-date reports of Actual vs. Budgeted figures \$100
- (All the above require at least 2 Disk drives [or a Hard Disk], and Profile+.)

PROFILE+ UTILITIES:

- *Global Update.* Update hundreds of records; enter data only once \$100
- *Duplicate Record Removal.* Find & report duplicates; option to purge; for large mailing lists ... \$100
- *State & Zip Code Analysis.* Reports distribution of database by State and various levels of Zip ... \$ 75

CUSTOM SOFTWARE AVAILABLE FOR ALL BUSINESSES, ALL INDUSTRIES.
FREE ESTIMATES ON DEVELOPMENT OF NEW APPLICATIONS.

B.O.A. SYSTEMS
8532 North Kedvale
Skokie, Illinois 60076
Phone: 312-982-0070

Profile+™ Small Computer Company, Inc.

as necessary. The file expansion program is still included to have data files span hard or floppy drives.

Profile 16 running under TRS-XENIX means that multiple users can access the same file simultaneously. Record lock is used to stop two users from being able to access the same record at the same time.

A creation password can be set when the file is created so data formats cannot be deleted by someone who doesn't have the password. File formats, complete data files, or just the data within the file can be viewed or deleted from the Profile 16 directory.

Screens: Profile 16 has added a default screen (Screen 0) that is automatically created when the file is created. The number of screens has been increased to 10 (0 through 9) on Profile 16 from the five on Profile Plus. Screens A through Z have been added as a part of the processing routines in Profile 16. This gives you a total of 36 screens per file. The guess work about where you are on the screen during setup has been taken out of Profile 16 by giving you a line and position counter on the bottom of the screen.

The path which the cursor follows through the screen can also be defined.

Reports, Labels, and Special Forms: You are not limited to five report, five label, and five merge formats per file on Profile 16 as in Profile Plus. The number of report formats is only limited by disk space available. Each report format has a filename on Profile 16. You can use any character that your printer can print on a report. Profile 16 has added the ability to print a report, label, or special form right from Inquire Update and Add mode. You can also input information into the report while the report is being printed. The print parameters for each report are set up when the report is created and not at print time. Profile 16 gives you both subtotals (up to four subtotal levels) and grand totals, unlike Profile Plus's grand total and one subtotal level. Profile 16 now includes up to eight sort levels per report, and full math capabilities are now a part of report formatting.

Inquire, Update, and Add: A form or mailing label can be generated directly from Inquire, Update, and Add option. When you press <ESC> to record a screen, the automatic processing can put you in the Update mode on another screen.

Profile 16 provides two levels of error checking: (1) processing options on the input characters, and (2) edit types for the type of input (dollars and cents format, date or zip code type fields). Information can be looked up before displaying the screen or after certain processing requirements are met or specific data is input.

Profile 16 was not meant for the user who only wants to convert from manual filing and indexing into a computerized system.

Profile 16 now allows for string manipulation of data (same as the BASIC statement MID\$). With the processing tables, you can ask for input after the screen has been recorded, or even add input to the record itself. The Add Records mode automatically expands the file size when records are added. Mass update and purge are now user definable functions (but only during processing).

Indexing: The number of indexes has been increased to twelve on Profile 16 from the one index per file on Profile Plus. Profile 16 maintains two indexes automatically (A and B) (the automatic indexes have to be set up prior to use in each file) and the other ten (0 through 9) are user definable. The indexes can organize output as well as access records for inquiry.

Math Formulas: Cumulative totals of fields with the total as a data item is now allowed in Profile 16. Conditional math has also been added. Profile 16 allows parentheses in math formulas,

and mass recalculation is now a user-defined process (only during processing).

Batch Processing: The ability to archive records between files that are different file sizes has been added to Profile 16. Now you can open a file and add a record while processing another record from another file. Multiple files can be used in a screen format or reports or to create a new file. Profile 16 also gives you the posting option. You can use this to look at a transaction file and use the transaction file to update a master file.

Menus: User menus now have the capability of up to 24 entries in a one- or two-column format. Profile Plus only allowed twelve entries in a single column format. Profile 16 user menus return you to the menu where you came from, not the main menu as in Profile Plus. A utility menu has been added to ease the backup and restore functions.

Sorts and Selections: Profile 16 places no restrictions on the type of date fields that can be used accurately in a selection format. Profile Plus had to have the date in a year-month-day format to sort correctly. Selections options can be made when the selection format is created in Profile 16 and not re-entered each time the selection process is used as in Profile Plus.

Demand Indexing and output printing now have eight sort levels. There are extended selections for Inquire, Update and Add, demand indexing and output printing, plus each selection set can be referenced within other selections.

Other Capabilities: Profile 16 interfaces with multi-user Multiplan.

The file name can be preset from the program main menu, and as long as you're in Profile 16, the file name will be filled in for you automatically when you are prompted for a filename.

The next issues of Advanced Computing will contain articles with more technical information on each of the Profile 16 menu items, discussions of the bugs and shortcomings of the Profile 16 system, things you can do with Profile 16 that aren't documented in the manual, and how to interface Radio Shack's accounting packages with Profile 16. ■

THE QUESTION MOST OFTEN ASKED ABOUT ACS

We've received lots of calls from subscribers interested in finding out more about our new Advanced Computing Service. The question most often asked is: "What are you *really* going to include?" They're especially interested in both the diskettes and the bi-weekly newsletter we're offering as part of the Service.

The diskettes will be sent to Advanced Computing Service subscribers five or six times per year. The material included on these diskettes will be divided into three general categories: (1) everything *two/sixteen magazine* (or *Advanced Computing*) has ever published that includes program code; (2) programs that have been received by *two/sixteen magazine* but were not publishable because they were too long, or too esoteric for the general readership; (3) public domain programs that will be made more valuable than those found on bulletin boards because they will have been tested and, if necessary, the source code fixed so they will run on TRS-80 Models II, 12, 16, or 2000. At least one diskette per year will be devoted exclusively to each of the major operating systems (TRSDOS, CP/M, XENIX, and MS-DOS).

The Advanced Computing Service Newsletter, to be sent to subscribers 26 times per year, will differ from *Advanced Computing Magazine* in one very important respect: the ACS Newsletter will bring you timely information where *Advanced Computing Magazine*, because of its publishing schedule, is not able to keep its readers up-to-the-minute with the latest pertinent developments in the microcomputer industry. The ACS Newsletter will feature new product announcements for exciting new programs and peripherals that will work on your business micros. The ACS Newsletter will also include abstracts of articles drawn from a large base of respected microcomputer magazines that you don't have time to read for yourself. The Newsletter will carry only articles of interest to serious microcomputer users.

We're happy to discuss the available features of Advanced Computing Service. After all, telephone consulting is also a part of the Advanced Computing Service! Call us at 717/397-3364 with your questions.

UPDATE

"MASTER YOUR QWERTY"

In the September-October 1983 issue of *two/sixteen magazine* (Vol. 2, No. 2, p. 30), we published a touch-typing tutorial by Waldo T. Boyd entitled "Master Your QWERTY." The program included with the article has been causing problems for some people, and Mr. Boyd has been kind enough to forward the following minor modification:

Line	910	delete
	970	delete last part beginning with the colon (leave line number and PRINT CHR\$(2) intact).
	1100	delete
	1110	delete
	1120	delete

Mr. Boyd explains: "These lines were involved originally in placing a blow-by-blow accuracy and speed report on screen. This proved to be distracting to the user so I stripped it out ... only it seems the above escaped my not-so-eagle eye."

Also, for those of you who might be interested, Mr. Boyd will copy the complete "Master Your QWERTY" program onto anyone's *pre-formatted* (important!) diskette for \$25.00 postpaid USA, \$27.00 Canada. Send to:

Waldo T. Boyd
P. O. Box 86
Geyersville, CA 95441

SOUTHFORK SOFTWARE

TUTORPAK

An integrated package of 30 lessons that tutor the user in the BASIC language. Ideal for Model II owners who wish to learn BASIC in a self-paced manner. **\$30.00**

DEMOPAK

A smorgasboard of 50 programs for leisure and personal use. Included are games (28), personal finance (12), math/stat. (10). All for less than \$1.00 per program! **\$40.00**

CUSTODIAN

Implements the custodial accounting function for equipment inventories. System captures property ID #, item name, manufacture, model #, serial #, acquisition cost and date, location, and inventory date. Designed for equipment inventory management and custodial reporting. **\$30.00**

Send check or money order to

Southfork Software
68 Fairlake Drive
Hattiesburg, MS 39401

WRITE FOR CATALOG

TRSDOS BASIC to XENIX BASIC - CONVERSION UTILITIES

When you decide to convert your BASIC applications from TRSDOS to XENIX, you're in for a surprise.

These two products reduce your conversion headaches.

Keyword converter - adds appropriate spaces to TRSDOS BASIC programs to run under XENIX MBASIC. This program is smart and only adds spaces where required.

Numeric converter - converts integer, single and double precision variables in data files to the formats required by XENIX MBASIC. If you don't want to rebuild your data base, this is a must.

Keyword Converter	\$75.00
Numeric Converter	\$75.00
Shipping charge	3.00
C.O.D. add	2.00

ORDER FROM: <SIS> Computer Software
3669 Central Parkway
Cincinnati, Ohio 45223
Telephone 513-559-0641

HOW TO GET MORE OUT OF P&T CP/M 2.2M

BY CHRISTINE PICKLES

We at Pickles & Trout were pleased to see Mr. Robert VanNatta's recent review of our new CP/M 2.2m operating system for Radio Shack's Models II/12/16 (*two/sixteen*, Nov/Dec, 1983). While we disagreed with a few of his opinions, we do not feel that it is necessary to comment on them. Rather, we would like to point out some of the capabilities of P&T CP/M 2.2m which have apparently not yet influenced Mr. VanNatta's operations and which we believe can help both Mr. VanNatta and other *two/sixteen* readers to use the system more effectively.

As Mr. VanNatta indicated, P&T CP/M 2.2m includes many features which make it a unique CP/M system. Of these, we believe the following are the most noteworthy.

First, the P&T master diskette was designed so that it would automatically make a copy of itself, thereby insuring that a new user can have the system backed up and ready to run within minutes.

Second, we modularized the system so that it could easily be configured to run a variety of Radio Shack and non-Radio Shack peripherals and so that we could offer our users a variety of useful utility modules. The four utility modules that are presently available allow them to (a) program up to five keys with character strings and/or command lines, (b) change the codes transmitted by up to 16 keys, (c) print the screen at anytime, and (d) make the P&T screen driver emulate an ADM 3A terminal.

Third, we included three alternative methods for performing system operations. Thus, a user may take advantage of:

1. A system MENU program that was designed to make it exceedingly easy for even our most inexperienced customers to organize and use the system effectively.
2. More than twenty P&T utility programs, most of which can be executed both interactively from the screen and from command lines.
3. Thirty-five P&T "Special System Functions" that allow a user to alter the system's parameters from programs written in many higher level languages.

Finally, we added a special, preconfigured version of the VEDIT editor for customers who require the use of a full-screen editor.

The value of each of these features should be fairly obvious. On the other hand, we realize that even our more experienced users might overlook how easily they can combine these features to create an exceptionally friendly environment for inexperienced end-users. The following paragraphs provide a few hints on how this can be done.

Many business offices now have both serial and centronics printers. Too often, this fact can require the presence of someone who knows how to alter the operating system to communicate with one printer or the other. With 2.2m, the delays and frustrations this entails can easily be overcome by following these four steps:

1. Use Vedit to write a simple SUBMIT file that looks something like the following:

```
:  
: Press <ctrl-4> to use the letter-  
: quality printer.  
: Press <ctrl-5> to use the dot-matrix  
: printer.  
:
```

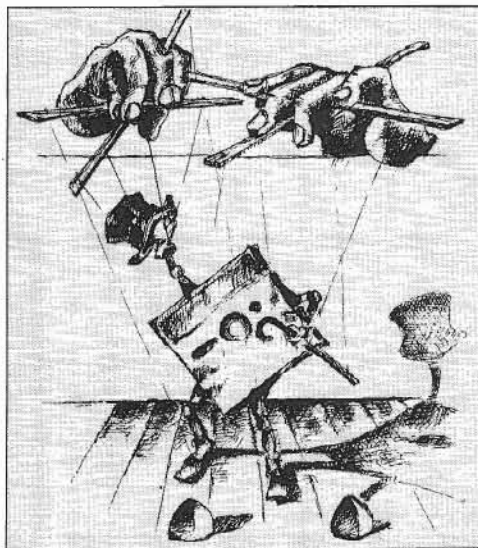
2. Auto-execute this SUBMIT file after every cold boot to remind the end-user of the options.

3. Program <ctrl-4> and <ctrl-5> with the strings "ASSIGN LST:=SIOA<esc><enter>" and "ASSIGN LST:=CENTRON<esc><enter>" respectively. And then

4. Save these keys using the KT option of MENU.

It is almost as simple to combine a programmable key and SUBMIT file to insure that data files are properly backed up. For instance, if an office manager made <ctrl-1> the office-wide "back up" key, he or she could then program this key to execute the command line "SUBMIT BACK<esc><enter>" on every system diskette in the office. BACK.SUB might then be written as follows:

```
FORMAT DRIVE=B: DD V PMOUNT  
CLONE B:=A: ALL V
```



A brief explanation of this file is perhaps desirable. The first of these commands will prompt the user to mount the diskette to be formatted (PMOUNT), format the diskette on drive B (DRIVE=B:) at double density (DD), and verify it (V). The second command will make an image copy of everything (ALL) on the diskette in drive A onto the diskette in drive B (B:=A:) and then verify (V) the accuracy of the copy. (One could of course use PIP to write more precise copy commands: e.g., PIP B:=A:*.DBF[v] will copy dBase II data files from drive A to drive B.)

Many more complex operations can be organized, especially if a user has some programming background. For instance, since there is nothing more unnerving to new users than system error messages which do not tell them what they should do to remedy the situation, a programmer may want to set up the system so that he or she determines what messages are sent to the end-user. Fortunately, it is relatively easy to do this if the utility programs are being executed from a file like BACK.SUB (described above). Only two steps are involved: (1) modify each utility's command line so that its error messages are sent to a file rather than to the screen, and (2) write a short program that scans the output file for error messages and determines what instructions should be sent to the end-user. An appropriately modified version of BACK.SUB indicates how this should be done:

```
FORMAT DRIVE=B: DD V PMOUNT /A:CHECK1.ERR
MBASIC CHKPGM1
CLONE B:=A: ALL V /A:CHECK2.ERR
MBASIC CHKPGM2
```

In this case, each utility sends its error messages to its CHECKn.ERR file, which is then scanned by the corresponding CHKPGMn program. (Please note: since there is a sample MBASIC program of this type in the P&T *User's Manual* and on the P&T master diskette, even a neophyte programmer can use this technique.)

A second example: one can easily standardize the keyboard interface to different programs by using 2.2m's ability to "translate" up to sixteen keys. There is a system utility, called KXEDIT, which allows any user to translate the keys interactively from the screen. However, anyone with even a little programming experience can make it even easier than this for the end-user by (1) writing one small "key translation" program for each software package used, and (2) combining each set of programs in appropriately named SUBMIT files. For instance, the following BASIC program will translate the arrow keys so that they will send appropriate codes to WordStar (e.g., so that the <up arrow> key will transmit the <ctrl-E> code):

```
10 ' Program to translate arrow keys
20 ' Alert KEYXLATE that codes follow
30 PRINT CHR$(27);CHR$(24);
40 ' Send codes of keys being translated
50 PRINT CHR$(28);CHR$(29);CHR$(30);CHR$(31);
60 FOR I=1 TO 12 : PRINT CHR$(128); :NEXT;
70 ' Send new codes of keys being translated
80 PRINT CHR$(19);CHR$(4);CHR$(5);CHR$(24);
90 FOR I=1 TO 12 : PRINT CHR$(128); :NEXT;
```

If this little program is executed just before Wordstar in a SUBMIT file (called, for instance, WS.SUB), it will automatically re-configure the keyboard so that the arrow keys will work like arrow keys are supposed to work.

We might profitably add two further notes on translating the keyboard. First, since there is a modified version of the above program in our manual and on the P&T master diskette, a user can easily create several different key translation programs using it as a model. Second, there is an alternative (albeit somewhat more limited) procedure for non-programmers that allows them to use VEDIT to create a key translation file. The user need merely TYPE such a file to the screen to change the key translations.

A person with somewhat more programming experience can make the system even easier to use by utilizing 2.2m's 35 "Special System Functions". In essence, these are small routines that can be "called" from high-level languages to perform a variety of system operations: e.g., directing output to particular I/O ports, reading system time and date, splitting the screen, sending flashing messages to the screen, etc. Using these capabilities, a programmer can design application packages that require little more of the end-user than the ability to follow simple directions appearing on the screen.

Perhaps the most exciting capability that 2.2m offers programmers and vendors is the means to pre-determine the operating parameters of any 2.2m system on which their programs are installed. The procedure for doing this is extremely simple, because each 2.2m operating system includes one file (BIOSPARM.PNT) which determines exactly which modules, key strings, key codes, serial port parameters, etc. will be loaded into memory when the system is powered up or reset. It also determines what (if any) program will be auto-executed after every cold (or cold and warm) boot. Thus, all the programmer or vendor need do is (1) configure a copy of this file that will work perfectly with his/her own program, and (2) ensure that it is copied to the end-user's P&T CP/M 2 working system diskette (using a SUBMIT file perhaps). The result can be about as perfect a "turn-key" package as can be devised when two complicated computer programs are combined.

We could easily cite numerous other examples, but our main point should be fairly obvious. If we at Pickles & Trout knew exactly what hardware and software our customers would use, we could write a CP/M 2 operating system that is even easier to use than 2.2m. But since we can't, we have designed a system that someone else (who does have this knowledge) can tailor to the particular requirements of any situation. In general, we would suggest that this task be delegated to someone with some prior CP/M and programming experience, but even this is not necessary. Our "first class" documentation (to quote Mr. VanNatta) provides all the information that a diligent beginner needs to tailor the system. If the job is done well, the result can be a well-integrated package that anyone can use with a minimum of training. ■

In our November/December installment of this CompuServe series, Dr. Naitoh showed us how to get signed up with and signed onto CompuServe.

COMPU SERVE

Become A Frontiersman In The Land Of Nighttime

BY PAUL NAITOH

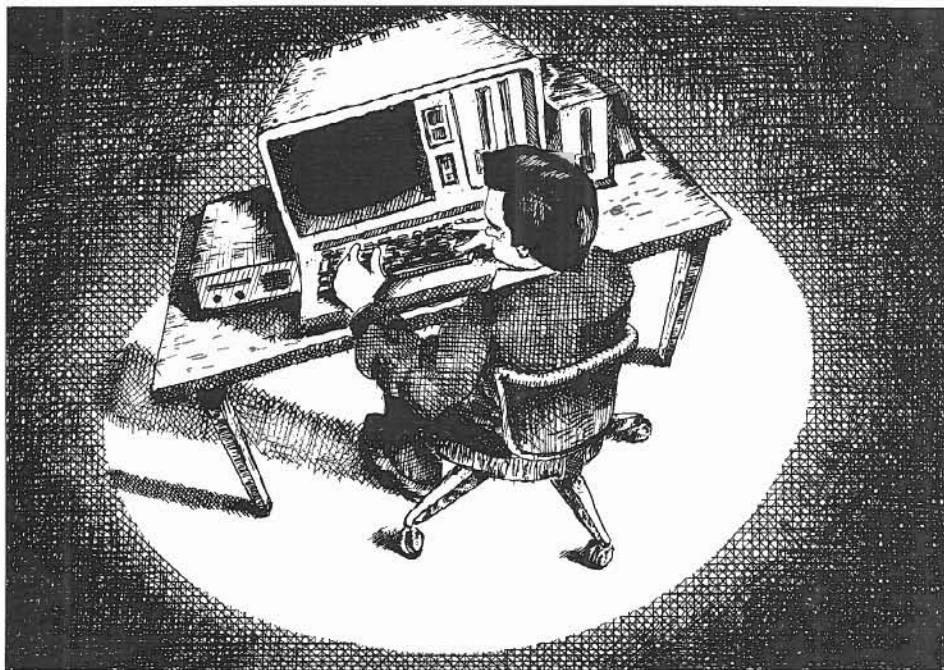
In this article, we'll discuss some tricks you can do with CompuServe. If you own Alfred Glossbrenner's book, *The Complete Handbook of Personal Computer Communications* (N.Y.: St. Martin's Press, 1983; \$14.95), you might try his "Three-Session Approach" to "Getting to Know The Sytem" (pages 113-118). I like to think of these sessions as guided tours of the new frontier-land. Anyway, be sure to check your CompuServe INDEX against Glossbrenner's before you proceed; some page numbers listed by him are no longer current.

Electronic Mail

Suppose that a friend of yours is a CompuServe subscriber, and you wish to send your friend a letter via electronic mail. In response to the prompt **!**, type in **GO EMA <ENTER>**. This will bring you to Page EMA-1, with its message asking whether you want to read mail addressed to you or whether you wish to compose and send mail. Type **<2>** to select option #2: write and send mail.

Choosing option #2 will provide you with a menu. To compose your letter, you are going to use CompuServe's File Generating and Editing program (FILGE). To know more about FILGE, you must buy a FILGE manual through FEEDBACK (more on FEEDBACK later).

Paul Naitoh, Ph.D.
4446 Marseilles Street
San Diego, CA 92107



When you receive the "Ready" message, you can start typing your letter. Each line should be 30 characters or so. This is not a word processor! You have to hit **<ENTER>** at the end of each line! Before you press **<ENTER>** to move to another line in your message, be sure to read carefully what you have typed. If you find errors in spelling or you want to rewrite the line, use **<BACK SPACE>** to erase the unwanted portion of the line, and retype. When you are sure that this line of text is all right, hit **<ENTER>** to go to the next line, and continue writing the next line of letter. (You can rewrite already entered lines, but for that you must know more about FILGE.)

After you are through writing the letter, you must enter a fresh line by pressing **<ENTER>** and then typing **/EX <ENTER>**. The **/EX** will get you out of letter-writing mode and back to the menu.

CompuServe will permit you to store your letter in your Personal Programming area (which has 128K byte space and is assigned to you as a part of your CompuServe subscription). To send your mail out, press **<6>**. According to the CompuServe brochure, electronic mail will be delivered within 25 minutes.

Reading your Electronic Mail is simple. At the Electronic mail menu, select option #1: "Read Mail." Then, you can follow the instructions displayed on the CRT to read your mail.

Adding Lowercase to Message

As you will notice quickly, most CompuServe functions can be chosen from a menu and are friendly to users as CompuServe offers many on-line instructions. However, certain CompuServe options are hidden and are not so obvious. For instance, you will receive all information sent by CompuServe in upper case characters only, even though the Model II has lower case characters as well. You must instruct CompuServe to change "terminal parameters" to have displays of text on your Model II/12/16 in a proper mix of the upper and lower cases.

There are two ways to go about issuing the instruction to give both upper and lower cases. The simplest is to type GO CIS-4 <ENTER> in response to any

prompt (!). On page CIS-4, hit <5> to select option #5 "Changing Terminal Defaults." You'll get the menu to change the "Default" to what you wish. There you should select the lower case capability option and make your option permanent. Immediately after changing the terminal parameters, you will begin to receive CompuServe messages in the upper and lower cases.

Another way is to type GO PCS-71 and then R DEFAULT in response to the prompt, (OK). Type in exactly as DEFAULT. A menu will appear, and you can print out on-line explanations of "terminal parameters."

CompuServe has two distinct areas: Display area with the (!) prompt, and MicroNET area with the (O.K.) prompt. Page PCS-71 is in the MicroNET area, known as the Personal Computing Area. Unlike Display, MicroNET has no menu and generally is more difficult to use. To move out of this area, type in either R DISPLA or EXI.

FEEDBACK

You use FEEDBACK, located on Page CIS-4, to place an order for instruction manuals and software or to leave messages for CompuServe. (They'll answer you via EMail). When using FEEDBACK, you are not charged for standard connect time. FEEDBACK is menu-oriented and easy to use.

Special Interest Group (SIG):MNET80

Some subscribers of CompuServe might be most anxious to get to know other owners of similar computers and peripherals. The best way to do so will be to join one of the Special Interest Groups (SIGs) in CompuServe. Type in GO PCS- 50.

CompuServe has three SIGs for TRS80s: TRS80 CoCo, MNET80, and POWERSOFT. Before you sign up with a TRS80 SIG, you may wish to just "look around" in these SIGs. To join MNET80 or POWERSOFT, you have to pay an extra fee of \$20 each to gain full access to all SIG data.

SUPERIOR SOFTWARE SYSTEMS

SORTPAC

FILE SORTING PACKAGE

A Package of Nine Programs for Sorting TRSDOS 2.0a, 2.0b & 4.2 files for Radio Shack TRS-80 Models 2, 12 & 16

Fastest floppy disk File Sorting package available for 2/12/16. Sorts 5000, 20 byte records in 1 min 30 secs (disk I/O included). Programs run under TRSDOS, CP/M operating system not required. Sorts records with up to 1000 fields, Records lengths to 32K bytes. Production Oriented. Answers to queries can be saved in ANSWER files for future use so that complex jobs can be inserted into job stream. Corresponding records of separate files can be joined together. Sort full file or create index file, use any fields desired as keys. Move selected PROFILE data fields to your files & vice-versa. Sort PROFILE fields across data segments in any order you desire. Combine fields of different PROFILE files to form new PROFILE files. Easy to use. No programming required. Includes 90 page users manual.

\$30 Manual.....deductable from full Purchase Price of.....\$220.

DISKPAC

DISK COPY & MAINTENANCE UTILITY

BACKUP & REORGANIZE DISKS; FAST FILE MOVES & COPIES; DISPLAY MEMORY, DISKS & FILES; PATCH BYTES ON DISK; ALTER RECORD LENGTHS OF FILES.

Runs on TRS-80 Models 2, 12 & 16 under TRSDOS 2.0A, 2.0B & 4.2

2.0A & 2.0B versions: Backup & Verify in 55 seconds. Works with single or multiple drive systems. 4.2 version: Backup 154 tracks in 70 seconds; Backup & Verify in 95 seconds; Backup, Verify & Compare all bytes in 115 seconds. Reorganize disks with fragmented files. Make disks with flawed sectors usable. Compacts free disk area. Very fast run time. Copy files up to 25 times faster than TRSDOS copy & move commands. Patch any byte on disk including passwords. Put files on the disk you desire for more efficient diskette use. Display files, disk & any part of memory on screen or printer. Alter the record length of a file. Spool directly from your files. \$20 manual (50pp)..... deductible from full purchase price of\$100.

—MASTER CARD, VISA, MONEY-ORDER or CHECK accepted—

30 day money back guarantee, if for any reason you are not satisfied.

CALL: 1-800-448-4511 NY: 1-800-962-1480 Ask for Ext. 314

WRITE: SUPERIOR SOFTWARE SYSTEMS, 609 GRANGER RD., SYR., NY 13219

TRS80 & TRSDOS are trademarks of Tandy Corp. PROFILE is a trademark of the Small Computer Company, Inc., licensed to Tandy.

Before you start looking into what MNET80 SIG can offer, it's a good idea to hit <HOLD><Z> to clear the computer memory. (To close off the memory, hit <HOLD><C>.) Then turn your printer on and press <HOLD><R> to start retrieving the SIG's data. If you are an "expert" user, you don't need to have a printer on. Instead, you can hit <HOLD><O> (not zero) to open the Model II's memory to store messages from CompuServe.

If you have selected MNET80 and have typed in MI (Membership Information) at the prompt, MNET80 SIG will display membership information. Some SIGS, such as the CP/M SIG, does not require any membership fee, and you can go right ahead using all of its services from the very moment you start browsing around in it.

does it give an option for UPloading your programs to be shared by all other members.

How can we DOWNload and UPload programs? How can we get to know what kind of people are members of MNET80 SIG? The owners of Models II, 12 and 16 would like to know more about the owners of these models in MNET80. This is where a new subscriber to CompuServe begins to grope in the dark, spending money and time.

A Few Handy SIG Commands

The XA command will take you into the SIG database, even though the menu doesn't tell you that you can do this. Just type in XA at the SIG Menu, and you will get a cryptic message ad-

various commands available for the SIG.

Type CAT/DES <ENTER> if you wish to know what sort of programs other SIG members have submitted. This will result in the printing out of a CATALOG of DEScriptions of currently available programs submitted by SIG members exclusively for Model II/12/16.

By the way, don't try this CAT/DES for subgroups 0 or 1 because there are so many programs in these subgroups, your request to print them all up will chew up your time (and money).

If you do not require detailed descriptions of the programs, just type in CAT <ENTER>, and this command will you give you a one liner for each program in MNET80, such as:

```
[70045,1457]  HANGMN.BAS
12-APR-83 7515 ACCESS:3 30-May-83
```

Of course, you cannot really tell without a full description what this BASIC program named "HANGMN" will do for you, but this sort of listing is very handy when there are many programs. Each program is identified by the date of submission of the program (e.g., 12-Apr-83 in the above example), memory required for the program (7,515 bytes), the total number of times the program has been accessed by other members of CompuServe (three times for this program), and the last date this program is accessed (30-May-83).

The V command gives you Vitae of the members of the SIG. This is also called the "Interest Log," and you can search for members who are interested in the Model 100 or the Model II, etc.

Other SIG Commands

There are additional commands you can enter in response to the SIG/Access prompt: PUB, NOR, CAT, TYP, DOW, KEY, SUB, DEL, EXI, and HEL. In this list, you see the command you have been waiting for: DOW or TYP. These commands make it possible for you to copy the cataloged programs into your own computer memory or even directly to your own diskette. If you have CompuServe VIDTEX, the process of DOWNloading the program is simplicity in itself. Here is how.

Some subscribers of CompuServe might be anxious to get to know other owners of similar computers. The best way to do this is to join one of the Special Interest Groups (SIGs) in CompuServe.

A lot of things can be done in MNET80, but you must learn many commands in the SIG. An inexpensive manual, *Special Interest Group Instructions*, is a necessary investment for that purpose. The menu is given whenever you enter the SIG to show you what you can do in MNET80 SIG.

Function menu:

1. (L) Leave a message
 2. (R) Read messages
 3. (RN) Read new messages
 5. (B) Read bulletins
 6. (CO) Online conference
 9. (OP) Change your SIG options
 0. (E) Exit from this SIG
- Enter selection or H for help:

You might be disappointed by this menu, though. It doesn't list an option for DOWNloading SIG's treasure trove of programs of MNET80 members, nor

visiting you that you are in the SIG's database.

You will be asked to identify the database you wish to look at, and you must choose from the given options. These options represent the various categories into which the available computer programs are divided. The programs in group 0 are concerned with general topics and are helpful for all TRS80 computer users; Group 1 is set aside for Model I and III owners; the programs in Group 2 are for Color Computer owners; Group 3 contains items of interest for Model II/12/16 owners; and Group 4 is for Model 100 owners.

O.K., so you type <3>. After you are in the SIG data base, it's time for you to dig into the manual, *Special Interest Group Instructions*, so you can use the

First, identify a program you wish to DOWNload to your diskette. Let's say you wish to DOWNload HANGMN.BAS. In response to (SIG/Access:), type in DOW HANGMN.BAS <ENTER>

Then CompuServe will ask you to specify the name you wish to use on your own diskette (that is, an output file name). Type in, for example, HANGMN/BAS.

It is crucial for you to replace the "." in the CompuServe program's name with the TRSDOS "/" when specifying your output file. Otherwise, TRSDOS will drop anything beyond the "." when DOWNloading, and create a disk file under the name HANGMN without any extension! This will get you in a merry game when TRSDOS BASIC cannot recognize HANGMN as a BASIC program. TRSDOS will not RENAME HANGMAN to HANGMN/BAS, because TRSDOS thinks that HANGMN is protected by a special password!

When given an output filename, CompuServe's VIDTEX program (but not Radio Shack VIDTEX program) will open your disk file, and transfer the program from CompuServe to your file. After completion of the program transfer, it will close the disk for you! All you have to do is to wait. Because CompuServe "filters" unnecessary characters involved in transmitting programs through a telephone line, the program you have DOWNloaded can be immediately run with BASIC, without any further editing by you.

If you are using another communications program, such as the Model II's "TERMINAL", you have to edit the DOWNloaded programs by moving them to a SCRIPSIT disk. Be sure to use SCRIPSIT version 2.1.0, as it has a greater space of 13 granules to accept an ASCII file.

Once you are in the SCRIPSIT menu, create a new, empty file under a name of, for example, HANGMN/TXT, and use SCRIPSIT's "C" option to convert the ASCII file (containing a BASIC program, HANGMN/BAS) into a SCRIPSIT file, and then edit the program. After editing, you can call up the C option again, and now change the

SCRIPSIT file back into an ASCII file. Now you can run the program with BASIC. This process becomes tedious very quickly, and you will begin to really appreciate CompuServe's VIDTEX for convenience.

By the way, if you don't have CompuServe's VIDTEX, you must use the "TYP" command (from the SIG/Access menu) to DOWNload the program. The TYP command sends a CompuServe file to you, and if you open your computer memory by <HOLD><O><Z> and make it ready to accept the file, you can store the CompuServe file into your computer's memory.

The TYP command is also handy when you wish to display a program on your Model II monitor, or when you want to list the file with a printer, or when you wish to store a program in your diskette. To store the program after using TYP, hit <HOLD> and either <v> or <S>. These details are given in CompuServe VIDTEX 2.0 manual.

Now, when you are in the SIG/Access mode, you have to type EXI to get back to page PCS- 54.

Next time, Dr. Naitoh will share with you how his Model II talks to Radio Shack's Model III and even to Apples. In San Diego where he lives, there are 80+ subscribers to CompuServe. A quick scan of these subscribers showed that they have a variety of computers: R/S Models I, II, III, and CoCo; Apple II and IIe; Atari 800; IBM PC; Heath 89A; Vic 20; Commodore-64; Pet; TI-99/4A; Sinclair +81 (64K), and even a "home brew" computer. With CompuServe, Dr. Naitoh and his fellow "CompuServers" can swap program files and information using their computers. Moreover, they can talk to any computer in any place in the United States and Canada, as long as the computers are connected to the CompuServe network by a modem.

Look for the next installment of this CompuServe series and learn how to Uplod your programs to share with others.

You'll "DO" much better with DOPLUS by Micron

DOPLUS frees you from your keyboard. With this package you can leave your computer to operate itself: running programs, generating reports, and other such functions. To operate DOPLUS, you prepare a file with a set of system commands and answers to the programs' prompts. You won't have to wait for the prompts because DOPLUS is an advanced replacement for DO. It allows you to perform truly automatic functions. DO ties you to your keyboard -- DOPLUS provides a wonderful new freedom, and it costs only \$150.

Want to know more? Write to me today, and I'll send you a copy of our new catalog with all the details.

Dallas Mallerich III
Sales & Marketing

MICRON, INC.

10045 Waterford Drive
Ellicott City, MD 21043
(301) 461-2721

Call for
Custom
Software

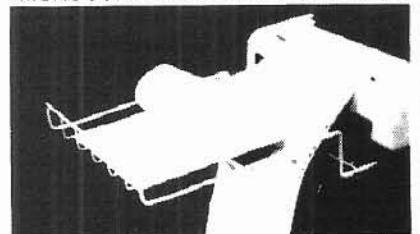
BOOT ERROR DC

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

- Totally software transparent
 - Run your disk expansion unit only when needed
 - Eliminate ruined system diskettes
 - Compact 2 in. x 3 in. size
 - Simple plug in installation
 - Money back guarantee - 90 day warranty
 - \$64.50 plus \$3.00 shipping and handling
 - Indiana residents - add 5% sales tax
- PLEASE SPECIFY IF YOU ALSO HAVE A HARD DISK MICROCOMPUTER PRINTOUT BASKET



- Use on any table
- Sturdy steel construction
- Beige epoxy finish
- Special power cord & signal cable retainer
- 12 inch \$22.50 18 inch \$24.50 plus \$3.00 shipping and handling

See, Inc.

DEPT. E

P.O. BOX 40215

INDIANAPOLIS, IN 46240

317-844-8817



As a user of SCRIPSIT 2.0, I have found it to be a very friendly and capable word processor. During the past year that my secretary and I have been using SCRIPSIT, we have experienced two SCRIPSIT crashes, both caused by power failures.

At the time of the first crash, the diskette was well backed up, and only a minor amount of typing had to be done to bring the back-up current.

However, in the most recent case, I did not have my diskette backed up. Several calls to the nearest well-equipped Radio Shack Computer Center proved to be no help in recovering my diskette. The personnel at the store were very willing to help but did not have the experience or information to do so. Their effort to obtain SCRIPSIT directory information from Fort Worth was also of no avail. Radio Shack's bottom line was that adequate back-ups should be kept (I know that!), and they would not help to recover my crashed diskette.

I decided to attempt the recovery myself, and indeed, I did recover all documents except the one being written when the power failed. Here's what happened to me and what I learned about how to recover a SCRIPSIT 2.0 diskette that fails.

The most recent crash occurred while I was converting an ASCII file from a TRSDOS diskette in Drive 1 to a SCRIPSIT file on the SCRIPSIT diskette in Drive 0. As soon as the power failed, I pulled the diskettes from both drives to prevent further possible damage during power up.

HOW TO RECOVER A CRASHED SCRIPSIT 2.0 DISKETTE A. F. NIESSNER

When the power returned, the system was re-started, and SCRIPSIT was brought up in Drive 0.

Everything was OK until the SCRIPSIT directory was displayed. The SCRIPSIT header indicated that I had 17 documents on this diskette; the document being written when the power failed would have been the 17th document on this diskette. The first cell in the directory contained graphics characters -- the ASCII value 00 -- where the document information should be. The remainder of the directory cells were empty.

All attempts to access the files from the SCRIPSIT directory failed. The cursor would not move beyond the cell containing the graphics characters. An attempt to open that document gave no results, and the old documents could not be opened by name either.

Taking the symptoms of the problem, together with the results of a bit of investigating with the TRSDOS List

Utility, several things became apparent: (1) All the files on the diskette were unharmed, with the exception of the SCRIPSIT directory; (2) the diskette could be backed up, but the back-up diskette had the same problem with the SCRIPSIT directory; (3) using the crashed diskette in Drive 1 with a good directory in Drive 0 gave the same results when attempting to access the directory from the crashed diskette; (4) a perusal of the file DOCUMENT/CTL using the List utility convinced me that the documents were still intact on the diskette.

Now I had defined the problem enough to know that I had to find the SCRIPSIT Directory information and determine how SCRIPSIT accesses it. Not surprisingly, Radio Shack supplied no information to help.

The solution to my problem was found by searching the file DOCUMENT/CTL for the directory information. My search revealed that the needed directory data was scattered throughout DOCUMENT/CTL, with each document's directory data being contained in a 256 byte record. A study of the data in several directory records revealed that the SCRIPSIT directory is a simple linked list. This scheme is shown in Figure 1, and the directory layout in DOCUMENT/CTL is shown in Figure 2.

At the beginning of the file DOCUMENT/CTL, there are two binary numbers (PF and PB) that are pointers to the first (oldest) and last (most recent) directory records. These pointers to the directory records are stored in Z-80 byte reversed format and count the first record in the file as

FIGURE 1

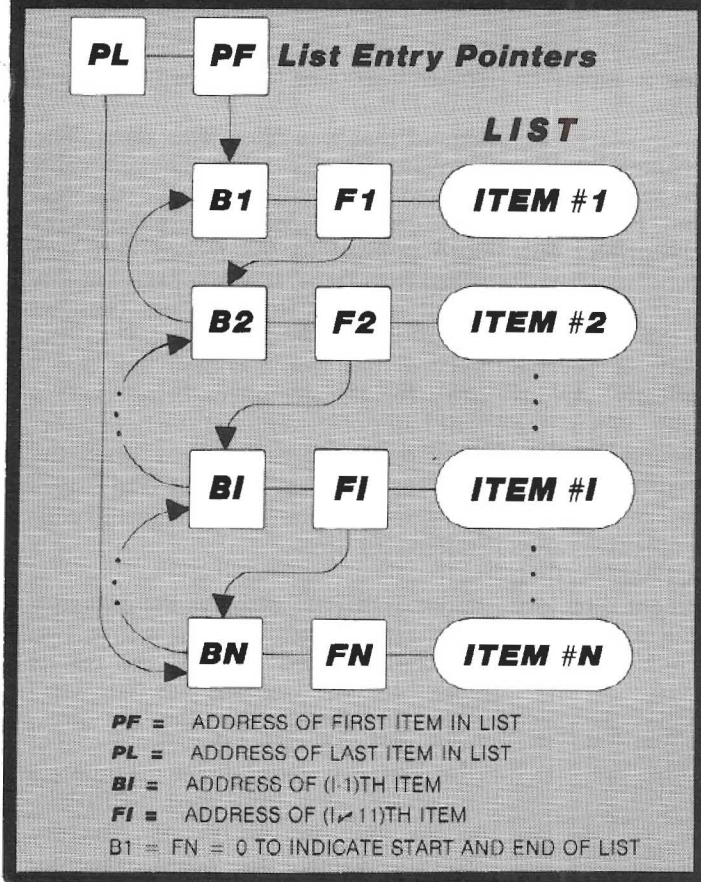
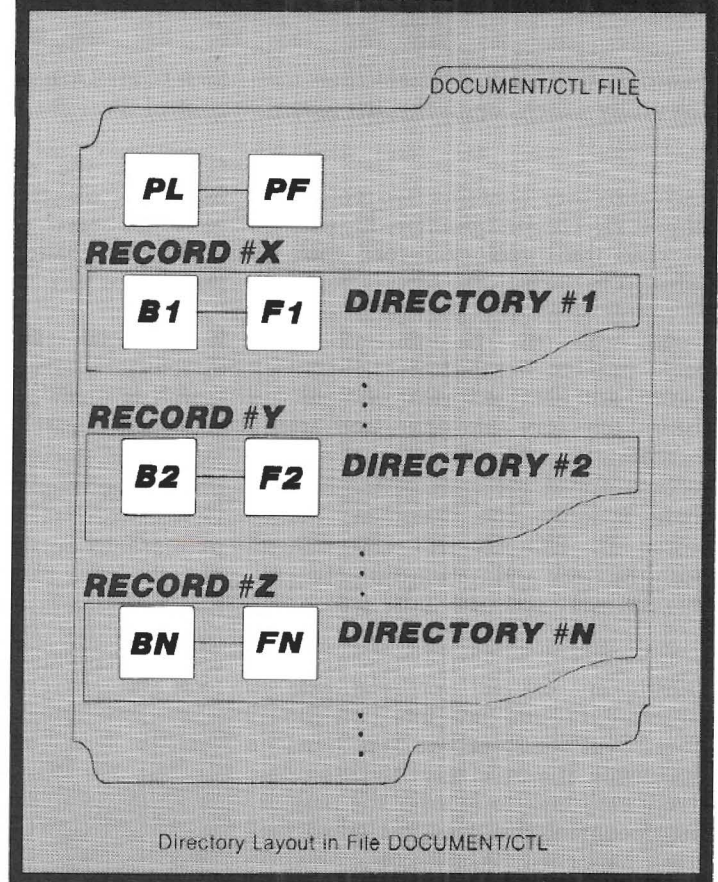


FIGURE 2



MODEL II/12/16

TRSDOS 2.0a/b MEMORY MAP

Complete address/function map. Identifies system subroutines, tables & status indicators. Many useful patches included \$15.00

MOD II/12/16 DISASSEMBLER

Printer, video or M80 compatible disk output with LABELS & CROSS REFERENCE. ASCII data areas translated. "Search" mode and other special features. For TRSDOS 2.0a/b (1 disk) \$45.00

SPECIAL OFFER

Use the Memory Map, disassembler & your own ideas to customize your operating system. Both \$50.00

BACKPACK

FORMAT/BACKUP/REORGANIZE diskettes in a SINGLE step. BACKPACK is the ONLY fast backup utility that reorganizes files (like TRSDOS "MOVE" but 15 X's faster)

- Formats WHILE copying
- Eliminates "checkerboard" space allocation
- Relocates files to the outer, more reliable tracks
- Optional PROMPT for selective file copying
- Allows disk directory relocation
- Data fully verified

For Mod II/12/16, TRSDOS 2.0a/b (2 disks) \$59.00

KWIX II - A WORD TOOL FOR MOD II/12/16 SCRIPSIT

KWIX 2.0, a MAJOR UPGRADE, is now available

WRITERS, LAWYERS, LINGUISTS, SECRETARIES, PROOF-READERS, any SCRIPSIT user - Save days of drudgery. Put KWIX to work for YOU!

KEY WORD INDEX — Uses a non-key word dictionary to eliminate common words and create a sorted Index (by Doc/page/line) for a book, manual or any SCRIPSIT document(s). Up to 100 documents from multiple diskettes may be indexed together. The Index (complete or partial) can be printed, displayed or appended to your SCRIPSIT document.

KEY WORD IN CONTEXT — List Key Words centered, left or right in 80 or 132 characters of context with Doc/page/line references.

FULL WORD INDEX/CONTEXT — Bypass the non-key dictionary and list ALL words, Index only, or in Context.

WORD FREQUENCY — Three different formats. Sorted descending by frequency or ascending by word. Key words only or ALL words.

- Index by Document/Page/Line
- Character types selectable alpha/numeric/mixed/special
- Create YOUR OWN Key or non-key word dictionary & delete/restore words in System-supplied dictionary
- 30 character word size
- Video display speed adjustable
- Counters: Total words, different words, sentences
- Default options easily reset to user's selections
- FAST: full diskette indexed in 5 min. EASY TO USE, no installation required

KWIX 2.0 for Mod II/12/16, TRSDOS 2.0a/b, (2 disks) ... \$119.00

Terms: VISA/MASTERCARD, Check (US funds/US bank), Money Order, NO Purchase Orders. Shipping to N.Amer. add \$3, other countries \$10, COD \$5, VA residents add 4% sales tax

TRS-80, TRSDOS & SCRIPSIT are trademarks of Tandy Corp.

SKYLINE SOFTWARE

*** Committed to Quality & Customer Support ***
 3705 S. George Mason Dr., Suite 2411-S, Falls Church, VA 22041
PHONE: (703) 578-3940

record zero. This is different than the List utility which counts the first record as record 1.

Each directory contains two pointers, BI and FI. The first pointer, BI, points back to the directory record that is before it in the list. The second pointer, FI, points forward to the next directory record in the list. The pointers BI (the back pointer in the first directory record) and FI (the forward pointer in the last directory record) are both zero, indicating to SCRIPSIT that these records are at the ends of the list. If there is only one document being stored in DOCUMENT/CTL, then both the back and forward pointers in this directory record will be zero.

During my search for the directory structure, I found out quite a bit about how SCRIPSIT stores the data for each document. It would seem to be a relatively easy task to recover the part of the document that was lost when the crash happened. In my case, converting an ASCII file to a SCRIPSIT file, it was a simple matter to redo the conversion since the ASCII file was not affected by the crash. Had a major portion of a long document been at stake, a rescue attempt would have been in order.

After my first attempt at recovering a crashed SCRIPSIT diskette, I had to make another SCRIPSIT diskette crash recovery. Tracing out the DOCUMENT/CTL directory pointers using the TRSDOS LIST utility is so tedious, I decided to write a BASIC program to perform this search.

The resultant program, SPATCH/BAS, searches the crashed DOCUMENT/CTL file and extracts the directory pointers and the title and author of each document. The data, as shown in Figures 3 and 4, is displayed on the video screen and is optionally printed on the line printer. The SCRIPSIT directory pointers are given in the same number scheme used by the TRSDOS LIST utility (i.e., 1..N), so that the files can be easily examined using LIST if desired. If a patch to DOCUMENT/CTL is required, a value of one must be subtracted from the pointer so that it will correspond to the DOCUMENT/CTL numbering scheme (i.e., 0..M).

SPATCH/BAS provides a menu to control three search options:

- (1) select the drive containing the SCRIPSIT diskette to be searched,
- (2) select the search direction, Forward or Backward,
- (3) toggle the printer output, On or Off.

If the initial search of the SCRIPSIT directory is inconsistent, a reverse search is made automatically. An inconsistent search results when the number of documents found does not match the number recorded in the DOCUMENT/CTL file, or when a pointer falls outside the specified range of records for that DOCUMENT/CTL file, or if the last document directory record is not the same as the terminating pointer given in the first DOCUMENT/CTL record.

By using SPATCH/BAS, a crashed SCRIPSIT diskette can be quickly searched and the directory pointers in the DOCUMENT/CTL file listed.

SPATCH/BAS is easy and straight forward to use. From TRSDOS Ready, enter BASIC Spatch/bas -F:1. When run, a program description is written to the video screen. From there, pressing any key will bring up the program option menu.

To run the program with the default options, press the "1" key. The default options will cause SPATCH/BAS to search the available disk drives for the first diskette containing DOCUMENT/CTL. When DOCUMENT/CTL is found, its directory data will be located and listed on the video screen as shown in Figure 3. The display pauses between each page of data, and the listing will continue by pressing any key.

When inspecting the crashed diskette, I found that pointer PL pointed to a record that was filled with zeros. The

When inspecting the crashed diskette, I found that pointer PL pointed to a record that was filled with zeros. The forward pointer from the last valid directory (the directory for the last document completed before the crash) also pointed to the record that was filled with zeros. It was apparent at this point that SCRIPSIT had changed these two pointers to point to the record that would contain the directory for the document being created but had not yet entered the new directory data into that record when the power failed. When SCRIPSIT was restarted, PL pointed to the record containing all zeros.

Since SCRIPSIT displays the directory of the most recent document first, two things happened to give the results noted before. The graphics characters that were displayed in the first directory cell were indeed the zeros found in the directory record. Since the pointers BI and FI were both zero, SCRIPSIT could only find this one directory record. While the other directory records were intact, SCRIPSIT could not access them due to the fractured link in the linked list of directory records.

In order to repair the broken link, the number in PL was changed to the record number of the last complete document's directory. The forward pointer in this directory was set to zero in order to terminate the list.

These changes to DOCUMENT/CTL were made using the TRSDOS Patch utility, which has options for patching program files and data files. I used the data file option to patch DOCUMENT/CTL. The PATCH command to TRSDOS takes the form:

```
PATCH DOCUMENT/CTL R=rr,  
B=bb,F=ff..f,C=cc..c
```

where rr is the record number to be patched, bb is the number of the first byte to be patched, ff..f is the current hex data in the pointer location to be changed, and cc..c is the new hex data to replace the pointer that was in error.

The pointers, PL and PF, are located in the first record of DOCUMENT/CTL. They are byte reversed (least significant byte followed by the most significant byte), 2 byte (16 bits) numbers

A·DO·IT·YOURSELF·GUIDE

with PL in bytes 7 and 8 and PF in bytes 9 and 10. The pointers BI and FI are located in each directory record. The back pointer is located in bytes 2 and 3, and the forward pointer is located in bytes 4 and 5.

Once the pointers were corrected to point to the last complete document, SCRIPSIT was able to display the directory and access the documents that were thought to be lost.

A problem remains in that the SCRIPSIT header displays a document count which is one greater than the actual number on the diskette. This display could also be corrected with some more work, but it does not seem to create any problems.

The menu provides three search control options, the first of which is "option 2 - Diskette search for DOCUMENT/CTL." The default option "First one found" will perform the normal TRSDOS search for the first drive containing DOCUMENT/CTL as described above. If more than one drive contains SCRIPSIT diskettes, then the drive number of the drive containing the DOCUMENT/CTL file to be searched should be specified. Be sure a DOCUMENT/CTL file is present or TRSDOS will create one, and a program error will occur when a GET is attempted. Should this occur, the DOCUMENT/CTL file should be KILLED to prevent further confusion.

The second option is "option 3 - Forward or Backward Search" which toggles the search direction. A Forward search starts with the oldest document and proceeds to the newest. The Backward search starts with the most recent document and proceeds to the oldest.

The final option, "Option 4 - Output to the Printer," toggles the printer ON or OFF. The data is always displayed on the video screen, but the pause between display pages on the video screen is eliminated if the printer option is ON.

Program termination from the menu is effected by pressing the "5" key.

SPATCH was written on a TRS-80 Model II equipped with a TRS-80 Line Printer VIII. Printed output is obtained

by using the DUAL mode of TRSDOS which is accomplished from BASIC with PRINT CHR\$(14), DUAL ON, and CHR\$(15), DUAL OFF. Unfortunately, this causes a problem with the LP VIII since these same codes start and end the underline mode in the printer. The LPRINTs in program lines 4320 and 5250 are used to remove the problem. However, when a printer is not on line, an IO error will occur when the program tries to execute these lines. They can be avoided when a printer is not on line by DELETE 4320 and DELETE 5250 prior to running SPATCH.

Other printers may have the same problem with the CHR\$(14) and CHR\$(15) control codes. The corrective action will depend on the particular printer being used.

You might encounter a BASIC IE error when you try to use SPATCH to search a crashed SCRIPSIT diskette if the last SCRIPSIT session was not terminated using SCRIPSIT's End command. The cause of this error is not understood, but it does not occur if the program is run a second time. Should this happen when the program is first run, simply run the program a second time.

By using SPATCH/BAS, a crashed SCRIPSIT diskette can be quickly searched and the directory pointers in the DOCUMENT/CTL file listed. Once the broken pointer linkage is found, a repair can be effected using the TRSDOS PATCH utility as described above. ■

CLASSIFIED ADVERTISING

Advanced Computing will accept Classified Ads for publication in the magazine. Subscribers may place one ad per issue at the rate of \$7 per column inch. Ads must be for hardware, software, or services which would be of interest to Model II/12/16/2000 users. Ads will be set in the same size type as the text in the magazine.

Closing date for classified ads is the 15th day of the month prior to issue date (e.g., the January/February issue classifieds will close December 15).

SCREENPIX

Take advantage of your Model II/16's limited graphics capability without special hardware. Screenpix is a general purpose TRSDOS 2-80 machine language utility that enables you to create, edit, and store screen images using the 256 displayable characters of your system.

- * No programming experience necessary.
- * Use for diagrams, screen entry, games, animations.
- * Simultaneous RAM storage of up to 10 images.
- * Programmable edit rectangle for operations on selected screen areas.
- * Automatic video invert, horizontal & vertical mirror imaging, global character replacement.
- * Rapid storage/recall of 10 programmable cursor positions, four-way tabs with patchable jump size, precise cursor control.
- * Help screen shows all characters, codes, and commands.
- * Superimpose multiple images, or allow selected areas to 'travel' until positioned.
- * Automatic rapid sequential display of up to ten different images, with independent shifting of each, for positioning of multiple overlays.
- * Typewriter mode for text and labeling.
- * Grid for scale drawings.
- * Movable, erasable, nondestructive status line to track cursor coordinates and stored drawing characters. Use to transfer pictures from optional grid worksheet.
- * Store pictures in individual files or combined; up to 250 per file.
- * Utilities to load, print, append, replace, and delete pictures.
- * Execute general TRSDOS commands without leaving program.
- * Easy access to pictures from BASIC alone (sample program included).
- * Faster access from BASIC and compiled languages with position-independent machine language routine (included).
- * 109 pg. manual: tutorial, reference, customizing, file structure, linking with other programs, etc.
- * Fully supported by update service (1 year free).

\$150

DATARIGHT
Software

P.O. Box 402

Hillsdale, NJ 07642

tel. (201) 560-8440

Figure 3
Sample printout from a Forward search.

```

***  I Forward I Search of the Scripsit file DOCUMENT/CTL  ***

The Spatch search of record one shows:

    The number of 256 byte records is: 1060
    The number of Documents is: 23
The Forward pointer is to record number: 74
The Back pointer is to record number: 523

***  Document data is now being loaded into the data arrays  ***
    Press any key to terminate the search

```

Record Number	Forward Pointer	Back Pointer	Document Title	Author
74	121	1	Qpm0d1/bas	A.F.Niessner
121	135	74	Ada Letter	A.F.Niessner
135	150	121	Double Pres Math	A.F.Niessner
150	174	135	Filter Data	A.F.Niessner
174	206	150	DRAS Letter	A.F.Niessner
206	323	174	CREATOR/BAS	A.F.Niessner
323	366	206	DEMO/BAS	A.F.Niessner
366	421	323	IOtest Pascal	A.F.Niessner
421	374	366	ATV Depth Data	A.F.Niessner
374	392	421	GTV Slowdown	A.F.Niessner
392	388	374	PPC development	A.F.Niessner
388	412	392	GTV Operation	A.F.Niessner
412	470	388	Computer Memo	A.F.Niessner, Jr.
470	568	412	Commonality	A.F.Niessner
568	578	470	AFN Consulting	A.F.Niessner
578	588	568	TRS-80 Transfer	A.F.Niessner
588	372	578	Expense Account	A.F.Niessner
372	450	588	AFN Resume	A.F.Niessner
450	458	372	Travel Response	A.F.Niessner, Jr.
458	489	450	AAI Tasks	A.F.Niessner
489	491	458	Rolling Wave 826	A.F.Niessner
491	523	489	Arctic Trip Rpt	A.F.Niessner
523	1	491	Rolling Wave 91	A.F.Niessner

```

***  Normal termination of the Scripsit Directory search  ***

```

Press any key to continue.

Figure 4
Sample printout from a Backward search.

```

***  I Backward I Search of the Scripsit file DOCUMENT/CTL  ***

The Spatch search of record one shows:

    The number of 256 byte records is: 1060
    The number of Documents is: 23
The Forward pointer is to record number: 74
The Back pointer is to record number: 523

***  Document data is now being loaded into the data arrays  ***
    Press any key to terminate the search

```

Record Number	Forward Pointer	Back Pointer	Document Title	Author
523	1	491	Rolling Wave 91	A.F.Niessner
491	523	489	Arctic Trip Rpt	A.F.Niessner
489	491	458	Rolling Wave 826	A.F.Niessner
458	489	450	AAI Tasks	A.F.Niessner
450	458	372	Travel Response	A.F.Niessner, Jr.
372	450	588	AFN Resume	A.F.Niessner
588	372	578	Expense Account	A.F.Niessner
578	588	568	TRS-80 Transfer	A.F.Niessner
568	578	470	AFN Consulting	A.F.Niessner
470	568	412	Commonality	A.F.Niessner
412	470	388	Computer Memo	A.F.Niessner, Jr.
388	412	392	GTV Operation	A.F.Niessner
392	388	374	PPC development	A.F.Niessner
374	392	421	GTV Slowdown	A.F.Niessner
421	374	366	ATV Depth Data	A.F.Niessner
366	421	323	IOtest Pascal	A.F.Niessner
323	366	206	DEMO/BAS	A.F.Niessner
206	323	174	CREATOR/BAS	A.F.Niessner
174	206	150	DRAS Letter	A.F.Niessner
150	174	135	Filter Data	A.F.Niessner
135	150	121	Double Pres Math	A.F.Niessner
121	135	74	Ada Letter	A.F.Niessner
74	121	1	Qpm0d1/bas	A.F.Niessner

```

***  Normal termination of the Scripsit Directory search  ***

```

Press any key to continue.

We're serious about fun!

Software for II/12/16

KIOCHET® This is a fast action game that really tests your reflexes. The object of the game is to get the ball into the goal by deflecting it off the walls before your time is up.

TRSDOS® \$25.00
STARTRIP™ A large version with lots of graphics of the classic computer game. Takes about two hours to complete. * Designates trademark of the PARAMOUNT PICTURES CORPORATION.

TRSDOS® \$25.00
STARSHIP/I® (By Richard H. Young, Editor of two/sixteen magazine.) This is a save-the-galaxy type game based on the venerable STARTRIP games which have been played on large mainframes for more than ten years. It is specifically designed for the RS Model II/12/16 and features a constant console display with no scrolling. It is a "strategic" game (Opposed to "tactical" games which involve reflex action but little thought). However, STARSHIP requires quick thinking, as all events are timed. STARSHIP requires quick thinking, as all events are timed. 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).

TRSDOS® \$39.00
GAME PACK I® (by ADD, Inc.) Four games that use enhanced graphics not available from Radio Shack. INTERCEPT and REVERSE for two players; LUNAR LANDAR and SINK THE BATTLESHIP for one player.

920-0001 TRSDOS® \$50.00
GAME PACK II® (by ADD, Inc.) Consists of the four games in GAME PACK I® and two additional games. They are CATUM where you control a snake moving around the screen trying to catch its prey and REVERSE II where it's you against the computer.

TRSDOS® \$70.00
GAMES/TRS-80® (by Lance Micklus, Inc.) Contains the following six games:

THE MEAN CHECKERS MACHINE® — The game is played just like regulation Checkers. To win, you must eliminate all of your opponent's pieces from the checkerboard.

STARLIGHT® — This is a Star Trek type game. The object is to collect data about Omega VI, an unexplored area of the galaxy; to locate and destroy the 20 Klingon Invaders.

CONCENTRATION — The computer will make up the game board. You will try to find the matching prizes. After each correct guess, you will have a chance to guess at the secret number. Guess right, and you win all of your prizes.

TREASURE HUNT — The Lumas caves, located in Lumusville, Vermont, are said to have 20 hidden treasures in them. Few explore the caves because it is said that pirates and dragons live there, and there are deep pits which many have fallen into and died. You, a smart and brave human, and I, an alert computer, will explore the caves and try to find the treasure.

BANKO — The Game is similar to Black Jack. You draw numbers stopping before the total point value exceeds 11. If you go over 11, then your hand will be zeroed. If you draw 5 times without going over 11, then you'll receive bonus points equal to the value of your hand at the time you end your turn.

DOG STAR ADVENTURE® — The evil General Doom and his Roche Soldiers are ready to launch an attack against the forces of freedom lead by Princess Leya. While traveling to her secret command center, Doom attacks Princess Leya's ship. She is now being held prisoner on one of General Doom's battle cruis-

ers. We must try to save the Princess and the treasury of her freedom fighting force.

TRSDOS® \$75.00

ADVENTURES 1-12® (by Scott Adams of Adventure International) By definition, an adventure is a dangerous or risky undertaking; a novel, exciting, or otherwise remarkable event or experience. On your personal computer, Adventure is that and much more. In beginning any Adventure, you will find yourself in a specific location: a forest, on board a small spaceship, outside a fun house, in the briefing room of a nuclear plant, in a desert, etc. The top portion of your video display will tell you where you are and what you can see; the bottom section of the display is devoted to inputting commands to your robot computer and receiving messages that may arise as the result of your orders.

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.

#1 ADVENTURELAND — Wander through an enchanted realm and try to recover the 13 lost treasures.

#2 PIRATE ADVENTURE — The lost treasures of Long John Silver lie hidden somewhere — will you be able to recover them?

#3 MISSION IMPOSSIBLE ADVENTURE — In this exciting Adventure, time is of the essence as you race the clock to complete your mission in time — or else the world's first automated nuclear reactor is doomed!

#4 Voodoo CASTLE — The Count has fallen victim to a fiendish curse with you his only possible hope. Will you pull off a rescue, or is he down for the Count for good?

#5 THE COUNT — It begins when you awake in a large brass bed in a castle somewhere in Transylvania. Who are you, what are you doing here and WHY did the postman deliver a bottle of blood?

#6 STRANGE ODYSSEY — At the galaxy's rim, there are rewards aplenty to be harvested from a long dead alien civilization. Will you be able to recover them and return home?

#7 MYSTERY FUN HOUSE — This adventure puts you into a mystery fun house and challenges you to find your way through and back out of it.

#8 PYRAMID OF DOOM — This is an Adventure that will transport you into a maddening dangerous land of crumbling ruins and trackless desert wastes — into the very PYRAMID OF DOOM!

#9 GHOST TOWN — You must explore a once-thriving mining town in search of the 13 hidden treasures.

#10 SAVAGE ISLAND PART I — A small island in a remote ocean holds an awesome secret — will you be able to discover it? This is the beginning of a two-part Adventure, the second half concluding as SAVAGE ISLAND PART 2, Adventure #11.

#11 SAVAGE ISLAND PART II — The suspense begun with Adventure #10 now comes to an explosive conclusion with SAVAGE ISLAND PART III.

#12 GOLDEN VOYAGE — The king lies near death in the royal palace. You have only three days to bring back the elixir needed to rejuvenate him.

TRSDOS® \$129.95
 CP/M® \$129.95

INTERACTIVE FICTION® (by Robert LaFore) The ability to actually interact with characters and situations — to take part in the story-sets INTERACTIVE FICTION™ apart from the competition, the The actions begins when you react to a given situation or event, and then key in your response. You aren't limited to a couple of words; using full sentences is encouraged. You can enter the same situation time and again, and by using a different response, experience new twists of the adventure.

LOCAL CALL FOR DEATH — Meet Detective Sir Colin Drolley, as well as a host of other intriguing rogues, as you set about the task of solving the perfect crime.

TWO HEADS OF THE COIN — You are one of the world's greatest detectives. Mr. Conway's wife, Georgina, has vanished, and now it's up to you to gather the clues and solve the mystery behind her disappearance!

HIS MAJESTY'S SHIP "IMPETUOUS" — You are at the helm of HMS Impetuous. As captain, your decisions could bring either fame or fortune or utter disaster to you and your crew.

SIX MICRO STORIES is an excellent introduction to the world of Interactive Fiction. They are six short, but complete, stories which involve you, the reader, in a variety of fascinating scenarios. They include THE FATAL ADMISSION, EMPTY WORLD, and four other stories.

TRSDOS® \$49.95
TYCOON® (By Barry Ansini) This is a monopoly like game that you can play against the computer.

TRSDOS® \$35.00
BIORHYTHMS® This will print on 8½ by 11 paper or display biorhythms charts of an individual starting any date and for as many days as desired. Includes date subroutines, which are used for testings, converting, and calculating time between dates.

TRSDOS® \$25.00
AMORTIZE® Financial amortization calculator. Prints high quality amortization schedule on 8½ by 11 paper. Calculates one of the missing values, principal, payment, periods, interest rate, or balloon payment. Prints totals for each year. Includes full screen subroutines.

TRSDOS® \$25.00
LISTER® Lists BASIC source programs on 8½ by 11 paper with provisions for separate multi-statement lines. Prints program name, date, time and first comment on each page.

TRSDOS® \$25.00
DELUXE PERSONAL FINANCE® (by Lance Micklus, Inc.) This is a sophisticated and unique financial analysis package which is expense oriented. It can be readily customized to suit your personal financial situation.

TRSDOS® \$79.95
FOREIGN LANGUAGE VOCABULARY BUILDERS® (by ADD, Inc.) Consists of over 1000 words and phrases that are tested in flash card fashion. You may add over 1000 additional words of your own choosing. Languages currently available are: FRENCH, SPANISH and GERMAN.

TRSDOS® (One language per disk) \$45.00
HANDICAPPING® For classifying and ranking thoroughbred flats based on scientific methods. Use of this program will give you the edge and build skills resulting in rewards at the track.

TRSDOS® \$100.00

Additional Programs Available
 Call or Write For Free Brochure
 and More Information.



Rizzo Data Systems Corp.

577 Burlington Rd., P.O. Box 458 • Bridgeton, NJ 08302-0356 • 609/451-7979



Shipping Charge \$3.00 Per Order • C.O.D.'s - Add \$2.00 • 30 Day Money Back Guarantee On All Programs

Visa, MasterCard, Personal Checks or Money Orders Accepted

PROGRAM LISTING I

```

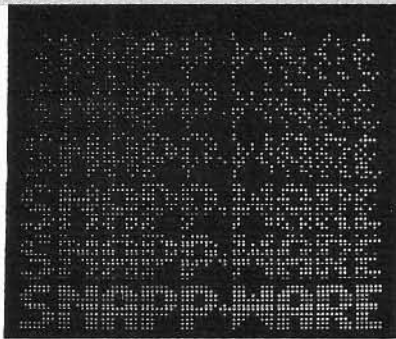
1000 *
1010 * *****
1020 *
1030 *
1040 *      Program - Spatch/bas
1050 *      by - A.F.Niessner
1060 *      Date June 1983
1070 *
1080 *      A program to search the Scripsit file 'DOCUMENT/CTL'
1090 *      and locate the directory pointer data to effect a patch
1100 *      to a crashed Scripsit directory.
1110 * *****
1120 *
1130 *
1140 *
1150 *
1160 *
1170 *
1180 *
1190 *
1200 *      *** Set up the program constants ***
1210 *
1220 * CLEAR 5000
1230 * DEFINT I,N,P,R
1240 * DEFSTR A,F,H,S,T
1250 * FS="DOCUMENT/CTL"
1260 * DS=" "
1270 * FN=" "
1280 * DN=" "
1290 * DN=3
1300 * DN=3
1310 * MI=" "
1320 * MI=" "
1330 * MI=" "
1340 * MI=" "
1350 * MI=" "
1360 * MI=" "
1370 * MI=" "
1380 * MI=" "
1390 * MI=" "
1400 *
1410 *      *** Define the functions ***
1420 *
1430 * DEF FN1(SX,NS)=ASC(MID$(SX,NS,1))
1440 * DEF FN2(SX,NL)=FN1(SX,NL)+256*FN1(SX,NL+1)
1450 * DEF FN3(T)=CHR$(26)+T+CHR$(25)
1460 * DEF FN4(T)=(74-LEN(T))/2
1470 * DEF FN5(X,Y)=(X+1) OR (X+Y)
1480 *
1490 *      *** Initialize the system and write the logo to the screen ***
1500 *
1510 *
1520 * SYSTEM "1"
1530 * GOSUB 3520: Set Menu Defaults
1540 * GOSUB 3120: Print the Logo
1550 * GOSUB 3220: Print the description
1560 *
1570 *
1580 *
1590 *
1600 *
1610 *
1620 *
1630 *
1640 *
1650 *
1660 *
1670 *
1680 *
1690 *
1700 *
1710 *
1720 *
1730 *
1740 *
1750 *
1760 *
1770 *
1780 *
1790 *
1800 *
1810 *
1820 *
1830 *
1840 *
1850 *
1860 *
1870 *
1880 *
1890 *
1900 *
1910 *
1920 *
1930 *
1940 *
1950 *
1960 *
1970 *
1980 *
1990 *
2000 *
2010 *
2020 *
2030 *
2040 *
2050 *
2060 *
2070 *
2080 *
2090 *
2100 *
2110 *
2120 *
2130 *
2140 *
2150 *
2160 *
2170 *
2180 *
2190 *
2200 *
2210 *
2220 *
2230 *
2240 *
2250 *
2260 *
2270 *
2280 *
2290 *
2300 *
2310 *
2320 *
2330 *
2340 *
2350 *
2360 *
2370 *
2380 *
2390 *
2400 *
2410 *
2420 *
2430 *
2440 *
2450 *
2460 *
2470 *
2480 *
2490 *
2500 *
2510 *
2520 *
2530 *
2540 *
2550 *
2560 *
2570 *
2580 *
2590 *
2600 *
2610 *
2620 *
2630 *
2640 *
2650 *
2660 *
2670 *
2680 *
2690 *
2700 *
2710 *
2720 *
2730 *
2740 *
2750 *
2760 *
2770 *
2780 *
2790 *
2800 *
2810 *
2820 *
2830 *
2840 *
2850 *
2860 *
2870 *
2880 *
2890 *
2900 *
2910 *
2920 *
2930 *
2940 *
2950 *
2960 *
2970 *
2980 *
2990 *
3000 *
3010 *
3020 *
3030 *
3040 *
3050 *
3060 *
3070 *
3080 *
3090 *
3100 *
3110 *
3120 *
3130 *
3140 *
3150 *
3160 *
3170 *
3180 *
3190 *
3200 *
3210 *
3220 *
3230 *
3240 *
3250 *
3260 *
3270 *
3280 *
3290 *
3300 *
3310 *
3320 *
3330 *
3340 *
3350 *
3360 *
3370 *
3380 *
3390 *
3400 *
3410 *
3420 *
3430 *
3440 *
3450 *
3460 *
3470 *
3480 *
3490 *
3500 *
3510 *
3520 *
3530 *
3540 *
3550 *
3560 *
3570 *
3580 *
3590 *
3600 *
3610 *
3620 *
3630 *
3640 *
3650 *
3660 *
3670 *
3680 *
3690 *
3700 *
3710 *
3720 *
3730 *
3740 *
3750 *
3760 *
3770 *
3780 *
3790 *
3800 *
3810 *
3820 *
3830 *
3840 *
3850 *
3860 *
3870 *
3880 *
3890 *
3900 *
3910 *
3920 *
3930 *
3940 *
3950 *
3960 *
3970 *
3980 *
3990 *
4000 *
4010 *
4020 *
4030 *
4040 *
4050 *
4060 *
4070 *
4080 *
4090 *
4100 *
4110 *
4120 *
4130 *
4140 *
4150 *
4160 *
4170 *
4180 *
4190 *
4200 *
4210 *
4220 *
4230 *
4240 *
4250 *
4260 *
4270 *
4280 *
4290 *
4300 *
4310 *
4320 *
4330 *
4340 *
4350 *
4360 *
4370 *
4380 *
4390 *
4400 *
4410 *
4420 *
4430 *
4440 *
4450 *
4460 *
4470 *
4480 *
4490 *
4500 *
4510 *
4520 *
4530 *
4540 *
4550 *
4560 *
4570 *
4580 *
4590 *
4600 *
4610 *
4620 *
4630 *
4640 *
4650 *
4660 *
4670 *
4680 *
4690 *
4700 *
4710 *
4720 *
4730 *
4740 *
4750 *
4760 *
4770 *
4780 *
4790 *
4800 *
4810 *
4820 *
4830 *
4840 *
4850 *
4860 *
4870 *
4880 *
4890 *
4900 *
4910 *
4920 *
4930 *
4940 *
4950 *
4960 *
4970 *
4980 *
4990 *
5000 *
5010 *
5020 *
5030 *
5040 *
5050 *
5060 *
5070 *
5080 *
5090 *
5100 *
5110 *
5120 *
5130 *
5140 *
5150 *
5160 *
5170 *
5180 *
5190 *
5200 *
5210 *
5220 *
5230 *
5240 *
5250 *
5260 *
5270 *
5280 *
5290 *
5300 *
5310 *
5320 *
5330 *
5340 *
5350 *
5360 *
5370 *
5380 *
5390 *
5400 *
5410 *
5420 *
5430 *
5440 *
5450 *
5460 *
5470 *
5480 *
5490 *
5500 *
5510 *
5520 *
5530 *
5540 *
5550 *
5560 *
5570 *
5580 *
5590 *
5600 *
5610 *
5620 *
5630 *
5640 *
5650 *
5660 *
5670 *
5680 *
5690 *
5700 *
5710 *
5720 *
5730 *
5740 *
5750 *
5760 *
5770 *
5780 *
5790 *
5800 *
5810 *
5820 *
5830 *
5840 *
5850 *
5860 *
5870 *
5880 *
5890 *
5900 *
5910 *
5920 *
5930 *
5940 *
5950 *
5960 *
5970 *
5980 *
5990 *
6000 *
6010 *
6020 *
6030 *
6040 *
6050 *
6060 *
6070 *
6080 *
6090 *
6100 *
6110 *
6120 *
6130 *
6140 *
6150 *
6160 *
6170 *
6180 *
6190 *

```

```

3950 RETURN
3960 *
4000 *      *** Subroutine to Open the 'DOCUMENT/CTL' File ***
4010 *
4020 * FA=FS+DN
4030 * OPEN "D:" FA
4040 *
4050 *
4060 *
4070 *
4080 *
4090 *
4100 *
4110 *
4120 *
4130 *
4140 *
4150 *
4160 *
4170 *
4180 *
4190 *
4200 *
4210 *
4220 *
4230 *
4240 *
4250 *
4260 *
4270 *
4280 *
4290 *
4300 *
4310 *
4320 *
4330 *
4340 *
4350 *
4360 *
4370 *
4380 *
4390 *
4400 *
4410 *
4420 *
4430 *
4440 *
4450 *
4460 *
4470 *
4480 *
4490 *
4500 *
4510 *
4520 *
4530 *
4540 *
4550 *
4560 *
4570 *
4580 *
4590 *
4600 *
4610 *
4620 *
4630 *
4640 *
4650 *
4660 *
4670 *
4680 *
4690 *
4700 *
4710 *
4720 *
4730 *
4740 *
4750 *
4760 *
4770 *
4780 *
4790 *
4800 *
4810 *
4820 *
4830 *
4840 *
4850 *
4860 *
4870 *
4880 *
4890 *
4900 *
4910 *
4920 *
4930 *
4940 *
4950 *
4960 *
4970 *
4980 *
4990 *
5000 *
5010 *
5020 *
5030 *
5040 *
5050 *
5060 *
5070 *
5080 *
5090 *
5100 *
5110 *
5120 *
5130 *
5140 *
5150 *
5160 *
5170 *
5180 *
5190 *
5200 *
5210 *
5220 *
5230 *
5240 *
5250 *
5260 *
5270 *
5280 *
5290 *
5300 *
5310 *
5320 *
5330 *
5340 *
5350 *
5360 *
5370 *
5380 *
5390 *
5400 *
5410 *
5420 *
5430 *
5440 *
5450 *
5460 *
5470 *
5480 *
5490 *
5500 *
5510 *
5520 *
5530 *
5540 *
5550 *
5560 *
5570 *
5580 *
5590 *
5600 *
5610 *
5620 *
5630 *
5640 *
5650 *
5660 *
5670 *
5680 *
5690 *
5700 *
5710 *
5720 *
5730 *
5740 *
5750 *
5760 *
5770 *
5780 *
5790 *
5800 *
5810 *
5820 *
5830 *
5840 *
5850 *
5860 *
5870 *
5880 *
5890 *
5900 *
5910 *
5920 *
5930 *
5940 *
5950 *
5960 *
5970 *
5980 *
5990 *
6000 *
6010 *
6020 *
6030 *
6040 *
6050 *
6060 *
6070 *
6080 *
6090 *
6100 *
6110 *
6120 *
6130 *
6140 *
6150 *
6160 *
6170 *
6180 *
6190 *

```



3719 Mantell Ave.
Cincinnati, Ohio 45236
(513) 891-4496

November 16, 1983

Mr. Ed Juge, Director of Merchandising
Business Computer Products
Tandy Corporation
1500 One Tandy Center
Fort Worth, TX 76102

Re: Making Customers Happy

Dear Ed:

"We service what we sell." A simple phrase indeed. Sometimes, fulfilling that commitment is a task which requires superhuman effort. It is very pleasing to me, as a customer, that you still do your very best to live up to that commitment.

The recent efforts of your staff in resolving the problems with your new UART board for the Model 16 will never be forgotten here. Please extend my personal thanks to Don Stanfield, Dave Krebs, Philip Hurrell, Tudor Apmadoc, David Williams, Ken Brookner, and Ron Light for the extra effort put forth during this trying period.

When the fix for the problem was finally obtained, the act of transmitting the corrected system files to me via UUCP was both a testimony to the power and value of the XENIX system and the customer service dedication of your staff.

My pleasure with the Model 16 with XENIX can hardly be expressed in words. I think that this system is head and shoulders above the competition. Speaking not only as an 'add-on' vendor, but also as a user, I hope that your marketing efforts continue to keep you at the forefront of the microcomputer industry.

Kindest personal regards,

SNAPP-WARE

Bob Snapp

REVIEW OF SL•MICRO

BY RICHARD JENSEN

SL-MICRO is a statistical package that runs under CP/M-80, CP/M-86, PC-DOS and MS-DOS; it's ideal for the mainframe SPSS user who wants to exploit the convenience and low cost of the micro, while sacrificing only the less commonly used procedures in SPSS.

SL-MICRO is a versatile, easy-to-use, general purpose statistical package. It has limitations that will trouble advanced researchers, but most users will find it quite satisfactory for the production of routine statistical analysis of small or large data sets.

SL-MICRO stands out because of its syntax. The command language is virtually an exact replica of batch-processed SPSS. Thus anyone who has spent long days in a computer center untangling the mysteries of format statements, RECODE, SELECT IF, and FREQUENCIES GENERAL will be right at home with SL-MICRO. Indeed, the SPSS manual will provide a much more thorough introduction to SL-MICRO than its own thin, but adequate, manual. The older the SPSS manual the better, for SL-MICRO resembles the SPSS of the early 1970s more than the enhanced versions

available today, such as SPSS-X. Furthermore, SL-MICRO is much friendlier than SPSS, primarily because microcomputers are operated in a much more friendly environment than big IBM mainframes.

SL-MICRO is peculiar among micro-computer packages in that it is not self-contained; it is necessary to have a text

should also work well. The CP/M editor ED perhaps could be used, but few non-programmers are familiar with its contorted structure. In any case, a rudimentary text editor should be included in the next version of SL-MICRO.

The finished command file, which resembles a deck of SPSS control cards, is executed by the CP/M command <SLM filename>. The output, including error messages, is diverted to a filename SLM.PRN, which can be viewed on the screen (by <TYPE SLM.PRN>), or routed to the printer (by control-P followed by <TYPE SLM.PRN>). This procedure allows the program to trap most errors and tells the user what has gone wrong. (But not always; the FREQUENCIES program hung up when an incorrect syntax was used.) The error messages are quite explicit ("Line 24 --No Left Paren"), enabling the user to easily correct the problem. The command file can be revised and used over and over again. Thus SL-MICRO differs from menu-driven programs which require the user to input all the choices each time a new variation is run, even if most of the choices are identical.

SL-MICRO does an especially nice job of formatting the output, which again closely resembles an SPSS printout. The cross-tabulation tables, for example, have neat labels. The familiar SPSS procedure of specifying VAR LABELS and VALUE LABELS is followed with good effect. In general, the

Users will find SL-MICRO quite satisfactory for the production of routine statistical analysis of small or large data sets.

editor to prepare the command file. SCRIPSIT can be used, but it is awkward because the SCRIPSIT document has to be converted to an ASCII file, then the TRSDOS ASCII file has to be converted to CP/M (by RSCPM or TRS2CPM or the equivalent instruction issued after the SCRIPSIT disk has been moved and a CP/M disk booted). I have a very convenient CP/M text editor called "The Final Word" which does a splendid job for SL-MICRO; most other CP/M word processors

Richard Jensen
1109 South Longwood Drive
Bloomington, IN 47401

printouts are in camera-ready format for presentation or publication. Various options are also available to delete extraneous information (such as cell percentages) that might make the pages too crowded. Run name and comments are supported.

The most commonly used statistical procedures work well on SL-MICRO. FREQUENCIES and CONDESCRIP-TIVE provide summary statistics of nominal and continuous variables. CROSSTABS will provide two-way and three-way contingency tables, but not four-way. The only statistics provided include percentages every-which-way and chi square; highly useful summary statistics such as gamma, tau, C, and phi are, unfortunately, not computed.

PEARSON CORR provides a matrix of correlation coefficients, with valid Ns (using pairwise deletion of missing values) and an optional T score (the significance value of the T has to be looked up in a paper table). More useful is the last procedure, REGRES-SION. It generates forward stepwise multiple regression with one dependent and up to 19 independent variables. A useful ANOVA table is a by-product, but no residuals are calculated. The standard errors are given for the B coefficients, but not for the constant or the betas.

The program is written in CBASIC and is reasonably fast. Its capacity is large -- 32,600 cases can be handled, together with up to 200 variables in a single run. While the data must all fit into a single disk, the storage capacity of Model 12 and 16 disks is enormous (1.2 million bytes); a hard disk can be used. The precision for numerical data is a satisfactory 14 digits.

The hardest part of SL-MICRO, for those who have never used SPSS, will be the setup procedures. The command file structure includes optional and required commands. RUN NAME, PAGESIZE, COMMENT, PRINT BACK, OPTION, MISSING VALUES, VAR LABELS, and VALUE LABELS are optional; VARIABLE LIST, INPUT FORMAT, FACT FILE (i.e., filename of data set), the procedure commands, and FINISH are required. The order of the commands is fixed, and even the format of each line in the command file

is fixed. Thus the keywords (such as VALUE LABELS) must start in column one, and their parameters must start in column 16. Fortunately, an abundance of examples is provided in the SL-MICRO manual, and it includes sample data sets and sample command files.

The data to be used by SL-MICRO can be included at the end of the command file, or can be drawn from a disk file. The input format procedure assumes that variables are in the fixed format specified by the FORMAT statement. If they are not, then a CONVERT utility can be used to read a file that is in free-format and write a new file in fixed-format. SL-MICRO programs can access files created by dBase II, CONDOR, and other data base management programs.

A new version of SL-MICRO, expected in the first quarter, will include BREAKDOWN (a valuable procedure that calculates the means of all the subgroups designated by a nominal variable) and a data entry module. Future improvements are being

planned. Questionnaire Service Company plans to maintain SL-MICRO as a state-of-the-art statistical package.

SL-MICRO offers a reasonable range of statistical procedures at a moderate cost. It's ideal for the mainframe SPSS user who wants to exploit the convenience and low cost of the micro, while sacrificing only the less commonly used procedures in SPSS.

SL-MICRO for CP/M-80 (requires 48K); CP/M-86, PC-DOS, and MS-DOS (all require 128K)
Price: \$250.00
Available from:
Questionnaire Service Company
Box 23056
Lansing, MI 48909
517/641-4428

NEWS

For the Business Information Edge

945 Haverford Road, Bryn Mawr, PA 19010
 (800) 345-1301
 (215) 527-8030

Can you depend on your Profile data?



DataProbe can cut your Profile data errors by 90%

DataProbe can help you make sure that the information in your important Profile files is accurate and dependable.

You already know Profile as an excellent file management system, but no system is better than the quality of its data. Even small mistakes can cost time, and big mistakes can cost money.

The DataProbe File Verification system is designed to work easily with your current and future Profile data bases. You simply define the eligible data each field should contain. On demand, DataProbe produces a report listing the errors on an entire file, or on selected records (e.g., today's entries).

DataProbe can verify that: data falls within specified ranges; two separate fields are in proper relation to each other; ZIP and State Codes are accurate; data is in true alphabetic or numeric form; codes match a pre-defined list of valid entries. And more.

DataProbe and Profile. An unbeatable combination for dependable data.

DataProbe is only \$99.95 (PA residents add 6% Sales Tax), for TRS-80 Models II, 12 or 16. To order, or for more information, write:
Forge Products, P.O. Box 85-FB, Southeastern, PA 19399.

TRS-80 is a trademark of the Radio Shack Division of Tandy Corp. Profile is a trademark of The Small Computer Company. DataProbe is a trademark of Forge Products.

DataProbe
 File Verification System

CONVERTING MODEL II BASIC PROGRAMS TO XENIX MBASIC

MBASIC for Model 16 XENIX systems is similar to Model II BASIC, but the differences can cause problems and confusion. The MBASIC manual covers most of the commands that have been changed, but there are some odd-ball variances that can really mess things up.

BY ANTHONY LAWRENCE

I imagine most of us don't bother to read the MBASIC manual at all. Who needs a manual to write BASIC? Besides, there is a concise section in the back that points out the differences in reserved words and that's all you really need to know, right?

Wrong. I have recently been involved in several conversion projects and have uncovered some unexpected differences and problems.

Two of the conversions I made were done because the users of the programs wanted more speed. Speed increases are possible, but a straight conversion without coding changes ends up running at the same speed as it did on the Model II or 12, or sometimes even slower. Part of the reason is BCD double precision routines. Accuracy has been increased, but you have to pay the piper somewhere.

Another reason is that the places where you are apt to be dissatisfied with speed involve I/O -- read from the disk, write to the disk, write to the screen. Guess who handles all I/O on your XENIX system? Why, it's your old friend the Z-80, the same guy who does it all when you are in Model II/12 mode. Why should you expect him to work any faster? You shouldn't, and actually, the overall time should probably be a little slower because now

the 68000 has to set up the Z-80 for what wants to be accomplished, and then let it do it.

However, speed isn't everything. More accurate math, long variable names, WHILE/WEND constructs, enormous file Logical Record Lengths, and Multi-user capability more than pay back the disappointment of no dramatic speed gains. I think MicroSoft and Tandy did a good job. Better than good, a great job.

Now that I have passed out the laurels, let's tear this thing apart and see what's wrong with it.

The conversion process starts with transferring your program from 4.x or "SAVE" media to XENIX using a program called "tx." Tx can be used to bring any 4.x file over, not just BASIC programs. You would expect (at least I did) that you would have to send an ASCII version of your program (one saved with the ,A option). In fact, you do not have to, and you probably don't want to. The reason is that you will end up having to do a lot more editing if you use the ASCII program. Since there will probably be a lot of editing needed, there is a program called "bp" to do some of it for you. However, bp works on normal encoded BASIC program files, not on ASCII files.

Use tx by popping your 4.x program disk in one of your floppy drives and typing something like this:

Tx has a number of options that specify whether the source is 4.x or SAVE media, whether you want the name converted to lower case, where you want it to go, and whether you want to convert carriage returns to line-feeds. All in all, a very useful and friendly little program. The example given above would transfer MYPROG/BAS to myprog.bas in whatever XENIX directory you happened to be in when you typed the command.

Now you have myprog.bas, which is the normal encoded version of your program and which is absolutely meaningless to MBASIC. To convert it to MBASIC, you need bp. Type:

```
bp myprog.bas>myprog.mbas
```

You may see a series of messages, such as "MBASIC does not support SYSTEM" and others like it, and it is quite likely that you will get "Line is over 251 characters."

"Wait a minute," you protest, "none of my lines is even close to 251 characters. My XENIX system must be broken!"

It isn't, and your lines are now a lot bigger than they used to be. The reason is that MBASIC requires spaces between most key words. The bp program, being of limited intelligence, satisfies MBASIC's needs by inserting a space in front of EVERYTHING it sees. For example, you might have had a program line that read:

Anthony Lawrence
BackUp-80
37 Harold Street
Sharon, MA 02067

```
tx :0 -cnp MYPROG/BAS
```

```
100 A$=B$+" "+C$
```

The lack of spaces is perfectly OK in Model II BASIC and is actually perfectly fine in MBASIC, but bp errs on the side of caution, and you end up with:

100 A\$ = B\$ + " " + C\$

You can see how your program expands rather quickly.

Now that bp has done its magic, you have myprog.mbas in your directory. It is an ASCII version of your program with a lot of extra spaces put in. Some of the spaces are very necessary, and a lot of them just take up, well ... space.

The next step of your conversion is to edit myprog.bas to clean up some of the obvious problems. You won't be able to use the MBASIC line editor yet because you can't load myprog.bas. It has lines that are too long, remember? So what you use is either "ed" (my buddy ed - great at fixing BASIC programs! No, XENIX ed, the file editor) or, if you have purchased the XENIX development system, you can use "vi."

I am not going to attempt to teach editing commands here. The XENIX manuals cover the subject very well (though vi can be a little confusing).

The first order of business is to modify or delete unsupported keywords. DEFUSR and USR may be real problems for you. If the machine language routine is a sort, you are in luck because XENIX has a sort command in its operating system. Otherwise, you either program around it or learn 68000 code. The SYSTEM command is fairly simple. Do a global substitution of SHELL for SYSTEM for now, and straighten out the loose ends later. The matter of excess spaces requires either knowing what you can get away with or splitting of lines. Split the lines until you are more familiar with MBASIC's quirks. All done? Don't forget to write the file back out of the editor before you quit.

Now is the time to load MBASIC and see where the real problems are. If your original program was of any real size at all, give MBASIC plenty of memory to work with. Remember, those extra spaces have made myprog.mbas a lot bigger than it was before. So as a starting point, type:

mbasic -m 50000

We have CP/M® for Radio Shack computers.

2,000 new programs for your TRS-80® 12.

CP/M is the runaway leader in disk operating systems, but until now owners of Radio Shack computers have been locked out of the thousands of useful programs that operate on CP/M.

Now you can put the power of CP/M into your Radio Shack TRS-80 II, 12, or 16, and be able to use all the popular and useful software - and hardware - that has been previously out of your reach.

Use any printer.

Instead of being chained to Radio Shack hardware, you'll be able to add a video terminal, any printer (serial or parallel) and several Winchester hard disk drives with storage up to 80 megabytes.

Uses only 8.5K of memory.

Since our first version went on the market in 1980, we've condensed and refined it into a compact, easy-to-use system enjoyed by thousands of users.

Besides the standard Digital Research CP/M manual, you'll get the 250-page manual we've developed through our long experience in adapting CP/M to Radio Shack computers. Our manual has lots of examples and an index and glossary.

You'll have your first working disk in ten minutes.

Only \$200.

The floppy disk version of Pickles & Trout CP/M is \$200. The hard disk versions (for Tandy, Corvus, and Cameo) are \$250, except for the multi-user Cameo, which is \$400.

Yes! Send me free information

about CP/M for Radio Shack.

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

or send us your business card.

Pickles & Trout®, P.O. Box 1206, Goleta,
CA 93116 (805) 685-4641

**PICKLES
&
TROUT**

TRS-80® Radio Shack/Tandy Corporation. CP/M® Digital Research.
Pickles & Trout® Pickles & Trout. ©1983 Pickles & Trout

That gives 50000 bytes for MBASIC to play in. RUN "myprog.mbas" and don't be surprised if it doesn't work. Here are the places to start looking for problems:

Logical Record Length: You have assumed, and the manual even tells you, that the default LRL for a random access file is 256 bytes. The manual lies. If you say

```
100 OPEN "R",1,"MYDATA"  
110 FIELD 1, 128 AS A$,128 AS B$
```

the MYDATA file will be opened with a LRL of 128. MBASIC doesn't know or care how the data was originally written, so the open statement perceives no error. However, your field statement will bomb with an overflow error. Therefore, you must:

```
100 OPEN "R",1,"MYDATA",256
```

MBASIC's cavalier attitude toward record lengths can be very helpful. Nothing prevents you from opening that file with a length of 1024 and getting 4 records at a time. You do need to know what you are up to, so be careful if you don't really understand LRLs.

LOF: Here's one that can really get you into trouble.

```
200 IF X=LOF(1) THEN GO TO 500
```

The problem relates to the LRL as mentioned above. What LOF means to MBASIC is the total number of bytes in a file. What you meant was the number of records. If you and MBASIC are going to work this thing out, you have to divide LOF (1) by the LRL of the file. If you opened it as 256, use:

```
200 IF X = LOF(1)/256 THEN GO TO 500
```

MOD: This one had me tearing my hair and banging the walls. It is very sneaky and very nasty. If you don't already know, the MOD function in BASIC performs modulo arithmetic. That is 15 MOD 10 equals 5 (the remainder after dividing 15 by 10). Also, 1001 MOD 10 is 1. Model II BASIC and MBASIC agree to this point.

Model II BASIC says, "-1001 MOD 10 is -1." I can agree with that, but MBASIC doesn't. MBASIC says the result is 6. Six? Oh, it gets worse. -2004 MOD 10 is 535, according to MBASIC.

I am sure you can imagine the havoc this wreaks with a program that is unfortunate enough to have negative conditions on MOD functions. Can you also imagine how long it takes to find this problem if you are not aware of it?

The solution is to use something like:

```
500 X=SGN(Y)*(ABS(Y) MOD 10)
```

which will calculate -1001 to the correct -1 value.

FOR WITHOUT NEXT: I thought I was seeing things at first, and then I thought Microsoft had goofed. Look again, the message is not your every day NEXT WITHOUT FOR.

I am not real clear on this, but apparently MBASIC does a forward scan on every FOR statement looking for the terminating NEXT. This sounds more compiler-like than interpreter, but it does the scan just the same. You are probably thinking that this is not a problem, and I agree. However, BASIC programmers do write some strange code, and it is possible to get MBASIC confused.

The following example of code is not good programming, but it works on oldfashioned TRSDOS BASIC:

```
100 IF X=-1 THEN FOR P=L TO  
H:ELSE FOR J=H TO L  
110 ---MISC PROCESSING AND PRINTING  
120 ---"  
130 IF IX=-1 THEN NEXT P:ELSE NEXT J
```

MBASIC doesn't like this sequence. For some reason it sees the J loop even when X is -1, but doesn't see the NEXT J. Therefore, FOR WITHOUT NEXT error. Don't ask me. I don't understand it; I just programmed around it.

In conclusion, you can convert your Model II BASIC programs to XENIX, but there are some glitches to be aware of. I have not even mentioned the implications of a multi-user environment, nor taken up the somewhat annoying

line printer problems. There are also some other strange things I have encountered but couldn't get repeatable results. I assume that these were either my imagination or hardware flukes. ■

TBUG ANNOUNCES DATES FOR SECOND ANNUAL CONFERENCE

Carroll Reeves, Director of Special Markets at Radio Shack, has announced that the Second Annual Tandy Computer Business Users Group Conference will be held April 2, 3, and 4, 1984 at the Americana Hotel in Fort Worth, Texas.

Many Radio Shack Corporate Representatives will be present at the conference, along with representatives from Microsoft Corporation, Digital Research, Inc., Computer Software Design, Inc., and Ovation Technologies, Inc.

The Special Marketing Group at Tandy is accepting written questions to be answered by RS reps at the conference. These questions can concern any kind of application, hardware or software problem. Send questions to: Special Marketing, Attn: Pam Lanier, 1400 One Tandy Center, Ft. Worth, TX 76102.

Pre-registrations are now being accepted for the TBUG Conference. Early registration fee for two and one-half days, including two luncheons and a reception, is \$90 for members of the Users Group and \$120 for non-members. Registration at the door will be \$100 for members and \$140 for non-members. Room reservations may be made by contacting the Americana Hotel at 817/870-1000. Special room rates are available.

To register, send your name, your company name, the names of any other persons from your company attending, and a check in the appropriate amount to: TBUG, P.O. Box 17580, Ft. Worth, TX 76102.

RENT SOFTWARE BEFORE YOU BUY!

from our SOFTWARE RENTAL LIBRARY

You can now RENT the most popular software available for just
20-25%* of Manufacturers' Retail Price

- Eliminate the risk—rent first!
- 100% of rental fee applies toward purchase
- All purchases are 20% Off of Manufacturer's Suggested List
- Rentals are for 7-days (plus 3 days grace for return shipping)

SPECIAL INTRODUCTORY OFFER

There are now 2 different plans to choose from:

Join the **Game Group**, \$25.00 per year and rent as many games as you like for only 20-25% of Mfrs. Sugg. Retail Price.*

Minimum order, 3 game rentals

Join the **Business Group**, \$50.00 per year and rent as many business application programs as you like for only 20-25% of Mfrs. Sugg. Retail Price.*

REMEMBER, THESE ARE NOT DEMOS, BUT ORIGINAL UNRESTRICTED SOFTWARE PROGRAMS

(complete with manuals in original manufacturers' packages)

To Immediately Order, or for more information:

UNITED COMPUTER CORP.
Software Rental Library
Culver City, California

Canadian Orders Welcome

Toll Free CALL 1-800 992-7777

In California CALL 1-800 992-8888

In L.A. County CALL 1-213 823-4400



*Plus postage and handling.

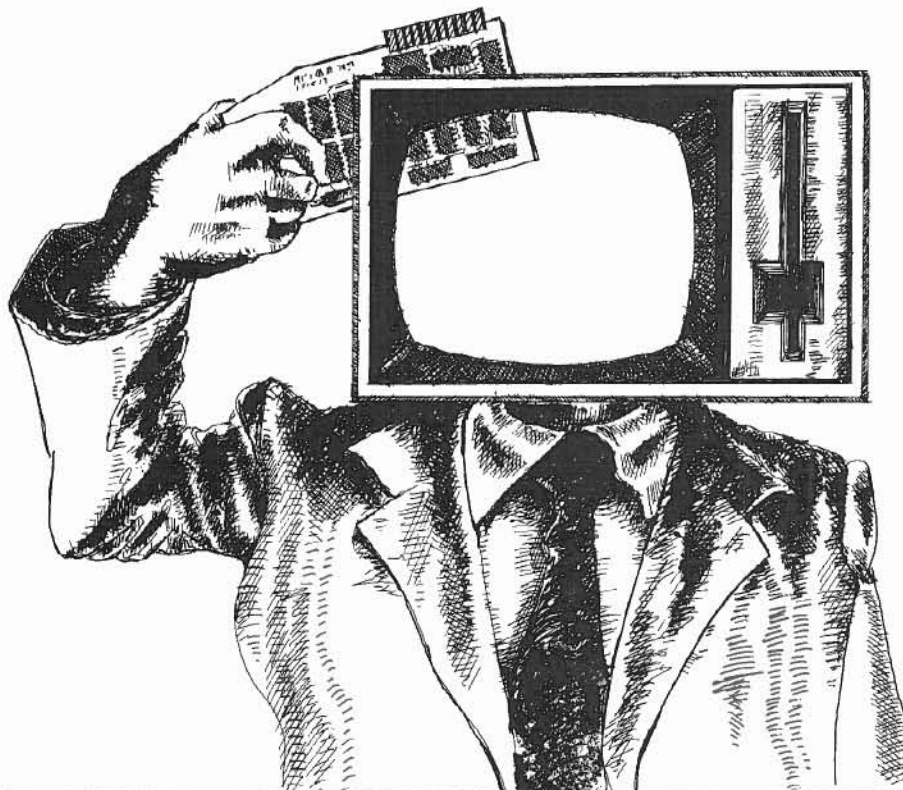
☐ EDUCATIONAL ☐ ACCOUNTS RECEIVABLE ☐ WORD PROCESSORS ☐ DATA BASES ☐ LANGUAGES ☐ GRAPHICS ☐

ACCOUNTS PAYABLE ☐ MAILING ☐ SPELLING ☐ COMMUNICATIONS ☐ REAL ESTATE ☐ TAXES ☐ STOCK MARKET ☐ INVENTORIES ☐ HEATH/ZENITH 89 8"

XEROX 820 ☐ GAMES ☐ COMPILERS ☐ UTILITIES ☐ BUSINESS ☐ ACCOUNTING ☐ SPREAD SHEETS ☐ MEDICAL ☐ DENTAL ☐ PAYROLL ☐ GENERAL LEDGER

ON THE MODEL II

BANK SWITCHING



BY JERRY LIPPEY

The following remarks apply to the TRS-80 Model II running under TRSDOS 2.0a. They are relevant to those who have one or more extra 64K memory boards installed; perhaps, as in my case, to run larger VisiCalc sheets. It is assumed that the reader is familiar with Z-80 machine language, with TRSDOS commands, and with a fair sample of programmers' jargon.

The Model II is configured to switch among up to 15 banks of upper 32K memory (addresses 8000H through FFFF) — even though slots in the mother board are provided for a maximum of only nine banks. The first memory board contains the lower 32K of memory ("low memory") and bank #1; each additional 64K board represents two more banks. Jumpers installed on the boards determine the numbers assigned to the switchable banks ("high memory").

A bank is switched in by sending port FF a low-order nibble equal to the number of the new bank. A zero in this location removes high memory altogether. The high-order nibble of port FF controls other things; unless you intend to change them, leave that nibble as you find it. The current status of

port FF is maintained in byte 55H. The number of the bank currently in use is stored in byte 54H as well; since its high-order nibble is zero, this is a more convenient byte to test if you need to know which bank is present. When TRSDOS boots, it switches in bank #1 and sets byte 4F to the number of banks installed.

A region at the top of high memory can be protected from programs that respect it. The lowest address of this area, known as TOP, applies to all banks and is stored in bytes 52H and 53H (LSB first). TOP is initialized to F000, but you may modify it at any time.

The top of high memory is used by TRSDOS for the Library Commands DO, DEBUG, SETCOM, SPOOL, and HOST. TRSDOS knows when a function is turned on but does not keep track of whether or not the proper bank is switched in. In other words, when a function is active, TRSDOS always assumes that the appropriate high memory routines are accessible. So far, I have had no difficulty loading multiple banks and later exercising the associated function when any of these banks is switched in. To load the banks, TRSDOS needs to be fooled by turning off the function before loading another bank. After the new bank is switched in, it is loaded by turning the function on again.

BANK SWITCHING

Bank Switching Program

This is the routine I use for switching memory banks:

1	0284 5E	LD	E, (HL)
2	0285 23	INC	HL
3	0286 56	LD	D, (HL)
4	0287 EB	EX	DE, HL
5	0288 4E	LD	C, (HL)
6	0289 23	INC	HL
7	028A 23	INC	HL
8	028B 5E	LD	E, (HL)
9	028C 23	INC	HL
10	028D 56	LD	D, (HL)
11	028E 0601	LD	B, 1
12	0290 3E1F	LD	A, 31
13	0292 CF	RST	8
14	0293 3A5500	LD	A, (55H)
15	0296 E6F0	AND	F0H
16	0298 B1	OR	C
17	0299 325500	LD	(55H), A
18	029C D3FF	OUT	(0FFH), A
19	029E 79	LD	A, C
20	029F 325400	LD	(54H), A
21	02A2 0600	LD	B, 0
22	02A4 3E1F	LD	A, 31
23	02A6 CF	RST	8
24	02A7 7A	LD	A, D
25	02A8 B3	OR	E
26	02A9 C8	RET	Z
27	02AA EB	EX	DE, HL
28	02AB E9	JP	(HL)

Comments On The Program Listing

Lines Description

- 1-4 Address of parameters to HL (for BASIC only)
- 5 Bank number to C
- 6-10 Branch address to DE
- 11-13 Disable Break and Timer routines (SVC 31)*
- 14-18 Switch to new bank & store value of port in 55H
- 19-20 Save bank number in 54H
- 21-23 Enable Break and Timer routines (SVC 31)*
- 24-26 RET if branch address is zero
- 27-28 Otherwise, branch to this address
- * SVC 31 turns off and on most of the processing for the non-maskable interrupt, which occurs every 1/30 second.

Program Location

The program is relocatable. As shown, I chose to tuck it into TRSDOS at locations 284H through 2AB. This is in the table of SVC addresses, beginning at SVC 102. If you have home-made SVCs or other things here, you will know it -because you put them there.

The unused SVC address space extends from 284H through 2B7. My switching program occupies 40 of these 52 bytes, leaving 12 for other uses. If you do not need the serial ports (selected with SETCOM), 12 additional bytes are available in 278H through 283H. Free memory below 2800H can be valuable, as will become apparent.

The switching program can be loaded when you are ready to change banks, but it must, of course, reside in lower

memory. Avoid locations 2800H through 2FFF if you leave it in memory because TRSDOS uses this region for 16 of its Library Commands (ANALYZE, APPEND, BUILD, COPY, CREATE, DUMP, ERROR, HELP, KILL, LIST, MOVE, PRINT, PURGE, RECEIVE, SETCOM, VERIFY). If you want to load the routine below 2800H using TRSDOS commands, you will first need to have applied the equivalent of

Bob Snapp's Patches #4 and #5. If you want to leave it below 2800H, you may as well PATCH the bytes into SYSRES/SYS; it will then arrive with TRSDOS when you boot.

Calling Sequence

The normal entrance to my program is at the LD C,(HL) in location 288H. (I've included the first four instructions in case you wish to switch banks from BASIC; this procedure is discussed below.) You may enter with either a CALL or a JP. Use a CALL if you want to place the contents of the program counter on the stack; otherwise, use a JP.

Before the CALL or JP, you must load HL with the address of a pair of parameters which consists of (1) the number of the bank that you wish to switch in and (2) the address of the instruction that should be executed after the bank switch.

This data is stored in four bytes as follows: HL points to the byte containing the bank number. Make certain that it does

Introducing SECURITY VALUE MONITOR

TRS 80 MODEL II/12

- COMPLETELY MENU DRIVEN
- FAST AUTO-RETRIEVAL OF MARKET QUOTES FROM **DOW JONES NEWS/RETRIEVAL®**
- ABILITY TO RUN AT 300 OR 1200 BAUD
- INSTANT UPDATING OF EACH PORTFOLIOS' MARKET VALUE
- HANDLE ANY COMBINATION OF STOCKS, OPTIONS, WARRANTS, BONDS, MUTUAL FUNDS OR U.S. TREASURY BILLS
- HANDLE LONG AND SHORT POSITIONS
- EASY ACCESS TO **DOW JONES NEWS/RETRIEVAL'S®** FULL MENU OF INFORMATION SERVICES
- PRINTS ANALYSIS OF EACH PORTFOLIO



PRICE \$249.95



6/83	SVM
NAME _____	
ADDRESS _____	
CITY _____	STATE _____ ZIP _____
PHONE () _____	
<input type="checkbox"/> CHECK	<input type="checkbox"/> MONEY ORDER <input type="checkbox"/> VISA <input type="checkbox"/> MASTERCARD
CARD NO. _____	EXP. DATE _____

TO ORDER CALL

(803) 787-7256
TELEX 466528

OR MAIL COUPON TO:
EHLEN ENTERPRISES
6319 BRIARWOOD RD.
COLUMBIA, SC 29206

*Account Purchased Separately from Dow Jones & Co., Inc.
DOW JONES NEWS/RETRIEVAL is a registered trademark of Dow Jones & Co., Inc.

BANK SWITCHING

not exceed 15 (the program does no checking for errors; you would be placing garbage bits in important positions of port FF). The next byte is immaterial. The following two bytes contain the address of the instruction to be executed after switching (LSB first). If you want the next instruction address to be picked off the stack (i.e., execution of a RET), then set this to zero.

Summary of calling sequence:

Set (HL) → 0NXX JJJJ
 where 0N = Number of the bank to be switched in (00 to 0F).
 XX = Anything.
 JJJJ = Address of the next instruction after switching banks (LSB first). JJJJ = 0000 means RET after switching.

CALL or JP 288H

The following example is a CALL from low memory which switches in bank #2 (perhaps it contains data) and then immediately continues with the next instruction:

```
LD    HL,PAR
CALL  288H
      (Next instruction after switching)
```

PAR	DEFW	2
	DEFW	0

Here is a pair of calling sequences that will exit a program in bank #1 to execute another program at 8000H in bank #2 and then continue the original program:

In bank #1:LD HL,PAR1
CALL 288H

(Next instruction after execution of the program in bank #2)

PAR1	DEFW	2
	DEFW	8000H

In bank #2: (Instruction at 8000H executed first)

```
LD HL,PAR2
JP 288H
PAR2 DEFW1
      DEFW0
```

Note that the switching routine saves no registers. You can use low memory to pass information between programs in different banks. If you want to modify the program to save registers using the Z-80 stack, you may begin to worry about what happens when the stack is in high memory during the switch. That is a legitimate concern. But, as we shall see, you need to worry about this anyway.

Managing The Stack

If in the past you have not paid much attention to where the stack is located, now is the time to start. Because of the peculiarity described below, it is safest to keep the stack in low memory. If you should relocate the stack after switching banks and wish to use the old stack to return (as in the last sequence above), do not forget to reset the stack pointer before returning.

A potential problem to keep in mind: Both before and after the bank switch, the switching program does one PUSH-POP (in SVC 31). If the stack is in high memory, this can lead to disaster. Because you may sometimes be stuck with such a situation, I shall discuss it in more detail.

Suppose we are switching in an auxiliary bank with the stack pointer aimed at high memory. Just after the switch, the PUSH-POP will destroy the two bytes below that location in the new bank. Similarly, if we have just reset the pointer to high memory in anticipation of returning a bank to a program that had its stack there, the PUSH-POP, before switching, will write two bytes into the bank which is departing.

If you have low memory available, this problem can be solved by relocating the stack. If you must frequently deal with stacks in high memory, you may wish to modify the switching routine to temporarily move the stack to low memory. You might, instead, revise the offending SVC, but I am reluctant to do so.

A tolerable compromise becomes available when you can depend on the stack's location remaining constant. Suppose you have an alternate-bank routine that is always switched in by a program having its stack in the same place in high memory. Since you know in advance the approximate stack location, you can simply program around the affected area. Better yet, leave the stack pointer alone, and designate it as the beginning of the stack in the new bank. This procedure eliminates the need for any low memory for your stack. As a bonus, the pointer will be correctly set when you return to the calling program (be sure to empty your new stack first).

Switching Banks From BASIC

RSBASIC hogs so much memory that the temptation to put unused banks to work is hard to resist. Accordingly, I have made provisions for this in my switching routine. On the other hand, BASIC does not cooperate very well.

The program to be executed must be in the new bank and must have been loaded prior to loading BASIC. A switch to it may be accomplished as follows:

```
DEFUSR=&H284
Z%(0)=M: Z%(1)=KKKK
Z%(0)=USR(VARPTR(Z%(0)))
```

where M = Number of the bank to be switched in (1-15). Remember, the switching routine does not check this number.

KKKK = Address of first instruction to be executed in new bank (8000 hex to FFFF).

BANK SWITCHING

To return to BASIC, use the "JP 288H with RET" form of the calling sequence.

Here is an example of branching to a program at 8000H in bank #2:

```
DEFUSR = &H284  
Z%(0) = 2: Z%(1) = &H8000  
Z%(0) = USR(VARPTR(Z%(0)))
```

If BASIC were using bank #1, the last machine language example above will return to your BASIC program.

Note these two important facts: (1) This scheme does not enable you to pass parameters between your programs, and (2) the stack poses a problem.

If you insist upon access to another bank from a serious BASIC program, here are a few tips that may help. BASIC controls essentially all memory between 2800H and whatever you have informed BASIC is the bottom of protected memory; if you have not specified, then it is TOP. Unless you are aware of a dependable low-memory hole in BASIC's territory, you will need to locate the switching routine below 2800H.

For passing parameters, it is easiest to use machine language in protected memory above BASIC. Before a bank switch, parameters can be tucked away somewhere in low memory,

say alongside the switching routine. Use USRs to reach your programs in protected memory and to pass the data in and out of BASIC.

(Here is a challenge to you floating point buffs: You can forget about protected programs and more USRs to pass parameters if you do the following: use a floating point variable instead of a VARPTR in the USR that calls for changing banks. The three bank-switching bytes plus several others can all be passed out of BASIC as a single double precision number. The same variable can be used to return data to your BASIC program via that USR. Because BASIC stores its USR argument in low memory, these bytes are accessible to programs in any bank. The easy part is rearranging the bank switching program to look after the HL register. The challenge is to encipher and decipher the normalized floating point numbers. Good luck!)

BASIC's stack is just below its string space (established with CLEAR), whose top is at the memory protection boundary described above; so it is ordinarily in the bank that is switched out. Fortunately, the area of memory in which the stack resides can be easily located within a few dozen bytes, and unless the string space or protection address is changed, the stack will remain in that vicinity. Consequently, you can leave the stack pointer alone and program around your stack in the alternate bank, as outlined earlier. Your program can then be safely used by all BASIC programs having this stack area. ■

MODEL-16 FORTRAN-77

TriSoft is pleased to announce the availability of SVS FORTRAN-77 under TriSoft CP/M-68K for the Radio Shack Model-16 computer. This FORTRAN implements the full ANSI-77 standard and is not the subset FORTRAN-77 available on most microcomputers.

Full ANSI-77 FORTRAN on a 68000 based computer gives the user the power and flexibility of a mainframe computer at a fraction of the cost. FORTRAN has been the primary language for scientific, mathematical and statistical applications for many years. A vast wealth of programs already exist for a variety of applications but require a mainframe environment. FORTRAN-77 running under TriSoft CP/M-68K provides a suitable environment to allow the user to take advantage of these programs.

In addition to supporting the full ANSI-77 standard, the FORTRAN package allows you to link in routines written in DRI 'C' and 68000 Assembly languages.

SVS FORTRAN-77 is a native code compiler. This combined with the efficiency with which it was designed provides very fast execution speeds.

TriSoft
4102 Avenue G
Austin, Texas 78751
(512) 453-2233
(800) 531-5170

FORTRAN-77	\$495.00
CP/M-68K	\$395.00
68K-BASIC	\$299.00
Pickles & Trout	CP/M 2.2

CP M-68K™ Digital Research
Model-16™ Tandy



A LOOK AT VERITAS

dual processor option

Unleash The Power
Of CP/M-86 For
Your Model 16

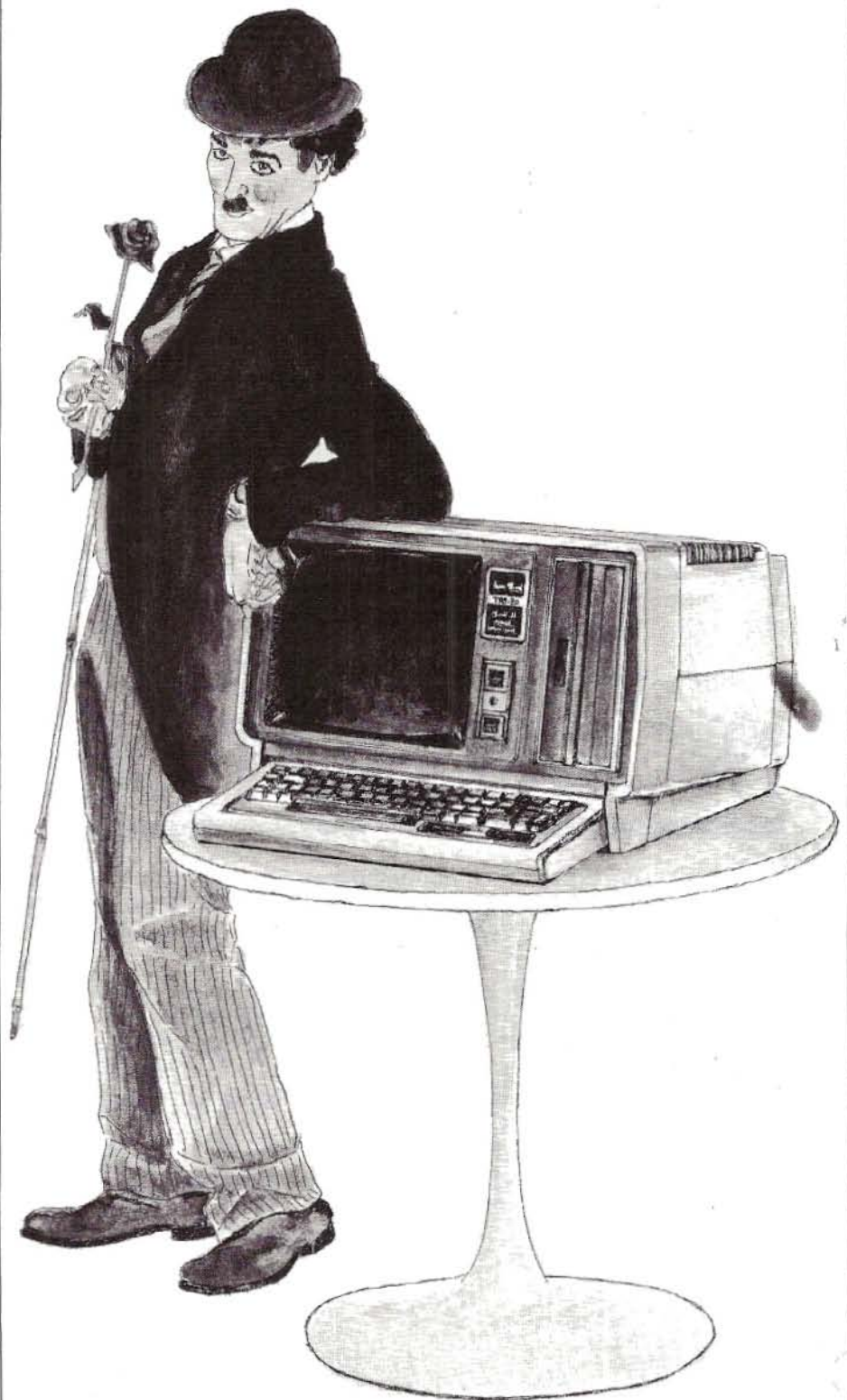
BY R.P. VANNATTA

Time flies, it seems! Just about every time I think that I have a handle on what is going on in the computer world, a curve ball comes rolling in.

A couple years back, IBM produced a small computer they dubbed the PC. Cynical journalists (like myself) immediately dismissed it as a loser. After all, it had to be plugged together in a stack of pieces like a Radio Shack Model I and used an oddball processor called the Intel 8088. Similarly, everyone knew that real micro computers used 8" floppies and toys used 5.25" floppies. On top of all that, it seemed to be priced a bit above the competition. Certainly, this amounted to a surefire formula for failure.

About the same time, the Radio Shack Model 16 came on the market. It had enough disk space to run most programs and would not only run conventional 8-bit programs, but would also run programs on a vastly more powerful MC68000. Certainly this product would stampede the world.

Robert P. VanNatta
222 South First Street
St. Helens, OR 97051



Well, maybe! Radio Shack has just released the Model 2000 with its 5.25" drives and a 80186 processor. (This is a state-of-the-art upgrade from the 8088.) Meanwhile, back at the farm, Veritas Technology, Inc. has developed a plug-in board for the Model II/12/16 with, guess what...a 8088 processor.

Little did I think when I ordered my Model 16 almost two years ago that I would be retrofitting it with an 8088 board before I managed to acquire a single program suitable for use on the 68000 side of the machine. Oh, yes, I have evaluated CP/M-68k and I know that TRISOFT has a BASIC available for CP/M-68k, but that BASIC hasn't made it my way yet. And, of course, there is XENIX. It needs a hard disk which I don't have.

Announcements of the Veritas board have been appearing periodically for about a year in *two/sixteen*. Like many computer products, however, Veritas has found it easier to distribute press releases than to deliver the goods. Their manuals bear a January 1983 printing date, and the board I got in November 1983 was still a BETA test board.

Physically, the Veritas board is a large board (cut to the same shape as the Model 16a MC68000 boards). This means that it fits very nicely into the card cage of a Model II or Model 16a, but less elegantly in the model 12.

The particular board I received contains 256k of memory, a 8088 processor, and the necessary supporting chips.

The board contains an empty socket for the 8087 math co-processor, but the board I got was not so equipped. To my notion, this absence is just as well. The 8087 is a specially-designed chip which is intended to make math operations execute very quickly. It is my impression (not first hand) that it does

this very well, but to some extent at the expense of other operations. The more serious problem, however, is that there is simply very little general purpose software which supports the 8087.

Installing The Veritas Board

Installation of the Veritas Board, which is dubbed the Dual Processor Option (Veritas Technology, Inc. claims a trademark on the name) is very easy.

Essentially, you take the lid off your Model II/16, remove the hold-down bracket on the back of the card cage, stick the board in the first empty slot, and then put everything back together. On the Model 12, you simply take the back cover off and stick the board in (after removing the hold-down brackets).

Using The DPO

Use of the DPO is about as simple as the installation. I got CP/M-86 with my board. You use it like you would any other computer. You simply put the CP/M-86 disk in the drive and slam the door, and, in due course, it boots. In this sense, it works more like CP/M-80 than CP/M-

68k. Unlike CP/M-68k, the DPO does not require you to use CP/M-80. It is a complete stand-alone system. It is a bit amazing, but it is this simple. If you cold boot with a CP/M-86 disk, the machine will boot on the DPO, and if you cold boot with any of the traditional operating systems, they will still work like they always did.

What Is CP/M-86

I won't undertake a long description of CP/M-86 except to say that if you can use CP/M-80, you should become comfortable with CP/M-86 in about 5 minutes. The only criticism I have of the version that came to me is that it is very spartan. It does not have a great bag of "extra utilities." I assume they will get around to writing some of these in due course, but, at the moment, for example, if you need to

XENIX Utilities

spoolutil

SPOOL MANAGEMENT UTILITY PROGRAM

Easy to use menu driven program which allows you to manipulate the reports waiting for printing in the spool queue.

Easy to use menu driven program which allows you to manipulate the reports waiting for printing in the spool queue.

With spoolutil you can:

- suspend/restart printing
- get list of reports waiting in print queue
- view a spooled report on the screen prior to printing
- cancel printing of unnecessary reports
- print extra copies of a report (without rerunning the program)
- change the sequence that reports are printed in get that important budget report NOW!
- load the contents of any disk file to the spooler for printing (even add page headings)
- suppress printing of 'name banner' page
- clear jammed line printer
- restart a report from the beginning

Requires no knowledge of Xenix commands.

Detailed manual is included.

**SAVE TIME... SAVE PAPER...
SAVE MONEY**

xenixmenu

USER FRIENDLY MENU FOR XENIX SYSTEMS

Perform all frequently used Xenix functions by making menu selections. Avoid seeing the Xenix prompt!

With xenixmenu you can:

- add new users to the system
- change passwords
- change file protection
- remove users, files and directories
- establish group codes for more versatile file protection
- check system status:
 - who is on the system
 - who is authorized to use the system
 - how much disk space is available
- run application software
- enable/disable remote terminals
- backup the system
- much more!

Eliminates the need to memorize and type Xenix commands.

Easy to add your application software to the menu.

Avoid having to respond to the Xenix prompt.

**spoolutil \$99 xenixmenu \$99
or order both for just \$185**

SOFTWARE ONE

VISA 985 Torrey Hill Drive MasterCard
Columbus, Ohio 43228
(614) 279-8493

Send check or VISA/MC number and expiration date

Phone for credit card orders or more information
Ohio residents please add sales tax
Xenix is a trademark of Microsoft Corporation

change the I/O byte, you will use the STAT command. STAT LST:=UL1: will set the I/O byte to serial port B, so you can use a serial printer out of that port. This is, of course, the Digital Research documented method of changing the I/O byte on CP/M-80 as well, but who does it that way?

Support is provided for up to four floppy disks and four 8-megabyte hard drives. At the moment, the newer 12 and 15-megabyte hard drives are not supported.

Terminal Characteristics

The terminal is configured to emulate a DEC VT-52 display. I am at a dead loss to know why Veritas picked the DEC VT-52 as an emulation model, but I must say the choice is not all bad. It takes three pages of their 23-page manual just to list all the escape codes that control the terminal.

Specifically, there are 26 escape codes for managing the display, and five control codes (Pickles and Trout lists 24 total).

Does It Work?


Veritas warned me before they delivered the board that it would not work properly on the Model 12. They weren't kidding. It seems that the Shack made a few subtle changes in the buss between the Model II and the Model 12. They haven't bothered to tell anyone what those changes were or why they made them, so folks like Veritas simply have to discover them the hard way. Thanks to the insensitivity of those who like to change things for obscure reasons, the DPO will only run a few minutes in the Model 12 before it "locks up." In the Model II and the Model 16a, it works fine, but not in the 12.

According to Veritas, it is their failure to get the DPO working in the Model 12 that accounts for the fact that it is still in the BETA test routine. When I last spoke with them, they were working frantically trying to solve the Model 12 mystery and were hopeful the task would be accomplished "real soon now."

I have some reason to believe that the true goal of Veritas is to produce a board with an implementation of MS-DOS which is reasonably compatible

with the Tandy 2000. To date no MS-DOS is to be seen, but the idea is obvious and all of us who have II/12/16 computers ought to hope that they are very successful in the endeavor. With the advent of the Tandy 2000 which supports MS-DOS, the editorial predictions of *two/sixteen* of the last two years have almost come true in one blast. There probably will never be another major software product written for TRSDOS.

Similarly, it is doubtful if there will be many exciting new products developed for CP/M-80. Software writers are

 Our Model II/12/16 computers are going to be worth a whole lot more if they have an upgrade path to the current state-of-the-art software.

working on exciting MS-DOS programs. Only when they get MS-DOS versions running, do they look to see if it is feasible to transport the product to other operating systems (usually CP/M-86 and CP/M-80 in that order). The usual answer is that the product is too large to fit in a mere 64k Z-80 system, and that is the end of it.

What I am trying to politely say is that our Model II/12/16 computers are going to be worth a whole lot more if they have an upgrade path to the current state-of-the-art software.

Radio Shack has sent a memorandum to their dealers advising them that the advent of the Tandy 2000 does not signal an end to the Model 12. They say that the market direction of the two computers is different. The Model 12 with its expansion path toward the Model 16 and multi-user software is intended for accounting and general business applications. Tandy 2000 is positioned to compete directly against the IBM PC. As such, it is aimed at those who have 2700 bucks in their

pocket and want a computer, but don't know quite what they are going to do with it.

Performance

You have probably all been holding your breath for me to tell you how fast or slow the DPO board operates. The answer is that I don't really know. When the DPO board arrived, my desk drawer did not have much of a selection of CP/M-86 software in it, since I had never before had a CP/M-86 computer. My first thought was to try renting something for a test. I called United Computer Corp., who always has an expensive-looking ad in nearly every computer magazine that I read. When I told them I was looking for something for CP/M-86, they just laughed. It took a couple more phone calls before I found a mail order house that even stocked software for CP/M-86. I finally selected Personal BASIC from Digital Research as something I could afford which would make a reasonable test bed for checking out the DPO board.

Personal BASIC or PBASIC is supposed to be a MBASIC look-alike for CP/M-86. It was developed by Digital Research as part of their effort to get some acceptance for CP/M-86. For the most part, rather than evaluate the DPO, I simply convinced myself that PBASIC is a real mutt.

For example, I checked out the execution time for 10000 iterations of an empty FOR-NEXT loop in various languages. Some of the results were as follows:

DPO + PBASIC	11.63 sec.
Tandy 2000 + MBASIC	3.84 sec.
TRSDOS + MBASIC	11.00 sec.
CP/M-80 + MBASIC	5.21 sec.
CP/M-80 + CB-80	0.20 sec.

Even though the DPO came in dead last in this test, I am convinced that the fault lies in PBASIC, not the DPO. It is going to take more time than I have had, and a lot of work, to form a serious conclusion about overall performance. In reality, however, I think that this is a phony issue. It has long been generally reported that 8088-based computers usually, at least superficially, seem to perform comparably with Z-80 computers, and

there is nothing I have seen that indicates the DPO does anything other than make your II/16 into a credible CP/M-86 based computer.

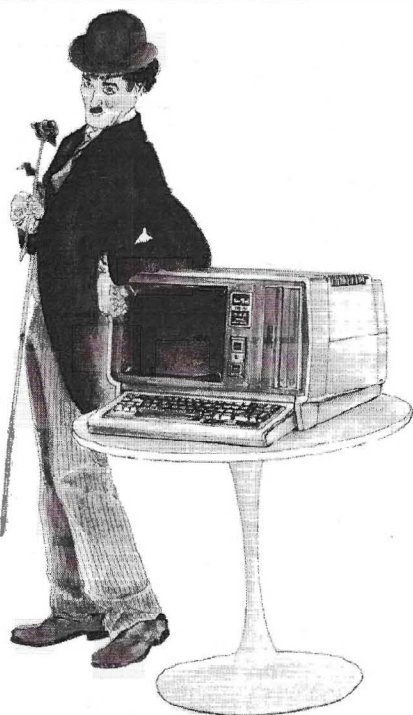
You should not think of the DPO board in terms of replacing a 4-cylinder engine with a V-8. Rather, you should think of it in terms of putting a Ford engine in a Chevrolet.

Conclusions

This is a quick first look at a very exciting product! It is not formally released yet (due to lag time between writing and publishing, the DPO may well be formally on the market by the time you see this-Ed.) because of the Model 12 problem; but when it comes, it should be well worth your consideration if you feel a need to get into the CP/M-86 software field.

The relatively low cost of the Model II (as compared to a CompuPro, etc.) has made it quite a popular machine for software development and the like. I hardly see much purpose in buying a DPO board just to run a CP/M-86 General Ledger, but if you like to be very trendy, or are a software developer, the DPO is a pretty clever product.

Veritas Technology, Inc.
2375 Zanker Road
San Jose, CA 95131
408/263-0646



Model 2, 12, or 16 (Mod 2 mode)

Redesign Profile Databases

(without losing existing data)

From this ...

FIRST NAME: John
LAST NAME: Williams
ADDRESS: 355 West Elm
CITY: New York
STATE: NY
ZIP: 00011
PHONE: 616-892-1122

to this ...

NAME: Williams, John
ADDRESS: 355 West Elm
CITY, ST: New York, NY
7-DIGIT ZIP: 00011
RATE: 15.00
AREA CODE: 616
PHONE: 892-1122

In just minutes!

Are you "locked in" to a Profile II or Profile Plus database structure that no longer serves your needs? Do you need to shorten or lengthen fields, add new fields, delete old fields, or join several fields together?

Now, with our TRANSPRO File Transfer Utility, you can set up your "dream" database and fill it with your existing data at assembly-language speed!

No programming necessary! Simply tell TRANSPRO which fields of your original database go to which fields of your new database. Fields can be different lengths and can even be in different segments.

Bridgeware
SOFTWARE TO SPAN THE GAP

\$125

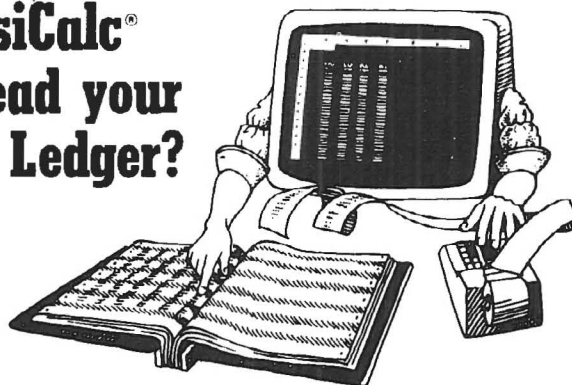
CHECK, M.O., VISA, MASTER

Order today for
immediate shipment!

355 Government St. Roanoke, AL 36274 (205) 863-4006

*Profile II and Profile Plus are trademarks of The Small Computer Co., Inc., licensed to Tandy Corp.

What if your VisiCalc® could read your General Ledger?



It can with VIS\Bridge/GL™ from Solutions, Inc.

You can make even better corporate decisions by using the power of **VisiCalc** on data from your own **General Ledger**. ☐ Solutions' new Bridge product loads information from the Tandy General Ledger package directly into VisiCalc — Automatically! ☐ Make projections with VisiCalc without re-entering data already in your General Ledger. ☐ Project current financial data into the future. ☐ Compare your projections to actual results. ☐ Store monthly results to spot trends quickly.

Requires any version of VisiCalc, 2 disk drives and the Radio Shack General Ledger (26-4501). Available for TRS-80® Model II/12/16. VIS\Bridge/GL, \$195 + \$4 shipping & handling within U.S. To order phone (802) 229-0368 or write Solutions, Inc., 13 State St., Box 989, Montpelier, VT 05602. Mastercard and Visa. Dealer inquiries welcomed. Also available for Model I, III and II are: VIS\Bridge/REPORT PLUS™ \$95; VIS\Bridge/SORT™ \$89; VIS\Bridge/DJ™ \$295.

All VIS\Bridge products are trademarks of Solutions, Inc. VisiCalc® is a trademark of VisiCorp. TRS-80® and Radio Shack are trademarks of Tandy Corp.

THE CP/M WORKSHOP

Making the transition from TRSDOS to CP/M doesn't have to be difficult or painful -- if you have The CP/M Workshop to get you started and help you over the rough spots.

BY MARK BENNETT

Recent events have made it necessary for me to learn and use CP/M, which necessity I was approaching with a certain sense of dread. But when you gotta, you gotta. *Advanced Computing* came to my rescue by allowing me to review a new program called The CP/M Workshop, a tutoring program for new CP/M users. How could I refuse?

Setting Up the Workshop

First, The CP/M Workshop is disk based. The entire manual, including appendices, is 17 pages long. It tells how to insert your CP/M system disk, insert the Workshop disk in Drive B (CP/M uses letters A-D to designate drives), and hit <CTRL><C> to initialize the new disk. CP/M uses the drive letter to show which drive the computer is looking at. So, you see "A" followed by the cursor.

At the A> prompt, type B:<ENTER> to switch to the drive with the Workshop in it, then type SETUP <ENTER>. You will be asked some pretty technical questions.

The first screen scrolls up, explaining that you need to customize the program to your computer. At the bottom of every screen, and as a consistent feature throughout the Workshop, is the instruction to tap the <SPACEBAR> on your keyboard to

advance the program. This gives you plenty of time to read the information presented.

Also, in the SETUP program, you have the ability to call a help screen simply by hitting the "?" key. I did that at the first setup screen and received a simplified explanation of what the SETUP program hoped to achieve and advice to call the store from which I purchased my computer if I have trouble. Also, the help screen provides the opportunity to enter all SETUP specifications from a command line, but if you know how to do that, you won't need this program.

The second screen gives a menu of "popular" terminals. Twenty-one terminals. It doesn't include Tandy, but it does include such biggies as GTC, INFOTON and KIMTRON. How many installations of CP/M do you suppose there are on Models II/12/16 worldwide compared, for instance, to KIMTRON? Additional blank spots are provided on the menu to enter other terminals, and if Tandy were included, all this custom installation garbage could be avoided. But no such luck. So, on this menu, press "Z" (none of the above).

A "None of the Above" response puts you in the custom installation routine where you are asked seven questions, which must be answered in hexadecimal form. If you make a mistake after any entry, you have the opportunity to press <R> instead of the <SPACEBAR> to re-enter the code. The program runs a screen test to make

sure all the codes you just entered do the right thing.

After that, you have the opportunity to enter codes to clear the screen instead of having everything scroll off. I looked at the list of Character Codes in Appendix B of the TRSDOS manual and found that hex code 1B is supposed to clear the screen and home the cursor, so I went ahead with the screen clear entry routine. I entered 1B, then 00. The program ran a test to see if it worked. It didn't. So I tried to re-enter using hex codes 14 (home cursor) and 17 (clear below), ran the test again, and it still didn't work. So, I gave up.

After the aborted screen clear attempt, the program gives you the opportunity of saving your changes or quitting. Of course you should save them, and the program quickly writes to the disk, then returns you to the prompt B*..

Running the Workshop

At B>, type TEACH <ENTER>. This sends you automatically into Lesson A, which summarizes what you've done so far (nothing). About all you have to do after this is hit the <SPACEBAR> and read what comes up on the screen. The program progresses sequentially from Lesson A to Lesson P.

You'll probably find exactly what I found; it's really kind of boring. Somehow operating systems can't be described or explained in an interesting way.

The CP/M Workshop tries valiantly to overcome this fact by using some simple animation to illustrate a computer

Mark Bennett
Endless River Computer Services
P. O. Box 95
Carrollton, MO 64633

system, some clever writing, and examples that are well designed for their task. But explaining even the simple ways to use PIP and STAT, and there are apparently many ways to use them, just isn't the same as learning by doing.

Anyway, you will find the following commands covered:

ERA Same as TRSDOS KILL
REN Same as TRSDOS RENAME
DIR Same as TRSDOS DIR
TYPE Similar to TRSDOS DUAL
STAT Similar to TRSDOS FREE and ANALYZE
PIP Similar to TRSDOS DUMP, DUAL, LIST, COPY, FORMAT, BACKUP, MOVE and PRINT

It also gives thumbnail sketches of expanded functions for these commands which are easy to review, once you know where they are located within the program. Some of the modules deal with how to enter commands, control codes, naming disk files and devices, and choosing file names.

The CP/M Workshop lets you go back into any of the sixteen modules and exit from them to the main menu at any time, just by hitting "I", so you can study and review at your own pace.

One of the important things I learned is that in a command line, CP/M reverses the sequence for filenames or drive designations. For example, under TRSDOS you would enter RENAME OLDFILE/BAS TO NEWFILE/BAS. Under CP/M it would be REN NEWFILE/BAS = OLDFILE/BAS. Logically this format is similar to BASIC, but it doesn't seem logical after using TRSDOS.

At the end of the lesson part of the program is a self test which you can use to review your progress. I could give you the answers, but that would be cheating. I scored high enough on the test to qualify as a "systems analyst" according to Datascan.

This program touches on only the bare minimum of things you will need to get started with CP/M, but that is the stated objective of the program's writers. You will probably need to refer to the CP/M manual within a few

days of starting, even after using this program. It's just not extensive enough, even if you have one or two applications and only turn the computer on to use them.

The Bottom Line

My advice for The CP/M Workshop is this; buy it only if you have no other convenient source of help, and don't mind the cost. It does have basic information that comes in a handy form for review, and it probably won't go out of date for a couple more years. Just by using the program you will get some fundamental knowledge of how other programs work, and sometimes that can teach you a lot.

To Datascan's disadvantage, I used Pickles & Trout CP/M Version 2.2m for this review. If you didn't read Vannatta's review in the November-December issue of *two/sixteen*, you may not know that P&T has a program called MENU.COM on this version that does just about everything automatically that The CP/M Workshop teaches you to do manually. You

don't even have to know there is a program called PIP in order to make a backup, just that you need to type MENU <ENTER>; after that it's easy. I even used the MENU to change the step rate on my thinline disk drives and it only took a couple of minutes! It comes with a pretty good manual which isn't always easy to understand, but is well organized and extensive.

It is money better spent, in my opinion, to buy a new version of P&T CP/M 2.2m than The CP/M Workshop.

The CP/M Workshop is available from:
Datascan
2716 Ocean Park Boulevard
Santa Monica, CA 90405
213/452-9114
Cost \$79.95

5 NEW GAMES

FOR YOUR MODEL II/12/16

Satisfy your longing to play arcade-type games on your TRS-80 Model II, 12, or 16 with MARYLAND MODEL II GAMES

You can play:

SKYDIVER

a death-defying parachutist must struggle against time and the elements.

STAR BATTLE

a game of will and wits between a space fighter entrusted to protect an energy base and five feisty enemies who seek to blast the base into infinity.

THE WALL

a spaceship captain must protect his vehicle from a number of hazards generated by enemies at an outlying base. An enormous, encroaching horizontal wall is the terror of all terrors.

SPACE SWARM

a no-holds-barred dogfight between steel-nerved starship pilots.

MAYHEM

a contest to the death between four vulnerable cities and deadly invaders. A lone missile guards the terrain.

For \$30.00, you will receive a disk containing all 5 games and complete instructions.

Send your check to:

two/sixteen
/magazine

131 East Orange Street
Lancaster, PA 17602

or call with your Visa or MC number:

717/397-3364

MBASIC SPOOLING IN TRS-XENIX

BY JOE A. SANCHEZ

The spooling in MBASIC running under TRS-XENIX can sometimes be a real wait. True, most of our processing time was cut by more than 50 percent by using XENIX instead of TRSDOS. But we lost this processing time savings by using spooling as the MBASIC manual recommends.

I have found that opening a file for output under any filename, then doing a Shell "lpr <filename>" instead of opening it for output as "LPT1:" as the manual recommends, will save you over 80 percent of your time, as well as computer time!

In a timed spooling test, running the same report in both cases, I did a four page report. In the first test, I opened the output file under "LPT1:". It took 5 minutes 51 seconds to spool. In the second test, I opened the output file under any other file name (I used ENGINEERING). It took only 58 seconds to spool. I saved almost five minutes!

Everyone here is more than pleased with the cut processing time of XENIX MBASIC and even more pleased with less spooling time.

WANTED!

ADVANCED COMPUTING, the journal for business, professional, and ADVANCED COMPUTING scientific members of the TRS-80 community, is looking for qualified free lance writers.

If you're a writer with good ideas and a working knowledge of any of Tandy's business micros running XENIX, CP/M, p-System, RM-COS, or any DOS other than TRSDOS, and if you are willing to write about your applications and experiences, we'd like to hear from you.

We also need persons who would be willing to review software supplied by us. Right now we have a special need for individuals who would like to review either XENIX programs or accounting software packages.

If you are interested in contributing to the magazine, please send a letter outlining what you'd like to write about, together with a brief synopsis of your qualifications to:

Editor
Advanced Computing
131 East Orange Street
Lancaster, PA 17602

USING A SERIAL PRINTER WITH TRS-XENIX

BY RICHARD S. BILANCIA

Want to use a serial printer with TRS-XENIX, but don't know how? Here is a solution that works. However, it's not quite as easy as using a parallel printer.

Assuming that your serial printer is plugged into serial channel B, as it would be if you were using TRSDOS, simply follow these instructions:

1.) Open your printer and be sure the appropriate switches are set to receive using these protocols:

- a.) 8 bit words
- b.) No parity
- c.) 1 stop bit
- d.) 9600 baud

2.) Turn the printer on.

3.) Enter the following commands as the TRS-XENIX root:

```
disable tty02  
cu -wait -s 9600 -l /dev/tty02 -a /dev/null -nh
```

4.) After the "Connected" message is displayed, simply type the following:

~<file

where "file" represents either a filename or the full pathname of the file to be printed.

5.) When you are finished printing and wish to return to the shell, just type:

~

FREE LISTING IN ADVANCED COMPUTING SOFTWARE DIRECTORY

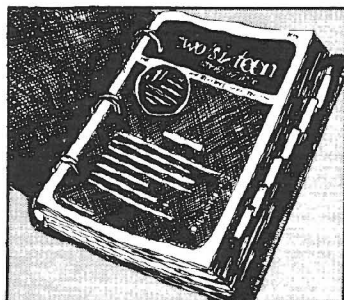
For a free listing in the soon-to-be-published Advanced Computing Software Directory, send the following information to:

Advanced Computing
Research Department
131 East Orange Street
Lancaster, PA 17602

COMPANY: _____
ADDRESS: _____
PHONE: _____
MARKETING REPRESENTATIVE: _____
PRODUCT NAME: _____
SOFTWARE CATEGORY: _____
COMPUTER MODEL: _____

ADVANCED^{T.M.} COMPUTING

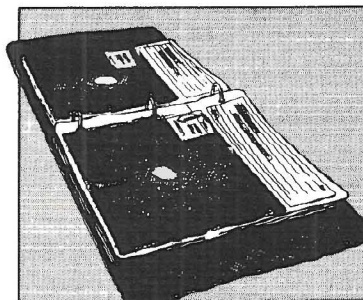
Service



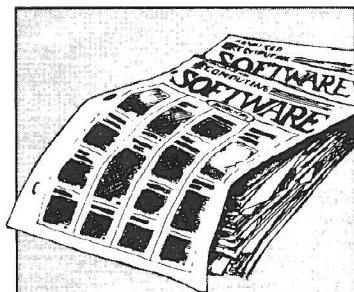
1 Three-ring binder with internal tabs containing all issues of **two/sixteen** magazine from inception through the end of 1983, including a cumulative index, and all 1984 issues of **Advanced Computing** (successor to **two/sixteen**), all in specially printed loose-leaf versions.



2 Newsletter to be published 26 times per year. It will contain product announcements, articles and correspondence outside **Advanced Computing** magazine's scope (because of time-value, large size, or specialized content), and the latest news of interest to serious users (mostly gleaned from dozens of other computer publications, and including abstracts of the more important articles).



3 Diskettes with documentation (five or six per year), provided in loose-leaf sleeves. Includes all programs published in **Advanced Computing** magazine, all programs and patches that we receive and check out which are available for public distribution (along with our comments and documentation, and source code when available). At least one diskette per year will be devoted to each of the major operating systems (TRSDOS, CP/M, XENIX) used with Radio Shack II/12/16 computers.



4 Comprehensive software directory of all commercially available programs known to function correctly on II/12/16 computers under one or more of the three major operating systems. Compiling this directory is a major undertaking, but we plan to issue the first one by April, 1984, with updates at least annually.



5 Master cumulative index of all of the above. **Advanced Computing** magazine will include its own cumulative index in every third issue, beginning with Nov-Dec, 1983 (Vol. 2, No. 3). The **Advanced Service** index will include, in addition to the **Advanced Computing** magazine index, the newsletter, diskettes and documentation, and the software directory, all in a single comprehensive index.



6 Binder for newsletters, diskettes, comprehensive software directory, and master index.



7 Advanced telephone consulting service including follow-up call back on subsequent developments.

ADVANCED ^{T.M.} Computing Service	
<input type="checkbox"/> Please enroll me for the year 1984	
Regular Service Fee	\$249
Less Prepublication Discount	25
Less Amount Paid for two/sixteen subscription \$	
Net Service Fee	\$
<input type="checkbox"/> Enclosed is my check for \$	
or	
<input type="checkbox"/> Please charge my <input type="checkbox"/> VISA <input type="checkbox"/> MasterCard for \$	
Card number	Expiring
Signature	
Name	
Address	
City	
Country (if not U.S.)	
Please make any address corrections above	
ADVANCED COMPUTING SERVICE • P.O. BOX 1608 • LANCASTER • PA • 17603	

COMPUTER FURNITURE BY **Data-MATE[®]**

INTRODUCTION

DATA-MATE[®] computer furniture is carefully designed and engineered to provide higher efficiency and productivity. It is far more than simply a support for your computer equipment.

Rugged steel construction is designed for durability. Cable and paper management systems provide efficiency *and* neat, uncluttered appearance. All equipment bays have ample ventilation for heat dissipation. Clean lines blend perfectly with hardware design and function.

Data-MATE[®] products are in stock for immediate shipment.

Operator comfort is becoming increasingly more important. Features such as height adjustments to reduce operator fatigue and casters for mobility and versatility have been designed into the Data-MATE line. And that means greater efficiency and higher productivity.

Catalog, prices, and further information available from

two/sixteen
magazine

(717)397-3364

**Excellence in computer
furniture technology.**

