

# Peelings II™



THE MAGAZINE OF APPLE  
SOFTWARE AND HARDWARE EVALUATION

## 6 DOS ENHANCERS

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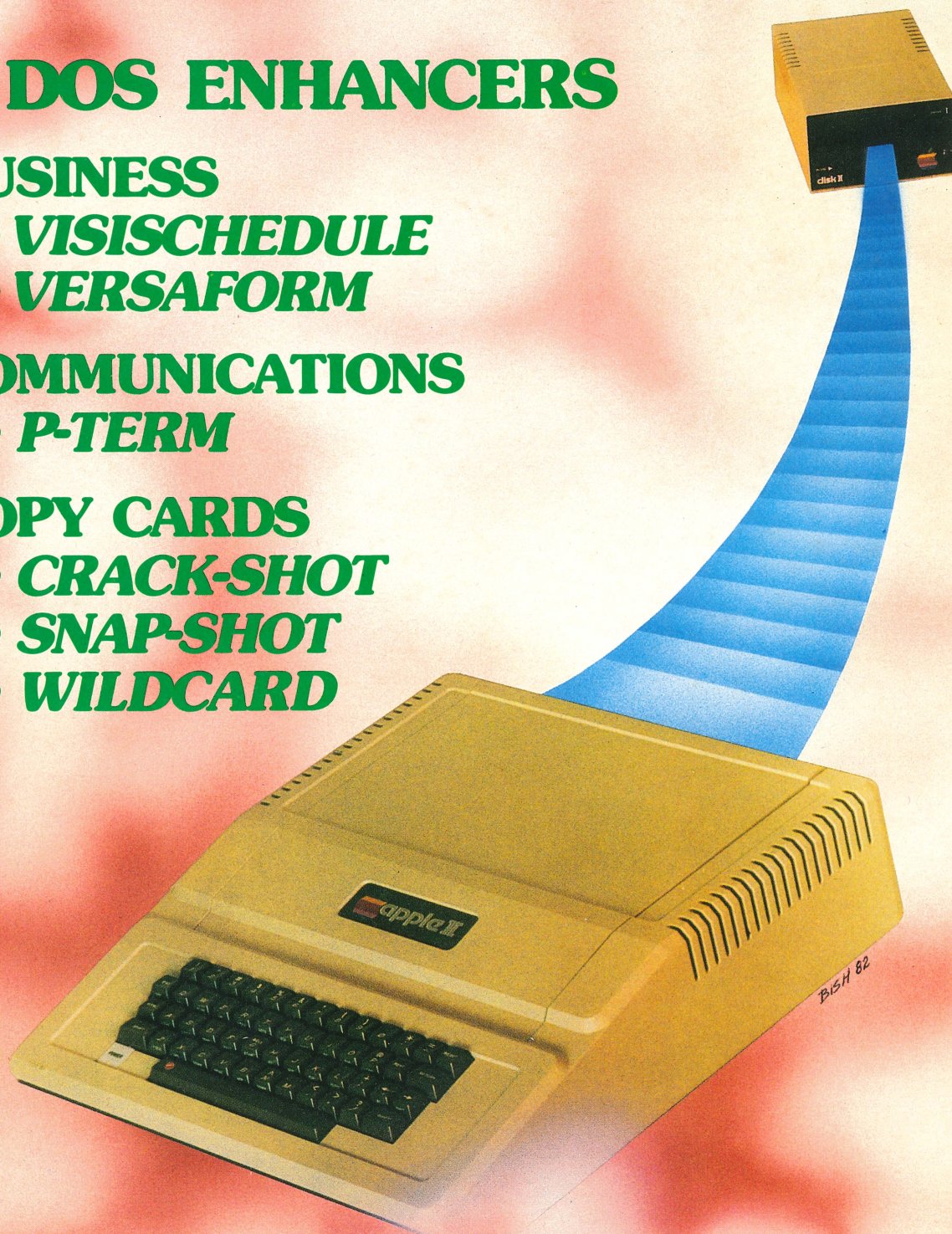
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# Peelings II <sup>TM</sup>

**THE MAGAZINE OF APPLE  
SOFTWARE AND HARDWARE EVALUATION**

Volume 4, Number 1

**BUSINESS**

- 9 **VisiSchedule**  
*Published by VisiCorp*
- 12 **Versaform**  
*Published by Applied Software Technology*

**DOS ENHANCERS**

- 18 **HyperDOS**  
*Published by Softkey Publishing*
- 19 **Diversi-DOS**  
*Published by Diversified Software Research*
- 21 **The DOS Enhancer**  
*Published by S & H Software*
- 21 **Turbo Charger**  
*Published by Silicon Valley Systems*
- 22 **Ultra Fast Loader**  
*Published by Computer Advanced Ideas*
- 22 **David DOS**  
*Published by David Data*
- 24 **Comparison Chart**

**INTEGER BASIC COMPILERS**

- 24 **Introduction**
- 27 **FLASH!**  
*Published by Laumer Research*
- 28 **Integer BASIC Compiler**  
*Published by Synergestic Software*
- 28 **Summary**

**COMMUNICATIONS**

- 29 **P-Term**  
*Published by Southwestern Data Systems*

**BEGINNER COLUMN: The Anything Machine**

- 32 **Chapter One: Hello World**

**EDUCATION**

- Grade Books Updated**
- 38 **The Apple Gradebook**  
*Published by J & S Software*
- 39 **The A. E. N. Grading System**  
*Published by Apple Educator's Newsletter*

**HARDWARE**

- 40 **Super-MX Interface Card**  
*by Spies Laboratories*

**COPY CARDS**

- 45 **CRACK-SHOT**  
*by Pirates Harbor*
- 45 **SNAPSHOT**  
*by Dark Star Systems*
- 48 **WILDCARD**  
*by East Side Software*

**DEPARTMENTS**

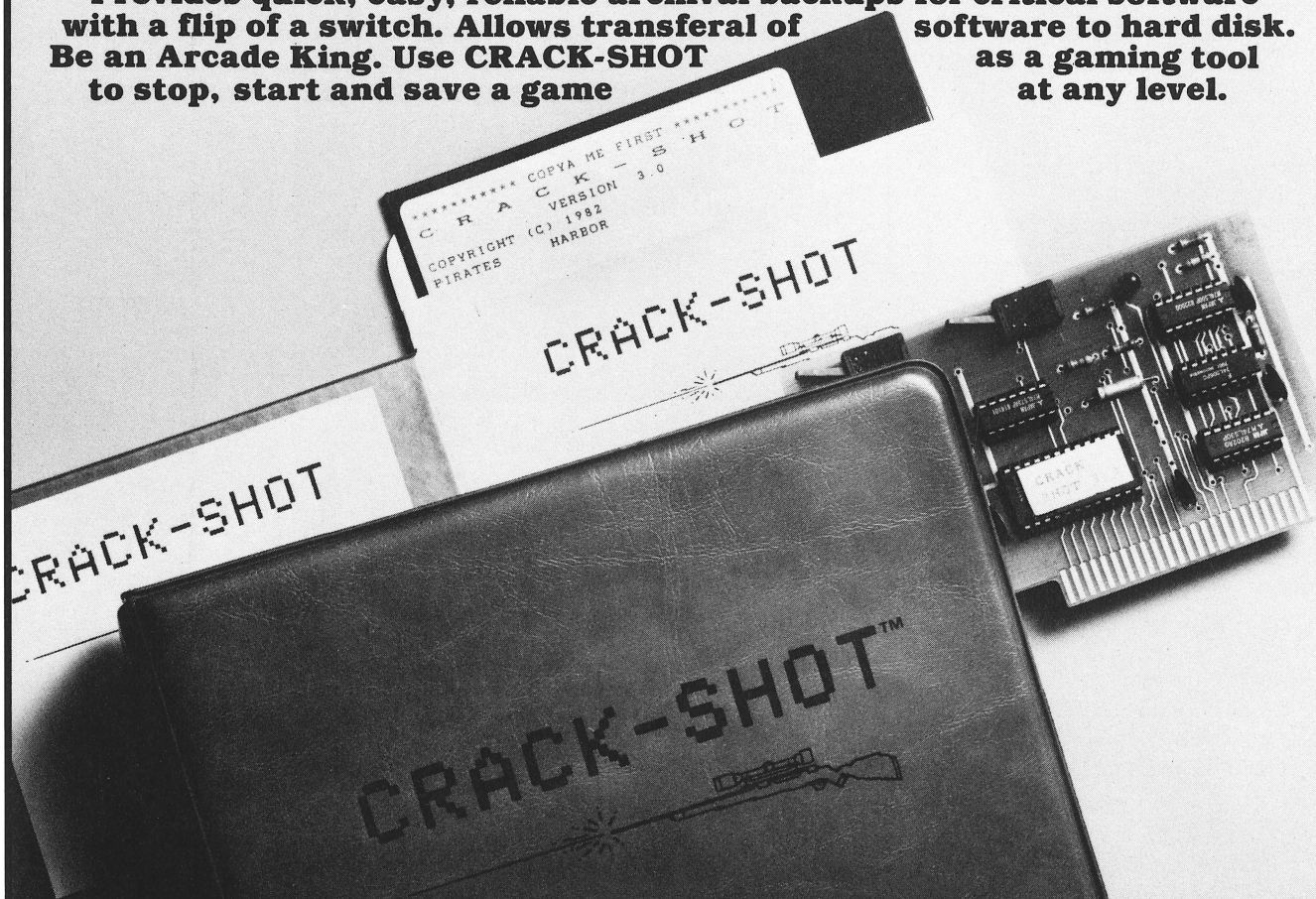
- 5 **Authors**
- 5 **Peelings Ratings**
- 5 **Review Header Update**
- 5 **Back Issue Sale**
- 8 **Editorial**
- 9 **Reader Request**
- 49 **Software/Hardware Index**
- 52 **Cumulative Ratings**
- 52 **Advertiser Index**



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# THE AUTHORS

Peelings II has a group of highly qualified editors and authors who have expertise in their chosen areas for reviewing. We will, from time to time, tell you about this group. Note that not every author appears in every issue.

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# Peelings Ratings

Peelings Ratings are a letter grade designed to indicate an overall impression of the product. It is a measure of how well the publisher did the job he intended to do taking into consideration comparison to other similar products, price to performance, ease of use, documentation, and sophistication.

We stress that you should not skip a review or disparage a program because it receives a low rating. The rating alone can never tell the whole story. Only reading the entire review will give you all the information you need. For this reason, the rating should never be quoted alone without reference to text of the review.

The Peelings II rating categories follow: Some example criteria are given for the categories, but they are not meant to be all inclusive.

AAA - Absolutely astounding software. We have seen one program in two years that fits this category.

AA - Top notch, superb. Programs in this class generally use the most sophisticated programming techniques and have excellent documentation.

A - Very good. Software in this class incorporates very good programming techniques and has clear and informative documentation.

B - Good. Software in this class may have minor errors or be slightly flawed, it may be lacking in thorough documentation, or it may just be unexciting.

C - Average. Software of a mediocre nature. There may be a lack of good programming concepts or lack of good error trapping. It may be a repeat of other work, or have a low performance/price ratio.

D - Below Average. Software with a blatant disregard for the user in terms of programming design, unacceptable documentation, or unacceptable price to performance ratio.

F - Unacceptable. Software of such poor value or usability that it should not be marketed.

P - Pending. The rating is on hold for comparison to other similar types or it is not yet appropriate to give a rating (e.g., mini-review).

R - Provisional. The reviewer has seen enough to give a tentative letter grade, but there may be more analysis necessary, or new documentation may be in the works, or some program bugs may still be present.

N - No Rating. The reviewer abstains, or a rating is inappropriate.

## REVIEW HEADER FORMAT UPDATED

All software reviewed will now be assumed to run on a 48K Apple II Plus with one disk drive running DOS 3.3. The protection status will be assumed locked unless otherwise noted. The language written in, if salient, will be included in the text of the review. Any additional hardware requirements over the above will be mentioned in the text of the review. □

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Peelings II is having a sale on back issues. All 1981 issues are now \$2.00 ppd. until further notice. Supplies are short however. All 1982 issues are \$3.00 ppd. Sale ends March 1, 1983.

Following is the status of our back issues.


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V1N4 depleted	V2N5 available	V3N4 available
	V2N6 available	V3N5 available



# NIBBLE EXPRESS Vol. I

## TABLE OF CONTENTS

	Page
EDITORIAL .....	3
APPLE TRAC — Personal Finance Management by Mike Harvey .....	7
SORT 'EM OUT — Principles of Sorting by NIBBLE Staff .....	17
PSEUDO UTO-START — Reset with CTRL Y by Rick Conradi .....	17
INITIALIZE NEW FILES WITH ONERR GOTO by NIBBLE Staff .....	18
MACHINE LANGUAGE SCREEN DUMP by R.M. Mottola .....	18
FREE? DISK SECTORS by Chuck Hartley .....	19
HI-RES SPACE MAZE — Graphics Game by NIBBLE Staff .....	22
UN-GRAPHIC GRAPHIC PRINTING by NIBBLE Staff .....	23
TABLE PRINTING MADE SIMPLE! by NIBBLE Staff .....	24
DYNAMIC ARRAY DIMENSIONING by NIBBLE Staff .....	26
BLOCKING VERY LARGE FILES by NIBBLE Staff .....	26
LOW RESOLUTION SHAPEWRITER — High Speed Action .....	31
SPACE ANIMATION — Add ZIP to your Games by NIBBLE Staff .....	35
STAR ATTACK — Fast Hi-Res Conflict Game by Mike Harvey .....	37
PADDLE READING IN ASSEMBLY LANGUAGE by NIBBLE Staff .....	38
FIRING HI-RES MISSILES — Aiming and Control by NIBBLE Staff .....	39
AIRBORNE BATTLE — Join the Air Force Maneuvers by NIBBLE Staff .....	47
AUTOMATIC TEXT CASE CONVERSION by NIBBLE Staff .....	50
WATCH OUT FOR GRAPHICS OVERFLOW by Mike Harvey .....	50
T.O.U.C.H. — Text Processing by Mike Harvey .....	53
TOUCH SCREEN ELEMENTS by William Reynolds III .....	58
TOUCH FILE AND RELEASE EDITING by William Reynolds III .....	59
DOUBLE/TRIPLE/AND MORE OVERPRINTING by NIBBLE Staff .....	59
ARROWS AND CONTROL CODES by NIBBLE Staff .....	59
APPLE TRICKS — Fast DOS/Spcl Chars/Unlistables by C. J. Thompson .....	60
APPLESOFT VS. INTEGER BASIC PERFORMANCE by Alexander Laird .....	65
APPLE II — Paper Tiger Graphics by Mike Harvey .....	69
APPLE III — Fun, Music and Fun by Mike Harvey .....	73
APPLE III FILE/AUTOMATIC CONTROL by Alexander Laird .....	77
APPLESOFT REMOVER by Alan D. Floeter .....	78
FAST FORECASTING AND SALES TRENDING by Mike Harvey .....	83
SUPER WEAVING — Hi-Res Weaving Design by Alexander Laird .....	89
FOOTBALL — Lo-Res Grid-Iron Action by Lou Haehn .....	93
BUILD DUAL JOYSTICKS FOR UNDER \$15.00 by NIBBLE Staff .....	97
BUILD THE TWO TAPE CONTROL UNIT by NIBBLE Staff .....	98
DISK APPEND WITH THE ECTOPROCTOR by NIBBLE Staff .....	99
APPLE TRICKS — CORE EXECUTION LIST by Craig Cross .....	101
PIP I — Personal Inventory Program on Tape by Rick Conradi .....	103
FUN WITH ASSEMBLER — The Debugger by Craig Cross .....	106
PIP II — PIP Users Disc by Mike Capella .....	113
PASSING VARIABLES IN PRESENTATION BASIC by R.M. Mottola .....	119
MANAGING AND MOVING DISK BUFFERS by William Reynolds III .....	120
MONITOR EXECUTION — Basically by William Reynolds III .....	121
AMPER-INTERPRETER — Add Print-Using and Much More .....	123
FUN WITH ASSEMBLER — Graphics by Alexander Laird .....	133
STRING FUNCTION FOR INTEGER BASIC by William Reynolds III .....	135
BASIC/MACHINE LANGUAGE SUBROUTINE CREATOR .....	135
CHR\$ FUNCTION FOR INTEGER BASIC by William Reynolds III .....	136
FUN WITH ASSEMBLER — Alpha/Beeper by Craig Cross .....	139
APPLE A.I.M. — Automated Intelligent Mailing by Michael Capella .....	147
APPLE CONCORDANCE — Track Variable and Line #'s by Michael Capella .....	153
LOW SCORE II — Strategy Game by Rudy A. Guy .....	157
HOW TO WRITE GAMES THAT LAST by Mike Harvey .....	158
IMPROVING THE MULTIPLE ARRAY SORT by Rick Conradi .....	159
APPLE UPPER/LOWER CASE PRINTING by Mike Harvey .....	161
WILL O' THE WISP — High Adventure by Mark Capella .....	169
NIFFUM — DOS 3.3 to 3.2 Conversion by C.J. Thompson .....	171
BLAST AWAY! — Lo-Res Shooting Gallery by Andrew Beardsley .....	174
FUN WITH MONITOR — How to Enter Assembly Language .....	174



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

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# EDITORIAL: IN SEARCH OF A GOOD MICROCOMPUTER LANGUAGE

Recently I have had the experience of writing some applications software for *Peelings II* in Applesoft. I will confess that it is not the most pleasant of experiences. And that comes from someone who, at one time, was fairly fond of Applesoft. After all, it is a reasonably powerful language, has all sorts of extensions, and is fast enough for most minor applications. Then I started writing some really *serious* software and the truth became much more evident. Applesoft is not the language of choice for extensive, complicated programs. To be fair, I would have probably admitted prior to this experience that Applesoft is not suitable for major work, but having actually gone through the experience made a true believer out of me.

What are the failings of a BASIC like Applesoft? We know them well in our hearts but ignore them until it is time to ante up. Line numbers are a real annoyance. They are required only to tell the interpreter that the statement is for deferred execution. Branching to labels instead of line numbers seems more natural. All variables are global. This is a big headache when trying to write a medium to large size program. There are several solutions, such as naming conventions and overlays. But naming conventions are tough when only the first two letters of a variable name are significant, and overlays or chaining is slow with a floppy disk drive. There is no clearly delineated "IF-THEN-ELSE" structure. It is true that Applesoft has a limited form of this structure in: line.num IF LOGICAL.EXPRESSION THEN statement.1: statement.2: . . . statement.n line.num (ELSE) statement.a: statement.b . . . statement.z. As you can see, everything that you want to do if the expression is true must be crammed onto a single line number. The next line number, with an assumed "ELSE", and successive line numbers can contain everything else you want to do as the alternative. But sometimes the amount of work to be done on the "IF" line is extensive and editing that single line number can be frustrating without a good editor. Just about the first extension made to Applesoft is to provide a structure that is much more easily read and edited:

```
line.num IF LOGICAL.EXPRESSION
line.num statement.1
line.num statement.2
line.num . . . statement.n
line.num ELSE
line.num statement.a
line.num statement.b
line.num . . . statement.z
line.num ENDIF
```

The first Applesoft interpreter was 8K and forced you to choose between graphics commands or REMarks. Those were the days when memory was exorbitantly expensive (over \$500 for 16K). Later, as the memory situation eased a bit, the full blow 10K Applesoft you now use was introduced. But it is a good bet that serious home, scientific and small business microcomputers of 1983 will average 256K of RAM with many having 512K. It is time to provide a more modern language.

What are the candidates? There are some languages that many might consider realistic candidates to be the "natural" programming language for the next generation of microcomputers. These are Fortran 77, CBASIC, and Pascal. There are other, more exotic, languages that have a strong following, but which most manufacturers would not consider general and/or friendly enough: FORTH, C, APL, and LOGO. Looking at the likely candidates: Fortran is a language looked upon in horror by many who consider it an archaic language which should be stamped out. However, it refuses to die and has, in fact, been updated so as to absorb much of the criticism that has been leveled against it. Fortran 77 has, among other improvements, free-form reads, IF-THEN-ELSE, and good character manipulation capability. One major drawback is the continued limit of six character variable names. However, I use it and find it quite satisfactory. CBASIC is, so far as I know, the best extension of BASIC. It runs in either interpreted or compiled mode. It has 14 digit precision, print using, and 31 character variable names. Line numbers are optional, it has long strings and good string handling capability, and can chain in programs which can access current variables in COMMON. It has the IF-

THEN-ELSE structure and is 5-6 times faster than the average microcomputer BASIC. It does not, however, have local variables in subroutines. Pascal, from what I can gather reading other micro publications, is falling out of favor. It is a good language to learn on, and it is a good language in which to write transportable, maintainable code. It tends, however, to suffocate creativity and is weak in its I/O handling. Also, the current UCSD implementation's precision is insufficient at seven digits.

Before settling on a given language, microcomputer manufacturers will, of course, set up some standards. I would suspect that these standards would include the following considerations. The language should be as fast as possible; current microcomputers have been pushed to the limit by small businesses who need the job done quickly. Thus, for serious applications, it will almost certainly be a compiled language. (BASIC will always be there for small jobs.) The language should be friendly. That means a high level language. Let the compiler do the work. Memory is cheap. It should have a structural hierarchy usable on different levels so that beginners can write programs right away and more sophisticated authors can stretch their muscles. It should have strong data typing, that is, variables should be definable as 16 and 32 bit integers, real single precision, real double precision, and variable length strings as a minimum. Global variables should be definable in a preamble so that any subroutine can access them. All variables should have at least 30 significant characters. Subroutines should be recursive, that is, they should be able to call themselves. It should be possible to call Fortran subroutines since there is a vast library of Fortran work. Source text should have free form entry, that is, spaces should be delimiters, not record length or capricious semi-colons. It should be a character oriented like APL and C which are concise but sometimes unreadable, even by the author, months after writing. Character oriented languages are easier to read and learn.

Is there such a language? There is, I have been writing in this language for a year now, and I love it. I consider it the cleanest, most versatile, friendly, and powerful language I have every used. It meets all the criteria above except the double precision mode. Is it well known? Unfortunately, no. It requires a hard disk system and 256K of RAM, preferably 512K. I will tell you more about it next time. For now, I will quote some sample source code. See if you can identify this language. And while you are perusing it, ask yourself if you wouldn't mind coding in such a language. The first person to identify the mystery language gets a certificate worth nine free issues of *Peelings II*. Hint: It is not any kind of Fortran. — Martellaro

```
FOR EACH PASSENGER
  IF FIRST.CLASS.MODE(PASSENGER) = .YES.
    LET TIME.SEGMENT = TIME.OF.FLIGHT/NUMBER.OF.STOPS
    FOR .INDEX = 1 TO NUMBER.OF.STOPS, DO
      CALL CONNECTION
        GIVING DEPARTING.PLANE, PASSENGER
        YIELDING DEPARTURE.FLAG
    IF DEPARTURE.FLAG = .NO.
      LEAVE " the loop
    OTHERWISE
      .....
      WAIT TIME.SEGMENT UNITS
    LOOP
  ENDIF
  IF DEPARTURE.FLAG = .NO.
    LET ARRIVE.ON.TIME(PASSENGER) = "NO"
  ELSE
    LET ARRIVE.ON.TIME(PASSENGER) = "YES"
  ENDIF
  WRITE PASSENGER AND ARRIVE.ON.TIME(PASSENGER) AS
  "FOR PASSENGER "I 6," ARRIVE.ON.TIME = ", T * , / USING UNIT
  DUMP.OUT
```



# READER REQUEST DEPARTMENT

For our new readers, we would like to remind you that *Peelings II* maintains a list of *reader requested reviews*. All you have to do is send us a postcard giving the name of the product and the name and address of the vendor. We will do our best to acquire the product and review it. While it is not absolutely guaranteed that all requests can be honored, we have, in the past, reviewed a great many of the requested products.

We have decided to purge the current list of programs of

old requests and start the year anew. Requests submitted after 1 Oct 1982 will go onto this new list. The composite list will be published in a few issues.

Remember, this is your way to participate in the review process. Fight back! Tell us what programs you want to see examined. And because we are such good guys, use the postage paid envelope inserted in each issue.

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## VisiSchedule

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**VisiSchedule (Version 1.05)**

**Program by: Dr. Michael Posehn,  
Organic Software.**

**Manual by: Richard Ewing.**

**VisiCorp**

**2895 Zanker Road  
San Jose, CA 95134**

**\$300.00**

Locked - backup/replacement available for \$20.00.

Rating: A

*Reviewed by Alan Shalette*

### INTRODUCTION

VisiSchedule is a management tool which can help schedule, budget and track the status of multistep projects. Its basic functions consist of: 1) creating; 2) modifying; and, 3) reporting on schedule and budget data. It will not handle more than one project at a time although facilities are provided to help group related job steps for reporting purposes.

If your business or other activities are project-oriented, VisiSchedule can be valuable in two ways. First, experienced project managers who lack automated support of their current scheduling and budgeting activities will find the never-ending process of updating projects made quicker, easier and more accurate by using this type of tool. Second, VisiSchedule can be an excellent tool for inexperienced users to improve their project management skills.

### HARDWARE AND SOFTWARE REQUIREMENTS

Hardware compatibility problems may arise which appear to stem chiefly from the Pascal language in which the system was written.

A printer, if used, should be attached to a control card in slot #1. The manual reports successful tests with equipment supplied by seven manufacturers of the more popular printers. About a dozen manufacturer-supplied and independent interface cards were also tested, but some problems were noted. Three interface cards will probably not work with the program: Mountain Hardware CPS; California Computer Systems parallel (7728); and, SSM AIO parallel. Mountain Hardware's CPS card may be made to work if appropriate changes are made to the Pascal Runtime system. The manual suggests contacting your Apple or Mountain Hardware dealer for more information.

The program does not use 80-column display cards or clock cards. If they are present, the program should ignore them — with the following limitations. Your video display must be connected to the Apple's video out jack or RF modulator. Reports may be directed to a communications card although the program does not provide other terminal functions which would help establish a remote connection. This option may be useful if your printer is connected to an RS-232 interface driven by a communications card. The program will not load if a D.C. Hayes Micromodem (or, perhaps, another communications card) is located in slot #3. No problem should be encountered if it is located in any other unused slot however.

Check Chapter One and Appendix A of the manual for compatibility with your equipment before you buy.

### DATA ENTRY AND MODIFICATION

VisiSchedule treats your project as a series of steps, each with a name, duration, capital cost, mix of manpower and associated labor costs, and a list of other jobs that must be completed before a particular step can be started.

Project creation normally occurs in two steps — project description and step description. Project description includes entry of the project's title, leader, start date, time units (i.e. days vs. weeks) and cost units. It also includes entry of manpower skill category titles and unit costs (i.e. daily or weekly wage rates) and nonworking days or weeks.

Up to 50 steps are allowed with 48K of RAM and 160 steps with 64K of RAM. Step descriptions involve entry of the following data: name (up to 30 characters per step); duration (up to 999 days or weeks); prerequisites (up to 9 per step); earliest start date; nonlabor cost (up to 4 digits in units of dollars, thousands of dollars or millions of dollars); skill resource requirements (up to 9 skill types per project); deadlines and milestones. Step numbers are the only mandatory data for each step and are assigned sequentially by the system. Deadlines and milestones may be entered for reference in reporting, however, they don't affect scheduling.

After initial entry of project and step descriptions, there normally follows a cycle of data checking and modification using either the system's displays or reports which are discussed later. Such modifications may include step addition and deletion or revision of any of the information noted above. Step sequencing may also be rearranged — with or without step renumbering.

If the system has been instructed to perform a critical path analysis, slack times and earliest and latest allowable start and finish dates will be analyzed and reported for each step. The critical path is, in essence, the sequence of steps from the beginning of the project to its end which determine the project's total duration. While steps not on the critical path may have slack time between their earliest and latest



start dates, those on the critical path have earliest dates equal to latest dates.

Two major options are available to tune the schedule. Tuning is usually desired to reduce peak manpower requirements and to ensure that requirements don't exceed manpower available in each skill category. The system's 'LEVEL' option will perform this function automatically by moving start dates for noncritical steps within slack periods. Scheduling of critical path jobs is not affected by this automatic leveling function. Since the system will attempt to reduce peak requirements for only one skill category at a time, when multiple skills are involved, attempts to level one skill may adversely affect peak requirements in others.

A second tuning option is available to change the start date of any critical or noncritical step. Use of this 'SCHEDULE' option will likely affect completion of the overall project but may be necessary to ensure the practicality of resource assignments. As with the 'LEVEL' option, all modifications made with the 'SCHEDULE' option may be easily cancelled.

As projects proceed, actual start and finish dates normally vary from planned dates. VisiSchedule helps to keep project schedules updated through its 'COMPLETE', 'DURATION' and 'SLIP' options. The COMPLETE option allows marking a step as partially or fully complete. No job may be even partially completed unless all its prerequisites are totally complete. This obstacle can be overcome, however, by resetting the step's earliest start date and deleting its prerequisites. If more time than originally estimated will be required to complete a step, its DURATION can be modified. Finally, SLIP requests the date to which all unfinished steps are to be slipped and will completely revise the schedule.

## PROJECT REPORTING

VisiSchedule provides four types of reports: project descriptions; job descriptions; schedules; and, tabular job reports. These reports can be produced on either the display screen or a printer. The system will also produce Pascal text files and DIF files. These may be used to transfer data to other systems accepting these types of files — the latter, including most of VisiCorp's other packages, D.B. Master and others.

Project description reports are one-page project summaries containing the descriptive information discussed earlier, plus total resource requirements and costs for each skill category, total nonlabor costs, overall completion dates and related information.

Detailed data for each step or job within the project are listed in job description reports. These contain short summaries of the project description information discussed earlier in addition to: completion status; slack time or an indication that the job is on the critical path; earliest and latest start and completion dates; and, manpower and (nonlabor) costs. These reports may be produced for all steps; those within a range of step numbers; those requiring a given skill category; or combinations of these search criteria. The order in which the jobs are listed can also be varied according to 12 different criteria including: job number, job name, scheduled start date, prerequisites, and slash tags.

I mentioned earlier that steps may be grouped for reporting purposes although the system does not support multiproject schedules. This is accomplished through use of 'slash tags' which are appended to individual step names. Slash tags are anything which follows a slash (/) in step names. If the slash tag criterion is selected in specifying the order of a job description report, steps will be sorted in alphabetical order of the part of the name following the slash. Steps with identical slash tags will be sorted according to the part of the name occurring before the slash. Unfortunately, the system will not develop summary reports (e.g. combining manpower requirements, costs and the like) for slash tag groups.

Schedule reports are Gantt charts (look like horizontal bar charts) containing step schedules laid out on a horizontal scale showing dates and numbers of days or weeks since project startup. Curiously,

the manual briefly addresses the PERT scheduling algorithm (Program Review and Review Technique — mislabeled as Performance etc.) which the system does not use, but completely overlooks the contributions of Henry Gantt (an early 20th century Scandinavian engineer) to the principal visual displays provided by the system. Further, the manual does not describe the processes by which the system determines critical paths and slack times. As a result, I usually disregard the critical path and automatic levelling options.

Gantt chart presentation is the principal display presented during entry and modification of step-level data and may also be displayed and printed using reporting options. Since schedules can easily exceed the capacity of either a standard Apple display screen or a printed page (containing up to 255 lines of 160 characters), the system uses special techniques to display schedules completely.

For screen displays, hitting CTRL-A will cause the display to flip-flop horizontally, allowing it to display up to 80 columns of information, 40 columns at a time. Simple scroll commands are also provided which work vertically to scroll projects and horizontally to scroll dates while in data entry mode. When a scroll command is entered, the entire screen is recreated corresponding to the new coordinates.

When a schedule is printed, if necessary, the system will spread it over multiple pages vertically and horizontally. These pages can then be taped together to build the complete chart. Mapping requirements are based on user-supplied format information indicating page length and width, top and bottom margins, formfeed/linefeed requirements and related parameters. Manpower requirements and costs are shown at the bottom of printed or displayed schedules. In data entry mode, either manpower requirements for one skill category, total manpower costs, total direct costs, or total project costs can be displayed — one at a time. This information can be very useful for manpower balancing and schedule tuning. Printed or displayed schedules produced via the system's PRINT option contain all this information. Other PRINT options allow selection of steps to be printed and their order.

The last reporting option allows the user to build summary reports of detailed data including step number, name, duration, manpower levels, prerequisites and the like. The detailed data selected will be listed using one line per step — neither column nor row totals are provided. These reports are very handy for analyzing project data (e.g. calculating manpower totals for slash tag groups) and to aid in fine-tuning schedules.

## DOCUMENTATION

VisiSchedule's documentation consists of almost 250 typeset, looseleaf-bound pages plus a reference card. The manual is divided into four main sections plus appendixes and an index. Chapter One includes introductory and set-up information. Chapter Two contains an extensive tutorial in five lessons covering all of the system's functions. Chapter Three contains functionally-organized reference information and Chapter Four, error message definitions. The appendixes cover hardware compatibilities, DIF file usage, system capabilities/capacities, the ASCII character set, a bibliography and a glossary. Almost 100 figures and tables are presented to facilitate use of the various menu options, understanding of reports and data entry.

Despite its size, the documentation falls short of my needs and expectations in the following areas. As mentioned earlier, critical path determination and slack time calculations are not explained. The reference card shows only one of the system's 13 menus and does not describe the almost 75 options and commands used in those menus. While the manual contains a one-page diagram showing an overview of all the menus, it lacks page number references to detailed discussions contained in the manual. Moreover, information in the reference chapter (Chapter Three), while extensive, is not complete and I must frequently refer back to the tutorial chapter. Fortunately, the index is useful in facilitating cross-referencing.



## PERFORMANCE

VisiSchedule does a very good job performing its intended functions. On the other hand, its intended functions fall short of my needs in several significant ways. Functional improvement suggestions are discussed in the next section and I will discuss performance of its intended functions over the remainder of this section.

The system's large numbers of menus and options demand a command structure which is easy to move through and use. Yet, it uses one of the more difficult structures I have encountered — as is readily apparent in the program menu overview contained in pages 3-3/3-4 of the manual. I will not attempt to suggest how it might be completely overhauled, but several minor modifications would ease its use.

I consider it prudent to save data as entry proceeds as a form of insurance (see comments on key usage below). To do so with VisiSchedule, while in step description entry mode, requires stepping 'up' and 'down' through two levels of menus to get to its SAVE option and back again. A save option could be added to the two-part step data entry menu. Another improvement in this menu would be to allow scrolling while using the HIGHLIGHT function in the menu extension. Since scrolling can only be accomplished in the main part of this menu, users must switch back and forth between the two parts of the menu fairly frequently during schedule tuning.

The system reference card and manual list a series of control key entries some of which, it warns, should not be used. My experience shows that hitting these forbidden entries will hang the system, necessitating re-boots and causing loss of data. This practice of permitting key sequences to hang the system should not be allowed — no matter how many warnings are posted.

As mentioned earlier, the system accepts deadline dates but does little more with them than to show them on schedules. It is quite pos-

sible that, prior to tuning, steps may be scheduled to follow their respective deadlines. Why not issue a nonfatal warning when this occurs?

Neither printed nor displayed schedules show calendar years — a major inconvenience when projects span more than one year. I would also like an option to omit all manpower and cost data from the bottom of printed reports rather than having to cut them off when appropriate.

Finally, other nuisance problems I often encounter include: the desire to use more than the 9 allowed skill categories; the desire to inflate manpower costs over time; the inability to vary manpower requirements over the course of a single step; the inability to schedule using months as time units; the inability to use months or years as the basic time coordinate in printed or displayed schedules; the inability to highlight all steps dependent on a particular prerequisite — not just the ones which contain the job in question as a direct prerequisite; and, the inability to enter fractional time units for scheduling.

## SUGGESTED IMPROVEMENTS

VisiSchedule does a fine job tackling the potentially difficult chore of displaying very large Gantt charts on comparatively small media — whether printed pages or video displays. I wish, however, that it were able to use 80-column display capabilities since video scrolling can be tedious. Several types of improvements come to mind which would speed scrolling and data entry.

Rather than having the user enter either numbers of steps or time units to scroll and then recreating the screen, the scanning technique implemented so well in VisiCorp's VisiCalc (i.e. using arrow and space keys) would be valuable here. Repositioning the date scale to correspond to the beginning of newly entered steps would also be useful.

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In step data entry mode, dates are entered as the numbers of time units (days or weeks) after project startup. A new calendar math function would be useful here to convert from calendar dates to time units since I normally set out to develop schedules with step durations in time units, but with start times and deadlines in date form. Alternatively, the program could accept either time unit or date inputs.

Since large projects can cover many printed pages, an option to print selected parts of the overall schedule (i.e. for a range of time units or dates) could help speed the fine-tuning process. While the system allows step range selection, no limitations are allowed for dates.

Even within the system's limitation of handling only single-project schedules improvements could be made to help simulate multiproject or multiphase schedules. These improvements would be related to enhanced reporting capabilities based on slash tags. Specifically, the types of information developed for project description summary reports (described earlier) could be produced for slash tag groups. Alternately, totals or subtotals (e.g. manpower levels, costs or overall times to complete) could be developed for slash tag groups or for any other collection of steps specified for tabular job reports.

Finally, the ability to enter and compare actual expenses to estimates would be valued. With the current version, actual nonlabor costs and manpower requirements may be entered as steps are completed, but comparisons of actuals with estimates must be developed manually. A useful function would be to have the system or a utility program read both planned and actual data contained in two data files, compare the two and produce reconciliation reports regarding dates, durations, manpower and costs.

## CONCLUSIONS

VisiSchedule is a solid performer, a valuable tool for project planning and is the only scheduling system of which I am aware which will run on an unmodified Apple. I don't hesitate to recommend it to potential users (clients and friends) whose needs would justify its cost — despite the shortcomings noted earlier.

On the other hand, if I were to remake my own purchase decision, I would investigate two other comparable systems. Now that I have a Z-80 Softcard installed, WESTICO's MicroGANTT and Digital Marketing's MILESTONE would be worth a closer look based on their advertised capabilities. Each of these packages runs under CP/M and requires at least 56K of RAM. □

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# VERSAFORM

---

(Version and Authors Unknown)

Applied Software Technology

15985 Greenwood Road

Monte Sereno, CA 95030

(408) 395-1541

\$389.00

Rating: AA-

*Reviewed by Alan Shalette*

## INTRODUCTION

If you, as I, have scrutinized magazine ads month after month to find one or more specialized accounting packages with the right balance of features and price but usually resolve to wait a little longer, VERSAFORM may be your answer — as it was for me.

As advertised VERSAFORM is a business forms processor adaptable to sales, inventory, purchasing, job costing, manufacturing and many other applications. Very simply, it allows users to log business activities, extensively checks the validity of entered data, and provides quick access to selected information. I think of it as an accounting-oriented database system although Applied Software Technology (AST) emphasizes that forms processors are not database systems. No matter what it's called, there's no argument that it's in a class of its own.

Its concept and execution, although not totally without fault, should be valued study material for both aspiring and seasoned business software developers. In addition to a general ledger system, VERSAFORM could be the most important accounting system a small business may need or want for accounting-related chores.

In my own case, I use it as a general ledger pre-processor for detailed client and business-related expense tracking, job costing and invoicing. I'm unable to find any other package(s) which will do as much as I need, at a price I'm willing to pay, with the flexibility VERSAFORM provides.

Why is it unique compared to other application or database systems? Three features stand out:

1) Unlike most database systems, VERSAFORM allows variable numbers of row entries per record (AST calls them forms) in addition to typical key and other fixed data. In an invoicing application, for

example, fixed and key information would include date, customer name and ID number, shipping address and payment terms. VERSAFORM will accept up to 99 lines of detailed/line information per form, entered under predefined column headings. For example, these might include part number, description, quantity, and unit prices. It will also calculate price extensions, taxes and appropriate totals. Thus, each record is a complete business form. Moreover, as with most database systems, reports may be designed to summarize any information contained in a form.

2) VERSAFORM performs extensive data validation and table lookup functions which can speed and protect the accuracy of data entry. Examples of its data validation capabilities include range and list checks, data length and type (i.e., numeric vs. alpha) checks and check digit verification. In the latter test, self-checking digits, calculated using modulus 10 analysis and appended to the entered number, are recalculated and validated by the system. This procedure is normally used to catch transposition errors while entering critical data. Table lookups can be used to fill fields located anywhere on the form which are dependent on other fields. For example, product descriptions and unit prices can be entered automatically in an invoice by having the system look them up in a table based on part numbers. Thus, all the user need enter for an invoice line is a part number and quantity. VERSAFORM will validate both entries, look up descriptions and unit prices and will calculate extensions, tax and totals. Each of these automatic functions may be easily overridden on a field-by-field basis — e.g. to enter a nonstandard price for a special order.

3) The system provides a calculator function in data entry mode which will perform simple math functions (+, -, ×, and /), round and invert numbers, generate self-check digits, calculate column totals and move numbers from and to the form (e.g. to bring down a standard price, calculate a discount and then move the result back to the form). Math functions operate much like a Hewlett-Packard calculator — i.e. using RPN (Reverse Polish Notation) entry in which data is first entered and then the function to be performed, selected.

## HARDWARE AND SOFTWARE REQUIREMENTS

Hardware configurations are constrained by the Apple Pascal system with which VERSAFORM was written. Slot-related dependencies are as follows:



- Slot 0 - Pascal Language Card or RAM card (mandatory).
- Slot 1 - Printer must be here if one is used
- Slot 2 - Use optional. May contain a modem or printer or other device.
- Slot 3 - 80 column board or external terminal only.
- Slot 4 - Third and fourth disks (optional).
- Slot 5 - Fifth and sixth disks (optional).
- Slot 6 - First and second disks (mandatory).
- Slot 7 - Not used.

If slots 4, 5 and 7 are not specified to contain disk controllers, they will be ignored. Initialization sequences may be sent or devices connected to either Slot 1 or Slot 2. Except for these considerations, no mention is made of specific compatibility requirements — e.g. as might be related to specific manufacturers, products or interfaces.

The system is semi-copyable. That is, I was able to copy several of the system diskettes with COPYA found on the DOS 3.3 System Master diskette but was unsuccessful with key, file maintenance programs.

## DOCUMENTATION

VERSAFORM's documentation is the best I've seen for systems of its complexity, but not without improvement opportunities. The documentation comes in three parts titled "User's Guide", "Hands-On Experience" and "Reference Summary". The User's Guide contains over 250 spiral-bound, 5½ in. by 8½ in. pages written in simple English. It is organized into ten chapters plus seven appendixes and a six-page index. Chapters contain extensive operating instructions corresponding to functions users want to perform — e.g. titled "How to Create a File and Design a Form"; "How to Use the Form You've Designed"; "The Calculator"; and, "Analyzing Data in Your Files". While reference to specific program diskettes, menus, and commands is inevitable, the user need not have a map of the system in his/her head to locate needed information in the Guide. Its authors clearly understood, and were capable of a sensitive response to this classic user's predicament. Further, their careful pruning of computer/systems jargon is highly appreciated.

System operation is explained making extensive use of examples. This approach necessitates giving illustrations for all menu options, commands and responses to prompts. I find, however, that the authors have followed this rule only about 90% of the time. For example, the manual may adequately discuss a 'Y' response to a 'Y/N' prompt, while giving only a very brief comment about the results or meaning of an 'N' response. Intuition, further references elsewhere in the documentation, or trial and error exploration, in these cases, is required to fully resolve the meaning of the unexplained response. To illustrate, when copying the contents or description of a file, VERSAFORM provides an option to produce an action log which shows what's going on during the process. The authors might have assumed a printed log will normally be desired and explain this option fully. However, the log may also be sent to a disk file or another device (e.g. CRT display). The manual states "If you would like to have the log sent to the printer *key in Y*. If not *key in N*. In that case you will be asked where to send it." Brief mention is made of disk logs but not of how to send the log to the CRT. Flipping through the manual to its chapter on system configuration reveals that specifying 'CONSOLE:' as the output device (a Pascal convention) will do the job. This detail, among others, cannot be located in the index or table of contents.

I also believe that a menu map, similar to those found in most VisiCorp manuals, would be a valuable addition to expedite manual use while operating the system. This would show each of the main menus presented by the various programs, along with lists of valid commands and prompt responses and (unlike VisiCorp maps) chapter/page references to the manual.

The Hands-On Experience manual contains an over 55-page tutorial based on data contained in the Tutorial data diskette supplied with the system. The tutorial does not step through all system

functions, but is sufficient to give the user a thorough understanding of its major capabilities. Although it contains neither a table of contents nor an index, quick reference usually can be made to the User's Guide which contains many additional examples.

The Reference Summary is a 14-page booklet printed on card stock containing brief operating instructions for all system functions. Recognizing that everything needed would not fit on one accordion-style card, the authors acted accordingly — that is, to expand the reference information, not contract it to what would fit on one piece of folded paper (see my comments on VisiSchedule's reference card elsewhere in this issue).

This information is augmented by system 'help' menus which, among others, explain the one or two-character commands used in file design, data entry/review, and in the calculator.

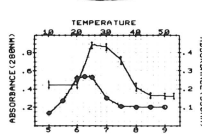
## OPERATION

The system is supplied on four program diskettes labeled "Design", "Filing", "Report", and "Copy/Print". Two additional diskettes are supplied, one labelled "Tutorial", containing data corresponding to the examples in the "Hands-On Experience" manual; the other is a work disk for use when producing reports.

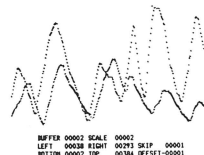
*Form Design* is a two-stage process encompassing form layout and field specification. First, the user is prompted to place either text or field descriptions anywhere on the screen using the cursor (CTRL-O and CTRL-L are used to substitute for the Apple keyboard's missing up and down cursor movement keys). Upper and lower case characters are accepted, if available. Two types of data fields are specified — single items and column items. Single items correspond to customer number, date and the like which would have only a single entry per form. Column or line items correspond to part numbers, quantities and the like, which may have multiple occurrences per form as discussed earlier for an invoicing application. Data fields are given text names and are initially specified with series of dots ("...") to indicate their respective lengths. Text is typed as the

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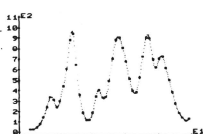
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user would like to see it for use in column headings and to place fixed notes on the form. As usual in designing database pages, careful planning and, perhaps, trial and error is required to get the layout exactly correct. With the exception of line items, all information must fit within the limits of one display screen.

When form layout is complete, the system prompts for data specification, validation and table lookup information. Very briefly, these include, for each data field:

### CHECKING AND AUTOMATIC FILLING

- Minimum and maximum data length — i.e. number of digits.
- Left/right justification for display.
- Whether or not a self-checking digit should be tested.
- Numeric vs. alphanumeric data.
- Date format?
- Yes or not (Y/N) data?
- Mandatory — i.e. must this field be entered on every form?

### EXTENDED CHECKS

- Range check — i.e. to make sure the data falls within specific ranges of values (more than one can be entered).
- Format — allows the designer to specify data patterns to be used in entering data. E.g. to require proper insertion of hyphens if the field is to contain social security numbers.
- List — requiring that the data entered be contained in a list of pre-specified valid entries, such as might be used to check abbreviated cost codes or part descriptions.

### AUTOMATIC FILLING

- Lookup — will fill the field with values found in a pre-specified table by referring to the contents of another field. E.g. the system will search a table to locate customer names based on the contents of another field containing their respective ID numbers.
- Today's date — tells the system to fill the field with the date entered when the system was loaded.
- Calc — will fill the field the results of a multi-step mathematical calculation.
- Column total — tells the system to fill the field with the total of a specific column.

Record indexing is based on one or two data fields selected during the design process. These keys are used mainly during file maintenance as discussed below. Most other file accesses, e.g. to produce special reports, use searches of the contents of any data fields which are specified by the user.

*Filing* corresponds to form/record entry and maintenance. In filing mode, the user is initially presented with a blank copy of a requested form. New data may be entered and saved, or the user may enter index keys and have the system display a previously saved form containing the specified keys (each form must have unique keys). Previously saved forms may, thus, be recalled, modified and re-saved, or deleted.

Filing functions are easily visualized through review of the system's related commands:

Command	Name	Operation
B	Back	• Displays previous form in file.
CA	Calculator	• Loads calculator facility.
CL	Clear	• Clears all fields in the displayed form.
D	Delete	• Deletes a specific line on the form (all lines are numbered as entered — 1 through 99).
E	Erase	• Erases entries which have not been validated.
F	First	• Displays first form in file (forms are stored in the same order they were entered).

G	Get	• Locates and displays particular form containing specified key(s); partial keys may be used.
I	Index	• Lists keys for all forms in the file.
L	Last	• Displays last form in file
N	Next	• Displays next form in file — typically used in partial key search.
PF	Page Forward	• Displays next page in form — i.e. scrolls lines which are not visible due to display size limitation.
PB	Page Backward	• Displays previous page in a particular form.
PR	Print	• Prints displayed form as it appears or according to a print format (discussed later).
Q	Quit	• Returns system to main menu.
R	Remove	• Removes/deletes form from file (based on key index).
SA	Save	• Validates data if required, then saves form to diskette.
SP	Space Report	• Reports storage available on diskette.
V	Validate	Checks entered data against specifications; performs automatic table lookups and calculation.

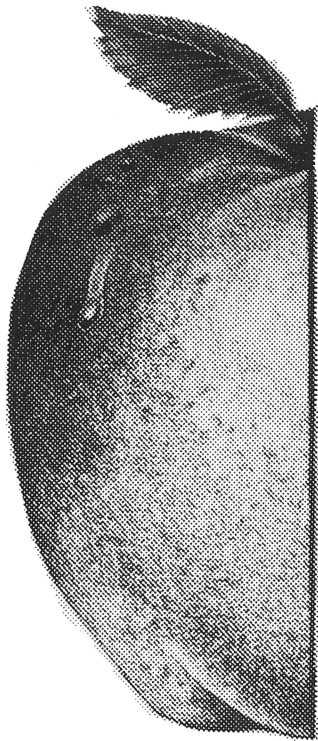
*Report generation* allows users to analyze any data contained in stored forms. For example, in my own job costing and expense reporting application, I enter time charges, client expenses and business expenses weekly. Then I run monthly summaries to develop two kinds of reports — time and expense summaries for each client to develop invoices and additional summaries by account number for entry to my general ledger system. These reports save many hours each month in lieu of manually-prepared invoices and entry of expense details to my G/L system.

Report specifications, which may be saved as named formats for later use, identify:

- Page layout — i.e. length and width.
- File to be used.
- Report title — to be printed on report.
- Data to be printed — usually column data such as client number, expense description and amount.
- Data selection criteria — to limit information/records which should be included in the report, e.g. to create a report for client A for travel expenses incurred between 10/1/82 and 10/31/82.
- Sort order — e.g. to have expenses listed alphabetically by type or description.
- Subtotals — e.g. to subtotal expenses by type.
- Totals — indicating which data should be totalled.

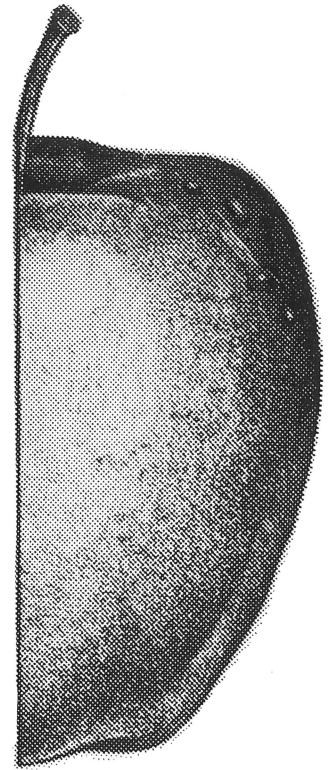
*Copying/Printing* options support a variety of chores which all relate to moving information stored in files to other places. The information moved may be filled-in forms, form designs, report formats, form printing instructions and the like. The places to which they may be moved include other diskettes, pre-printed forms or blank paper, or the display screen.

The Copy/Print diskette contains programs which will move filled-in forms to other diskettes, the printer, or display screen. Forms to be moved are selected using criteria similar to those used in report generation discussed above. The copy feature could be used to move all forms corresponding to particular clients to new, single client files from a multi-client file but will not extract data contained within the



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forms. This capability is similar to search and list capabilities found in most of the database systems I've seen.

The system will also support use of pre-printed forms by allowing users to specify print formats which will place selected data anywhere on the form. All other information, e.g. column headings and text fields which appear on blank forms, is deleted. Print instructions and copy specifications may also be saved and copied.

Other copy and print routines are located on the other program diskettes:

- A data diskette backup utility is located on the Filing program diskette which will create a complete duplicate of the diskette being copied including all forms, and report, copy and print formats.
- Report format specifications may be copied selectively from one data diskette to others with a utility located on the Report program diskette.
- Individual form designs may be moved to new diskettes using a utility on the Design program diskette.

*Other Functions and Features* supported include data diskette initialization, form design modification (e.g. to update lookup tables) report copy and print format modification, and system configuration.

During diskette initialization and formatting, space is allocated to each file to be located on the diskette. Since form length will vary with the actual number of lines contained in each completed form, diskette capacity will vary when measured by the number of forms stored in a file. The system will, however, estimate diskette capacity after form design has been completed, and Appendix D of the User's Guide shows how to estimate file sizes. System-produced estimates for three different files I use range about 900 forms per diskette assuming no column lines per form.

Since the system will operate with multi-diskette files, file space should not be a significant problem — except to the extent that a lot of diskette swapping may be required to run large reports or lists. Of course, potential users have the option to buy a version of the system which will run with hard disks with up to 4 million characters per file.

The system generally supports up to 99 lines in its forms and tables (e.g. for range checks, table lookups and list checks). These might correspond to numbers of employees, customers, parts/products, invoice line items and the like. In my own experience, these capacities have been more than adequate to handle the needs of my small corporation and consulting practice.

## PERFORMANCE

No question about it, VERSAFORM is versatile, fast and polished. Also, no doubt about it, the way it parcels out control of most operations bit by bit can be a bore. For example:

- Each line in a form must be validated as it is entered, before going on to the next line.
- One cannot copy complete sets of information pertaining to one of several files (form design, forms and other specifications) contained on one diskette, to another, all at one time. Each set of information must be moved, using separate instructions.
- When switching from one file to another to enter or update forms, or when changing program disks, the system requests 'today's date' each time.
- While report formats can be copied, they cannot be renamed. Thus, to create a new report substantially the same as another one, but with a different name for its format file (as opposed to the title which will be shown on the report) it must be completely re-entered.
- When updating report, copy, or print specifications, the system will submit all fields in the specification for update — i.e., one cannot go directly and solely into a lookup table to update it without having to step through all the other specifications with which it is associated.

- Although more than one form may have use for a particular lookup table or list of valid entries (e.g. customer names vs. numbers), the system does not know how to share tables. Therefore, one copy of each common table/list must be created and maintained for each form using it. In my own applications, I must maintain three copies of my customer list.

An argument no doubt, could be made that the system's requirements for meticulous operational control help to protect the user from him/herself — a design concept which is clearly found throughout. In rebuttal, I would say that the system should better anticipate the value of experience by becoming more adaptive to more proficient users, while providing options for those who feel they need the protection.

## SUGGESTED IMPROVEMENTS

Make no mistake, the foregoing criticisms present ideas I think would help make a fine product better. Other improvements I would like to see include:

- Two or even three dimensional table lookups — e.g. to look up prices based on both product codes and quantities. Otherwise, volume-related discounts may be approximated by applying uniform rates based on, say, quantities or for specific customers, or by calculating them manually. The system's current automatic filling capabilities cannot be used for these types of calculations.
- The constraints posed by limiting forms to a single display screen prompted me to, first, buy an 80 column display card (this was one of several applications I had in mind, however) and second: to create three separate forms to support my job costing application. Since I must move data manually from my expense form to my invoice form once summary reports have been developed, I would like to:
  - Produce forms which result from consolidations of selected groups of forms in a specific file.
  - Be able to develop forms or reports using data contained in two or more different forms.

Now, a more hopeful note. AST sells a Pascal programmer's interface which allows programmers to access VERSAFORM files, to move data between VERSAFORM and Pascal files, and to create custom applications through Pascal programs. The interface also provides a way to extend the capabilities of VERSAFORM to multi-file applications (as many as three VERSAFORM files may be accessed). AST's product literature, in fact, mentions much the same types of problems which may be solved with the interface, as I have mentioned above.

Just what the doctor ordered? Not really. The interface's reasonable cost of \$245.00 is, of course, only a license to spend lots more money and time trying to solve the problems I've noted above. I can only hope that AST or an entrepreneur will pick up these suggestions, determine that there is a reasonable market for VERSAFORM utilities and publish accordingly — much the way utilities have been made available to expand the capabilities of VisiCalc, WordStar, D.B. Master and dBase II.

## CONCLUSIONS — WHY AA-; WHY NOT AAA?

VERSAFORM stands well above the rest of the crowd in concept and utility, and head and shoulders above most in documentation and user-friendliness. I believe these characteristics to be worth at least a AA rating. Ignoring the functional limitations discussed under Suggested Improvements, the system's operational tedium and inconveniences deny it an AAA rating and detract from even an AA.

Its cost should not be a barrier to those who can't justify paying \$300 for a professional billing system which can't handle client expense billings, or for a host of other single-function packages at similar prices. VERSAFORM can support most of these types of applications and offers the flexibility to grow as your application needs grow. □

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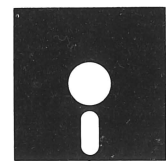
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# DOS ENHANCERS

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One of the complaints about the Apple II and its Disk Operating System (DOS) is that it is too slow. When the disk drive was first introduced, it was a tremendous improvement over cassette reading and writing. But with all the various new computer systems available today, Apple DOS is, by comparison, indeed too slow. However, some enhancements can be made to DOS to speed up certain operations. It appears that most of these enhancements were recently discovered because suddenly DOS speed up programs are popping up all over. We will look at six (one is a preliminary evaluation) in this issue and will review more in future issues.

In evaluating these DOS enhancers two basic criteria were used. The first is speed of operation, and the second is the ease of use of the program to create a faster DOS disk. Most of the programs reviewed here improve LOAD/BLOAD (RUN/BRUN) times only with no effect on SAVE/BSAVE or

text file operations. Other capabilities may be included such as fast booting, disk free space, or date stamping of files. Each program will be briefly discussed and its features covered. The reviewers have not tried to anticipate every application, so when considering one of the DOS enhancer programs for your own use keep in mind that it is possible that the enhanced DOS may not work with your programs or in your application. For example, if DOS is placed into a RAM card, the PIE WRITER (or Apple PIE) word processor will not function correctly, or if you move an enhanced DOS into a RAM card, you may find that your Apple hangs since some vectors may be changed. Programs which directly access DOS routines may not find these routines in an enhanced DOS so the program will "bomb." If you attempt to enhance a modified DOS, you may find that things don't work as expected. However, in many applications, using an enhanced DOS will improve disk access times dramatically and increase your Apple's efficiency.

---

## Hyper-DOS

by John Bridges  
Softkey Publishing  
(Hardcore Computing)  
P.O. Box 44549  
Tacoma, WA 98444  
206-581-6038

Machine Language  
48K, FP (see text)  
DOS 3.3  
Unlocked

Rating: B-

### *Reviewed by Monty Lee*

HyperDOS is distributed by Softkey Publishing, who also publish the **HARDCORE** magazine. The HyperDOS listing was included in Vol. 1 Issue 3 to all **HARDCORE** subscribers. For those who do not subscribe to **HARDCORE**, HyperDOS is available from Softkey directly. According to Softkey, the only difference between the two products is that the \$19.95 HyperDOS will work with Integer BASIC files also, and the magazine one will not.

The program itself occupies 256 bytes starting at \$9C00 in DOS. Since this is just below the normal DOS buffers, HyperDOS rewrites

the buffer start so as to protect HyperDOS from being overwritten. The author indicates that the routine can be placed so that it occupies the space now taken by the INIT function, but this is left to the individual to accomplish. The source code is provided for those who have the magazine.

The documentation with the magazine version is only one column. Softkey indicates the documentation for the retail version will not be significantly different. Since the program is user transparent, just LOAD/RUN, and BLOAD/BRUN as before, the necessity for more extensive documentation is not needed.

HyperDOS only enhances the loading of either BASIC programs or binary programs. It does not affect text files or SAVEing of programs. The advertisements claim that HyperDOS is 500% faster. A look at the chart will indicate that this is not the case. Even the figures in the Softkey ad do not support this claim. Finally, in some cases where the binary program loads exactly below DOS that normally starts at \$9D00, HyperDOS will be overwritten and your DOS in memory will crash.

**HARDCORE** indicated that they will be publishing a version that locates HyperDOS within the INIT code area to bypass this problem.

Overall, HyperDOS works without problem. It does not have the problem of loading in more than just the program that some others have. For **HARDCORE**, subscribers, the price is nice — FREE. For others, whether you think you can use it will depend upon your needs. If you just want to speed up program LOAD/RUN times without any other DOS enhancements, than this may fit your needs. □

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avoid reload of the language card. Diversi-DOS the area for the patch is modified or not.

d enhancements, Diversi-DOS was one of the also improves file SAVE times, but does so at the FY function performed by normal DOS. Thus if a successful SAVE you must re-install the this will slow down the SAVE times.

he only program to improve text file access. eading/writing is significantly improved as indlelow. Additionally, Diversi-DOS will work with rove the reading/writing of both TEXT and eed improvement with the BINARY files is realmore, Diversi-DOS provides a routine that will ccess file reading/writing through the use of a his feature revealed generally a 20 second im; random access files regardless of file size (if ords) and a 30% speed improvement in READ- es regardless of size. This test was done on files rds to 1000 (20 to 110 sectors).

\*\*\* The IAC distributed version of Diversi-as a bug in it that will NOT correctly READ then text files. Users must send in \$5 for the update 25 license fee).

were not enough, Diversi-DOS also includes a buffer using the RAM card. These features are are instead, a separate binary file that you must assumes a 16K card in slot #0 and a parallel 1. If you do not have this standard arrangement, ided to make the necessary modifications.

ffer will allow you to type while the computer is e reading the disk. As the instructions point out, one entirely in software, some programs will not rogram reads the keyboard strobe (uses PEEKs GET) it will not work. There are other instances k. For example, if you LIST a program, you can sting with CTRL S or stop it with CTRL C since eyboard strobe for these features.

r is installed at the same time as the keyboard the printer (when PR#1 is used) is routed to the ing and then to the printer card. Unfortunately, les the features on the printer card, so your out-at you expected. Generally, I found the buffer eyboard and printer not worth the problems. A t work with the keyboard buffer, and there's no n and off. The output from the printer buffer is way it would be without using the buffer.

ersi-DOS provides a lot of nice features. A more of the changes and better documentation (and a ) would significantly improve this product even ind that many programs that work with normal Diversi-DOS. The improvement in speed for all mmands, from SAVE to READ, make Diversi-ckage. One major drawback to Diversi-DOS is essages have been replaced by DOS ERROR have to look up the code for XX to see what er-



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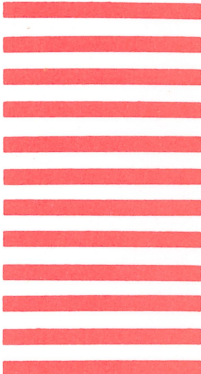
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Machine Language  
48K, FP (see text)  
DOS 3.3  
Unlocked

Rating: B-

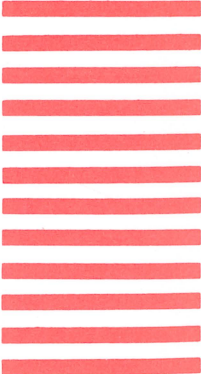
*Reviewed by Monty Lee*

HyperDOS is distributed by Softkey Publish the HARDCORE magazine. The HyperDOS li Vol. 1 Issue 3 to all HARDCORE subscribers. subscribe to HARDCORE, HyperDOS is av directly. According to Softkey, the only differe products is that the \$19.95 HyperDOS will wor files also, and the magazine one will not.

The program itself occupies 256 bytes starti Since this is just below the normal DOS buffers



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**Bill Basham**  
**Diversified Software Research, Inc.**  
**5848 Crampton Ct.**  
**Rockford, IL 61111**  
**815-877-1343**

\$30.00  
Applesoft BASIC and Mach. Lang.  
48K, FP, optional RAM card

DOS 3.3  
Unlocked

Rating: A —

### *Reviewed by Monty Lee*

Diversi-DOS was distributed by one of the most unique methods to date. It was mailed free to all International Apple Core clubs for them to distribute to their members. Even booting the disk gives you a page telling you to feel free to copy the disk and give to your friends. The catch is that if you decide you like Diversi-DOS and want to incorporate it on all your disks you must send the company \$30 (increased from the original \$25). Until then, you must display the "request for payment message" on all disks. Once registered you will receive a patch to remove this screen display.

Diversi-DOS does significantly increase the speed of DOS. Diversi-DOS also improves SAVES and text file access — something that many of the other enhancers do not. The instructions provided with Diversi-DOS are all on the disk. You can print these out either to the screen or to your printer. Unfortunately, the print out is only 40 column so to print out the entire set will take about 20 pages. Furthermore, the instruction set resides in memory, and not a text file, thus you cannot load it into a word processor to print out. It would have been better for Diversified Software to provide the instruction set suitable for an 80 column printout in a text file.

The instructions are fairly complete, but lack enough detail. To successfully use all the features of Diversi-DOS will take some experimentation and rereading the documentation. One nice feature is that information is provided for advanced programmers on how to change some of the features of Diversi-DOS. Some of these features include adding different printer cards, handling interrupts, RESET hooking, and POKES so that a data disk can be INITIALIZED with no DOS on it. This information is very valuable.

One thing lacking in the documentation is a more detailed explanation of what areas of DOS were changed. I'm not asking for the source code of the changes, just the areas. For those who have worked with DOS and made many changes to it, a significantly modified DOS like Diversi-DOS will usually overwrite your many changes. I think it is up to the company to provide some information on unused areas for user patching, commands not affected, and locations of DOS not modified. This makes it considerably easier for the user to insert his own patches. For example, a common patch to nor-

mal DOS is one to avoid reload of the language card. Diversi-DOS does not tell you if the area for the patch is modified or not.

As for the speed enhancements, Diversi-DOS was one of the fastest we tested. It also improves file SAVE times, but does so at the expense of the VERIFY function performed by normal DOS. Thus if you want to insure a successful SAVE you must re-install the VERIFY feature and this will slow down the SAVE times.

Diversi-DOS is the only program to improve text file access. Sequential text file reading/writing is significantly improved as indicated in the chart below. Additionally, Diversi-DOS will work with Pie Writer and improve the reading/writing of both TEXT and BINARY files. The speed improvement with the BINARY files is really noticeable. Furthermore, Diversi-DOS provides a routine that will improve random access file reading/writing through the use of a CALL. Testing of this feature revealed generally a 20 second improvement in writing random access files regardless of file size (if greater than 100 records) and a 30% speed improvement in READING random access files regardless of size. This test was done on files ranging from 100 records to 1000 (20 to 110 sectors).

\*\*\* WARNING \*\*\* The IAC distributed version of Diversi-DOS, version 1-A, has a bug in it that will NOT correctly READ then WRITE or APPEND text files. Users must send in \$5 for the update (in addition to the \$25 license fee).

As if the above were not enough, Diversi-DOS also includes a keyboard and print buffer using the RAM card. These features are not part of DOS, but are instead, a separate binary file that you must BRUN. The buffer assumes a 16K card in slot #0 and a parallel printer card in slot #1. If you do not have this standard arrangement, instructions are provided to make the necessary modifications.

The keyboard buffer will allow you to type while the computer is doing other things like reading the disk. As the instructions point out, since this feature is done entirely in software, some programs will not be compatible. If a program reads the keyboard strobe (uses PEEKs instead of INPUT or GET) it will not work. There are other instances where it will not work. For example, if you LIST a program, you can no longer scroll the listing with CTRL S or stop it with CTRL C since the Apple uses the keyboard strobe for these features.

The printer buffer is installed at the same time as the keyboard buffer. All output to the printer (when PR#1 is used) is routed to the RAM card for buffering and then to the printer card. Unfortunately, the print buffer disables the features on the printer card, so your output may not be what you expected. Generally, I found the buffer feature for both the keyboard and printer not worth the problems. A lot of programs won't work with the keyboard buffer, and there's no easy way to turn it on and off. The output from the printer buffer is rarely formatted the way it would be without using the buffer.

In summary, Diversi-DOS provides a lot of nice features. A more detailed explanation of the changes and better documentation (and a better way to print it) would significantly improve this product even more. Generally I found that many programs that work with normal DOS will work with Diversi-DOS. The improvement in speed for all of the disk access commands, from SAVE to READ, make Diversi-DOS a complete package. One major drawback to Diversi-DOS is that all DOS error messages have been replaced by DOS ERROR #XX so that you will have to look up the code for XX to see what error has occurred.□





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## The DOS Enhancer (TDE)

---

by Art Schumer  
S & H Software  
58 Van Orden Road  
Harrington Park, NJ 07640  
201-768-3144

\$69.95  
48K, ROM/RAM card, optional  
clock  
DOS 3.3  
Locked (Support Disk Unlocked)

Rating: AA

### *Reviewed by Michael L. Weasner*

TDE is an outgrowth of S & H Software's UBI 3.0 and 4.0 packages (see Peelings II Feb 82 and Jul-Aug 82). It incorporates some extra functions while deleting others. The UBI programs will continue to be supported by S & H but TDE is the program for today. The power of TDE is extensive and the manual is excellent. In fact, the only thing I can say bad about TDE is the difficulty in using the editing function of the Disk Access Utility (a disk Zap-type program for editing data on a disk). The manual mentions that this program is a freebie and not supported at this time so I guess I really can't complain too much.

The manual is 80 Apple-sized pages in a three-ring binder. It contains just about everything you need to know in order to make safe

modifications to DOS. There is a short history of Apple DOS and then some background about TDE. Combined with the training program there is very little left unsaid. Very well done, S & H.

There is a training program on side 2 of the program disk that shows you what to expect when actually using the TDE Utility Disk (side 1). This is an excellent idea since it reduces the chance of making fatal mistakes when messing around with DOS. Using the TDE Utility Disk you can either create a disk having the quickloading DOS or update an existing disk with this DOS. Besides gaining faster LOAD/BLOADs and SAVE/BSAVEs, you also get correct sector counts for file lengths greater than 255. File lengths greater than 32767 (\$7FFF) can now be saved, and a CATALOG break is provided to break out of long CATALOG listings. Other features available are a free space command, a text file dump command, and a binary address/length command, each of which is available from immediate or deferred mode (only one feature is available in a DOS version since the VERIFY command is overlaid with the change). The missing BASIC or DOS can be loaded into a RAM card on boot up.

Many other extras are available on the support disk (side 2). There are routines for loading assemblers into the RAM card, the previously mentioned Disk Access Utility, a multidrive copy program (for use with two or more drives), a nice menu and CATALOG program for two keystroke file selection (reads clock), and many patches for other miscellaneous functions.

You will definitely get your money's worth from TDE. Again, consider what your needs are and how you plan on using the modified DOS. If you need both fast loading and saving then TDE will definitely fill your requirements. It should be noted that a RAM or ROM card with alternate BASIC is required to use the TDE Utility Disk program, but the RAM/ROM card is not required to use disks with the enhanced DOS. □

## Turbocharger

---

by Roland Gustafsson  
Silicon Valley Systems  
1625 El Camino Real #4  
Belmont, CA 94002  
415-593-4344

\$29.95  
Applesoft BASIC and Mach. Lang.  
48K, Applesoft in RAM or ROM,  
option clock  
DOS 3.3  
Unlocked

Rating: B+

### *Reviewed by Michael L. Weasner*

This package includes a fast LOAD/BLOAD enhancement, a free space routine, date stamping of files either with a clock (Mountain Hardware format) or manually, a supposedly quick copy program, and a DOS command changer. The manual is even less adequate than Ultra Fast Loader's (only two pages). However, the programs are very simple to use. The TURBO program is a four sector binary program, that when BRUN, patches DOS to allow fast LOAD/BLOADing. Other programs on the disk can be used to make

the date functions work, or lines from these programs can be added to a HELLO program so that all the necessary steps (BRUN TURBO, get new date) can be accomplished on boot up. The free space routine is accurate and displays the disk free space remaining on the CATALOG display. The date stamping is useful and unique in its implementation. The TURBO program on the disk is used to maintain the current date. When files are written to disk the current date is appended but is not part of the file name. The date will only be visible if a MONitor Output command is in effect. Very nice. The quick copy routine copied the text disk in 90 seconds by copying only those tracks in use. However the destination disk must have been previously INITIALIZED (a 48 second process) so the usefulness of this program is debatable, since COPYA took 125 seconds to make the same copy (including the INITIALIZATION).

The fast loading routine used in Turbocharger does not have the overwriting of memory problem that Ultra Fast Loader has. The INIT function, however, has been disabled. It may not work with a user modified DOS depending on the degree of modifications.

The DOS command changer is similar to that in DOS Boss from Beagle Brothers (see Peelings II Sep-Oct 81). The changes are written to disk and not memory. With this utility you can change any of the DOS commands, (LOAD, SAVE, BRUN, etc.) to just about anything you wish.

Overall, if you are looking to increase the speed of LOAD/BLOADs only, then Turbocharger may be just what you need. The programs are easy to use and work without problems or difficulties. Don't expect much help from the manual though. □



by **Pete Rowe**  
**Computer Advanced Ideas Inc.**  
**1442A Walnut Street**  
**Suite 341**  
**Berkeley, CA 94709**  
**415-526-9100**

\$29.95

Machine Language  
48K, Optional RAM Card  
DOS 3.3  
Unlocked

Rating: B-

*Reviewed by Michael L. Weasner*

Ultra Fast Loader is a set of four utilities that can make a fast booting disk, a fast LOAD/BLOADing disk, place a free space routine in the CATALOG display, or create a DOS-less disk freeing up 32 sectors. The manual is three and a half Apple sized pages of explanations of how to use the programs plus some errors that may occur. This manual is totally inadequate for someone not familiar with the intricacies of DOS. There is no explanation of how to combine the routines into a single DOS. You are left to figure out for yourself how to make the patch: BSAVE memory (A\$9D00, L\$2300), rename the DOS file on the disk so that the new DOS file is used, and then start all over. The manual says that a user program can be loaded into the RAM card, but it assumes that the user knows how to do this. Any manual for a program that changes DOS must be comprehensive and usable.

## David-DOS

---

by **David Weston**  
**12021 Wilshire Blvd., Suite 212**  
**Los Angeles, CA 90025**  
**213-478-7865**

\$39.95  
48K, optional ROM/RAM card  
DOS 3.3  
Unlocked

Rating: Pending

*Reviewed by Michael L. Weasner*

David-DOS is a not yet released product that Peelings has received in time to include with this comparison. Its evaluation and rating are only preliminary since no documentation has been seen and some of the routines are still undergoing revision. However sufficient capabilities did exist to evaluate and compare to the other DOS enhancers. When the final package is received David-DOS will receive a thorough review.

David-DOS is a fast loader only (with a minor speed up of saves) but includes some outstanding other enhancements to DOS. Without going into a lot of detail in this preliminary look, here are the new features of David-DOS. When booted, an Integer or Applesoft card in any slot is supported WITHOUT configuration. Free space is displayed with the CATALOG. The following additional commands are always available:

One of the nice features of Ultra Fast Loader is that anything can be placed on the boot tracks which will result in faster loading of that file. If the missing BASIC is to be loaded into the RAM card, it can be placed on the boot tracks. If you want a HIRES binary file to be loaded as part of the boot process, it can also be added, just as can a BASIC or binary program. So now instead of having DOS look for a "greetings program" it can directly load your program during the boot and then run it. The free space patch is useful but it doesn't work properly. It says that track 36 (there are only 35 on a normal Apple formatted disk) is free and so it displays 16 extra free sectors.

The method of fast loading is to load sectors directly into their final memory location, bypassing the normal DOS buffer. This results in the dramatic speed up of file loading but, as implemented by Ultra Fast Loader, there is a serious problem that limits the usability of this fast loading routine. The manual briefly mentions the problem but no satisfactory solution is provided. What occurs is that an entire sector (all 256 bytes) is read into memory. If a file does not end on a sector boundary then the garbage in the rest of the sector, after the end of the file, will also be loaded into memory. The problem appears when this garbage overwrites important data in memory. The example in the manual is the COPY.OBJ0 file for COPYA (on the DOS 3.3 System Master disk) which loads at \$2C0. When this file is fast loaded, the DOS vector table, starting at \$3D0 is destroyed, making DOS pretty much unusable. Obviously, this overwriting of memory can have serious repercussions. One must weigh this against the other good points about the program, like the INIT command being left intact, and the fast boot options.

The bug in the free space routine, the overwriting of memory problem, and the lack of a good manual all make Ultra Fast Loader a less than desirable package. Its fast boot options may make it attractive to vendors but for the general Apple user who wishes to speed up all his functions and do so reliably there are better choices.□

TLOAD —	fast loads all text files (random or sequential)
TLIST —	lists the TLOADed file to the screen or printer
DUMP —	dumps HEX and ASCII to the screen or printer
DISA —	disassembles memory to screen or printer without the need to get into the monitor
AL —	displays (any) program address and length

The starting address or length can be specified for the TLIST, DUMP, or DISA commands using either A or L (A\$ or L\$). The rate at which the screen scrolls can be controlled using various keys on the keyboard, from very slow to very fast or even paused. The displays can also be used with 80 column cards. The command HIDOS moves David-DOS onto the RAM card and adds two more commands; FIND, for searching 64K of memory for a HEX sequence, and DATE, for Mountain Hardware clocks. All David-DOS commands are usable from within programs but the version reviewed here stopped program execution when the command was completed. This will be fixed on the final version so that any command can be used under program control and then the program will continue.

Installation can be made to any INITIALIZED disk and you can select several options of the DOS you wish to install, i.e. complete David-DOS with or without free space, or fast loading only with or without free space. With David-DOS installed you will always be able to tell what DOS is active and whether it has been moved to the RAM card. The CATALOG command can be accessed with a slash (/) instead of typing the full command.



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During this preliminary evaluation only two problem areas were discovered: 1) the POSITION command had been accidentally disabled and 2) the slot search routine turned on my MicroModem II and affected my Videoterm 80 column card. Both problems will be repaired in the final version. Except for the lack of the INIT command David-DOS provides many extremely useful features in a well implemented DOS. □

### SUMMARY

For a comparison of access times for the seven programs reviewed here see the attached chart. These timings should be used as a guide to the degree of speed-up available with each program. In advertisements you will see statements such as "a 500% improvement in disk access times" but almost none of our timings approached that figure. Percentages are not provided, since they are meaningless, whereas the actual wait on the disk to complete its task is where interest really lies. We have provided timings for load/saving a large (59 sector) Applesoft BASIC program, a large binary game (114 sectors), a 34 sector HIRES picture file, read/writing a large (58 sector) sequential text file (of programs reviewed only Diversi-DOS improves text file times), and BRUNning the commonly used FID program from the DOS 3.3. System Master disk.

Not all the programs reviewed can be used with every program written for the Apple. Most protected software cannot be used with DOS speed up programs since it will overwrite the changes in

memory when the game or whatever is booted. Obviously to make the necessary changes directly on the protected disk is asking for trouble. Some unprotected software will not work properly with all DOS enhancements. Some of the fast loaders may destroy the DOS buffers if an Integer BASIC program is loaded. Keep these limitations in mind when choosing your DOS enhancer and when reading our recommendations which follow.

Of the seven programs reviewed so far, both reviewers agree that Ultra Fast Loader is unacceptable as a fast loader when compared to the other fast loaders. Even though the INIT command is left intact, the potential for overwriting memory seriously hampers its safe use. Its fast boot capabilities can be useful, however, in some instances where a tremendously fast booting disk is required and no other features are required. Of the other fast loaders only (Turbocharger and Hyper-DOS), Turbocharger is more useful (and safest) even though the INIT command is disabled. If you need a fast saving capability in addition to fast loading then you must choose between TDE and Diversi-DOS. TDE has the better documentation and a free space routine but it also has a higher price tag. If you do a lot of work with text files then your only choice is Diversi-DOS. David-DOS, while a fast loader (and a minor fast saver), has so many other features that it is more comparable to TDE than the other fast loaders. It will definitely receive a more thorough evaluation when the product is finally released. At half the price of TDE its features may make it the best choice of all. □

## DOS ENHANCERS COMPARISON CHART

(all times in seconds)	LOCKED	FAST BOOT RAM CARD? NORMAL/LOAD	INIT DISABLED	FREE SPACE	FP BASIC PROGRAM (59 SECTORS) LOAD / SAVE	BINARY PROGRAM (114 SECTORS) BLOAD / BSAVE	HIRES PICTURE (34 SECTORS) BLOAD / BSAVE	SEQUENTIAL TEXT FILE (58 SECTORS) READ / WRITE	FID BRUN
Normal DOS 3.3	No	No 3.5 / 17.3	No	No	15.5 / 22.0	29.3 / 41.0	9.5 / 14.9	49.0 / 51.0	6.6
Ultra Fast Loader \$29.95 Rating: B-	No	Yes 3.8 / 4.4	No	Yes but wrong	4.7 / ---	8.8 / ---	4.1 / ---	--- / ---	3.5
Turbocharger \$29.95 Rating: B+	No	No 3.5 / 17.3	Yes	Yes	4.8 / ---	6.8 / ---	3.5 / ---	--- / ---	3.0
The DOS Enhancer \$69.95 Rating: AA	Yes/No	Yes 3.4 / 6.5	No	Yes	4.5 / 8.9	7.2 / 14.2	3.6 / 5.6	--- / ---	2.6
HyperDOS \$19.95 Rating: B-	No	No	Selectable	No	4.5 / ---	7.0 / ---	4.0 / ---	--- / ---	3.5
Diversi-DOS \$30.00 Rating: A-	No	No	No	No	3.5 / 5.0	6.0 / 8.0	3.0 / 4.0	15.0 / 19.0	2.0
David-DOS \$39.95 Rating: RAAA	No	No	Yes	Optional	4.7 / 20.8	7.1 / 39.4	4.1 / 13.0	5.3 / ---	4.0

Note 1 Speed for the TLOAD command

Timings were done with a digital stopwatch.

Blank entries indicate no change from standard Apple DOS.

TDE's master program is locked, utilities diskette is not.

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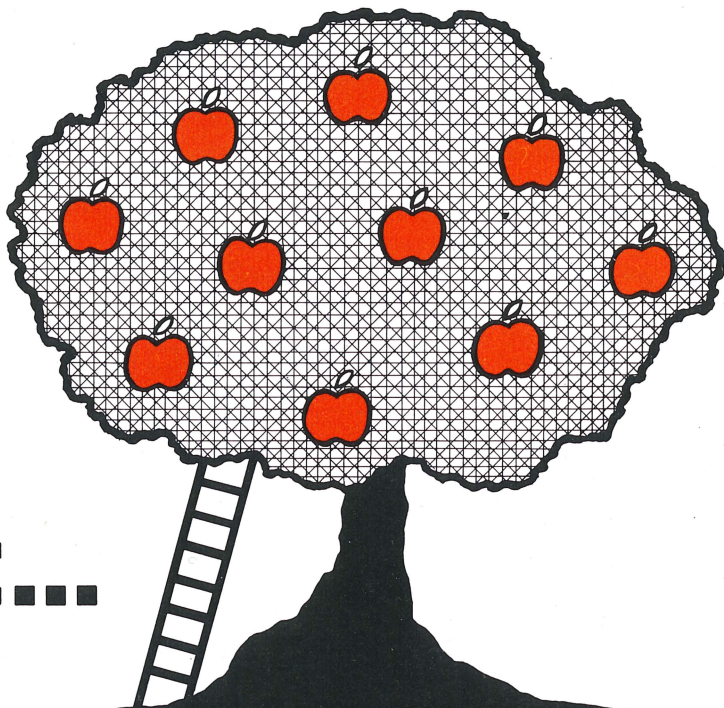
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Why would anyone want an Integer BASIC compiler? Is Integer BASIC still used? There are some cases where integer arithmetic is all that is required; for example in the typical game. If it requires HIRES graphics, the result of any calculation will be scaled to be between 0 and 279 or 0 and 191. It would certainly be possible to pre-scale the numbers by, say, 1000 before performing any calculations. There would be plenty of precision left for the graphics coordinates. Even if the transcendental functions, sin, cos, tan, etc., are needed perhaps approximations would do (in the case of graphics). Even the simplest approximation,  $x = \sin(x)$ , is within five percent at .5 radians (30 degrees). All of this may seem like a lot of work just to use

an "obsolete" language. So what is the tradeoff? First and foremost, Integer BASIC programs are typically twice as fast as those written in Applesoft BASIC. Integer doesn't directly support HIRES graphics; the machine language graphics routines must be used. Machine language, already compiled code, means speed, and that is probably the main reason to be interested in a compiler.

The following two packages compile Integer BASIC into machine code or near machine code. Each has its own set of extensions to add some of the commands an Applesoft user might feel are missing from Integer BASIC. Read on.

## FLASH!

By Mike Laumer  
Laumer Research  
1832 School Rd.  
Carrollton, TX 75006  
214-245-3927

\$79.00  
\$39.00 (Runtime Source)  
Machine Language  
48K, DOS 3.3  
Unlocked  
Rating: A+

### THE COMPILER

To run the compiler simply BRUN FLASH and answer the questions as they appear on the screen. FLASH! will compile memory to memory, memory to disk, disk to memory, and disk to disk. A RAM card can be used by the compiler for temporary storage during the compilation process. The runtime code may be included or left out of the disk file. A self contained code is created which may be run on an Apple without Integer BASIC. This is not true with the Applesoft compilers. The programmer may compile with or without language extensions and create a symbol table list, line number list, or assembly language list (compatible with the S-C Macro Assembler II, or S-C Assembler II 4.0). The listing may be directed to a printer. Other commands allow memory management, such as skipping over the HIRES pages.

The ability to create assembler source code could be used as an

### INTRODUCTION

The FLASH! compiler compiles Integer BASIC source code into 6502 machine code for a considerable improvement in execution speed. FLASH! can also create assembler source code compatible with the S-C Assembler II 4.0. There are also many enhancements to Integer BASIC.

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aid in learning machine language programming. This could be a real plus, depending on your interest.

## ENHANCEMENTS

As with the IBC, strings may be dimensioned longer than 255 characters. INPUT variables preceded by \$ are treated as hex numbers and three new functions are available: WEEK (sixteen bit peek), CHR\$ (obvious), and HEX\$ (four character hex value). In addition, there are thirty-one statements that can be used in extended REM statements. Without itemizing them all, there are the screen display control commands, DATA and READ statements, RESTORE to a line number of a DATA statement, sixteen bit POKE, all of the Applesoft HIRES commands, WAIT or delay command, GET, TONE, and NOTE. It is evident that FLASH! BASIC has many enhancements that even Applesoft doesn't have.

# Integer BASIC Compiler

By Chris Galfo  
 Synergistic Software  
 830 N. Riverside Dr., Ste 201  
 Renton, WA 98055  
 206-226-3216

Machine Language  
 32K, DOS 3.3  
 Partially Locked

Rating: A

## INTRODUCTION

The Integer BASIC Compiler (IBC) compiles Integer BASIC to create pure Galfo Stack Language (GSL) code or mixed 6502 and GSL code. In either case, the execution speed is considerably improved over Integer BASIC.

Obviously, you must start with a working Integer BASIC program. IBC allows certain extensions, to overcome some of the shortcomings of Integer BASIC, which will be discussed later.

## THE COMPILER

IBC comes on two diskettes: a system disk (unlocked) and a compiler disk (locked). The system disk must first be booted and the Integer BASIC program to be compiled loaded into memory. Then IBC is BRUN. The program asks that the compiler disk be placed in the drive and further questions are asked. One of these 'optimize for speed,' depending on how it is answered, will generate pure GSL code or mixed GSL/6502 code. The mixed code will execute faster than the pure GSL code. Another option generates a disassembled listing of the program in symbolic code. After the compiler is finished, the length of the object code is reported and a starting address is chosen. The code is then moved to the appropriate memory location and it may be saved to disk or immediately executed. The generated code is relocatable to any 6502 page boundary. The largest programs that can be compiled are 25K (48K RAM) or 36K (DOS on RAM card). The object code is approximately twenty-five percent smaller than the source, using the pure GSL option. A program AUTO COMPILE is included on the disk to construct an EXEC file for automatically compiling and BSAVing a program. This requires a two drive system.

## ENHANCEMENTS

A version of the HIRES graphics routines, modified to run with compiled code, is included on the disk. The Integer BASIC program can be debugged in the regular way using the normal routines with the modified routines added prior to compilation. As stated in the introduction, you have just been forced to use some machine language code in your programming, which was the object in the first place.

IBC allows strings to be dimensioned up to 32767 and by a clever trick lets you set aside a type of common block similar to the way the EQUIVALENCE statement is used in FORTRAN. Other enhance-

The option allowing the creation of an assembler source code should not be taken lightly. A serious programmer, willing to delve into machine language programming, can further increase the speed of execution of the compiled program by recoding some of the code more efficiently. It is claimed that an additional two to four — fold increase in speed can be realized by doing some optimizing. A beginner could use this option to help learn machine language.

## DOCUMENTATION

The sixty half-sized pages constitute both a learner's guide as well as a reference manual. All the options are very clearly explained with every effort made to explain the full use of each option. There is a four page glossary, five appendixes, and a few pages devoted to a discussion of bugs in Integer BASIC and the programmer's aid ROM and how to fix them in the RAM versions of each. In my opinion, it is far more than a simple instruction manual. □

ments include CHR\$, GET, and a KEYboard input function. A "DSP keyword" statement gives control over the screen display features. The keyword can be any one of eight words: HOME, CLEAR, INVERT, NORMAL, FLASH, FULL, MIXED, or LO, with the obvious meanings.

Even though IBC is locked, there are different versions for running from slots 4 or 5 (for hard disks) included on the system disk.

## DOCUMENTATION

IBC comes with a forty page, half-size booklet. The operating procedures are clearly described with examples and sample screen messages. Several pages are devoted to the use of the HIRES graphics routines from Integer BASIC. Two pages contain the compile-time error messages and possible causes of each. Most errors will have been detected by the BASIC interpreter long before the compile stage. An Appendix includes benchmark program execution times for Integer and Applesoft BASIC programs compared to the two optimization options of the IBC. In either case the difference in speed is typically a factor of ten. I will discuss this more fully in the summary and comparison with FLASH!. □

## Summary

As with every evaluation of two fine products, neither of the Integer BASIC compilers is a clear winner. Let us discuss the speed of the compiled programs. The following chart displays runtime and size of three different programs compiled by both of the compilers.

	Program A		Program B		Program C	
	time seconds	size sectors	time seconds	size sectors	time seconds	size sectors
IBC						
size opt.	3.2	9	20	4	3.3	3
speed opt.	2.9	20	17	5	2.9	3
FLASH!	4.2	18	20	4	5.6	3
Integer BASIC	18.6	10	238	5	28	2
Applesoft	N/A	N/A	298	5	44	2

Program A was the color demo program from the system master provided with the disk II system. The time was that required to run the hyperbola program through one complete hyperbola, calculated from the average of ten changes. Program B was the Sieve of Eratosthenes which computes all the prime numbers from 3 to 16000. This program was published in Byte (Sept 1981) and was furnished as a demo program with the FLASH! compiler. Program C was from a set of benchmark programs published in Call —A.P.P.L.E. (Mar/Apr 1980) and published in the IBC manual. The sizes shown are not in-

cluding the routine package which is an additional 15 sectors with IBC and an additional 20 sectors with FLASH! The Applesoft times and sizes are only included for reference.

From the chart, it is clear that a program compiled with the IBC (optimized for speed) is faster than the same program compiled with FLASH! You do pay extra for the speed. The size differences between the two is not appreciable, although the runtime package is

larger with FLASH! and this could make a difference with large programs.

FLASH! has several features not found in IBC: the ability to compile from and/or to disk, the option to create assembler source code, and an unlocked disk. FLASH! includes a number of enhancements in its extended REM statements. IBC is the clear winner on speed, but FLASH! has more features and a higher performance to price. □

## P-Term

By Joel M. Kunin and Bill Blue  
Southwestern Data Systems

P.O. Box 582  
Santee, CA 92017  
714-562-3670

\$129.95 (Introductory)

Apple Pascal

Pascal hardware configuration

Unlocked

Rating: A

*Reviewed by John Mitchener*

### INTRODUCTION

P-Term is the Pascal version of the Professional series of communications software from southwestern Data Systems. The other two packages, Z-Term and ASCII Express, have been reviewed previously. It has all of the capabilities needed for virtually any communications need, including a capture buffer, protocol file transfers, terminal emulation, and keyboard macros.

### HARDWARE COMPATIBILITY & CONFIGURATION

P-Term is compatible with many of the peripheral cards available for the Apple. Since this is a Pascal program, the Pascal slot assignment standard must be followed (i.e. printer in slot 1, communications interface in slot 2, and 80-column or terminal interface in slot 3). The following communications cards are supported by P-Term:

- Hayes Associates Micromodem II
- Apple Communications Card
- Apple Super Serial Card
- SSM AIO board
- CCS Asynchronous Serial Board 7701A (or D)
- ESI Apple LYNX system
- Novation Apple CAT
- Novation Apple CAT external Bell 212 1200 baud
- Hayes Associates SmartModem (w/compatible interface)
- Mountain Computer CPS card

As with many of the communications programs, P-Term will not make use of the clock function of the Mountain computer CPS card, and the card must be located in slot 2. If you have an Apple that has a wide variety of peripherals, you should be aware that there may be incompatibilities with a particular software package. This is especially true of peripherals that require software drivers. The main consideration with P-Term is whether all of your peripherals are completely compatible with the Pascal operating system.

For many systems the automatic configuration is all that is necessary to get the program working. There may be some changes that you need to make to work with a particular host computer or non-standard peripheral card. Changing the configuration is accomplished by altering the values in a Pascal text file and then running another Pascal program to install the new configuration. The con-

figuration file also may be used to set up terminal emulation and keyboard substitutions. If all of your peripherals are driven by on-board firmware, P-Term will probably be able to recognize the boards, and no change in the configuration file will be necessary.

### MENUS AND COMMANDS

Like the other two programs from Southwestern Data Systems, P-Term has two command menus. The menus are always available; however once you have learned the command structure, the commands may be entered without having the menu appear on the screen. In my opinion, this is a feature that should be included in all software packages. The casual user will have the simplicity of the menu, while the experienced user can use the program without having to put up with the repetition of menus. The main menu features the commands that are most commonly used, as follows:

C - Clear buffer	M - Macro file select
D - Dial system	P - Printer on/off
E - Echo-duplex full/half	R - Copy on/off
G - Get file protocol	S - Send file
H - Hang up phone	W - Write buffer to disk
I - Catalog disk	X - Exit program
J - View file on disk	Z - Display sub menu
L - Set default volume	

The dial command has several useful options including redial the last number dialed, redial x number of times and notify you by beeping the speaker when a connection is established, or keep redialing indefinitely until a connection is made. A phone number stored in a macro may also be dialed.

### SECONDARY MENU

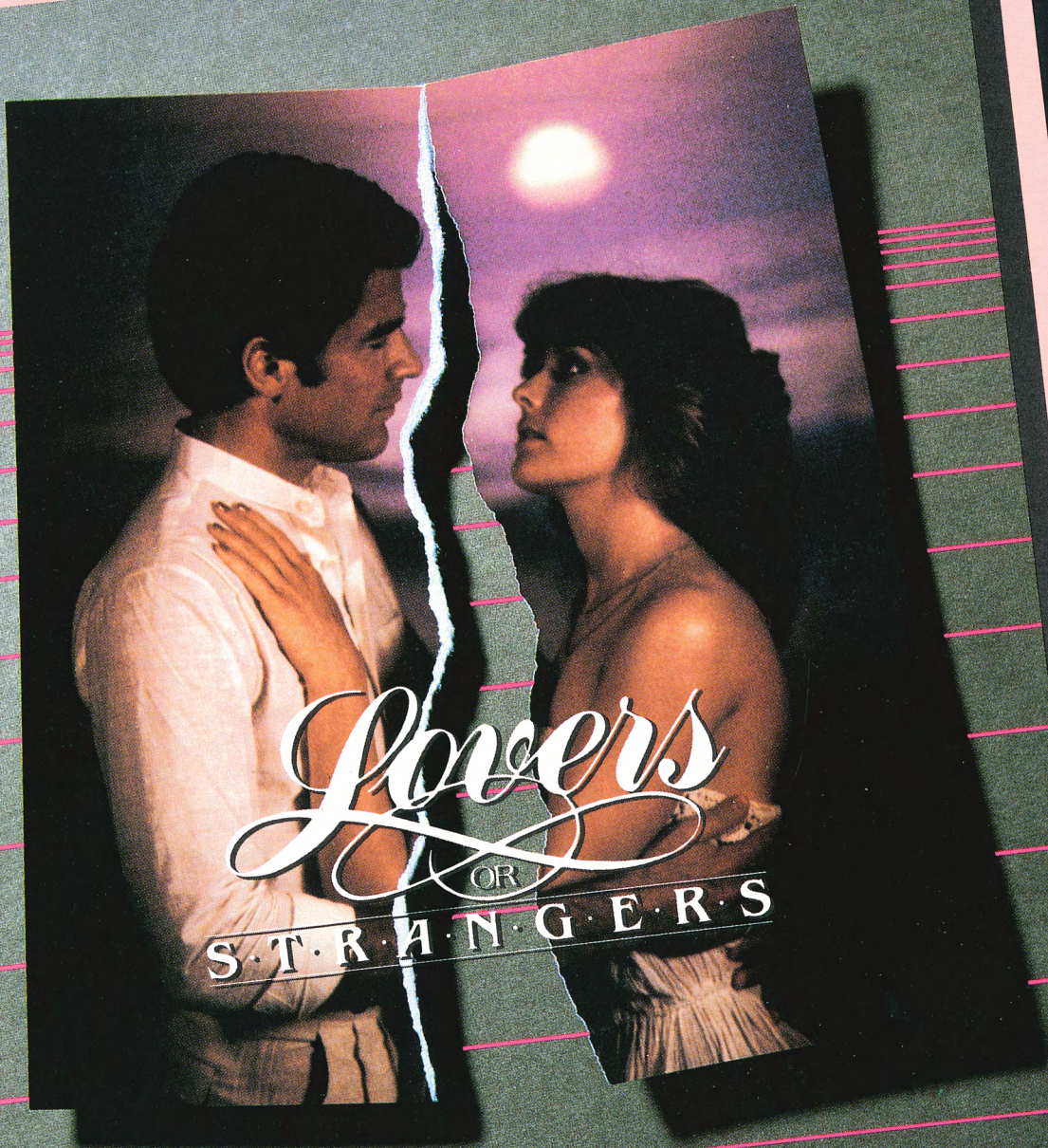
The secondary menu consists of the following commands:

+ - Answer phone	Z - Screen format on-off
A - Show control characters	! - Auto disconnect on-off
B - Baud rate change	\$ - (Terminal) Emulation on-off
K - Chat mode on-off	" - Keyclick on-off
N - Set delay after Carriage Return	@ - Apple CAT voice modes
O - Auto-save on-off	^ - Apple CAT port change
T - Transpose backspace/rub	/ - Do CRC (Cyclic Redundancy Check)
	1 - Display main menu

A useful option shown on the secondary menu is Answer Phone. When this option is selected, the system is available for limited remote access. A caller to the system is asked for a password that is defined in the configuration file mentioned earlier. Once the correct password has been entered, the caller may display the currently logged directory, send or receive a file using the Christensen protocol, view a disk file, or send text to be saved on the disk. You cannot do everything that you might like with the system, but it does provide a means of entering programs, leaving messages for someone else, or retrieving messages that have been left for you.

The terminal emulation feature provides flexibility for users of mainframe computers that have programs which make use of the





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cursor addressing capabilities of many of the terminals currently available. An example is a screen-oriented text editor. Many of the mainframes have the capability to recognize a wide variety of terminals. The 80-column cards for the Apple are most similar to the DataMedia-type terminals, so if the host that you work with doesn't recognize that type, you can use the emulation feature to fool the host into thinking that you are using a terminal that it can recognize.

## DATA TRANSFERS

P-Term supports two different methods of transferring data between the Apple and other systems. The first of these is referred to as the Standard mode and may be used with systems that do not support protocol transfers. Files may be sent a line at a time or a character at a time, both with user-definable handshaking. This mode is most useful for sending files or messages to the Source or to a bulletin board system. For those files that you want to be accurately transferred, the Christensen protocol is available. The host with which you are connected must be running a compatible program such as XMODEM, LMODEM, UMODEM, or one of the Southwestern Data systems Professional series programs. Each 128 byte block has a checksum computed and after transfer of that block, the checksums are compared. A failure to match results in a retransmission of the block. This is the most accurate file transfer mode currently available on microcomputers.

Receiving files may be done using either the Christensen protocol, if the host has the capability, or anything coming in over the modem may be saved in the capture buffer and written to disk. If the host will recognize XON-XOFF characters to stop transmission, P-Term may be commanded to execute an automatic save to disk when the buffer gets full.

## MACROS

A difference between P-Term and the other Professional-series terminal programs from Southwestern Data Systems is in the number of keyboard macros elements that may be defined. You can define up to 26 sets of 26 different commands per macro compared to twelve in AE and ZTERM. Setting up macros is not as simple with P-Term as it is with AE because there is not built-in editor in P-Term. Of course, the Pascal editor is readily available. Once the text file has been created, you must run a program to make the new macro information available to P-Term. The macros may be defined to log on automatically to a system and execute a series of commands, both to the remote system and to P-Term itself.

## DOCUMENTATION

P-Term documentation consists of 108 looseleaf pages. The instructions assume that you have a working knowledge of the Pascal operating system so, if you are a newcomer to Pascal, you will want to have your Pascal reference manual at hand. The four-page table-of-contents serves as the index, and the individual sections are divided with labeled tab sheets. There is some guesswork involved in trying to find specific items that are not listed in the table-of-contents.

## UTILITY PROGRAMS

Several utilities are included on the P-Term disk to complete the operation of the system and to enhance its usefulness. A program called MAKEPTDATA.CODE uses the information in the configuration file and the macro file to make the information available to P-Term. The configuration and macros may be changed at any time simply by changing the files and running the MADEPTDATA program again.

Since the format of Pascal and CP/M files are different, some method of conversion is necessary if you plan to transfer Pascal files to a CP/M system or vice versa. This program is furnished and converts file formats in either direction. It may be used to preprocess files before transfer or to postprocess files that you have already captured. There is no program with this system to convert to standard Applesoft format.

There is a set of programs to patch the operating system to correct inconsistencies that impact on the use of P-Term with the Pascal operating system. This includes a program to fix a file size in the Pascal directory if the number of bytes in the last data block is not correct after a download. Other programs are to correct an interrupt bug and to allow Pascal to recognize the standard shift-key modification.

## EVALUATION

P-Term is a communications package that contains all of the elements of a good terminal program with some additional features that make it outstanding for use in the Pascal environment. It includes the Christensen protocol to make transfers accurately between itself and another system running a compatible program. The only drawbacks to the program are that you must use the Pascal system editor to modify the configuration and macro files. While this is an inconvenience, these files are normally established once and rarely modified. If you have the need for Christensen protocol and want a full-featured terminal program that operates under Pascal, P-Term is an excellent choice. □

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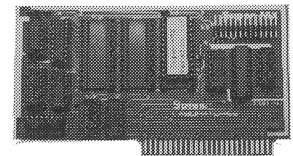
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## Chapter One: Hello World

One of the results of the incredible growth of personal computing is *Peelings II* and one of the results of the incredible growth of *Peelings II* is this column. In these pages over the next months, you will find not software reviews, not editorials, but rather a sort of "Apple Tutorial".

Now I need to elaborate. "The Anything Machine" will not be a tutorial in the usual sense. It will not be a course on how to use your Apple (or at least not simply this). It will not be condescending, which is an adjective that often applies to things with the label "tutorial" attached to them. Furthermore, it will not be a technical nuts-and-bolts-and-dirty-tricks attack on Apple operation or programming. It will not be limited to a specific language or application. It will be neither a "recipe book" of things to do to your machine, nor a useless collection of generalities. So what is it?

You can think of "The Anything Machine" as a journey through Computer Science, with the Apple Computer as a vehicle.

This column is written for the novice and experienced computer user alike: for anyone who is curious about the *concepts* behind

computing, and their logical *application* to real life.

A journey implies an itinerary, and I have one. In this first installment' computer "jargon" will be used as a springboard into the field. Instead of just defining terms, I'll try to introduce the terminology and use it to build a coherent (if very general) picture of computer science. After this, in subsequent installments, special topics will be treated, such as the kinds of hardware that can be purchased (and what they provide), programming in Applesoft, using the Disk Operating System (DOS), the Pascal language, and Assembly Language. Then we'll delve into special applications, such as graphics, data base management, and word processing. Wrapping it all up will be a look into the future of computing and how to get one jump ahead of future shock.

In order for a column like this to be of any value, it should not be a collection of new miscellany every month, but rather some sort of logical program, an itinerary. In a sense, all these places on the list are different, and can be appreciated as separate stops, but following the route a laid out will make the traveling easier.

Introductory remarks aside, we'll jump after the jargon. When the dust clears, it may be seen what is meant by "The Anything Machine."

### COMPUTER ORGANIZATION

Most discussions of computers begin with something like figure 1. This is rather profound, but not very satisfying. It shows the

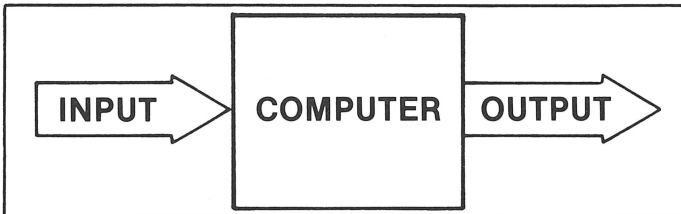
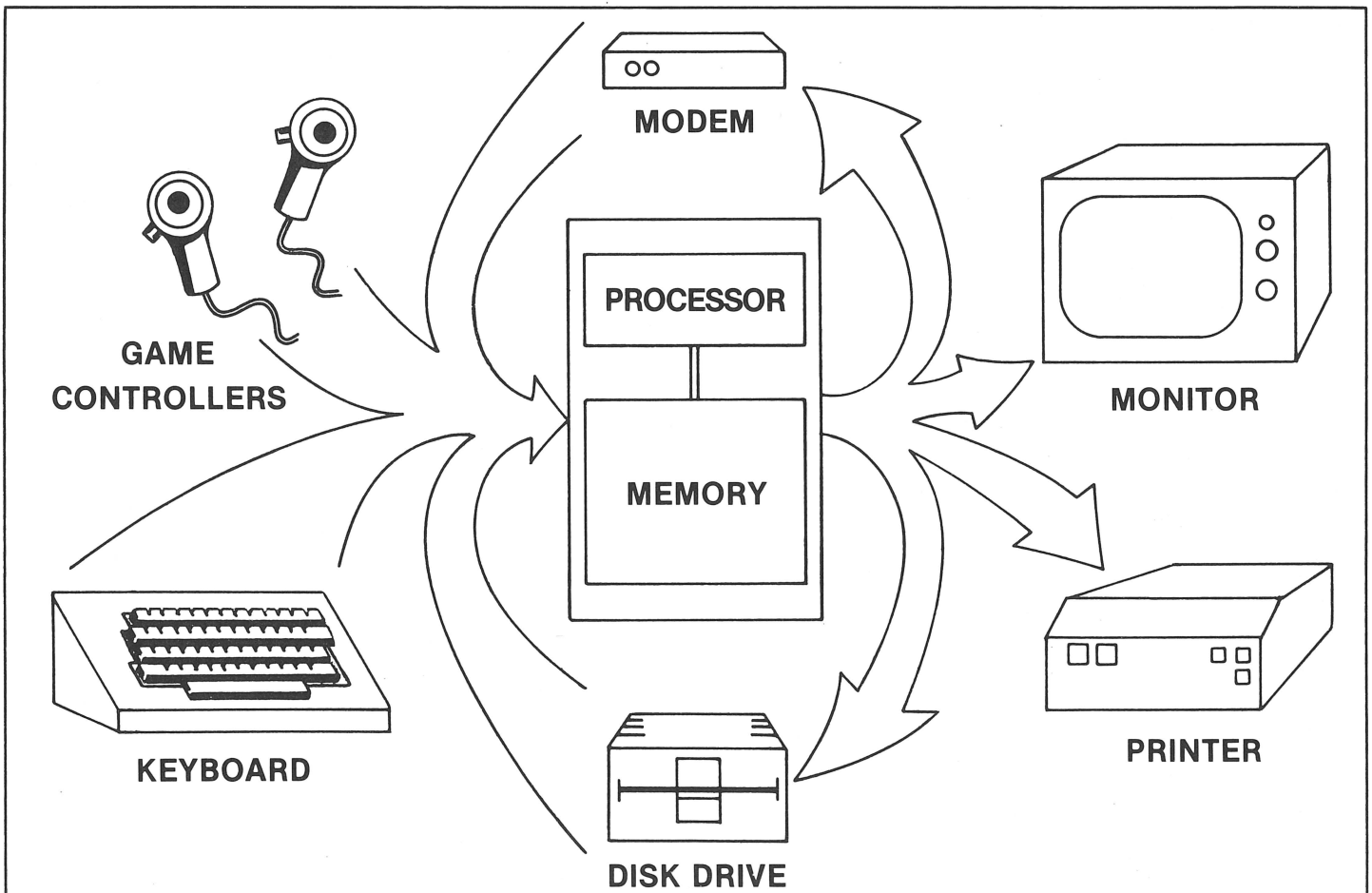


Figure 1. A simplistic view of computer organization. the computer is regarded as a device which receives information as input, and produces different information as output.

Figure 2. A more detailed view of computer organization, showing some specific input/output (I/O) devices. Notice that some devices can be used for both input and output.



computer as a black box which receives **input** and produces **output**, but it says nothing about the magic that goes on in between. So let's refine the picture. Figure 2 now gives the black box some internal structure, and gives some specific examples of input and output devices.

Let's turn to what's inside the computer first. I've divided it into two components: **processor** and **memory**. Basically, the processor is the "active" ingredient: it performs the *actions* we associate with the machine. Memory is where all its information is kept, both **data** and **instructions**. The processor is also called the central processing unit (CPU). In the case of a microcomputer, it may also be called the microprocessor or MPU. As in discussing any subject, three words are more confusing than one and so are routinely used. Memory is also called primary memory, main memory, core memory (an anachronism), or main store.

This **architecture**, or computer organization, is so universal that it almost goes without question, and one wonders if there is any point in discussing it. There is reason to discuss this memory/processor architecture, because it has some important consequences. Machines with this architecture are called **Von Neumann machines**. The processor **executes** sequence of instructions (a **program**), kept in memory. The instructions ordinarily cause the manipulation of data, also kept in memory.

Two things are apparent. First, instructions are executed **sequentially**, one after another; not simultaneously. Second, the program itself is in memory and could conceivably be manipulated as if it were data. In fact you could say that the program is just data for the processor: information about what to do next.

Back to figure 2. The input devices are regarded as ways to get programs and data into memory so that they can be used by the processor. However, most input devices are not directly connected to the memory. Instead, the computer must be running a program which continuously reads data from the input device and stores it in memory. (By the way, the anthropomorphic terms "read" and "write" are typically applied to mechanical devices, and simply mean "receive" and "store", respectively.) Two questions pop up. What is this program that's reading the input device? How did it get there in the first place?

## OPERATING SYSTEMS

The program that allows the human being to get information in and out of the computer is called an **operating system**. An operating system will usually do a whole lot more, and it will usually stay in memory all the time, so that if something goes wrong you can conceivably regain control of your computer. Operating systems are necessary for two reasons: it is not feasible to connect a person directly to the computer (specifically, its memory), and even if you could have direct access to the machine, you'd find it very tedious to get anything done. The computer understands electronics, and the human understands words. A device like a keyboard translates **characters** (letters and symbols) into electronic signals, but there must still be a program running so that the signals can be handled in some "intelligent" manner by the machine.

We have a question left to answer. How does the operating system get into the computer's memory in the first place? Obviously, the user can't place it there (at least not in the normal way), because to do that would require an operating system! The answer is that the computer pulls a trick known as **bootstrapping**, or "booting" for short. This comes from the expression "pulling yourself up by your own bootstraps." It's pretty obvious how that applies in this situation.

One possibility is to leave the operating system in the computer, and avoid bootstrapping. This can be done only if the computer's memory (or part of it at least) is non-volatile, which is to say it is not lost when the power is turned off. Typically, the kind of memory which can retain its contents without electrical power also cannot

be modified. It is called read-only memory, or **ROM**. A program placed in ROM will remain there virtually forever. (In contrast, volatile memory, the contents of which can be easily altered, and lost at power-down, is called **RAM**, for random access memory.) The problem with putting an operating system in ROM is that the ROM memory is plugged directly into your computer and cannot be easily replaced with something else. This means you cannot easily run a different operating system.

The bootstrap problem is generally solved in a more flexible way. Most computers have **disk drives** connected to them. The disk drives record data (and programs) onto a magnetic disk. Information on a disk is quite permanent — no power is required to keep it there — and yet can be modified at will. Furthermore, in the case of floppy (flexible) disks, new disk can be placed in the drive at any time. So a good solution to the bootstrap problem is to place the operating system on a disk, and have a ROM in the computer that reads the operating system into memory. For obvious reasons, this process is called "booting the disk".

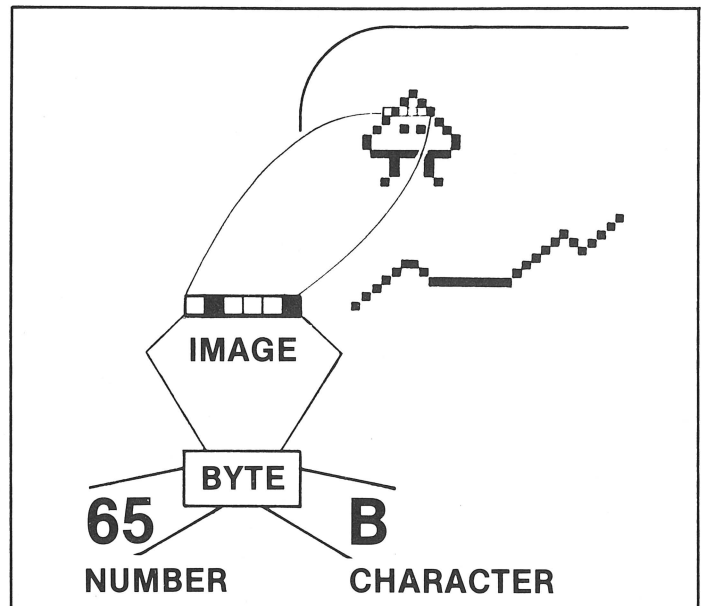
By the way, the only reason the processor cannot read all its programs and data directly from disk (and bypass memory altogether) is that disk drives operate much more slowly than memory. The time required to access memory is measured in nonoseconds (billionths of a second), the time to access disks is measured in milliseconds (thousandths of a second), or even seconds!

The Apple is an example of a compromise between operating system in ROM and operating system on disk. Originally, Apples were sold without disk drives, and disk drives are still not required. So some kind of operating system in ROM was necessary. The ROM operating system in the Apple will try to find a disk drive to boot when it first starts running. If it fails, it will execute the operating system in ROM, which is usually BASIC.

Oops! Isn't BASIC a programming language? It is, but it can also perform many of the functions of an operating system. It can help you enter programs and data into memory, it can help you run all the devices connected to the computer, and more. In fact, BASIC does a lot of things that are not strictly related to its function as a programming language. More on languages a bit later.

Meanwhile, back at the disk. If the Apple ROM finds a disk drive and boots it, an operating system will come into memory from

Figure 3. The byte is the basic unit of information in a computer. Its meaning depends on interpretation.





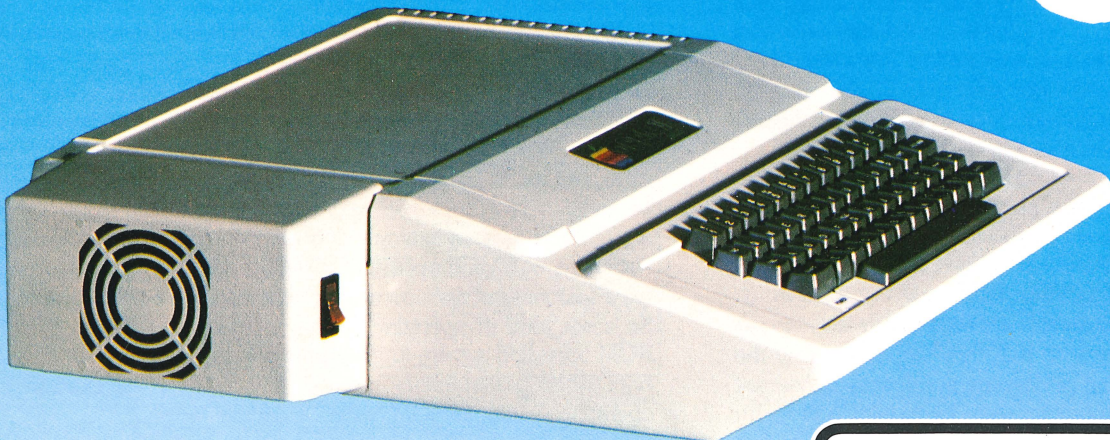
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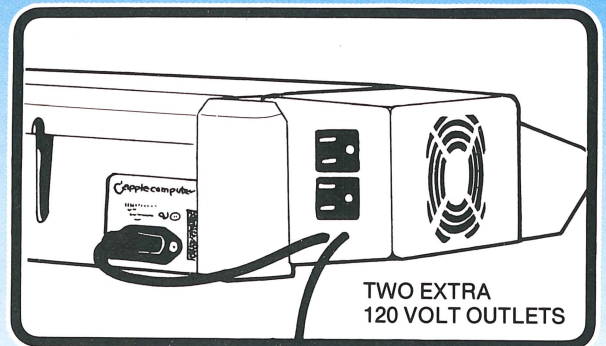
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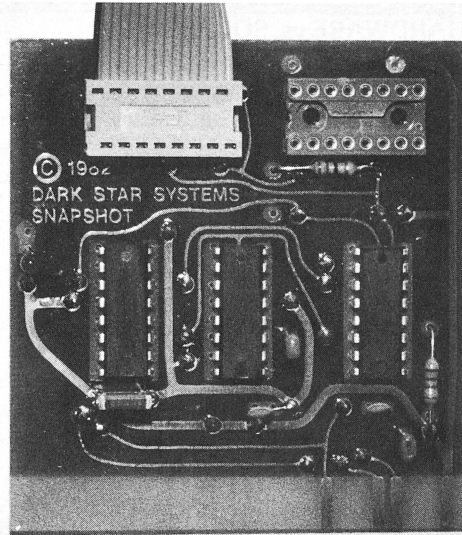
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# DARK STAR SYSTEMS

**P.O. Box 140, Dept. P, Amherst, MA 01004**



the disk. It could be Apple DOS (**Disk Operating System**). This operating system cooperates with BASIC (sort of!), and mainly just adds disk functions to the BASIC operating system in ROM. If the disk is a Pascal disk, an entirely different operating system will be loaded into memory. Notice that these operating systems that come from a disk are placed into RAM, and so disappear when the power is cut!

### HARDWARE vs. SOFTWARE

See how this discussion has progressed from basic computer organization, to architecture, operating systems, and bootstrapping. I have avoided discussing something that usually comes up quickly in discussions of computer science: the difference between hardware and software. The general public is acquiring these terms as part of its vocabulary, and intuitively most people feel that they understand the difference between **hardware**, which is mechanical or electronic, and **software**, which is a program, something less tangible. There are, however, no easy definitions.

Take off the cover of your Apple (turn off the power, just in case). All that stuff in there is obviously hardware. Or is it?

Just in from of the slots at the back where peripheral cards go is a black box, slightly longer than the others, placed horizontally on the printed circuit (PC) board. All the black boxes are **integrated circuits (ICs)**, and this particular one is the processor. Specifically, it is a 6502 microprocessor. Most of the other ICs on the Apple main board are memory. In front of the processor are six rather large ICs, which are ROM memory chips (inside each box is a small silicon “chip” which is the integrated circuit). These ROMs hold the bootstrap program, BASIC (either Applesoft or Integer), and some other programs too. Further forward are three rows of small ICs with a white rectangle painted around all of them. These are the RAM memory chips.

This is a lot of hardware. But what about those ROMs? They have programs in them. Programs are software. Or are they? And what is that floppy disk in the drive? Hardware? Software? In some sense, *everything* that is in a computer or used by a computer must be hardware: the machine could not deal with it otherwise.

On the other hand, we are familiar with the notion that programs are ideas, and that programming is the process of putting ideas into a computer and getting them to work.

In fact this is what computers are all about: they provide a mechanism for translating ideas into action, software into hardware, anything into something. Of necessity hardware and software must overlap, must merge.

Always in computers, abstraction builds on abstraction, the hardware works its way up to the human by means of abstraction; and the human works his way down to the machine by means of “de-abstraction,” putting ideas in a specific, definite form; programming.

### PROGRAMMING LANGUAGES

To explain that statement, and make it concrete, consider a programming language. BASIC is a programming language. What is BASIC? I’ve already intimated that it is an operating system of sorts, and I stated that an operating system is a program. Therefore BASIC is a program. When I say that BASIC is a program I do not mean that programs are written in BASIC. I mean that a program written in BASIC is interpreted by a program *named* BASIC. The idea here is that the Apple (specifically the 6502 processor), was not designed to understand programs written *in* BASIC. It understands only the language of the hardware, of the electronics. So a program written in BASIC must be interpreted, just as a speech at the United Nations must be interpreted, because the programmer and the processor speak different languages. The programmer speaks BASIC, the processor speaks something called

machine language (topic of a later installment). The program which serves as the intermediary between the human and the processor is called the BASIC interpreter, or BASIC for short.

That concept may be confusing the first time it is encountered, but it is extremely important. It is the reason why a single computer may be programmed in a variety of different languages. Along with each language is some kind of translator program. Such a program translates the program as written by the programmer in a programming language (or **high-level language**), into machine language, which the processor can process. The BASIC Interpreter is one example. The Pascal Compiler is another.

The translator program itself, of course, must be in machine language in order to run.

Well, it’s downhill from here on out, folks! We turn now to applications of computers.

### APPLICATIONS

Notice I haven’t talked about *numbers* at all. We are all told that computers only operate on numbers. Quite bluntly, that’s a lie. It’s an unfortunate one at that. A computer operates on *information*. It is the human’s responsibility (or perhaps a program’s responsibility) to interpret that information as numbers, text, pictures — anything at all!

This is why computers can be applied to so many different tasks. The information kept in a computer’s memory can be interpreted as virtually anything, and can be operated on in a nearly limitless number of ways.

A computer can produce **graphics** when the information in its memory is interpreted as a picture by some program or device. Manipulation of this information can result in animation: video games and video art. Color, detail and an illusion of three dimensions are all possible if there is hardware to display the graphics, and software to produce it.

A computer can be a **data base management system** when the information in its memory is interpreted as facts: numerical facts, names, words, ideas — well, just about anything. The programmer or software must make decision about how to organize a large data base for efficient access. Although they are fast, computers are not instantaneous, and a data base management system can display the same troubles — and miraculous advantages — of its prehistoric counterpart, the filing cabinet.

A computer can be a **word processor** when the information in its memory is interpreted as written text: a letter, article, or research paper. But because the computer can so easily manipulate the information in its memory, text can be rewritten and reorganized with practically no effort on the writer’s part. For the same reason it can possibly be erased with practically no effort (or premeditation!) on the writer’s part.

Computers store information in units called **words**. In the Apple, a word is equal to a certain standard unit of information, the **byte**. A byte can have any of 256 unique values, so you see it can carry information. Obviously, it can be regarded a number between 1 and 256 (or, more usually, between 0 and 255). Less obviously, it can be regarded as a single character of text. Since there are not more than 256 unique characters used in ordinary English text, the byte is quite adequate for this purpose. A byte may also be a certain pattern of dots on a graphics screen. Clearly, graphics would be uninteresting if only 256 unique images could be displayed, so a graphics image is generally composed of many bytes (see figure 3). Finally, a byte can be anything else you want it to be, provided you’re prepared to interpret it that way. In short then, it is the abstraction upward from the hardware that determines how we regard a computer’s actions. And because there are many programming languages, and many kinds of software, this abstraction can take almost any imaginable form.

The word “computer” is rather unfortunate. “Computers” can do

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so much more than "computations". In other (human) languages, words more related to the idea of "data" or "information", and less suggestive of calculation, are used.

I would go one step further. A computer, as a translator of ideas

into actions, is an "anything machine".

This has been a fast and sweeping overview of the scope of this column. Next time: the pieces of a computer system, getting the hardware together. □

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# UPDATE FOR THE APPLE GRADE BOOK AND A.E.N. GRADING SYSTEM

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## *Reviewed by Sandy Abernathy*

Both software packages were reviewed in the April, 1982 issue of *Peelings II*. Since then, both have been revised and updated. The intention here is to review the changes. For general information about the programs the reader should check the earlier reviews.

As an introductory comment prefacing the spring reviews, I had stated that I wasn't convinced that an electronic grade book would be valuable to a teacher, especially if a microcomputer wasn't readily available. I also expressed concern with disk security. This fall I kept both a paper grade book and an electronic gradebook to see if the latter would be useful, i.e., allow me to manage grades and reports more easily, quickly, etc. After both grade books were set up, the

time spent entering information first in the paper grade book and then in the electronic grade book was minimal. The electronic grade book was very useful. Averages for students, assignments, and classes were available as soon as grades were entered. Information could be retrieved and reports printed for individual students, single assignments or classes whenever needed. Students liked the individual, printed reports. All data entry and report generation was done at home so microcomputer availability and disk security were not problems. If a microcomputer is readily available, a paper grade book is kept and the teacher is reasonably careful with the data disk, an electronic grade book can be a valuable tool.

---

## THE APPLE GRADE BOOK, 2.4

---

by Jay W. Grosmark

**J & S Software**  
**140 Reid Ave.**  
**Port Washington, NY 11050**  
**516-944-9304**

\$34.50  
Applesoft  
48K or 32K  
3.3 or 3.2 DOS  
Unlocked

Rating B

The Apple Grade Book now supports 3.3 DOS, 48K and a printer. If 3.2 DOS or only 32K without a printer is available, the diskette can be returned for the appropriate package. The publisher states that software produced by the company is supported indefinitely. Those with earlier versions of The Apple Grade Book who wish an updated version can return their diskette, along with \$2.00 to cover postage, and receive a current copy.

Several additions and modifications have been included in the current 2.4 version. These include the following:

- 1) the program handles larger sets of data. A maximum of 80 students and 35 assignments for each of 5 classes are possible. If one category, such as the number of students, is less, the size of the other categories may be increased.
- 2) the disk can no longer be modified to accommodate more than

one teacher. This should prevent the diskette from being filled before the end of the grading period.

3) an elementary option has been added that allows the names in one class to be automatically written for another class. This is a class by class option so that classes with different names are possible as well.

4) classes can now be added or deleted at any time by using the "Corrections" or "Deletion" options.

5) when students are deleted, the word, "Dropped", appears in place of the name and all scores are deleted from the class scores. If the student should return to the class and the teacher must reinstate the student, the "Correct Spelling of a Name" option can be used to re-type the student's name and the student's scores will automatically reappear in the class list.

6) scores are now compared to the maximum score upon entry. If the score exceeds the maximum score, the user is asked if the score is correct. The user can reenter the score or override the question.

7) when reporting student scores, all individual student reports can be displayed before the user is returned to the main menu. This was not possible with the earlier version. In addition, the user has the option of requesting a list of each student's scores or all missed assignments or both. When printing student reports, the user has the option of printing each student report on a separate paper or saving paper and printing them continuously.

8) some directions say "Press Return" instead of "Hit Return".

Items that are still confusing are:

- a) numbers do not line up vertically in reports.
- b) when using the option, "Adding Grades", the user is asked to identify the type of assignment by number and any number is accepted

even though only 4 items are included in the menu. However, if a number other than 1, 2 or 3 is typed, it is categorized as a #4, "Miscellaneous", entry. Later in the sequence the user is asked to give the assignment a name but is limited to 7 characters. I would prefer to skip the first part if that would give me more space for the name of the assignment.

c) names must be entered and carried first name first. I keep a paper grade book with last name first. I would prefer the electronic grade

book to be the same as the paper grade book. A.E.N. Grading System has this option.

Overall, the program is easy to use, the documentation is clear and easy to follow and the reports are nicely formatted. I found no bugs while using the program. Apple Grade Book should provide a teacher with a satisfactory, easy-to-use electronic grade book for grading activities. □

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## A.E.N. GRADING SYSTEM II

---

by David H. Miller

Apple Educator's Newsletter  
9525 Lucerne St.  
Ventura, CA 93004  
805-647-1063

\$50.00

Applesoft

48K

3.3 DOS

Unlocked

Rating B

Apple Educator's Newsletter distributes the updated version of A.E.N. Grading System. The publisher states that any owner of the earlier version may return the first version and receive the updated version free of charge. Those owners who do not wish to return the diskette can receive a copy of the new version for \$5.00.

A.E.N. Grading System II now uses 3.3 DOS. The accompanying guide recommends that the user make back up copies immediately and use them as working copies. Up to 75 students and 32 assignments can be stored for one class. Expanded versions with up to 70 assignments and 150 students are available by contacting the distributor. The program diskette can be configured for one or two disk drives. If data is stored on the program diskette, it is recommended that no more than 3 classes of 30 students be placed on each program diskette to ensure adequate space for data during the grading period. The recommendation is made because of the size of the program. Since working copies are encouraged, this should not prove to be a limitation. With data stored on a separate diskette, lack of space should not be a problem.

Several modifications and additions have been made to the original A.E.N. Grading System. These are:

- 1) the printer bug has been removed.
- 2) the information about allowing teachers within a building to legally copy the program has been added to the documentation.
- 3) directions and information on portions of the program are clearer and formatting looks more professional.
- 4) names of assignments and maximum scores can be changed or corrected at any time.
- 5) if the user forgets the number or name of a class or types the information incorrectly, the program no longer ends. Instead, the user is told to check the catalog for correct spelling, the catalog is displayed and the user is returned to the program to reenter the information. Apple Grade Book circumvents this by displaying a menu of class names and having the user type the corresponding number.
- 6) although the teacher must enter a score for all students for all assignments, even though the student was excused from the assign-

ment, the teacher now has the ability to remove specific student scores at the end of the grading period. This is an improvement over the earlier version. I still like the Apple Grade Book's idea of allowing a "No Grade" option upon initial score entry.

7) students can be deleted and reinstated at a later time by using the "Add a Student" option.

8) in the April review, I commented on the "Failure Notice" option and suggested that this idea could be expanded to allow any range of scores to be reported. This idea has been included in the revised version and is called "Percent Group". With this option the user can specify a range of scores. Names of students and scores that fall within a specified range are sorted and reported.

9) the frequency curve is still a vertical list of numbers from 100 to 0 with tally marks to indicate student scores. With the new version, the user has the option of suppressing the total display and still receiving the statistics listed at the end. This is a paper and time saver.

10) classes can be merged to compute overall averages. This is helpful if the user has several sections of the same class.

11) another suggestion made in the original review was to include a display of all students and all grades given in a class. This has been included as the option "Full Class", under the Report section. No averages for students or assignments are included.

12) coding has been added as a report option. Student scores can now be reported by student name or by some type of coding structure. The latter is advantageous if grades must be posted.

13) relative weights of different assignments can be changed by using the "Modify Grades" option within the Utilities section.

14) A.E.N. Grading System files can be translated into DIF files in order to use other DIF compatible software. DIF files can be converted to A.E.N. Grading System files. This option was not tried.

15) routines to initialize a data diskette and to copy information are included within the Utilities section.

16) portions of the program use the term, "Press", rather than the term, "Hit".

Items that are confusing are:

- a) numbers are not lined up vertically.
- b) with the expanded capabilities of the program, the documentation needs to be reorganized to describe the program in a more complete and structured manner. A suggested format would be a section on general information, the tutorial, a reference guide in which each option is described in order and an index.

A.E.N. Grading System II is a more powerful program than the one reviewed last spring. No bugs were found this time. The guide stated that the program is being revised gradually to provide for structured programming. The program is easy to use and works now, but when the revision is complete and the documentation is reorganized, this program should be an even more valuable and versatile tool for the teacher. □



# Super-MX Interface Card

by John Spies  
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Lawndale, CA 90260  
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\$175 for basic card, \$30 for each additional 2-font EPROM  
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*Reviewed by Michael L. Weasner*

## INTRODUCTION

With the popularity of the Epson series of printers has come a multitude of software and hardware products that support the many features of the Epson printers but very few add features. Some add various fonts by using the Epson's graphics capabilities or make using the Epson considerably easier. None have really improved on the basic Epson until the SUPER-MX interface card from Spies (pronounced "speez") Laboratories.

Perhaps the only complaint ever heard about the Epson printers is that they are dot matrix and hence not really suitable for purposes requiring high quality text printing, so the user turns to a daisy wheel printer and gives up the outstanding graphics and speed of a dot matrix printer at a considerable increase in cost. Of course, there are a lot of Epson printers in use today and to have to buy an additional printer for high quality printing is usually beyond the means of most users. The solution is to improve the quality of the dot matrix printing and with the design of the Epson such a solution is possible; that is what the SUPER-MX card does.

## DOCUMENTATION

The SUPER-MX documentation is an Apple-sized 30-page manual printed using the SUPER-MX card and an Epson MX-80. Because of the quality of the SUPER-MX printing the manual is much more readable than dot matrix printing and approaches typeset printing. The manual covers installation and use of the various commands. While there is no index, the table of contents will refer you to the proper one or two page appendix for quick and simplified explanations of each option. Once the manual has been read the appendices will be the only part used. Since the command structure is easily used from the keyboard or from within your programs (or word processor) the manual is complete enough and is well written. Some minor errors were noted during this evaluation and will be corrected with an addendum to the manual.

## INSTALLATION

As with most printer interface cards, SUPER-MX can be used in any slot except 0 and installs just as any card. No modifications to your Epson or Apple are required. Additional font chips can be purchased at a later date and inserted in the empty sockets in the SUPER-MX card (the card must be removed and reinstalled).

## FEATURES

The SUPER-MX adds the following to the MX-80 (F/T) with Graftrax or Graftrax-Plus and the MX-100 with Graftrax-Plus:

- Roman font (standard)
- Letter Gothic and Orator Large fonts (optional)
- Script and Olde English fonts (optional)
- Pica or Elite printing in any font (standard)
- Graphics dump capabilities (standard)

See the sample printout for examples of each style. None of the

normal Epson print modes have been eliminated and the standard Epson mode is the default.

To initialize any of the SUPER-MX features from within text requires an "@^" to be inserted at the start of your document followed by the command you wish, i.e. @^@H for high quality pica printing in the default (Roman) font. Once initialized you can switch modes with single @-commands. Returning to the normal Epson modes is via the "@N" command. If you use a lot of at-signs in your text then the at-sign prompt to the SUPER-MX can be changed at the beginning to whatever character you wish as long as it has an ASCII value less than 63, including Ctrl-characters but excluding numbers. One very nice feature for those having word processors that prohibit using all the Epson control and ESCape sequences is that the SUPER-MX card will recognize the string "@E" as an ESCape character. Any of the normal Epson modes are therefore available from within all word processors. Alternatively the high quality SUPER-MX modes can be activated from the keyboard before the actual printing is begun. This feature means you can get high quality printouts from protected software without the need to setup the printer before RUNNING the protected program.

HIRES graphics dumps and text page dumps are possible from within your programs or from the keyboard. This mode is similar to the popular Grappler interface card from Orange Micro. Of course any RUNNING program that generated the HIRES picture must be exited before you can use the keyboard commands. The following graphics modes are available:

- |                             |  |
|-----------------------------|--|
| Dump page 1 or 2            | Rotate 90 degrees                            |
| Double size                 | Print picture with 4 lines of text at bottom |
| Emphasize for darker prints | Side by side (MX-100 only)                   |
| Invert (black for white)    | Set left margin                              |

While not a graphics command, the 40 column text screen can also be printed with simple commands from the keyboard or from within your programs.

Normal-sized, non-rotated, printouts will appear squashed in the vertical due to the dot-to-dot conversion of the Epson. Double sized printouts will print with a normal appearing aspect ratio and rival that of graphics dump software having the ability to specify the horizontal and vertical magnifications.

## THE GOOD NEWS AND THE BAD NEWS

All of the SUPER-MX modes as well as the normal Epson modes can be used in Apple DOS, CP/M, or Pascal without change, making the SUPER-MX card truly versatile. The card is warranted for 90 days and Spies Laboratories has demonstrated excellent customer support to date. The card is compatible with MXPLUS from Dresselhaus Computer Products (reviewed in the Nov 82 issue of *Peelings II*).

Some minor changes in the way you print text may be required. The SUPER-MX works on a line of text at a time (until a carriage return) and hence some printouts may be different than what you might expect. Example: when first using the SUPER-MX card I could not get some modes of PIE Writer to print as desired. The problem was that the SUPER-MX was changing high quality modes before I wanted it to. As long as you don't mix modes, or add a blank line if you do mix, then you will never have this problem. For the same reason, it is not possible currently to change modes in the middle of a line as you can with the normal Epson fonts. Some other changes were required in my data base program as a result of the way the SUPER-MX handles line feeds. This is not a problem but just something that one needs to be aware of when changing printer interface cards.

## Super-MX (cont.)

When dumping HIRES pictures with the keyboard commands you will get a SYN-TAX ERROR printed above your printout if you use the Ctrl-I or @ sequence since BASIC tries to interpret these. To avoid the error message you can use a PRINT statement with the same commands in quotes but this results in the PRINT statement appearing above your dump. While not a problem it does point out the benefit of doing your printouts from deferred mode. The capability of doing printouts at any time is useful and worth the distraction of the message being printed.

To get the highest quality text out of the dot matrix pattern it is necessary to slow the printing speed down, way down. The normal SUPER-MX prints at about 14 characters a second. The SUPER-MX also makes two passes per line which means that ribbons will be changed more frequently. Considering the quality of the printing the speed sacrifice is bearable. If speed is necessary but quality isn't (like program listings or draft documents) then the normal Epson modes can be used.

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 CONCORD, MA 01742**

## SUMMARY

For Epson printer owners the SUPER-MX card will add near daisy wheel text printing at a fraction of the cost of a new printer and without giving up any feature of the Epson. For those looking for a printer, the Epson now looks even better than it did before. If you need (or just want) better printing than is available from a dot matrix printer, then the SUPER-MX card in combination with the Epson printers will satisfy that need. The additional features and ease of use of the card as well as still having access to all the standard Epson features means the combination is unbeatable at the price. Highly recommended for Epson owners. □



**Scooter's Ø-Force external socket saves wear and tear on computers and game ports**

Computer game port access can be a real pain with opening the computer every time and risking damage to fragile plug pins on joy sticks and paddles.

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#ZFXP-3

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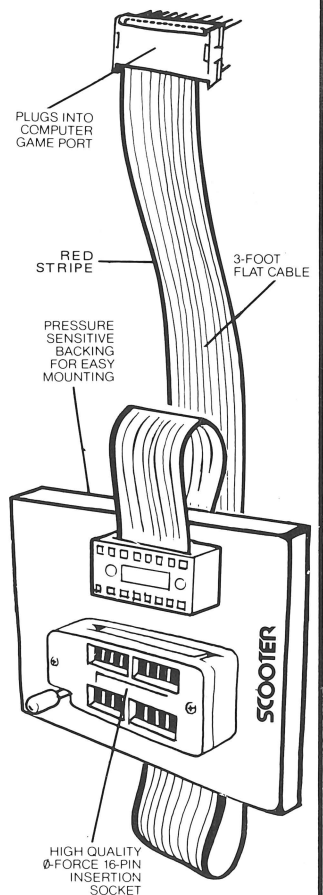
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- Extends game port outside computer with 3-foot cable.
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The following are samples of the SUPER-MX™ printing from Spies Laboratories. This line is normal Epson MX-80 dot matrix printing. The dots are easily visible and detract from the quality of the text. It is good for quick printouts of drafts or program listings.

This is an Epson DOUBLE STRIKE line. While it is darker than the normal printing above you can still see the individual dots.

This is an Epson EMPHASIZED line. For 10 characters per inch this mode provides the best text printing with the normal Epson. Two passes per line are required but the text still isn't quite good enough in many uses.

This line of Epson COMPRESSED characters demonstrates what is probably the best available text mode with the standard Epson but it is 17.16 characters/inch; probably too small for most uses.

This is the SUPER-MX ROMAN font and is printed in standard pica style (10 characters per inch). As you can tell the quality of the printing is tremendously greater than the standard Epson printing. In fact, you have to look very close to even tell that it wasn't printed with a typewriter.

This is the LETTER GOTHIC font in pica. It presents a clean style of font that is also modern looking. Good for general letter use.

This is the ORATOR LARGE font in pica. If you look closely you will notice that the upper case letters are taller than the lower case letters. THIS MODE IS BEST USED WHEN ALL UPPER CASE LETTERS ARE USED SUCH AS FOR TALKING PAPERS OR BRIEFING CHARTS.

This is the SCRIPT font in pica. This special purpose font looks nice in letters to Mom on flyers. Very clean and well designed.

This is Epson ITALICS printing in EMPHASIZED mode for comparison to the SUPER-MX SCRIPT font. It is printed at 10 characters per inch.

This is the OLDE ENGLISH font in pica. While its use is limited it is interesting. Somewhat difficult to read as Olde English is supposed to be.

This is the ROMAN font in elite (12 characters per inch). It is even better than the pica printing. If you didn't already know it you would never realize this was printed on an Epson.

This is the LETTER GOTHIC font in elite. Again a very clean look. All the fonts can be printed in elite as well as pica.

This is the ORATOR LARGE font in elite. STILL LOOKS BEST IN ALL CAPITALS.

This is the SCRIPT font in elite. Nice if you need 12 characters per inch and still want script.

This is the OLDE ENGLISH font in elite. Still difficult to read and probably won't get much use.

Now back to SUPER-MX Roman pica mode. As you can tell the print quality from the SUPER-MX card is really an improvement over the normal Epson modes. Even without purchasing the additional font EPROMs (Letter Gothic/Orator Large or Script/Olde English) you will have increased the capabilities of your Epson printer and probably eliminated the need for a letter quality (daisy wheel) printer.

(Sample printout from Super MX-Interface Card)

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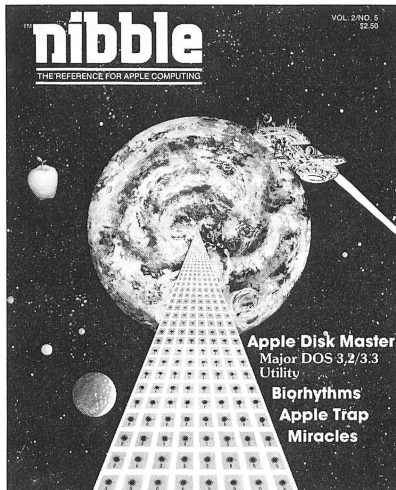
	D.P.	P.F.S.	D.B. MASTER		D.P.	P.F.S.	D.B. MASTER
<b>GENERAL INFORMATION</b>				<b>REPORT GENERATOR</b>			
Cost of Program,	\$99.95			Design Report To User Specifications	YES		
Cost of Utilities Program <i>(Included In Program)</i>	\$00.00			Level Breaks Allowed At Users Option <i>(Up To 4 Level Breaks Per Report)</i>	YES		
Cost of Reports Program <i>(Included In Program)</i>	\$00.00			Designate Font To Be Used In Report	YES		
<b>Compatible With Letter Perfect (tm)</b>	YES			Boldfacing Allowed In A Report <i>(With Dot Matrix Printer)</i>	YES		
<b>Word Processing</b>				Mathematical Formulas Allowed In Report <i>(Example, Field 'x' + Field 'y' = Field 'z')</i>	YES		
Menu Driven <i>(Very User Friendly)</i>	YES			Auto Page Numbering Allowed In Report	YES		
Complete Documentation <i>(Manual Tabbed And Indexed)</i>	YES			Auto Date Entering Allowed In Report	YES		
<b>Single Load Program</b> <i>(No Swapping Of Program Diskette)</i>	YES			Repeating Characters Allowed	YES		
Machine Language <i>(Extremely Fast Operation)</i>	YES			Optional Level Breaks and Page Breaks When Sort Values Change	YES		
Can Use Single Disk Drive	YES			Up To 7 Lines Allowed For Header on Each Report	YES		
Can Us Multiple Disk Drives	YES			Up To 2 Lines Allowed For Detail Information On A Report	YES		
Ability To Design Screen Mask <i>(User Designs Arrangement Of Data)</i>	YES			Variable Spacing Allowed Between Data On Items In A Report	YES		
Full Keyboard Editing Available <i>(Delete/Insert A Character; Go To End/Beg. End of Line; Fine 'n', TAB, ETC.)</i>	YES			Multiple Fields Allowed In A Report <i>(Number, Date, Alpha, Formula)</i>	YES		
Compatible with M&R Wizzard 80, BIT 3, ALS, Videx or Use in 40 Column	YES			Search Criteria Allowed On Report <i>(Same Criteria As In Editor)</i>	YES		
Works With Any Parallel Printer <i>(Supports Atari 850 Interface)</i>	YES			Ability To Have "Literal" Data <i>Printed In A Report</i>	YES		
Totals Of Numeric Field <i>(Return Total And Average Value/Field)</i>	YES			Ability To Have "Conditional" Data <i>Printed In A Report</i>	YES		
Fail Safes Provided For Data Protection	YES			Can Use A Default Date Field	YES		
Error Messages Displayed	YES			Designate Default Value For Specific Fields	YES		
Status Lines For Ease of Use <i>(Options Always Available For Reference)</i>	YES						
<b>SEARCHES AND EDITING</b>				<b>LABELS REPORT GENERATOR</b>			
Multiple Searches Allowed On Same Record <i>(Search On 9 Criteria Per Record)</i>	YES			Mailing Labels Allowed <i>(Specifically Designed For Labels)</i>	YES		
Search On Two Criteria In Same Field <i>(Up To 4 Fields In Single Record)</i>	YES			User Designs Data Placement On Label <i>(One Across Label Design)</i>	YES		
Wild Card Searches <i>(And/Or, Include, Character, Or Block)</i>	YES			Multiple Fields Allowed On Label <i>(Date, Alpha, Numeric, Formula)</i>	YES		
Search On Basis Of Record Number <i>(Search For An Individual Record)</i>	YES			Repeating Characters Allowed	YES		
Search On Range Of Data Desired <i>(Dates, Numbers, Values, Greater Or Less Than, Equal To, etc.)</i>	YES			Font Designation Allowed	YES		
Editing Of Records Individually	YES			Print Label On A Conditional Basis	YES		
Editing Records Globally <i>(Verification Allowed)</i>	YES			Search Criteria Valid On Label <i>(Same Search Criteria As Editing)</i>	YES		
Delete Records Globally <i>(Verification Allowed)</i>	YES						
Deleting Records Individually <i>(Verification Allowed)</i>	YES						
<b>UTILITIES SECTION</b>				<b>MATHEMATICAL ABILITIES</b>			
Add Fields To Existing Data Base	YES			Basic Math Calculation	YES		
Delete Fields From Existing Data Base	YES			Addition, Subtraction, Multiplication, Division			
Reformat A Data Base <i>(Copy Format Of Existing Data Base)</i>	YES			Built In Calculator (Automatic) <i>(Use In Editing, Or Adding Data)</i>	YES		
Make Additional Copies Of Data Base <i>(Create Data Base For Extended Records)</i>	YES			Find the Integer Value Of A Numeric Expression	YES		
Sort on Multiple Criteria <i>(Sort On Basis Of 4 Fields In A Sort)</i>	YES			Find The Log Base 'e' Of 'x'	YES		
Sorts On Multiple Criteria <i>(Ascending Or Descending)</i>	YES			Find The Log Base "10" Of 'x'	YES		
Depth Of Sort Can Be Changed <i>(Designate Number Of Charters Deep To Sort)</i>	YES			Find The Absolute Value Of 'n'	YES		
Merge Information From Other Data Bases <i>(Merge Standard Text Files)</i>	YES			Exponential Notation Used	YES		
Add Or Delete Fields From Data Base	YES			Find The Square Root Of 'n'	YES		
Merge Previous Entered Data From Existing File	YES			Formulas Allowed Between Fields <i>(Field x (+ - *) Field y = Field z)</i> <i>(Field x (+ - *) N = Field Y)</i>	YES		
Back Up A Data Base <i>(Make A Back Up Of Current Source Data)</i>	YES						
Pack A Data Base <i>(Remove Deleted Records From Disk Storage)</i>	YES						
				<b>SPECIFICS</b>			
				Maximum Number Of Fields Per Record	32		
				Maximum Number Of Formulas In A File	16		
				Maximum Length Of A Field	127		
				Maximum Record Length	511		
				Maximum Number Of Level Breaks	4		
				Records Per Diskette <i>(Depends On Length And Number Of Fields)</i>	VAR.		
				Data Bases Allowed On Each Diskette <i>(Can Be Expanded To Additional Diskettes)</i>	ONE		
				Form Letter Capability <i>(Compatible With Letter Perfect)</i>	YES		

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# Hardware Copy Cards

The war goes on. The scenario is similar to the electronic warfare situation. First there were protected programs on cassette. Those were broken. Then came protected diskettes and the nibble copiers. Then more sophisticated protection mechanisms were introduced and more sophisticated copy programs became available. Now we have the hardware copy cards. Each of the three cards reviewed is designed to make copies of the program in memory, for archival purposes. All of these hardware copy methods are subject to similar restrictions. They only easily copy programs which reside entirely in memory; programs requiring multiple disk accesses (except possibly for user data files) will most likely remain uncracked. At present these copy cards will not satisfy all of your archival needs. Total satisfaction can only be achieved by unlocked software, or software which allows a limited number of back-ups to be made. But for single load programs, perhaps one of these cards will be satisfactory. None of the cards is really intended to copy programs running with a Z-80 card.□

## CRACK-SHOT

**PIRATES HARBOR**  
**P. O. Box 8928**  
**Boston, MA 02114**  
**617-738-5051 (modem)**

\$149.95  
Machine language  
48K, DOS 3.3

Unlocked

*Reviewed by Edward Burlbaw*

### INTRODUCTION

CRACK-SHOT can be installed in any slot, provided there is no card in slot 0. If you have a RAM card, you will have to remove it. In order to run copied programs, CRACK-SHOT must be installed in one of the slots (slot 0 can be occupied) or a RAM card can be used. There are known conflicts with certain other cards, such as the Hayes Micromodem II and some video cards. I also had problems using my Grappler card with CRACK-SHOT installed, and vice versa. Any conflicting cards must be removed before using CRACK-SHOT. A good rule would be to take everything out, except CRACK-SHOT and the disk controller card.

### MAKING A COPY

This is a very simple procedure. Once the card is installed, any program can be run as normal. When the program is at the desired point, the CRACK-SHOT copy switch is flipped and a blank diskette placed in drive one. A copy will be made in fifteen seconds. The blank diskette then has a copy of the entire 48K of memory, with the exception of the screen display locations. These must be set, on booting, by a menu within the CRACK-SHOT program. To execute your copy with the CRACK-SHOT card in place, simply CALL a location on the card and it takes over from there. You have essentially created an archival copy of the program which requires a hardware "key" (CRACK-SHOT) to run. If you are satisfied, there is nothing more to do. File the original away and use the CRACK-SHOT copy.

### ADVANCED TOPICS

If you are satisfied with the copy described in the previous paragraph, you will not be interested in the other possibilities of CRACK-SHOT. There are other utilities included on the system disk for analysis of the copy. The EDIT utility will allow you to read tracks into a buffer, disassemble the code in the buffer, write the buffer back to disk, or exit to BASIC (for BSAVE operations). The PACKER utility is perhaps the most powerful of the utilities. For example, if it can be determined that the entire 48K is not being used by the program, the program areas of memory can be consolidated and automatically unfolded once resident in memory. This would allow loading under DOS 3.3 without the CRACK-SHOT card. I would feel more com-

fortable with an archive copy of this nature. The PACKER utility is also the most difficult to understand. It is confusing because it requires one to keep track of physical and logical locations of the code and the location on the diskette. Other features of PACKER will read and attempt to analyze the various sections of the copied memory to locate code or ASCII data sections. This can be done manually or automatically. Packing command files can also be created but, obviously, you have to be able to first do it manually.

The language card is supported in several ways. The utility programs will run with the card and use the extra memory to increase the size of the binary file that is packable. The language card can be used in place of the CRACK-SHOT card, for running the copy.

### DOCUMENTATION

The manual is very extensive and attempts to explain all of the features and possibilities of CRACK-SHOT. The simple copy and re-run procedures are well covered, but the advanced topics are not adequately treated. Perhaps the experienced user will not need any more explanation, but a simple tutorial would improve the usability considerably. There are nine Appendixes with some examples, tips, trouble shooting hints, and packing parameters (sound familiar?).

### SUMMARY

In addition to making archival copies of single-load protected programs, CRACK-SHOT can be used as a gaming tool by making copies which start at higher levels. Once understood, the extensive advanced features could be useful. If you dislike performing surgery on your Apple, you may be annoyed with the slot 0 restrictions and the conflict with other cards.□

## SNAPSHOT

**Dark Star Systems**  
**54, Robin Hood Way**  
**Greenford, Mddx. UB6 7QN**  
**01-900-0104**

**P. O. Box 140**  
**Amherst, MA 01004**  
**413-584-7600**

\$109.95 (plus p&h)  
Machine language  
Dos 3.3, 64K (certain RAM cards only)

Unlocked

*Reviewed by Edward Burlbaw*

### INSTALLATION

SNAPSHOT can be used with only some RAM cards. The more common of these are Apple, Microsoft, and Ramex. Also supported



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II

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Aged Receivables
Sales Analysis
Account Listings
Customer Balances

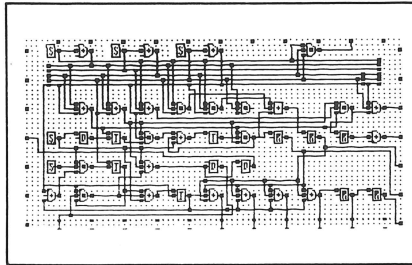
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The program is capable of simulating the bit-time response of any logic network responding to user-defined source patterns. It will simulate networks of up to 1000 gates. Includes a source pattern editor, **MACRO** editor and network editor. Produces a fan-out report. Simulation output is a string of 1's & 0's representing the state of user selected gates for each bit time of the simulation.

A typical page of a logic drawing looks like this:



For Apple II (48K) & IBM PC (2 DRIVES) \$250.00

**MANUAL AND DEMO DISK:** Instruction Manual and demo disk ..... \$30.00

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The Series Includes These 4 Programs:

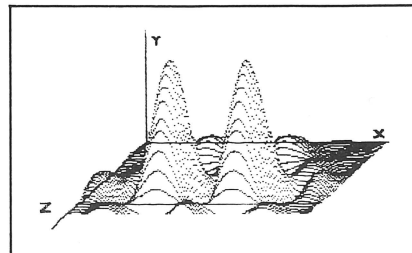
**STATISTICAL ANALYSIS I:** This menu driven program performs **LINEAR REGRESSION** analysis, determines the mean, standard deviation and plots the frequency distribution of user-supplied data sets.

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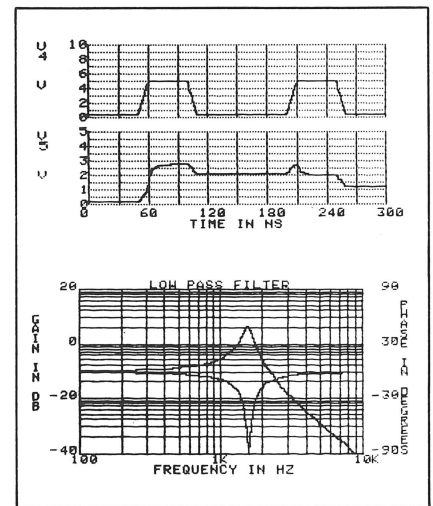


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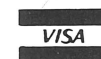
For Apple II (48K) & IBM PC (2 DRIVES) \$475.00  
Manual & Demo Disk ..... \$30.00

**ORDERING INSTRUCTIONS:** All programs are supplied on disk and run on Apple II (48K) with a Single Disk Drive or IBM PC (64K) with Single Disk Drive unless otherwise noted. Detailed instructions included. Orders shipped within 5 days. Card users include card number. Add \$2.00 postage and handling with each order. California residents add 6½% sales tax. Foreign orders add \$5.00 postage and handling per product.



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UNATTENDED SHOWS are possible with each frame individually pre-programmed to appear on the screen from 1 to 99 seconds.

TEXT SCREEN EDITOR lets you create your own b/w text "slides". Add type "live" from the keyboard during presentations if you want.

DISPLAY MODULE: Send entire presentations-on-disk to your friends and associates.

**FRAME-UP: \$29.50**  
(Includes Peeks/Pokes Chart)

## Apple Mechanic

SHAPE-WRITER/BYTE-ZAP DISK  
BY BERT KERSEY

SHAPE EDITOR: Keyboard-draw shapes for hi-res animation in your programs. Design proportionally-spaced typefaces with special characters. 6 fonts on the disk. Listable demos show how to use shape tables to animate games, graphics and professional Charts & Graphs.

BYTE-ZAP: Rewrite any byte on a disk for repair or alteration. Load entire sectors on the screen for inspection. Hex/Dec/Ascii displays and input. Complete instructions for making trick file names, restoring deleted files, etc.

MORE: Useful music, text and hi-res tricks for your programs. Educational documentation.

**APPLE MECHANIC: \$29.50**  
(Includes Peeks/Pokes Chart & Tip Book#5)

**NEW!**

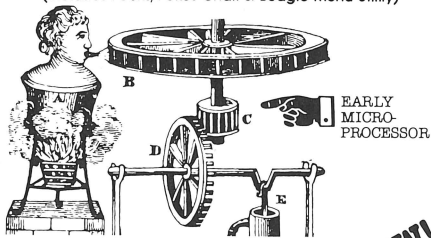
## Typefaces

FOR APPLE MECHANIC

26 NEW FONTS for Apple Mechanic's Xtyper and Hi-Writer programs. Most are full 96-character fonts, large & small, of fully-editable characters. (Apple Mechanic required)

BEAGLE MENU: Use with your disks. Display only the filenames you want (e.g. only Applesoft files or only Locked files) for one-key cursor selection/execution. Space-on-disk, catalog scan, optional sector-number elimination.

**TYPEFACES for Apple Mechanic: \$20.00**  
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EARLY MICRO-PROCESSOR

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12-GAMES-PLUS ON ONE DISK  
BY BERT KERSEY

TWELVE GREAT GAMES from the classic Beagle Bros collection—TextTrain, Slippery Digits, Wowzo, Magic Pack, Buzzword... Almost all of our "Game Pack" games, updated and re-released on one jam-packed, entertaining, unprotected disk.

COMPARE BEAGLE BAG with any one-game locked-up game disk on the market today. All 12 games are a blast, the price is right, the instructions are crystal clear, AND the disk is copyable. You can even change the programs or list them to LEARN, and see what makes them tick.

BEAGLE MENU TOO: See "Typefaces" above.

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(Includes Peeks/Pokes Chart & Beagle Menu Utility)

**NEW!**

## Flex Text

70-COLUMN TEXT UTILITY  
BY MARK SIMONSEN

PRINT VARIABLE-WIDTH TEXT on the hi-res screens with normal Applesoft commands (including Htab 1-70). Normal, expanded & compressed text on same screen—no hardware!

ADD GRAPHICS TO TEXT or vice-versa. Run existing programs under Flex Text control. Easy to use and compatible with PLE® and GPLE.®

DOS TOOL KIT® FONT compatibility, or use Flex Text fonts. Select up to 9 fonts with ctrl-key commands. Print/List/Catalog in any style! Custom TEXT CHARACTER EDITOR included.

**FLEX TEXT: \$29.50**  
(Includes Peeks/Pokes Chart; requires monitor)

## Utility City

21 UTILITIES ON ONE DISK  
BY BERT KERSEY

LIST FORMATTER prints each program statement on a new line. Loops indented with printer page breaks. A great de-bugger! Also...

MULTI-COLUMN catalogs for printouts, autopost Run-number & Date in programs, put invisible commands in programs, create INVISIBLE file names, alphabetize/store info on disk, convert decimal to hex or INT to FP, renumber to 65535, append programs, dump text-screen to printer...

MORE TOO: 21 Programs Total, a best-seller!

**UTILITY CITY: \$29.50**  
(Includes Peeks/Pokes Chart & Tip Book#3)



10 FOR A = 1 TO 22: PRINT CHR\$(ASC (MID\$("J—|PX(TIZPVSIJTUFS@", A, 1))—A/A);  
20 FOR B = 1 TO 4: C = PEEK(49200): NEXT B, A

## DOS Boss

DISK COMMAND EDITOR  
BY BERT KERSEY & JACK CASSIDY

RENAME COMMANDS & ERROR MESSAGES: "Catalog" can be "C"; "Syntax Error" can be "Oops" or anything you want. Protect your programs; unauthorized save-attempt can produce "Not Copyable" message. Also LIST-prevention and one-key program-run from catalog.

CUSTOMIZE DOS: Change Disk Volume heading to your message. Omit/alter catalog file codes. Fascinating documentation and tips; hours of juicy reading and Apple experiments.

ANYONE USING YOUR DISKS (booted or not) will be formatting DOS the way you designed it.

**DOS BOSS: \$24.00**  
(Includes Peeks/Pokes Chart & Tip Book#2)

## Tip Disk #1

100 TIP BOOK TIPS ON DISK  
BY BERT KERSEY

100 LISTABLE PROGRAMS from Beagle Bros Tip Books 1-4. Make your Apple do things it never done! All programs changeable for experimentation. Includes our Apple Command Chart: ALL Applesoft, Integer & DOS Commands!

**TIP DISK#1: \$20.00**  
(Includes Peeks/Pokes and Apple Command Charts)



SINCE I GOT MY BEAGLE BROS COMMAND CHART, I'VE ACQUIRED NEW VIM AND VIGOR!

(an unsolicited endorsement)

"APPLE" is a registered trade mark of You-Know-Who.



GOTO your Apple Dealer for Beagle Bros disks.

**NEW!**

## ProntoDOS

HIGH-SPEED DISK UTILITY  
BY TOM WEISHAAR

HIGH-SPEED DOS! Take a look—

Function	Normal	Pronto
BLOAD HI-RES IMAGE	10 sec.	3 sec.
BSAVE HI-RES IMAGE	12 sec.	6 sec.
LOAD 60-SECTOR PROGRAM	16 sec.	4 sec.
SAVE 60-SECTOR PROGRAM	24 sec.	9 sec.
BLOAD LANGUAGE CARD	13 sec.	4 sec.
TEXT FILES	(no change)	

BOOT PRONTO-DOS or any updated normal-3.3 disk. Create new ProntoDos disks with the normal INIT command. ProntoDos is compatible with ALL DOS COMMANDS and performs normally with almost ALL programs, including CopyA.

MORE DISK SPACE: ProntoDos frees-up 15-extra-sectors per disk, almost one full track!

**PRONTO-DOS: \$29.50**  
(Includes Peeks/Pokes Chart)

## Alpha Plot

HI-RES GRAPHICS/TEXT UTILITY  
BY BERT KERSEY & JACK CASSIDY

DRAW IN HI-RES, on 2 pages, using keyboard or paddles/joystick. See lines before plotting. Mixed-colors and reverse (background opposite). Fast circles, boxes and ellipses; filled or outlined.

COMPRESS HI-RES PIX to 1/3 Disk-Space. Superimpose pages or re-locate any rectangular image area anywhere on either hi-res page.

HI-RES TEXT: Proportional spacing, adjustable character size and color, upper/lower case, no tab limits, sideways typing for graphs.

**ALPHA PLOT: \$39.50**  
(Includes Peeks/Pokes Chart & Tip Book#4)



Where to Buy Beagle Bros Disks:

MOST APPLE DEALERS carry Beagle Bros software. If yours doesn't, get on his case. Or order directly from us for IMMEDIATE SHIPMENT—

Visa/MasterCard/COD, call TOLL FREE:

Nationwide: 1-800-854-2003 ext. 827

California: 1-800-522-1500 ext. 827

Alaska/Hawaii: 1-800-854-2622 ext. 827

OR mail U.S.check, money-order or Visa/MC #s to BEAGLE BROS, Dept. P

4315 SIERRA VISTA / SAN DIEGO, CA 92103

Please add \$1.50 First Class shipping, any size order. Overseas add \$4.00. COD add \$3.00. California add 6% ALL ORDERS SHIPPED IMMEDIATELY.



are Digitek, MPC, RH Electronics, and Super Ram II. It also works with the Franklin Ace 100, with 16K card, and the Ace 1000. The list is growing, so if you have any questions concerning the suitability of your RAM card, check it out with Dark Star Systems. Known exceptions are Andromeda, Indigo, and Saturn 32K. You must remove one of the chips from your RAM card and plug the ribbon cable connector, from the SNAPSHOT board, into the empty socket. The SNAPSHOT card can then be inserted into any of the nearby slots on the motherboard. There is an empty socket on the card into which to plug the game paddles or a four-switch dip switch. Either of these will be used to activate the copy program when it is time.

### MAKING A COPY

Either the game paddle or one of the switches can be used to activate the SNAPSHOT card. If it is not active, the RAM card acts as if SNAPSHOT were not present. This enables the RAM card to be used normally. The SNAPSHOT software is booted into the RAM card. Pushing the paddle switch, or the appropriate dip switch, will activate SNAPSHOT and display its menu. The "subject" diskette can then be booted. (Thirteen-sector diskettes can be used with the BASICS diskette.) Once the subject is in memory, pushing the button again interrupts the program and displays the SNAPSHOT menu. The menu has several options in a logical order. If you proceed from the top to the bottom, you will be doing the steps necessary to create a working backup. The video display settings are selected, both for bootup and run. The memory is then saved on disk. The final step is to use the last option of converting SNAPSHOT disk to a backup disk that does not require the software to be in the RAM card. The backup will now run on any 64K Apple (independent of the type of memory card). It may or may not run on a 48K Apple. By activating the SNAPSHOT card, and disabling the RAM card, the copy can be checked on a 48K machine.

One of the menu options allows the user to exit to the monitor for disassembly of the program in memory or other diagnosis. Some memory is available on the RAM card for user programs to assist in this. An exit to BASIC is also allowed which may make the program in memory LISTable. There is very little treatment of advanced techniques, but I submit that once the DOS 3.3 backup is created, very little more is needed.

### DOCUMENTATION

The instruction booklet consists of 13 typewritten half-pages. Everything necessary to make a DOS 3.3 backup of a memory resident program is found in it. It's not fancy, but definitely adequate.

### SUMMARY

SNAPSHOT can be used in a manner similar to CRACKSHOT for creating high level starting games or archival copies of single load programs. The necessity to use one of the compatible RAM cards will be a problem, unless you happen to have one of them. The simplicity of the menu-driven software is very convenient to use. □

# WILDCARD

**East Side Software Co.**  
**344 E. 63 St., Suite 14-A**  
**New York City, NY 10021**  
**212-355-2860**

\$129.95 (\$3 s&h)  
Machine language  
Dos 3.3, 64K, Apple II+

Unlocked

*Reviewed by Edward Burlbaw*

### INSTALLATION

With power off, open the Apple cover and place WILDCARD in any empty slot with the cable exiting through one of the slots in the case. Close the cover and turn the power back on. The only requirement is that you have a RAM card and an empty slot.

### MAKING A COPY

Load the subject program. When it is at the selected point, press the WILDCARD button and RETURN. The WILDCARD menu will appear and allow you to boot, restart, or exit to monitor. To make a copy, use the boot option with the WILDCARD system disk in drive 1. From there follow the menus to create a turnkey autoboot copy of the subject software. You will need a blank diskette and it will take about two minutes to complete the copy. You then have an archive copy which will boot on a 64K machine. It may be possible to compress it to run on a 48K machine. The compression can be attempted automatically by selecting the appropriate option. If this is unsuccessful, it will still run on a 64K machine. As with the other copy cards, the video screen to be displayed must be selected during the copy process.

### DOCUMENTATION

The thirty half-sized pages contain installation and operation procedures. The copy section leads you through a sample copy procedure. It is simple enough that once or twice through the book will be sufficient. A process is described by which a 64K program may be copied; however, if it cannot be compressed sufficiently it will not be successful. There is a short section discussing some uses of the utility option for the machine language programmer.

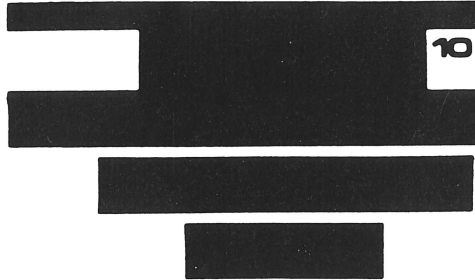
### SUMMARY

WILDCARD like SNAPSHOT and CRACK-SHOT provides a convenient method for backing up single load programs. It requires the least modification of, and places the fewest restrictions on, the existing hardware. It is both simple and easy to use. □

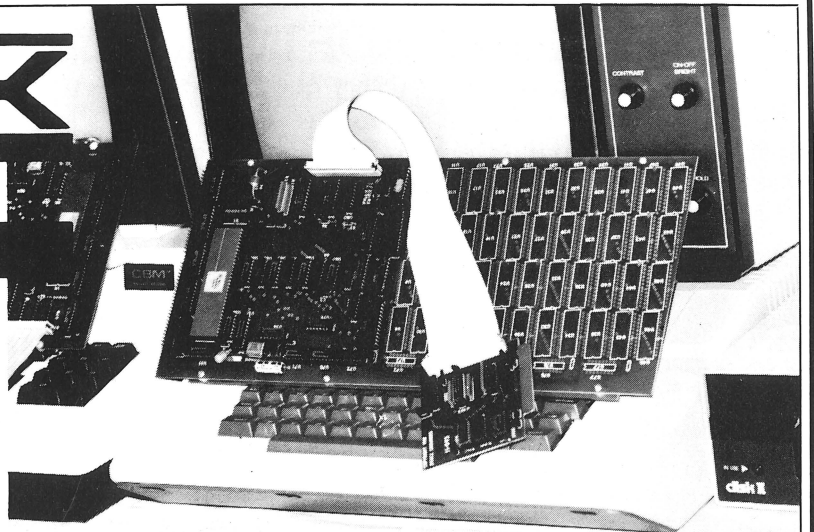
The three cards reviewed above are all designed to provide a method of creating archive copies of legitimately acquired software. Each uses a slightly different approach to achieve essentially the same end. CRACK-SHOT requires that any card in slot 0 be removed before operation and other interface cards can interfere with its operation. These include some fairly common cards (i.e., D.C. Hayes and Grappler) and, if in place, would interfere with the operation. There are more advanced features supported, but an understanding of some of them is required to create a DOS 3.3 backup. SNAPSHOT places fewer restrictions on existing hardware. Used with one of the supported RAM cards, there are no restrictions, but a chip must be removed from the card. That could be viewed as a disadvantage. The copy procedure is perhaps the easiest and clearest of the three cards. WILDCARD places the least restrictions on the hardware. In purchasing, this could be the deciding factor. The copy procedure is clear and straightforward.

Overall, with one of the supported RAM cards, SNAPSHOT, at \$109.95 is the best buy. WILDCARD places next because of ease of use. CRACKSHOT is the most expensive of the three, has memory conflicts with other cards, and requires the most technical knowledge to use. However, it also has more features available to the advanced user. □

# DTACK



## The 68000 DREAM MACHINE



### WE (SORT OF) LIED:

Motorola has been promoting its advanced microprocessor chip as a vehicle for large, complex systems **exclusively**. Now, the 68000 does work well as the heart of big, complex systems. But their promotional literature implies that one can **only** build big, complex systems with the 68000, and that is dead wrong (in our opinion). Nevertheless, the public (that's you!) perception of the 68000 follows Motorola's line: **Big** systems. **Complex** systems.

Our boards are **not** complex and not necessarily big (starting at 4K). Our newsletter is subtitled "The Journal of Simple 68000 Systems." But since the public has become conditioned to the 68000 as a vehicle for FORTRAN, UNIX, LISP, PASCAL and SMALLTALK people naturally expect all these with our \$595 (starting price) simple attached processor. **Wrong!**

We wrote our last ad to **understate** the software we have available because we wanted to get rid of all those guys who want to run (multi-user, multi-tasking) UNIX on their Apple II and two floppy disks. Running UNIX using two 143K floppies is, well, absurd. The utilities alone require more than 5 megabytes of hard disk.

### HERE'S THE TRUTH:

We **do** have some very useful 68000 utility programs. One of these will provide, in conjunction with a suitable BASIC compiler such as PETSPEED (Pet/CBM) or TASC (Apple II), a five to twelve times speedup of your BASIC program. If you have read a serious compiler review, you will have learned that compilers cannot speed up floating point operations (especially transcendentals). Our board, and the utility software we provide, **does** speed up those operations.

Add this line in front of an Applesoft program:

```
5 PRINT CHR$(4);"BLOADUTIL4,A,$8600":CALL38383
```

That's all it takes to link our board into Applesoft (assuming you have Applesoft loaded into a 16K RAM card). Now run your program as is for faster number-crunching or compile it to add the benefit of faster "interpretation". Operation with the Pet/CBM is similar.

### 68000 SOURCE CODE:

For Apple II users only, we provide a nearly full disk of **unprotected** 68000 source code. To use it you will have to have DOS toolkit (\$75) and ASSEM68K (\$95), both available from third parties. Here's what you get:

1) 68000 source code for our Microsoft compatible floating point package, including LOG, EXP, SQR, SIN, COS, TAN, ATN along with the basic four functions. The code is set up to work either linked into BASIC or with our developmental HALGOL language. 85 sectors.

2) 68000 source code for the PROM monitor. 35 sectors.

3) 68000 source code for a very high speed interactive 3-D graphics demo. 115 sectors.

4) 68000 source code for the HALGOL threaded interpreter. Works with the 68000 floating point package. 56 sectors.

5) 6502 source code for the utilities to link into the BASIC floating point routines and utility and debug code to link into the 68000 PROM monitor. 113 sectors.

The above routines almost fill a standard Apple DOS 3.3 floppy. We provide a second disk (very nearly filled) with various utility and demonstration programs.

### SWIFTUS MAXIMUS:

Our last advertisement implied that we sold 8MHz boards to hackers and 12.5MHz boards to businesses. That was sort of true because when that ad was written the 12.5MHz 68000 was a very expensive part (list \$332 ea). Motorola has now dropped the price to \$111 and we have adjusted our prices accordingly. So now even hackers can afford a 12.5MHz 68000 board. With, we remind you, **absolutely zero wait states**.

'Swiftus maximus'? Do you know of any other microprocessor based product that can do a 32 bit add in 0.48 microseconds?

### AN EDUCATIONAL BOARD?

If you want to learn how to program the 68000 at the assembly language level there is no better way than to have one disk full of demonstration programs and another disk full of machine readable (and user-modifiable) 68000 source code.

Those other 'educational boards' have 4MHz clock signals (even the one promoted as having a 6MHz CPU, honest!) so we'll call them **slow learners**. They do not come with any significant amount of demo or utility software. And they communicate with the host computer via RS 232, 9600 baud max. That's 1K byte/sec. Our board communicates over a parallel port with hardware AND software handshake, at 71K bytes/sec! We'll call those other boards **handicapped learners**.

Our board is definitely not for everyone. But some people find it very, very useful. Which group do you fit into?

**DIGITAL ACOUSTICS**  
1415 E. McFadden, Ste. F  
Santa Ana, CA 92705  
(714) 835-4884



# PEELINGS II SOFTWARE & HARDWARE INDEX

V2N1 (Jan 81) through V3N9 (Dec 82)

Note: Ratings that are over a year old have been removed. Historical evidence supports the fact that ratings on programs older than this can be misleading. (Games have been exempted from this.)

## ASSEMBLERS-COMPILERS

B	V3N2	Apple 6502 Assembler/Ed.	Apple Computer
D	V3N2	Apple Assembly Lang. Sys.	Hayden Book Co.
	V2N4	Applesoft Compiler	Hayden Book Co.
AA	V3N2	Big MAC	A.P.P.L.E.
AA+	V3N7	Big MAC.LC	A.P.P.L.E.
A-	V3N2	Edit 6502	LJK Enterprises
	V2N4	Expediter II	On-Line Systems
B+	V3N2	Lisa 2.5	On-Line Systems
A+	V3N7	Merlin	Southwestern Data Systems
A+	V3N7	S-C Macro Assembler	S-C Software
	V2N4	Speed Star	Southwestern Data Systems
AA	V3N3	TASC	Microsoft

## BUSINESS & FINANCE

C	V3N8	Color Calendar	Spectrum Software
D	V3N9	Consolidator, The	Omega Microware
	V2N5	Fast Facts	Richard Lorance & Assoc
B-	V3N5	Home Accountant	Continental Software
C-	V3N7	Last One, The	DJ 'A' Systems Ltd (review #1)
D	V3N7	Last One, The	DJ 'A' Systems Ltd (review #2)
F	V3N5	Personal Check Manager	Donald Poling
A	V3N8	Tax Preparer	Howard Software
A-	V3N8	Time Manager	Image Computer Products
	V2N3	Visicalc	VisiCorp
A+	V3N8	Visidex	VisiCorp
AA	V3N9	V.C. Preboot	Videx

## COMMUNICATIONS

	V2N2	ASCII Express II	Southwestern Data Systems
AA+	V3N8	ASCII Express, Profes.	Southwestern Data Systems
C	V3N1	Auto Modem	Computer Station
	V2N2	Data Capture 4.0	Southeastern Software
AAA	V3N4	DOS File Exchange	Arrow Micro Software
A+	V3N4	Reflexive Visicalc	Arrow Micro Software
B	V3N8	Telephone Transfer II	Telephone Software Connection
	V2N2	Terminal, The	Michael Koss
A+	V3N7	Transend 2	SSM Microcomputer Products
	V2N2	Z-Term	Southwestern Data Systems
AA	V3N7	Z-Term, The Professional	Southwestern Data Systems

## DATA BASE PROGRAMS

	V2N3	CCA Data Mgmt System	VisiCorp
A	V3N8	Data Factory 5.0	Micro Lab
	V2N5	Data Reporter	Synergistic Software
AA	V3N5	Datafax	Link Systems
A	V3N9	DataStar	Micro Pro Int'l
	V2N6	Datamaster	High Technology
	V2N3	DB Master	Stoneware
	V2N1	Filemaster II	Rainbow Computing
	V2N4	Information Master	High Technology

## EDUCATIONAL

B	V3N4	A.E.N. Grading System	Avant-Garde Creations
B	V3N1	Algebra I	Edu-Ware
B	V3N4	Apple Grade Book	J & S Software
A	V3N1	Assembly Teacher	Computer Works
	V2N2	Astronomy I/II	Educational Courseware
	V2N2	Beginning Basic	Applied Micro Systems
	V2N2	Compu-Math Arith. Skills	Edu-Ware
B	V3N1	Crossword Machine	L & S Computerware
B	V3N1	Crossword Magic	L & S Computerware
	V2N2	Drill II	Cook's Computer Co.
	V2N2	Elementary Math	Muse Software
B	V3N1	Elementary My Dear Apple	Apple Computer
C	V3N1	Hand Holding BASIC	Apple Computer
A	V3N1	Isaac Newton	Krell Software
A	V3N1	Link Sampler	Link Systems
A	V3N3	Master Type	Lightning Software
A	V3N1	Mathware	Math City
B	V3N3	Micro Atlas	Columbia Software
	V2N2	Mother Goose Rhymes	George Earl

	V2N1	Prog. in Apple INT BASIC	Hayden Book Co
A	V3N1	Quicktrace	Aurora Systems
	V2N2	Readings in Literature	George Earl
	V2N2	Sentence Diagramming	Avant-Garde Creations
	V2N2	Star Gazer's Guide	Synergistic Software
	V2N2	Tellstar	Information Unlimited Software
C	V3N4	Vectors & Graphing	Cross Educational Software
C	V3N4	Vocabulary Game	J & S Software

## GAMES

A+	V2N1	ABM	Muse Software
A	V2N3	Apple-oids	California Pacific
AA	V2N6	Castle Wolfenstein	Muse Software
A	V3N8	Choplifter	Broderbund
B+	V2N1	Computer Quarterback	Strategic Simulations
B-	V3N9	Congo	Sentient Software
AA+	V3N9	Crisis Mountain	Synergistic Software
B+	V2N1	Cyber Strike	California Pacific
B	V2N6	Cyborg	Sentient Software
C	V2N1	Dogfight	Micro Lab
B	V2N1	Encounter	Clone Software
A	V3N9	Firebug	Muse Software
A-	V2N6	Galactic Attack	Sir-Tech
AA	V2N1	Galaxian	Broderbund Software
C	V3N4	Goblins	Highlands Computer Services
A	V3N9	Gold Rush	Sentient Software
B-	V2N3	Golden Mountain	Broderbund Software
AA	V3N7	Guardian	Continental Software
AA	V3N5	Hadron	Sirius Software
B	V2N3	HIRES Cribbage	On-Line Systems
B+	V2N1	HIRES Football	On-Line Systems
B+	V3N3	HIRES Golf	Avant-Garde Creations
B+	V2N1	Hyper Head-on	Broderbund Software
AA	V2N6	Internat'l Gran Prix	Riverbank Software
A-	V3N9	Jellyfish	Sirius Software
A	V3N9	Microwave	Cavalier Computer
C	V3N2	MyChess	Datasoft
B+	V3N9	Neptune	Gebelli Software
B	V3N9	Norad	Southwestern Data Systems
B	V2N6	Oo-Topos	Sentient Software
A	V3N9	Pie Man	Penguin Software
AA+	V3N4	Pool 1.5	Innovative Design Software Inc
A+	V2N1	Prisoner, The	Edu-Ware
B-	V3N2	Race For Midnight	Avant-Garde Creations
A+	V3N1	Raster Blaster	BudgeCo.
A+	V3N9	Rendezvous	Edu-Ware
A	V2N3	Reversal	Hayden Book Co.
D+	V2N5	Robotwar	Muse Software
C	V3N9	Seafox	Broderbund
AA	V3N9	Serpentine	Broderbund
A	V3N9	Singles' Night at Molly's	Soft Images
A+	V3N9	Solitaire	Computek
A	V3N7	Snack Attack	DataMost
A	V3N9	Snapper	Silicon Valley Systems
A	V3N7	Starblaster	Piccadilly Software
A	V3N5	Swashbuckler	DataMost
B+	V2N6	Sword Thrust	CE Software
AA	V3N4	Threshold	On-Line Systems
A	V3N5	Track Attack	Broderbund
A-	V3N4	Trick Shot	Innovative Design Software Inc
C	V3N9	U-Boat Command	Synergistic Software
A	V3N8	Ultima	California Pacific
B-	V2N3	Ultra Checkers	Malibu Microcomputing
A	V2N1	Wizard and the Princess	On-Line Systems
B+	V2N6	Wizardry	Sir-Tech

## GRAPHICS UTILITIES & GRAPHICS DUMPS

	V2N6	A2-3D1 Animation Package	SubLOGIC
A	V3N3	A2-3D1 Animation Package	SubLOGIC
A	V3N3	A2-3D2 Graphics Package	SubLOGIC
A	V3N3	A2-GE1 Graphics Editor	SubLOGIC
	V2N1	Act. Sounds/ HIRES Scroll	Avant-Garde Creations
B	V3N5	Amperdump	Madwest Software
	V2N6	Bill Budge's 3-D Graphics	California Pacific
A+	V3N5	Ceemac	Vagabondo Enterprises

	V2N6	Complete Graphics System	Penguin Software
	V2N6	Enhanced MX-80 Graphics	Computer Station
D	V3N5	EZEPSON	MicroComPac
B	V3N5	Graphtrix	Data Transforms
	V2N3	Higher Graphics II	Synergistic Software
N	V3N3	HIRES Secrets	Avant-Garde Creations
A-	V3N5	Image Printer	Sensible Software
	V2N2	Micro Painter	Datasoft
A-	V3N8	Printographer	Southwestern Data Systems
	V2N1	Roger's Easel	Southwestern Data Systems
A-	V3N3	Special Effects	Penguin Software
	V2N3	Super Shape Draw	Avant-Garde Creations
A+	V3N5	Zoom Grafix	Phoenix Software

**LANGUAGES**

	V2N3	APP-L-ISP	Datasoft
	V2N3	Appilot II	Muse Software
	V2N3	Dynasoft Pascal	Dynasoft Systems
	V2N3	Forth 1.7	Information Unltd Software
	V2N5	Forth 2.0	Timin Engineering
	V2N5	Forth 79	Micomotion
	V2N5	Forth II	Softape
AA	V3N5	GraFORTH	Insoft
AA+	V3N9	Krell Logo	Krell (review #1)
C	V3N9	Krell Logo	Krell (review #2)
	V2N3	Super Forth	Hayden Book Co.
AA+	V3N9	Terrapin Logo	Terrapin Inc
	V2N3	Tiny Pascal Plus	ABACUS Software
	V2N5	TransForth II	InSoft

**PERSONAL**

B+	V3N1	Agenda Files	Apple Computer
	V2N3	Astro-Scope	AGS Software
B	V3N3	Chequemate	MasterWorks Software
	V2N1	Environment Life Dynamic	Avant-Garde Creations
B	V3N2	Menu, The	C & H Video
	V2N4	Sex-O-Scope	AGS Software
F	V3N1	Sex Rated	No-Name Software
N	V3N1	Softporn	On-Line Systems

**PLOTTERS**

A	V3N5	Ampergraph	Madwest Software
	V2N1	APPLE Plot	Apple Computer
	V2N5	Data Plot	Muse Software
B	V3N5	Hires Graph-fit	Microware Dist.
	V2N1	Scientific Plotter	Interactive Microware
A-	V3N5	SuperPlotter	Dickens Data Systems
B	V3N2	UltraPlot	Avant-Garde Creations
C	V3N2	Visiplot	VisiCorp

**SCIENTIFIC**

	V2N3	Curve Fitter	Interactive Microware
	V2N3	Introstat	Microstat Software
P	V3N2	HSD ANOVA	Human System Dynamics
C-	V3N3	HSD STAT	Human System Dynamics
	V2N2	MCAP	Hayden Book Co.
F	V3N3	Statistics 3.0	Edu-Ware
B-	V3N5	Statistics With Daisy	Rainbow Computing
	V2N2	Uni-Solve	Edu-Ware

**SIMULATIONS**

B	V3N4	AIRSIM-1	Mind Systems Corp. (see also V3N8)
B	V3N8	A2-FS1	SubLOGIC
A+	V3N9	Air Navigation Trainer	Space-Time Associates

**UTILITIES**

A+	V3N2	APLIST	Unified Systems
C+	V3N4	Apple-cillin I	XPS, Inc
	V2N3	Apple-Doc	Southwestern Data Systems
B+	V3N9	Arcade Machine, The	Broderbund
AA	V3N7	Bag of Tricks	Quality Software
A-	V3N7	Bug, The	Sensible Software
A+	V3N7	Build Using	Sensible Software
	V2N4	Disk Organizer II	Sensible Software
	V2N6	Disk Prep	Sympathetic Software
	V2N6	Disk Recovery	Sensible Software
	V2N5	DOS BOSS	Beagle Brothers

	V2N6	DOS Tool Kit	Apple Computer
AA-	V3N5	Electric Duet	Insoft
AA	V3N7	Graphics Magician	Penguin Software
	V2N1	Hypersort	Jew & Kilk
C	V3N3	MasterDisk	Masterworks Software
	V2N5	MasterDOS	Masterworks Software
A	V3N3	Memory Management System	Computer Data Services
	V2N2	MCAT 2.0	Highlands Computer Svcs
B	V2N4	Multidisk Catalog III	Sensible Software
	V3N9	Programmers Library	Telephone Software Connection
	V2N1	Programming Aids 3.3	Dakin5 Corp
AA	V3N3	Super Disk Copy III	Sensible Software
	V2N1	Super Sound	Rainbow Computing
AA	V3N2	Univ. Boot Initializer	S & H Software
A	V3N3	Utility City	Beagle Brothers
A+	V3N5	Videoterm Utilities	Videx
	V2N3	Visicaids	Data Security Concepts
	V2N5	Visichart	Interactive Microware
	V2N2	Visilist	Computer Station
	V2N1	Voice, The	Muse Software

**WORD PROCESSORS-EDITORS-SPELLERS**

	V2N5	A.C.E.	S.W. Data Systems
	V2N4	Apple PIE - 80 Col.	Programma (Now Pie Writer, Hayden)
	V2N5	Apple Speller	Sensible Software
A	V3N6	Apple Writer II	Special Delivery Software (Apple)
B	V3N6	Correspondent, The	Southwestern Data Systems
	V2N4	EasyWriter Pro	Information Unltd Software
	V2N4	Executive Secretary	Aurora Systems
N	V3N6	Gutenberg	Micromation Ltd.
	V2N4	Letter Perfect 4.0	LJK Enterprises
A+	V3N6	Letter Perfect 5.0	LJK Enterprises
	V2N1	Macro-SCED	Computer Station
	V2N5	Memory Page Editor	Compu-Tron Software
	V2N5	Monitor Extender	Image Computer Products
AA+	V3N6	Pie Writer	Hayden Book Co.
C	V3N6	Sandy	Software & Peripherals
A+	V3N6	Screen Writer II	On-Line Systems
B	V3N8	Spellbinder	Lexisoft
	V2N4	SuperScribe	On-Line Systems (Now Screen Writer II)
B	V3N6	Super-Text	40/80 Muse Software
	V2N4	Super-Text II	Muse Software
C	V3N6	Word Handler	Silicon Valley Systems
	V2N4	Word Power	Systems Design Lab (No longer sold)
AA+	V3N8	Word Star	Micropro Int'l
AA	V3N2	Word, The	Oasis Systems
B+	V3N8	Write-Away	Midwest Software Associates
	V2N4	Write-on! II	Rainbow Computing
B	V3N6	Zardax	Computer Solutions

**WORD PROCESSOR UTILITIES (OTHER)**

B+	V3N8	Lexicom 2.0	Micro-Sparc
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**HARDWARE**

	V3N4	68000 board	Digital Acoustics
	V3N6	RAMDISK 320	Axlon
	V2N6	Barwand	Adv. Business Technology
	V3N4	Command ROM	Soft Control Systems
	V2N2	Echo II Speech Board	Street Electronics
	V2N5	Dynatyper	Rochester Data
	V3N8	Graphtrax Plus	Epson America
	V3N1	Keyboard Enhancer (I)	Videx
	V3N6	Keyboard Enhancer (II)	Videx
	V3N7	LPS II Light Pen	Gibson Laboratories
	V3N8	MXPLUS	Dresselhaus Computer Products
	V3N7	Pi-3 Amber monitor	USI Computer Products
	V3N6	Sup'R/Fan	M&R Enterprises
	V3N6	Super Fan II	R.H. Electronics
	V3N4	Microspeed	Applied Analytics
	V2N6	TG Joysticks/Paddles	TG Products

**COMPARISON CHARTS AND STANDARDS**

Assembler Comparison Chart	V3N2 & V3N7
Data Base Standards	V2N5
Flight Simulator Standards & Chart	V3N8
Graphics Dump Comparison Chart	V3N5 & V3N8
Word Processor Standards & Chart	V3N6 & V3N8



# Cumulative Publisher Ratings — 1982

We are developing a tradition of looking at the average Peelings Rating for publishers we frequently review. The Criterion for inclusion is three or more reviews per year. While one unfavorable review can adversely affect this average, consistently high ratings also make themselves evident. A high average for two or more years running is even more indicative of a high level of vendor performance. In this respect, we would like to recognize Sensible Software for maintaining a consistently high level of excellence in their products for the last two years. However, even Sensible Software was supplanted in 1982 by Videx. Our congratulations to them as well.

Here are the ratings. The number in parentheses is the number of product reviews. AA = 5.0, A = 4.0, B = 3.0 etc.

Place	Publisher	Average Rating	
		1982	1981
1.	Videx	(3) 4.44	—
2.	Sensible Software	(5) 4.33	5.00
3.	Penguin Software	(3) 4.22	—
4.	Sierra On-Line	(3) 4.22	3.80
5.	Southwestern Data	(7) 4.05	4.06
6.	Krell Software	(3) 3.78	—
7.	Broderbund	(5) 3.67	—
8.	Apple Computer	(5) 3.07	3.56
9.	Avant-Garde	(5) 2.60	3.67
10.	Edu-Ware	(3) 2.44	3.50

Honorable mention goes to Arrow Micro Software (our first AAA program: DOS File Exchange (DFX)). □

# Advertiser Index

Artsci	1
Alpine Software	30
Apple Orchard	26 <sup>1</sup>
Axlon	11
Beagle Bros	47
Dark Star Systems	35
Digital Acoustics	49
Huntington Computing	37
IDS I	Cover #2
Interactive Microware	13
LJK Enterprises	43
Micro-Sparc	6,44
Micro Station	17
OHM Electronics	41
Option-80	41
Penguin Software	2
Pirates Harbor	4
RH Electronics	23,34
S&H Software	7
Sensible Software	27, Cover #3
Sierra On-Line	Cover #4
Software Response	15
Softkey Publishing	25
Spectrum Software	46
Spies Laboratories	31
The Halfway House	52
Wildcat Computing	20

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Today, four years later, we have established a way of doing business that directly reflects that basic goal. We offer you some of the finest programs available for the Apple II computer along with easy to understand documentation. Our specialized staff has grown to meet your needs quickly and efficiently. The end result of our efforts is friendly programs and friendly service that are certain to make you smile.

In addition, we have been industry leaders in developing an extremely fair and practical Disk Replacement Policy. This ensures that you always have both access to any enhancements added to our programs and that your important computer time is not interrupted.

From arcade quality games that challenge your speed and dexterity to utilities that improve both your Apple II efficiency and proficiency, we would like you to use our products with the same confidence that we build into them.



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Applesoft programming aids: cross reference variables and lines, remove REMarks, shorten variables, pack lines, merge and renumber, AUTO line number, and MUCH MORE.

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### **BUILD USING**™

A user friendly "print using" utility that allows formatting and justifying strings as well as all types of numbers. Several loading options make it easy to add to almost any Applesoft program.

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Allows complete control over the "organization" of a DOS catalog. 'Fancy titles' are easy with the built-in line editor. Alphabetizing, Deleting, Renaming, Locking files, and changing the name of the 'greeting' program are only a few of the features included.

### **DISK RECOVERY**™

DISK RECOVERY can be used on a regular basis to certify that DOS disks have not developed any bad spots. DISK RECOVERY will also help recover valuable data should a defect occur later. Now the back sides of disks can be used with greater confidence.

### **EDIT-SOFT**™

An inexpensive, yet powerful, line editor for Applesoft programmers that features: GLOBAL searches and changes, user definable macros, line splicing, AUTO line numbering, and an exclusive "characters inside a quote" counter.

### **IMAGE PRINTER**™

An easy to use, flexible utility for "dumping" any HI-RES screen to a variety of printers, including NEC, EPSON, and many letter quality printers.

### **MULTI-DISK CATALOG**™

MULTI-DISK CATALOG is a very fast, user oriented, machine-language database program designed specifically for keeping track of the contents of a DOS diskette library.

### **SUPER DISK COPY**™

SUPER DISK COPY is most likely the one utility every Apple owner should own. This is the "standard" copy program for transferring DOS files between one or more Disk II drives. Top-rated for price-performance.

### **The SENSIBLE SPELLER**™

The finest spelling-verification program designed specifically for the Apple. The official Random House Dictionary Concise Edition (80,000+ words) is included in both diskette and hardcover form. Several different versions are available for compatibility with almost all Apple word processors.

### **THE SENSIBLE ARCADE**

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# The reason you bought a computer in the first place.



**The Agony...**  
You expected your new computer to perform miracles — to bring order out of chaos. You looked for it to organize and manage your business information. You looked forward to the end of errors, the end of frustration . . . and the saving of time, effort and money. After all, that's the reason you invested in a computer in the first place. Yet, there it sits. Nothing.

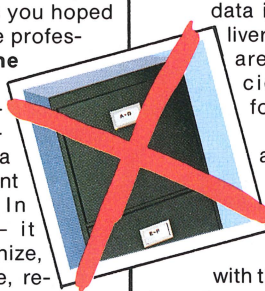
standing. You can't afford that! — for a program without excellent documentation is frustrating and basically useless.

## The General Manager

### ...and the ecstasy.

Well, your computer *can* perform all the miracles you hoped for. It needs just one professional addition. **The General Manager.**

The General Manager is what the computer industry calls a data base management program (DBM). In everyday words — it allows you to organize, store, file, find, save, retrieve, interrelate, control and print out all or selected parts of your information. The result: your information, or data, is managed totally, completely, automatically.



### Ordinary

The ordinary DBM system expects your business to conform to its program design. So you must change your records, your forms, your way of having information cross-referenced, saved and . . . well, you almost end up with a different business! Certainly a more frustrating one.

### Extraordinary

The General Manager on the other hand is extraordinary in the DBM field, because it makes no such demands on you. Instead, it lets you make demands on it! The General Manager was designed so that your business

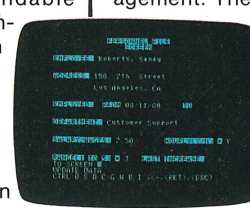
routines can be kept as individualized as you want . . . so your data is managed and delivered in the ways which are most useful, efficient and effective for you.

It works so easily and so well because of its "hierarchical" structure. This sensible "family tree" type of design starts with the main subject, then branches out to related information. You enter data on "Blank Forms" which you may construct to your exact needs. The data may be updated, deleted or modified to your heart's content. To know The General Manager will be to love it!

### Power & Price

Nothing near the price of the General Manager (by hundreds of dollars) gives you all the power, features and benefits it does! At \$229.95, The General Manager is the absolute value in its field.

Consider this: it supports 1 to 4 floppy disk drives (even hard-disk systems). It includes utility programs which others charge hundreds extra for. Upper and lower case characters in the data base are provided without need for additional costly hardware. If someone goofs, the "error message" is displayed in understandable English. There is an on-screen "Help" function available any time. It creates Applesoft usable files for your program needs. And many especially useful printing commands are built-in



### The reason you bought...

. . . a computer in the first place was, we know, twofold: for word processing (our Screen Writer program is the leader) . . . but mainly for information management. The General Manager is your powerful answer . . . the truly outstanding value in DBM's, bar none, at only \$229.95.

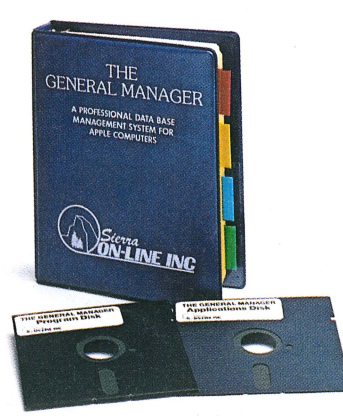
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\*The General Manager, version 2.0 requires 48K Apple II or II+, 1 or more drives, DOS 3.3. Direct orders add \$3.00 shipping/handling.



for greater flexibility. When you consider all these advantages, and more, we think your business sense will agree, there's no contest at any price.

### The fantasy...

Almost everyone claims user friendly documentation. The fact remains much of it is convoluted, complicated and defies under-