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Official magazine for users of HEATH ZENITH computer equipment.

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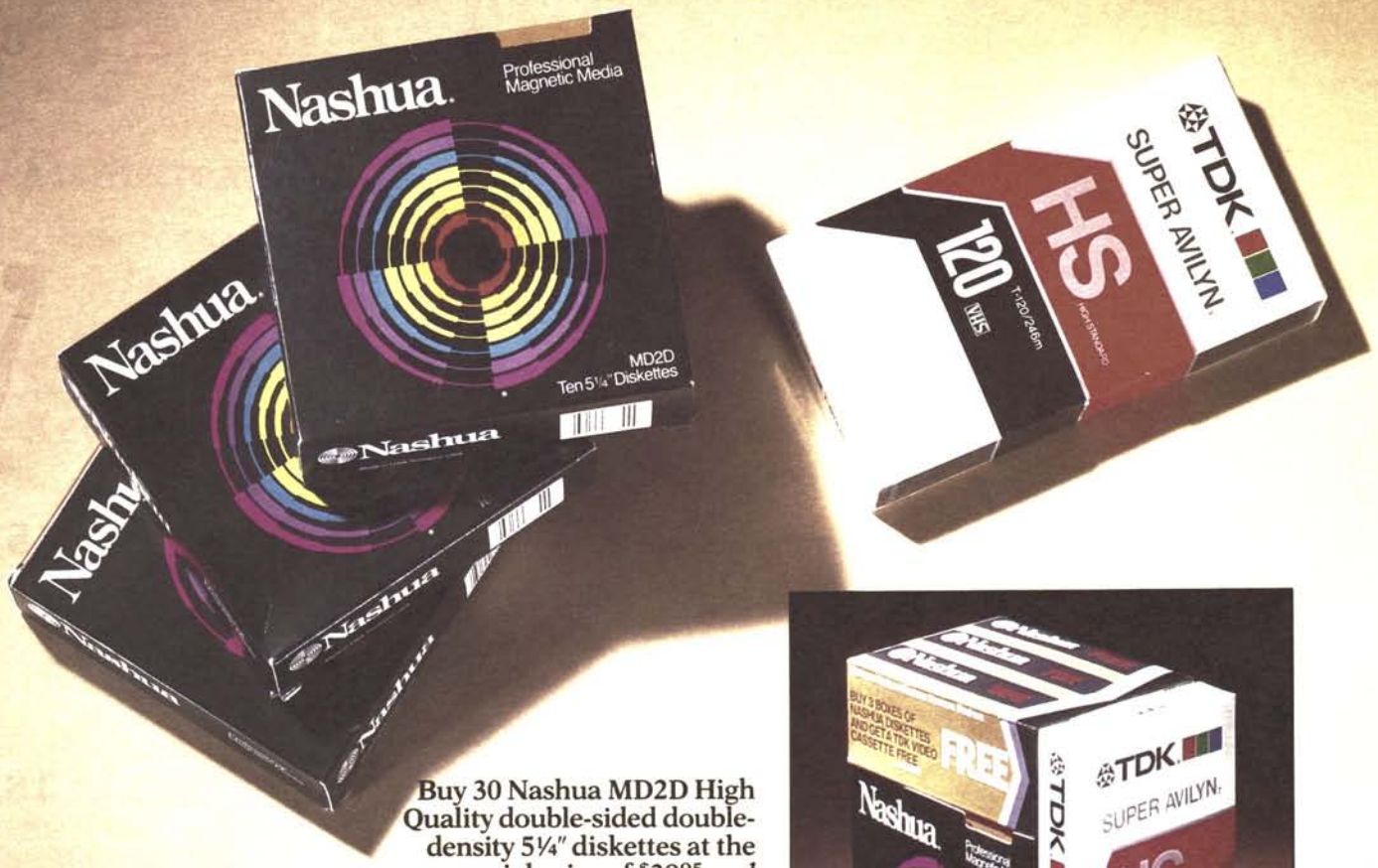

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* U.S. Funds

Limited back issues are available at $2.50, plus 10% shipping and handling — minimum $1.00 charge. Check HUG Product List for availability of bound volumes of past issues. Requests for magazines mailed to foreign countries should specify mailing method and appropriate added cost.

Send Payment to: Heath/Zenith Users' Group
Hilltop Road
St. Joseph, MI 49085
(616) 982-3463

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Articles submitted by users and published in REMark, which describe hardware modifications, are not supported by Heathkit Electronic Centers or Heath Technical Consultation.

HUG is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath equipment. As such, little or no evaluation of the programs or products advertised in REMark, the Software Catalog, or other HUG publications is performed by Heath Company, in general and HUG, in particular. The prospective user is hereby put on notice that the programs may contain faults, the consequence of which Heath Company, in general and HUG, in particular cannot be held responsible. The prospective user is, by virtue of obtaining and using these programs, assuming full risk for all consequences.

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REMark®

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On The Cover: *Check out the wide array of HUG Software. Page 18 features software for 1986 and the HUG Software Catalog and Catalog Update have all previous years.*

Welcome to the Heath/Zenith Users' Group!

I'd like to start off the new year with all good news, but can't. So, as the old saying goes, I have some bad news, and I have some good news. The bad news is Bob Ellerton is stepping out from the HUG limelight after six fantastic years of service. Some of you may recall that Bob was first introduced in the December of 1980 Issue of REMark. Since then, HUG has grown and prospered into an elite 30,000 plus membership, and REMark has become the finest journal available for users of Heath/Zenith computer systems.

No, the good news is not that I'm taking his place, because I believe that no one can, or ever will. The good news is Bob is NOT leaving Heath Company, and will always be available to hold our hands when we need him.

Now for more good news. It might be just a tad early to be planning for HUGCON VI, but not too early to start thinking about it. Those of you who attended last year's conference may recall the good time everyone had during Don and Monty's antics. It sure was a relief to be able to relax with hearty laughter after a good meal! Well, this year I figured the only way we are going to be able to top our performance is to bring in a professional, and that's exactly what we're going to do. Direct from The Golden HorseShoe Review at Disneyland, the longest running stage show in history. Its star, Dick Hardwick, will be on hand to entertain you with his unique style of adult comedy. I can personally guarantee that even if you don't win the grand prize afterwards, you'll still leave smiling! For those of you who have never attended The National HUG Conference, this is the year to attend. Besides the dinner and entertainment on Saturday evening, fabulous prizes, super prices on computer hardware and software, and informative speaker forums, will again highlight this year's conference during the weekend of August 21, 22, and 23 at the O'Hare Hyatt Regency Hotel in Chicago.

And what of REMark? REMark will continue to be your primary source of technical information on Heath/Zenith computer systems, related hardware, and software. We will strive to keep up with technological advances in the industry (even though it is once again moving ahead at the speed of light), and still try not to forget our roots (the 8-bit machines). We want to hear from you, whether it's a letter to the editor, or a major series of articles. This is YOUR journal!

My name is Jim Buszkiewicz (pronounced: Bush-kay'-vits), and if you have any questions or comments, feel free to write to me here at HUG, or you can call me at (616) 982-3837.

It is our pleasure to present the following information to fellow members and the newcomers to the National Heath/Zenith Users' Group. The January Issue of REMark will provide you with compiled material especially designed to update your records with a cross-reference index to all previous articles found in REMark during 1986, a listing of companies that provide Heath/Zenith related hardware and software products, a listing of Local Heath/Zenith Users' Groups, related publications information, and a variety of small, but useful, tips for contacting knowledgeable individuals who are familiar with Heath/Zenith equipment.

For The New Member:

This Issue of REMark will be your first contact with the Heath/Zenith Users' Group. The material contained herein represents a good look at the number of people, clubs, and organizations supporting the Heath/Zenith Computer Product Line. Further, HUG has selected that information which you may find most helpful to get you familiar with our organization. This Issue, along with the Software Catalog, Software Catalog Update and following issues of REMark provided as a part of your membership, will help you explore the exciting and powerful world of micro-computing.

For The "Oldtimer":

The material contained in this Issue of REMark will help previous members stay current with new HUG policies, additional Local HUG Clubs, and the new support activities from companies that may be of particular interest. The HUG Software Catalog, HUG Software Catalog Updates, as well as the January Issue of REMark, are a permanent part of the HUG membership package provided to any user joining the HUG community.

General Heath/Zenith Users' Group Information

Membership Eligibility

A bona fide interest in Heath/Zenith computer related products is all that is necessary for membership eligibility. You need not be an owner of a Heath/Zenith product to join. Membership is open to any individual or company representative.

As a member, you will receive:

- A subscription to REMark, official Heath/Zenith magazine
- A HUG binder

- A personal identification card
- HUG Software Catalog and Updates
- Access to the Heath/Zenith Users' Group Software Library
- Access to the HUG Bulletin Board via MicroNET *
- Access to the National HUG Bulletin Board System
- Discounts on a variety of Heath/Zenith computer products

* **Note:** Requires CompuServe membership available from the Heath Users' Group.

These benefits are described in the following paragraphs.

HUG Membership Rates

The following rate schedule applies as of January 1985 for membership:

Type of Membership	U.S. Domestic	APO/FPO & All Others
Initial	$20.00	* $35.00
Renewal	$17.00	* $30.00

* **Note:** Must be in U.S. funds

The initial membership package includes the HUG binder, the HUG Software Catalog, Software Catalog Update, a Heath Parts Order Form, and a copy of the January Issue of REMark.

New For 1987 . . .

You may now order new memberships or renew your membership using the toll free line normally used to order products from Heath. Call 1-800-253-0570 Monday through Friday 8 A.M. to 5 P.M. Eastern Time. In Alaska and Michigan call (616) 982-3411 or (616) 982-3463.

Identification Card

When your membership is accepted, a computer generated ID card is issued. The ID card is sent to you separately via first class mail. This card identifies you as a member of the Heath/Zenith Users' Group. It contains a unique number which can be verified for membership. **(Allow several weeks for the processing and delivery of your personal ID card.)**

Your HUG ID Card entitles you to discounts on a variety of Heath/Zenith computer products. Please review and retain the following information for your records.

HUG Discount Rules And Regulations:

1. You must be a member of the Heath/Zenith Users' Group to participate in the discount program.
2. Your ID card can only be used at your local Heath/Zenith Computers & Electronics Center or through mail order purchases placed with Heath Company. **Telephone orders will not be accepted.**
3. Your discount applies to the first $5,000 of products purchased per year. The $5,000 ceiling on purchases is based on the current list price of the products you purchase at the date shown on the invoice.
4. You may purchase only one of any given product per year, (e.g. one "Z" or "H" 100 series computer per year).
5. Your HUG ID card is not transferable. You will be required to show both your HUG ID and another suitable piece of identification to receive the benefits of the discount program.
6. You cannot make a purchase at the discounted rates without your HUG ID card. You must present your ID when placing your order for any item.
7. Your HUG ID cannot be used to purchase individual parts or HUG software products under the discount program from the Heath/Zenith Computers & Electronics Centers or from Heath Company. **HUG products are considered parts.**
8. The ID card can be used for a 10% discount on Heathkit computer related items only. (See the new expanded list of products available under the Discount Program in this issue.)
9. The ID card can be used for a 20% discount on Zenith Data Systems (assembled) computer related items only. (See the new expanded list of products available under the Discount Program in this issue.)
10. Any item purchased which installs as a modification to the internal portions of the computer (i.e. boards, drives, ROMs, etc.) is considered a kit item.
11. Any item (unless purchased as a kit) which is an external addition to the computer as a system (e.g. complete wired drive enclosures, printers, etc.) is considered a wired item.
12. Heath or Zenith Data Systems software is considered a finished or assembled item and therefore, can be purchased at the 20% discount. Since HUG software is considered a part, it is not included in either program.
13. Multiple discounts do not apply. You can use either "special prices" or your HUG discount, whichever is greater. The HUG ID may not be used with any promotional certificates offered by Heath Company or the Heath/Zenith Computers & Electronics Center.
14. **Heathkit Mail Order Catalog purchases must be accompanied by your HUG ID card and a SELF-ADDRESSED STAMPED ENVELOPE for return of your ID once the order has been processed.**
15. If you lose your ID card, you can only receive a replacement by purchasing a new membership to HUG at the current renewal rate.
16. To receive a replacement ID, send your request along with your **HUG ID number (found on your REMark mailing label) and renewal fee to:**

    Attention: HUG Secretary/New ID Card
    Heath/Zenith Users' Group
    Hilltop Road
    St. Joseph, MI 49085

Publications

REMark, the official magazine for users of Heath/Zenith computer products, is sent to each member 12 times a year. The January Issue is designed as a cross-reference to the previous issues and contains valuable information that you may need. Individual back issues may be obtained during the current year. However, at the end of each year, all twelve issues become a single bound REMark Volume which may be purchased as a separate item. There are currently seven REMark Volumes available.

A subscription to REMark is included with your membership. The magazine is sent via bulk mail, as are most other organization's

publications. **Bulk mailing means YOUR REMark WILL NOT BE FORWARDED SHOULD YOU MOVE.** Therefore, please notify the HUG Secretary of your address change and the date which you wish the change to take effect.

We encourage each member to use REMark to communicate with other users. You can do this by submitting articles for publication. We strongly encourage any comments which you feel would benefit other users. We welcome your letters, hardware descriptions, software enhancements, applications programs, and other material you may wish to share.

Major Article Program

Major articles are defined as articles containing 2000 words or more. Authors contributing major articles that are printed in REMark will receive a "Certificate of Recognition and Appreciation" from the Heath/Zenith Users' Group and their choice of any single Heath/Zenith software product **FREE or ONE HUG BUCK.** Educational programs or packages are not included in the Major Article Program.

The Heath/Zenith Users' Group is proud to announce the addition of the HUG BUCK as an incentive for authors contributing major articles to REMark. You can receive the HUG BUCK instead of free Heath/Zenith software. This award is worth $100.00 toward the purchase of any Heathkit or Zenith Data Systems product. HUG BUCKs can be collected to completely or partially purchase the product of your choice. Specifics regarding the use of the HUG BUCK accompanies the award itself.

Those individuals that contribute smaller articles will receive the "Certificate of Recognition and Appreciation" from the Heath/Zenith Users' Group. As you can see, we feel that any information you send us is important.

Certificates, software or HUG BUCKs are sent out after your article appears in REMark.

How to Submit Articles to REMark

What Subject?

Feel free to submit article manuscripts on any subject matter that you think will be of interest to the Heath/Zenith Users' Group community. Tutorial or How-To articles tend to be the most popular. Highly technical articles, although acceptable, do not have a broad readership base.

If you choose what might be considered a highly technical subject, try not to use terms which the average user would not be familiar with. If you should feel the need to use such terms, give a definition. Be kind to those who might not understand your application and explain your special programming tricks with a little extra detail. It's these "tricks" that help others to comprehend programming techniques and to be better programmers themselves.

If you feel that you have a unique program or hardware application, sit down and write about it. Do you have a special program for the bowling team, softball league, maybe a different business or farm program? Possibly you have interfaced your computer to some special machine to gather data for later evaluation. These are just some of the things other HUGgies are interested in reading about.

The following is only a sample list of possible subjects:

Software:

Application
Modification
New approaches
File handling
I/O handling
Enhancements
Reviews

Hardware:

Special applications
(Schools, Business, Handicap, etc.)
Enhancements
Interfacing
Problem solving

Review past issues of REMark. See what subjects have been covered. Try not to cover the same subject unless you have a better or totally different approach. Don't be a "me too" writer, open new doors.

How Big?

To qualify for the "Major Article Program," your manuscript must be 2,000 words or more (listings not included). Articles in excess of 5,000 words generally need to be broken into installments for separate publication.

Articles of less than 2,000 words and "Buggin' HUG" letters are acceptable. However, this type of submittal does not qualify for HUG reimbursement of a Heath/Zenith software product or HUG BUCK.

How About Photos?

If a photograph will help explain, include it. Clear, sharply focused, black and white photos reproduce best, but color photos can be used. Include a caption with each photo to help with the explanation. Any photographs become the property of REMark and cannot be returned.

What About Drawings?

If a drawing, like photographs, will help, include it. We request that you provide us with finished India Ink drawings or computer/printer art suitable for reproduction. Should you feel you are not capable of supplying finished artwork, check with a local high school drafting class. Generally, these students are anxious to display their talent. REMark, in some cases, will provide artwork, but this will delay publication of your article.

Is Hardcopy Necessary?

Yes! We request that any submittal include a printout of all files. Also, we would like to know what you feel your article should look like in print. In some cases, we do not have the processor the author used to duplicate text provided on disk.

Is A Disk Copy Needed?

Yes! REMark uses the latest techniques for the preparation of copy. Submitting your manuscript on disk along with all pertinent files moves the information through our system faster. We can accept any **standard** Heath/Zenith disk format. Your text files should not have visible or hidden coding, since these codes can delay the production process.

Should you have questions about an article you would like to submit, please feel free to contact the REMark Editor. All materials

received for publication in REMark become the property of the Heath/Zenith Users' Group.

Once you have completed your article, send it directly to:

The Heath/Zenith Users' Group
Attention: REMark Article
Hilltop Road
St. Joseph, MI 49085

How To Submit Programs To The Heath/Zenith Users' Group

After you have developed a program and before you submit it, check it thoroughly. Be reasonably sure that it is error free.

Three methods of submitting programs to the Heath/Zenith Users' Group are available for your selection based on your judgement of the finished program and its value to other members. Your program may be contributed under the following categories:

Public Domain Library — Free distribution to the membership via bulletin boards or other means available to HUG with the possibility of inclusion into the HUG Software Library.

HUG Software Library — For development by HUG as a finished software product to be offered for sale to other individuals as source for HUG income to further develop the users' group.

Royalty Software Library — Author supported, finished, reliable software with a signed contract paying the author for availability of the program to users of Heath/Zenith computer products.

Submit your program by completely filling out the submittal form included in this issue of REMark. Send your program on disk. Include with your submittal a complete listing of the contents on the disk and any additional documentation that you feel will be helpful for our records. Submit a sample "run" of your program from a hard copy terminal, when possible. If one is not available, hand copy as much as you feel necessary to give us an idea of how the program is supposed to perform. Be sure to sign and date the completed submittal form and check the category that you feel is appropriate for your program.

Once we receive your program, you will be notified. On the completion of the review, we will contact you with the status of your program. Remember, the person submitting the program is expected to handle any programming problems.

If your program is accepted and used by the Heath/Zenith Users' Group, you will be eligible for certain types of reward based on the category you have selected on the submittal form. **Please note, however, that no reward can be made until the product is released to the members of the user community through an announcement in the "New HUG Products" section of REMark.**

Rewards For Program Contributions:

Public Domain Software Library—

You will receive any HUG software package free once your program has been added to the public library. Your package will be made available through the HUG Bulletin Board system (616) 982-3956.

HUG Software Library—

One year extension of your HUG membership. One year membership if you are not already a member. A free copy of your program as released by HUG. Your choice of any single Heath/Zenith software product.

Royalty Software Library—

You are paid on a quarterly basis for the number of disks sold during a three month period. Checks are generally sent 30 days after the end of each quarter. Since you are paid for your program submittal, no other compensation applies.

Note: Multiple related programs on one disk is considered one submittal (e.g. GAME1, GAME2, GAME3, etc.). If your programs are released on one product, this is considered a single contribution to the Heath/Zenith Users' Group.

Notes On Software Submittals

HUG receives literally hundreds of programs each year for possible distribution to the user community. As you know, to review a software package requires learning the package. The review cycle is extremely time consuming. Therefore, we look for packages with the following attributes that are critical to the success of your program as a HUG Software Product:

We begin the review process as "beginners." In other words, your package must contain information that instructs the user through the set up and operation of the program from a very basic point of view. Remember to include information about your system that will enable the user (in this case, the reviewer) to duplicate the system requirements that made the software respond. Include operating system and version (e.g. CP/M 2.2.03), language and version (e.g. MBASIC 5.21), your machine type, and your memory requirements for the program.

Beyond set up and operation of the program itself, we look for thorough documentation as to what the program is going to do. If, for example, the program is a game; the user must know the rules, what is to be expected, what is the object of the game, and what input is required to make the game playable.

Next, we review the operation of the program. If the set-up and operational instructions are good, there should be no problem getting the program to perform as expected. In many cases, reviewers are stymied not because the program will not perform, but because the documentation for set-up and operation did not give sufficient detail to allow a thorough operational check.

A First-Time-Through-Section, although optional, is most advantageous for the reviewer and the end user. The First-Time-Through-Section should include the basics of setting up the program(s). It also should detail a mock run through your program with "dummy" data. This section should touch on most of the important options of your program. All option details should be explained in the documentation.

After we have made basic operational tests, we begin looking for undocumented "bugs" in the program itself. If a program defect is detected, the review process is ended. Any program fault that we find could be a reason for rejection of your program. Be sure to document operational peculiarities both for the reviewer and the end user. An example of one common program fault would be the lack of testing for both upper and lower case keys (e.g. "Y" or "y" for YES). There is nothing wrong with a program that only responds to upper case as long as the user is informed that the CAPS LOCK key should be down when operating the software. A good test for your program is to have another user in your area who is unfamiliar with your product attempt to operate it.

These points are some of the most important you should consider when generating software to be submitted to the Heath/Zenith Users' Group. As you can see, developing a solid software product

requires a new attention to detail whether you intend your product to be released through HUG or whether you intend to offer it through other channels. We have found that software which was developed following the basic information supplied here generates fewer user problems and, in general, gains the acceptance and respect of a vast majority of the user community.

Once you feel that your software will meet the requirements of the various HUG Software Libraries, please submit your material to the following address:

The Heath/Zenith Users' Group
Attention: Software Coordinator
Hilltop Road
St. Joseph, MI 49085

Ordering Information

HUG Software Products are ordered as a standard Heath Company Part. The order can be mailed on a Heath Company Parts Order Form or on a separate sheet of paper. When ordering, include with your payment the following information:

1. The part number (p/n), quantity, and description of the product to be ordered,
2. Your name, address and HUG ID number, and
3. 10% postage and handling, up to a maximum of $5.00, minimum of $1.00. UPS is $1.75 minimum with no maximum. UPS Blue Label is $4.00 minimum.
4. Visa & MasterCard also accepted, minimum $10.00 order.

Send the order to:

Heath Company Parts Department
Hilltop Road
St. Joseph, MI 49085

For Visa and MasterCard phone orders; telephone Heath Company Parts Department at (616) 982-3571. Have the part number (p/n), description, and quantity ready for quick processing.

Note: HUG currently offers formats for CP/M, HDOS, ZDOS, MSDOS and CP/M-86 5-1/4 inch disks:

Single-sided, single-density, hard-sectored
Single-Sided, single-density, soft-sectored
ZDOS double-sided
MSDOS double-sided
CP/M-86 double-sided

To order soft-sectored, add a "-37" to the part number (p/n) of the product (e.g. 885-1207-37). Your order is processed by part number (p/n), not by description, so please be sure to include the "-37" when ordering soft-sectored.

The Heath Company Parts Department is NOT capable of answering questions regarding software. For additional information concerning any of the HUG software products, contact the Heath/Zenith Users' Group (616) 982-3463.

If you should have a problem with a HUG product, please call HUG to determine if you have a bad disk or another problem before you return the product for replacement. A call may save you a lot of time and money. If it is determined that your disk requires replacement, return the original disk along with the invoice directly to the Heath/Zenith Users' Group, Attention: Software Coordinator.

Change Of Address

If you change your address, be sure to let us know. REMark is sent via bulk mail and is not forwarded. It takes approximately six weeks for our system to cycle through. Therefore, take this delay into consideration along with mail delays when notifying us. **Please tell us when the change is to take effect.**

Use the form in the back of this issue or a suitable copy to change your address. Send it directly to:

The Heath/Zenith Users' Group
Attention: HUG Secretary
Hilltop Road
St. Joseph, MI 49085

HUG Bulletin Board Via MicroNET

MicroNET is a time-share system of CompuServe Inc., which most anyone, located near a major city, can access through a telephone link. The National HUG Bulletin Board or SIG (Special Interest Group) on MicroNET provides a way of sharing ideas, questions, and information with over 3000 other members, by simply dialing a number and leaving a message.

MicroNET membership applications are available through the HUG Library or through any Heath/Zenith Computers and Electronics Center. The package includes free modem software, as well as the necessary information about CompuServe and one hour of free time on the system (see HUG Price List for further details). This membership is separate from the HUG membership application. For further information about CompuServe, contact the Heath/Zenith Users' Group, or CompuServe Inc., 5000 Arlington Centre Blvd, Columbus, OH 43220, (614) 457-8600.

A booklet of the HUG Bulletin Board commands and command descriptions is now available from the Heath/Zenith Users' Group. This handy reference can be used while on the system to save you both time and money. Since changes are made to the system on occasion, the material contained in the booklet may require some modification by the user in the form of notes as the changes are implemented. The BB-Reference is available as HUG part number 885-4700.

HUGPBBS System — National HUG Bulletin Board System

The Heath/Zenith Users' Group has opened a public domain bulletin board system for those programs submitted to the Public Domain Library (See Program Submittals.) You may obtain public domain packages by signing up for access to the bulletin board system available at (616) 982-3956. You may become a member of the system simply by supplying the following information:

Your Name
Your HUG ID Number
Your Choice Of Password (up to sixteen characters)

Leave the above information as a private message to the SYSOP on the system or drop us a postcard requesting access to the HUGPBBS. Over 20 megabytes of programs are available under HDOS, CP/M, ZDOS and MSDOS in convenient catalog areas.

Special Interest And Local HUG Groups

One of the best sources for information and help is the Local Heath Users' Groups which are becoming a major voice for the Heath/Zenith user community. Many of the local groups can be contacted through your nearest Heath/Zenith Computers & Elec-

tronics Centers. These stores can usually provide you the necessary contact information. A listing of known Local HUGs is published twice a year with new additions appearing under the category of "Local HUG News" found in most issues of REMark.

Heath/Zenith Related Publications

Of major importance to the new user is the availability of additional information for the Heath/Zenith computer products. Many of the Local HUGs publish newsletters on a regular basis. Using the Local HUG Club listing appearing in this issue, the user can select those clubs that may produce additional documentation.

Three excellent independent publications are listed here:

BUSS Newsletter
Editor: Charles Floto
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*

Heath/Zenith Users' Group

PROGRAM SUBMITTAL and AGREEMENT FORM

Programmer: _____

Address: _____ City-State _____ Zip _____

Company (if any): _____

Telephone: _____

Program Name: _____

Please describe your program in sufficient detail so that other users may understand its intended purpose and use. The following outline is suggested as a guide to help you in preparing an abstract of your program(s), should your program(s) be selected as a future release of the HUG Software Library. Your outline of the abstract should be prepared and submitted on an attached sheet of paper with this Submittal Form. Be sure to fill out all the information requested on this form.

Suggested Outline:

Introduction:
Requirements:
  Software
  Hardware
List of the Programs:
Program Content:
  Include Special Notes
Comments:

Note: Refer to the HUG Software Catalog for examples and details in using this outline.

Brief information for the Software Evaluator of your program(s):

Prepared on/for computer model: _____

Special hardware/software configurations, if any: _____

_____

Program requires: _____ **bytes of memory**

Language: _____ **Version:** _____

I would like you to include the program(s) described on this aggreement in the (check one)

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I understand and agree that HUG may distribute it at nominal cost to HUG members.

I assure you that the program is my own design, that I have run and de-bugged it, and that I will answer questions any library user may have about it. You may modify and adapt the program at your option to make it more suitable for your use and the library.

I represent that the program is mine to submit and that any necessary permissions for its use and sale have been obtained.

Date: _____ **Signed:** _____

P/N 885-6

It Even Runs SUBMIT!

Upgrade Painlessly From An H-89 To A 16-Bit Machine With Help From HUG

Pat Swayne
HUG Software Engineer

If you own an H-8 or H/Z-89/90 computer and a wealth of software for it, you may have been reluctant to upgrade to one of the newer 16-bit computers because of the inability of those machines to run your programs. But with one of HUG's CP/EMulator programs, you should be able to run most or perhaps all of your favorite CP/M programs on an MS-DOS computer. And if you use HUG's HRUN HDOS emulator, you can even run many HDOS programs.

There are two CP/EMulator programs available from HUG. The original CP/EMulator (885-3007-37) is designed for use on H/Z-100 dual processor computers, and takes advantage of the dual processor architecture of the H/Z-100 to run your 8-bit programs under MS-DOS. The newer CP/EMulator II (885-6002-37) is designed for use on H/Z-100 PC and H/Z-200 Advanced PC series computers. It emulates the 8-bit processor itself, or will use an NEC V20 processor if you have one installed (more on that later). Both CP/EMulator programs provide the most complete CP/M emulation available under MS-DOS, and will even run the CP/M SUBMIT program. No other emulator I know of, not even those using co-processor boards, is capable of running SUBMIT. CP/EMulator II also includes ZEMulator, which provides an H-19/Z-100 environment (escape codes, function keys, etc.) under which your 8-bit programs can run as they do on your old computer.

Limitations Of CP/EMulator

Because the hardware on the 16-bit computers is different from that in your old H-8 or H-89, some programs cannot be run under CP/EMulator. Among these are modem programs that access the port hardware directly, and disk sector editors that use direct BIOS calls. Because an 8-bit timer interrupt is not generated on 16-bit machines, your 8-bit programs that use the timer interrupt will not run. Some games fall into this category, although most HUG games do not. Heath/Zenith CP/M systems maintain a "tic counter" in low memory that is used for timing by some programs. These programs may not run properly under CP/EMulator II on PC-compatible computers, because the counter is not incremented evenly due to timing differences. The HUG "SEA BATTLE" game is the only program I know of that is affected that way.

Some Microsoft languages that were released for use only on H-8 or H/Z-89/90 computers may need patches before they will run under CP/EMulator. You can write us for the patches if you need them. Microsoft languages that will run on an H/Z-100 under CP/M will also run under CP/EMulator without patches. If a program is designed to be run under Microsoft BASIC or some other language, you will need to bring that language over from your 8-bit computer, rather than trying to run the program under GW-BASIC, etc.

Making The Transfer

Before you can run your H-8 or H/Z-89/90 programs on an MS-DOS computer under CP/EMulator, you must transfer the programs from your CP/M disks to MS-DOS disks. On an H/Z-100 (dual processor) computer, you can read H37 format 48 tpi disks with the RDCPM program, but the PC version of RDCPM cannot read those disks. CP/EMulator II comes with a HUG version of RDCPM that can read H37 48 tpi disks as long as they are recorded in double-density format, and it also comes with a program called TF89 that allows you to connect your H-8 or H/Z-89/90 to your PC with a serial cable and transfer files over it.

How Fast Is CP/EMulator?

If you run CP/EMulator II on an H/Z-100 PC series computer, your 8-bit program will run more slowly than on a real 8-bit computer, because the 8-bit machine code itself must be emulated. However, you can replace the central processor chip (8088) in your computer with an NEC V20 (available from many parts vendors), and then emulation will be as fast or faster than an H-89. Some screen operations will still be slower due to the amount of emulation required to duplicate them. On an H/Z-200 Advanced PC, emulation is as fast as an H-89 even though the 8-bit code is emulated, because of the extreme speed of those machines. On an H/Z-100 dual processor computer, emulation is also fast because the built-in 8-bit processor is used to run 8-bit code.

Note: If you already own either version of CP/EMulator, and you purchased it before September 1986, you should know that the programs have been improved substantially. You can send in your original HUG disk and $5.00 to get the upgraded version. Send your disk to HUG, Attn: Nancy Strunk, Hilltop Road, St. Joseph, MI 49085. *

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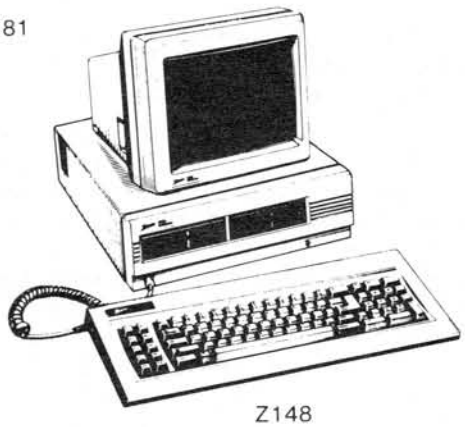

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Some Favorite HUG Software

Joseph Katz
103 South Edisto Avenue
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I was interested to realize that some of my favorite programs for my PC-, XT-, and AT-compatibles came to me on HUG software disks. It doesn't surprise me, however, because logic suggests that users know the needs of other users. On that same principle, perhaps I can do something useful by mentioning a few of my own HUG favorites. In fact two are run automatically whenever my computers boot: they're loaded by the AUTOEXEC.BAT file in the root directory of Drive C.

One of those two is SS.COM, a screen saver on the Screen Saver Plus disk (Part Number 885-6009-37). It's a TSR (Terminate and Stay Resident) program that monitors the keyboard so as to blank the monitor whenever the computer is on but not in use. That way the display screen does not suffer early from having characters burned in when I must interrupt a work session. I set SS to blank the screen after three minutes of keyboard inactivity: you can set it for from one to nine minutes.

The other HUG program in my AUTOEXEC.BAT file is DPATH .COM, a Path supplement on its own disk (Part Number 885-8039-37). Version 2 of MS-DOS introduced hierarchical directories, mainly for use in organizing hard disks. Unfortunately, that version of MS-DOS has no automatic way to find a program you want to run if it is in a different subdirectory from the one in which you try to run it. Fortunately, version 2 of MS-DOS has the integral command Path, with which you can specify paths to the directories holding programs you might want to run from other directories. Unfortunately, the Path command is useless for other than COM, EXE, or BAT files: it won't lead MS-DOS to data files or program overlays. Run Dpath with a duplicate of the pathnames fed to Path, however, and much of the trouble disappears. There are some instances in which even the Path/Dpath combination does no good, but it's the answer for most situations.

One real sleeper on HUG's ZDOS/MSDOS Miscellaneous Utilities disk (Part Number 885-3025-37) is Reprint. Despite its title, the program has nothing to do with "reprinting." Instead it's a printer redirection utility. It diverts output from the printer to a disk file. A shareware program I use for recording grades does not print them suitably for my needs, so when the time comes for grade reports I simply print them to a disk file which I then edit and print with my word processing program. I've used other printer redirection utility programs, but Reprint has two advantages over them: it's completely transient and it works well with the Heath/Zenith versions of MS-DOS. The others I've used are TSR programs, which means they continue to redirect printer output even when I'm ready to do something else. Reprint, on the other hand, is invoked with the name of the program that will produce the printer output and the name of the file to which it should be redirected. Once the program has ended, the system is back to normal. Reprint is supposed to work only with version 2 of MS-DOS: it works with version 3.1, as well.

I discovered Reprint quite by accident, when a grade report had to be done and I found that none of my other printer redirection programs would work with version 3 of the Heath/Zenith MS-DOS, but that's a typical accident with HUG software disks. Returning to my point at the beginning of this note, the problem solved by one user often turns out to be a need shared by another user. Two other programs on the Screen Saver Plus disk exemplify that point. Not only didn't I need them when I bought the disk, but also I couldn't imagine ever needing them. DS.COM allows text shown on a color monitor to display simultaneously on a high-resolution monochrome monitor. Once I hooked a high resolution monitor into my system, I was thankful for this dual-screen program that saved me from having to use the Mode command in MS-DOS to switch back and forth. Now I can't imagine having a setup like mine without DS.COM to make life easier. Nor could I imagine why I might want to slow down an AT-compatible H/Z-241 to nearly the speed of an XT-compatible H/Z-158. Then I got my H-241 and decided to kill a few minutes with an old action game. The action turned out to be new and completely unexpected. I simply could not keep up with the game. It was going too fast for me. That was when I remembered CS, which let me slow down the 241 enough to give me a chance at winning. I didn't. It wasn't the fault of CS, and I don't want to talk about it anymore now anyway.

One of my other favorites from HUG is the Hug File Manager on that same ZDOS/MSDOS Miscellaneous Utilities disk I talked about earlier. There are two versions on that disk: HFMJR and HFM2, the latter with more features than the former; you choose the one better suited to your own needs. Both are reminiscent of the disk management utility program that comes with Lotus' 1-2-3 spreadsheet. It's a kind of program that displays in sorted order the files in a subdirectory. You can do things such as erase, copy, print, or view them with more control and comfort than is possible from the naked MS-DOS command line. I really like it for archiving files on my hard disk. What I do is flag selected files with an HFM command, do a mass copy from hard disk to floppy diskette with another HFM command, then erase the now-unneeded files from the hard disk with a third HFM command. It's a very nice way to work.

You can use another HUG software disk, the HUG Menu System (Part Number 885-3020-37) to give novices an even nicer way to work. This nicely-designed set of programs — including a version of HFM — allows the creation of a menu-controlled computer. You can program a set of hierarchical menus that allow the naive user to go from one function to another without ever encountering the mysteries of MS-DOS and with help only a keystroke away. As with many of the programs on HUG software disks, you can find similar programs elsewhere. Just as with those others, however, this one not only is among the more useful of its kind, but also is designed especially for our computers and is sold at a price so low as to make shopping for a lower price seem silly.

One program I often mention in "Mainstream Computing" is HUGMCP, the HUG Modem Communications Program on its own disk (Part Number 885-3033-37). As its name indicates, HUGMCP is a communications and file transfer program. It's one of a special kind, though. The direction pursued by many communications programs is towards nearly complete automation. I like that direction, but it's not the only one possible nor is it always the most desirable. HUGMCP goes in another direction. Small, fast, reliable, and easy to control, it's one of a select group I carry in a plastic case of programs whenever I travel.

ZEMulator and CP/EMulator II (Part Number 885-6002-37), on the other hand, allow my programs to travel from my Z-100 to my compatibles. CP/EMulator II runs those from the CP/M side of the Z-100; ZEMulator runs those from its MS-DOS side; together they do a great deal to extend compatibility along the Heath/Zenith line of microcomputers.

That, I think, is one of the things I like best about HUG software: whenever and wherever possible, there are Z-100 and compatible versions of the same program on the same disk. For those of us with both kinds of machines, the strategy is at least a magnificent bonus. One of the few computer games I used to enjoy was Adventure, a microcomputer version of the classic mainframe game by Crowther and Woods. It's a way for me to have play time at a pace suited to my advancing years. When I discovered that HUG had an MS-DOS version of Adventure that would run on compatibles, as well as on the Z-100, I snatched it. I still enjoy it. If you're new to microcomputers, you really ought to journey back to the golden days of yesteryear and explore Colossal Cave. At the very least you'll discover the significance the magic word "XYZZY" has for computer buffs. Perchance you'll be able to dicover and store treasures towards a laudable score. ✱

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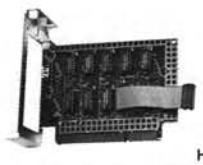

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P/N 885-1135-[37] HDOS Variety Package

Introduction: This group of three disks contains various programs for the HDOS operating system. Rather than hold these programs for an 'all the same type of program' disk, the decision was made to release them in a 'variety' type package. These programs include, utilities, games, and two device drivers.

Requirements: These programs require the HDOS operating system version 2.0 or greater. An H-8/H-19 or H-89/90 computer with at least one disk drive is also required. In the case of the device drivers, the H/Z-25 or Diablo 630 printer will be needed. MBASIC Version 4.82 is required for SMART CRAPS.

The following files are included on the HUG P/N 885-1135-[37], HDOS Variety Package disk set:

Disk A

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WM25DVD	.ACM	WM25DVD	.DVD
WM25DVD1	.ABS	WM25DVD1	.ASM
WM25DVD2	.ABS	WM25DVD2	.ASM
WM25DVD	.DOC	DEMO	.TXT
README	.DOC		

Disk B

CALENDAR	.BAS	CALENDAR	.BAS
SNOOPY	.ART	HBR8H	.ABS
HBRZH	.ABS	HBR	.DOC
PD	.ASM	PD	.DVD
PD	.DOC		

Disk C

CRAPINS1	.BAS	CRAPINS2	.BAS
CRAPS	.BAS	CRAPSTAT	.BAS
CRPSCR1	.DAT	CRPSTA1	.DAT
MPCRAPS	.BAS	CRAPS	.DOC
SPCRAPS	.BAS		

Program Authors:

FREDIT — Maynard Mansfield
WM25DVD — William W. Moss MD.
CALENDAR — Brent Malcolm
HBRIDGE — Robert Hassard
PD — Walt Bilofsky
SMART CRAPS — C.F. Mowery Jr.

Program Content:

FREDIT — Fredit makes available to the small system running under HDOS, the speed and simplicity of full-screen text editing. The editor occupies less than 5700 byte in RAM, so serious text editing may be undertaken on a 32k machine. Fredit makes use of all the editing functions provided by the H-19 terminal, and most of the H-19's special function keys are employed as well. The 25th line of the terminal screen provides a continuous display of the status of the editing process.

WM25DVD — This H-25 device driver is considerably more sophisticated than the one Heath distributes. It permits individual settings on each of eight logical units. Thus, the user can individualize the formats desired for various types of documents without having to change the device driver settings. Also, when a new setting is made, it goes into effect immediately even if the driver has already been loaded into memory; no need to reboot to make it work. There are 18 set options allowed by this driver.

CALENDAR — This program computes a calendar for any year and prints it in various forms. It prints an annual calendar with, if desired, an attached graphics of Snoopy on his doghouse. It also prints a monthly appointment calendar (one month per page) which has the usual format for all days of the week (Sunday through Saturday) or a second type with just Monday through Friday. The latter format allows larger spaces for your entries.

HBRIDGE — HBRidge is a program for playing Bridge. It is suitable for the novice bridge player. The computer plays three hands (or two if north or south are the declarer) and the human player plays one (or two). HBRidge bids using fundamental conventions, plays following the simplest of rules, and then scores each hand when finished. The score is recorded on a disk file bearing the human player's name. After playing a hand, a display of all four hands may be obtained, or the north-south hand may be switched with east-west and replayed, or a new deal may be called for. With this program, the computer plays a fair quality of bridge. It makes mistakes just as humans do. In this respect, it is human-like. For a person who also makes mistakes, this can be an enjoyable program.

PD — This is a device driver for the WH-44 style printers (Diablo 630) to allow the use of proportional spacing type print wheels even when NOT equipped with the Diablo word processing hardware option. It is a modified version of the LPH44 driver originally supplied by Heath with HDOS version 2.0.

SMART CRAPS — This game is designed not only to provide realistic and entertaining one-player and multi-player versions of the dice game, Craps, as it is played in most casinos, but also to assist both novice and experienced players alike in becoming 'smart' craps players, via the display of a wide variety of statistical information during play of the games and a separate statistical program. The data displayed is designed to help smart players develop betting systems that increase their winning potential by decreasing the house advantage.

TABLE C Rating: (9)

P/N 885-3007-37 Z-DOS/MS-DOS CP/EMulator Update

CP/EMulator is a program that allows you to run CP/M programs under Z-DOS or MS-DOS on an H/Z-100 (dual processor) computer. It has been improved considerably and re-released under the same HUG part number. For a description of the original program, see page 27 of your HUG Software Catalog Update #1.

CP/EMulator has been improved to run faster and handle "tough" CP/M programs that it could not run before, including CP/M WordStar (all functions work), PIP (including all switches), and the CP/M editor, ED. Screen I/O is faster, so that word processors and action game programs are more useful and enjoyable. With the new CP/EMulator, you can run nearly all of the CP/M programs in the HUG library under MS-DOS or Z-DOS. (However, CP/M Microsoft BASIC is required for some programs, and is not supplied.)

If you have the original CP/EMulator and would like to upgrade, send in your original HUG disk and $5.00 to the Heath/Zenith Users' Group, Attn: Nancy Strunk, Hilltop Road, St. Joseph, MI 49085. Make checks payable to: Heath/Zenith Users' Group.

Note: Since CP/EMulator now runs the CP/M editor, the HUG CP/M editor is no longer included on the disk.

P/N 885-3033-37 Update

HUGMCP, HUG P/N 885-3033-37, has been updated to version 1.1. This newer version now has the ability to set the colors of the text display, and if you're running an H/Z-100 PC/200 PC, the screen border, background, 25th status line text, 25th status line background, all independently. Additionally, HUGMCP can now concurrently print the data in the capture buffer while communicating with the host computer. Printer 'busy' will not cause the program to 'hang' or issue error messages as most other software will. Current owners of HUGMCP can obtain this update by sending their original 885-3033-37 disk along with $5.00 to: Heath Users' Group, Hilltop Road, St. Joseph, MI 49085, Attn: Nancy Strunk. Make checks payable to Heath Users' Group.

Attention HERO 2000 Owners!

Looking for an inexpensive modem package that'll interface your H-100 or H-100 PC to your new super robot? Look no further! HUGMCP was designed with HERO 2000 in mind! HUGMCP responds properly to the ANSI 'disable keyboard' command as required by HERO 2000. It will also do software transfers using standard XMODEM protocol, or ASCII transfers using XON/XOFF protocol. HUGMCP is available for only $40 from HUG, and has a part number of 885-3033-37. Why pay 4 times more than you really need to? Order your copy today from the Heath Parts Department by calling area code (616) 982-3571.

P/N 885-3034-37 MS-DOS ZPC Support Disk

Introduction: The ZPC Support Disk contains files to help you make better use of the HUG Z-100 PC Emulator (HUG p/n 885-3030-37). This disk contains patches to update early releases of ZPC itself, patches for several popular software packages that enable them to run under ZPC, and an emulator for the ANSI.SYS device driver supplied with the Z-100 PC version of MS-DOS.

Requirements: To use this disk, you need ZPC itself, and an H/Z-100 (not PC) computer and MS-DOS version 2 or 3. All of the programs for which patches are supplied write directly to video memory when they are run on a real PC, which means that you need 768k of memory in your H/Z-100 to run them under ZPC.

This disk contains the following files:

README	.DOC	ANSI	.COM
FIXASM	.DOC	ANSISYS	.ASM
PREFIX	.BAT	ASCII	.DEF
REPLY	.COM	Z150ROM	DEF
FIXZPC	.BAT	ANSI	.ASM
FIXZPC1	.DAT	LTSPCH	.BAT
FIXZPC2	.DAT	LTSPCH	.DAT
FIXZPC3	.DAT	DBPCH	.BAT
FIXZPC4	.DAT	DBPCH	.DAT
FIXZPC5	.DAT	DBCPCH	.BAT
FIX3A	.BAT	DBCPCH	.DAT
FIX3A	.DAT	FWPCH	.BAT
DOS3	.BAT	FWPCH	.DAT
DOS3A	.DAT	FW1PCH	.BAT
DOS3B	.DAT	FW1PCH	.DAT
DOS3C	.DAT	FW2PCH	.BAT
DOS3D	.DAT	FW2PCH	.DAT
DOS3E	.DAT	ENABPCH	.BAT
ANSISYS	.COM	ENABPCH	.DAT
MMPCH	.BAT	PALDPCH	.DAT
MMPCH	.DAT	MW1PCH	.BAT
VXPCH	.BAT	MW1PCH	.DAT
VXPCH	.DAT	MW2PCH	.BAT
EDIXPCH	.BAT	MW2PCH	.DAT
EDIXPCH	.DAT	SC3PCH	.BAT

PALPCH	.BAT	SC3PCH	.DAT
PALPCH	.DAT	SC3IPCH	.BAT
PALDPCH	.BAT	SC3IPCH	.DAT

Program Author: Patrick Swayne, HUG Software Engineer

Disk Content: The files on this disk are divided into three sections. The first section contains patches for ZPC itself. The patches are self-installing, and a special batch file called PREFIX .BAT selects the proper patches for your release of ZPC. The patches are only for level 3 of ZPC, but the assembly language code for the patches is provided in the file FIXASM.DOC so that you can fix your source code and assemble updated lower levels.

The second section of the ZPC Support Disk contains an emulator for the ANSI.SYS device driver that is supplied with MS-DOS for the Z-100 PC series computers. Some PC programs require ANSI.SYS, but it will not work on a Z-100, and the ANSICON .DVD driver supplied with Z-100 MS-DOS will not work while ZPC is in the PC mode. The file ANSISYS.COM on this disk, when loaded after ZPC, provides an exact emulation of the ANSI.SYS driver, so that programs requiring it will run properly. Once ANSISYS. COM has been loaded, ANSI emulation can be turned on or off using a companion program, ANSI.COM. You just give the command ANSI ON to turn emulation on, and ANSI OFF to turn it off.

The third section of the ZPC Support Disk contains patches that enable the following programs to run under ZPC: LOTUS 1-2-3 (PC version, release 1A), DBASE III (version 1.1), FRAMEWORK (version 1.1), ENABLE (version 1.1), MULTIMATE (Z-150 version 3.3), VOLKSWRITER DELUXE (version 2.0), EDIX (version 2.05), and PC PALETTE (version 1.0). Also included is a corrected patch for the Heath/Zenith release of SuperCalc3, a patch for the IBM PC release of SuperCalc3 (release 2.0), and alternate patches for Microsoft Word.

TABLE C Rating: (10)

P/N 885-3035-37 MSDOS SPELL5 & SPELL5F

Introduction: SPELL5 and SPELL5F are two spelling checkers designed to make spelling checking easier and truly useful. SPELL5 is a spelling checker for the English language, and SPELL5F is a spelling checker for French.

Requirements: Both programs require the H/Z-100 computer system (not PC) with 192k of memory. Included, are versions that will also work with 128k systems. Both programs will work with either monochrome or color CRTs. SPELL5 will work with any version of MSDOS.

The following programs or files are included on the HUG SPELL5 disk P/N 885-3035-37:

SPELL5	.COM	SPELL5F	.COM
DICTION	.SPL	DICTIONF	.SPL
SPELL5	.DOC	SPELL5F	.DOC
SPELL5	.128	FRENCH2	.CHR
README	.DOC		

Program Author: Ronald Perrella

Program Content: The SPELL5 program is a memory based spelling checker. It loads a dictionary called DICTION.SPL from the disk and checks a file for spelling errors. When an unknown word is encountered, it can either be skipped or integrated to the dictionary. The dictionary is a sorted list of words separated by a carriage return and linefeed. This dictionary can be edited by any text editor, if necessary. Multiple dictionaries are supported and so is IN CONTEXT spelling checking.

There is also a French version of this program, and in order to be used properly, the ALTCHAR.SYS file must be changed to the FRENCH2.CHR file.

The SPELL5 program was designed to be easy to use, not to be a 50,000 word speller. Its true capacity depends on the amount of memory you have. In a 192k byte system, you should be able to store about 10,000 words, and about half that many in a 128k byte system.

TABLE C Rating: (10)

P/N 885-3036-37 MS-DOS TREE-ID

Introduction: This Z-BASIC program was written to demonstrate a "generic" menu program for Z-BASIC, and arouse interest in tree identification using both text and graphics.

Requirements: TREE-ID requires an H/Z-100 (not PC) computer system with two 5-1/4" disk drives, 192k of system memory, a printer, 3 banks of 32k or 64k color memory, a color monitor, and either Z-DOS or MS-DOS.

The following files are included on the HUG P/N 885-3037-37 TREE-ID disk set:

Disk A

RUN	.BAT	RUNAB	.BAT
RUNI	.BAT	README	.DOC
TREE-ID	.EXE	AMEELM	.PRN
BASSWO	.PRN	BEECH	.PRN
BITHIC	.PRN	BLACHE	.PRN
BLAGUM	.PRN	BLALOC	.PRN
BLAOAK	.PRN	BLAWAL	.PRN
BLAWIL	.PRN	BLUBEE	.PRN
BOXELD	.PRN	BUROAK	.PRN
CHEOAK	.PRN	CHIOAK	.PRN
COFTRE	.PRN	COMCOT	.PRN
FLODOG	.PRN	HACKBE	.PRN
HONLOC	.PRN	IRONWO	.PRN
LARASP	.PRN	OHIBUC	.PRN
OSAORG	.PRN	PERSIM	.PRN
PIGHIC	.PRN	PINOAK	.PRN
REDBUD	.PRN	REDMAP	.PRN
REDMUL	.PRN	REDOAK	.PRN
RIVBIR	.PRN	SASAF	.PRN
SHAHIC	.PRN	SHIOAK	.PRN
SILMAP	.PRN	SLIELM	.PRN
SUGMAP	.PRN	SWAOAK	.PRN
SWEGUM	.PRN	SYCAMO	.PRN
TULIPT	.PRN	WHIASH	.PRN
WHIHIC	.PRN	WHIOAK	.PRN
GLOSSARY	.TXT		

Disk B

TREE-ID	.BAS	AMEELM	.PIC
BASSWO	.PIC	BEECH	.PIC
BITHIC	.PIC	BLACHE	.PIC
BLAGUM	.PIC	BLALOC	.PIC
BLAOAK	.PIC	BLAWAL	.PIC
BLAWIL	.PIC	BLUBEE	.PIC
BOXELD	.PIC	BUROAK	.PIC
CHEOAK	.PIC	CHIOAK	.PIC
COFTRE	.PIC	COMCOT	.PIC
FLODOG	.PIC	HACKBE	.PIC
HONLOC	.PIC	IRONWO	.PIC
LARASP	.PIC	MENU12	.PIC
MENU15	.PIC	MENU16	.PIC
MENU18	.PIC	MENU20	.PIC
MENU3	.PIC	MENU4	.PIC
OHIBUC	.PIC	OSAORG	.PIC
PERSIM	.PIC	PIGHIC	.PIC
PINOAK	.PIC	REDBUD	.PIC
REDMAP	.PIC	REDMUL	.PIC
REDOAK	.PIC	RIVBIR	.PIC
SASSAF	.PIC	SHAHIC	.PIC
SHIOAK	.PIC	SILMAP	.PIC
SLIELM	.PIC	SUGMAP	.PIC
SWAOAK	.PIC	SWEGUM	.PIC
SYCAMO	.PIC	TULIPT	.PIC
WHIASH	.PIC	WHIHIC	.PIC
WHIOAK	.PIC		

Author: Ronald B. Berger

Program Content: TREE-ID, is a tree identification program based on a simplified method from T.E. Shaw's pamphlet, "Fifty Trees Of Indiana", 1981, published by the Indiana State Forestry Division and by the Forestry Department Of Purdue University. This database is entirely menu driven, and very easy to use. It presently contains forty-five trees, but more menus and tree descriptions could be readily added. This program uses the high resolution color graphics capabilities of the H/Z-100 (not PC) computer to display help figures, as well as the leaves of tree being identified.

Comments: Although this program was written for floppy disk drives A: and B:, the source code could be changed to allow the program to work on a hard disk, or memory disk.

TABLE C Rating: (10)

P/N 885-3037-37 MS-DOS ZPC Version 2

Introduction: ZPC Version 2 is a program that emulates an IBM PC or compatible computer on an H/Z-100 series (dual processor) computer. It allows you to run many IBM PC programs on your H/Z-100 without having to add an expensive hardware modification. It supports all video modes, including text and graphics, of an IBM color/graphics card. Version 2 of ZPC is a significant enhancement of the original ZPC (HUG p/n 885-3030-37), and with it you can run much of the important PC business software. A list of programs that will run under ZPC Version 2 as of 3-13-86 is supplied later in this description.

Note: This version of ZPC supersedes both the original ZPC and the ZPC Support Disk (885-3034-37). If you have ZPC version 1, you can upgrade to version two by sending your original distribution disk and $20.00 to Heath Users' Group, Attn: Nancy Strunk, Hilltop Rd., St. Joseph, MI 49085. If you have both ZPC version 1 and the ZPC Support Disk, you can upgrade by sending both disks and $15.00 to HUG. Make checks payable to: Heath Users' Group.

For a description of the improvements in ZPC Version 2 compared to version 1, see the article "ZPC Version 2 is Here" in this issue.

Requirements: ZPC Version 2 requires an H/Z-100 or ET/ETA-100 series computer with MS-DOS version 2 or 3 and exactly 768k of memory. A small memory version of ZPC is supplied that will run in less than 768k of memory, but that version will only run a few PC programs. For best results, your computer should be equipped with color memory (either 32k or 64k chips).

The ZPC Version 2 disk contains these files:

README	.DOC	DISK	.ACM
ZPC	.COM	DOS	.ACM
ZPCSM	.COM	KEY	.ACM
PC	.COM	PIXEL	.ACM
Z100	.COM	PRINT	.ACM
SETZPC	.COM	PUTCHR	.ACM
ANSISYS	.COM	SCROLL	.ACM
SETANSI	.COM	PC	.ASM
PATCHER	.COM	Z100	.ASM
DEMO	.COM	SETZPC	.ASM
PATCHER	.DAT	ANSISYS	.ASM
FIXCB	.COM	SETANSI	.ASM
FIXQB	.COM	PATCHER	.ASM
FIXPSC	.COM	FIXCB	.ASM
FIXFWII	.COM	FIXQB	.ASM
ZPC	.ASM	FIXPSC	.ASM
COND	.ACM	FIXFWII	.ASM
DATA	.ACM	DEMO	.ASM

Author: Patrick Swayne, HUG Software Engineer.

ZPC.COM, ZPCSM.COM — These are the two versions of ZPC. ZPCSM.COM is for small memory systems (less than 768k), and ZPC.COM is for 768k systems. ZPC emulates the color/graphics adapter, the monochrome text adapter, the keyboard, printer I/O and disk I/O of an IBM PC or compatible computer.

ZPC is a background program that remains resident in memory after you run it. Once it has been loaded, you can turn on PC emulation to run IBM programs, and turn it off to run Z-100 programs. You do not need a second version of MS-DOS to run IBM programs under ZPC, and all your drives and partitions are supported.

Some programs require patching before they will run under ZPC. A patching utility is included, along with patches for several programs. ZPC Version 2 fully supports the ZPC Hardware Support (ZHS) circuitry that was described in the April 1986 issue of REMark. With ZHS installed, most supported programs do not have to be patched.

ZPC Version 2 can read some, but not all, copy protected programs. In particular, it cannot read a disk protected by SoftGuard. Fortunately, there are commercial programs available that let you use SoftGuard protected programs.

The following is a list of programs that can have been tested under ZPC Version 2 (with 768k of memory), as of 3-18-86.

Program:	See Notes:
BENCHMARK Word Processor vers. 4.4	1
CORNERSTONE database	1
Compiled PC GW-BASIC Programs	1
Compiled QUICKBASIC Programs	5
DAC EASY ACCOUNTING	1
DBASE III version 1.1	2,3,4
DBASE III + version 1.0	2,3,4
EDIX version 2.05	2,3
EINSTEIN WRITER version 7.2	2,3
ENABLE version 1.1	2,3
FRAMEWORK version 1.1	2,3,4
FRAMEWORK II version 1.0	2,3,4,5
GW-BASIC (Zenith PC versions)	2,3
LOTUS 1-2-3 release 1A	2,3
LOTUS SYMPHONY	1,4
MICROSOFT WORD vers. 1.1 (Zenith PC)	2,3
MICROSOFT WORD version 2.0	1
MULTIMATE version 3.3	2,3
MULTIPLAN version 1.2 (Zenith PC)	2,3
NORTON UTILITIES	1
PC FILE	1
PC PALETTE version 1.0	3
PC WRITE version 2.4 or 2.55	3
PRINT MASTER	1
RUN/C	1
SIDEWAYS version 2.02	1
SUPERCALC3 version 2.0, 2.1	3
TURBO PASCAL	1
VOLKSWRITER DELUXE version 2.0	3
WORD FINDER	1
WORD PERFECT version 4.1	2,3

Notes:

1. Runs without any patches or hardware support.
2. Runs in the monochrome mode without any patches or hardware support.
3. Runs without patches if the ZPC Hardware Support circuitry is installed. Otherwise, you must use the patches supplied with ZPC.
4. Copy protection must be removed before you can run this program.
5. Requires a special patcher, supplied with ZPC.

PC.COM — This program is used to turn on the IBM emulation mode after ZPC is loaded into memory. With PC.COM on your system disk, you just enter

```
A>PC
```

to turn IBM emulation on. PC can also be used to set a specific video mode, much like the MODE program used on IBM PCs.

Z100.COM — This program is used to turn off the IBM emulation mode. With Z100.COM on your system disk, you enter

```
A>Z100
```

to enter normal Z-100 operation. You can then run your Z-100 programs as usual.

SETZPC.COM — This program is used to set several parameters, such as the way ZPC emulates bright colors, etc, and the default video mode (when you run PC). You can also specify the character font to be used when ZPC is in the IBM mode. You can choose from an IBM-style font, the default Z-100 font, or a user supplied font (from a custom ALTCHAR.SYS). All changes made by SETZPC can be either temporary or permanent.

ANSISYS.COM — This program emulates the ANSI.SYS device driver that is used on PC-type computers. It will allow you to run programs that use ANSI codes.

SETANSI.COM — This program allows you to turn ANSI emulation on or off after you have loaded ANSISYS.

PATCHER.COM — This program is used to apply patches to programs that need them to run with ZPC. It is menu driven, and much easier to use than DEBUG. The patch information is stored in a data file, PATCHER.DAT, which is an ordinary text file that can be modified or added to using an editor or word processor. As patches for more programs are developed, they will be printed in REMark in PATCHER data file format.

PATCHER.DAT — The patcher data file. It contains patches for all programs in the list above that have a 3 in the note column.

FIXCB.COM — This program fixes compiled PC GW-BASIC programs so that they will run with the small memory version of ZPC. Patching is not needed if you have 768k of memory.

FIXQB.COM — This program fixes compiled QuickBASIC programs so that they will run with ZPC. It is for stand-alone programs, compiled using the /O option.

FIXPSC.COM — This program fixes Heath/Zenith and Clarkston screen printing utilities (Z-100 versions) so they can be used to dump graphic displays to a printer while ZPC is in the IBM mode.

FIXFWII.COM — This program applies a special patch to Framework II that cannot be done with PATCHER, to make it work with ZPC.

DEMO.COM — A program that demonstrates ZPC.

***.ASM, *.ACM** — These are the source code files for ZPC and its support programs.

TABLE C Rating: (2), (7), (10)

P/N 885-3038-37
Z-DOS/MS-DOS
DEBUG Support Utilities

Introduction: This disk contains three utilities designed to help you with debugging programs. They are designed to be used with the standard MS-DOS DEBUG utility or other similar utilities. The three utilities are:

Processor Window — This utility allows you to "look inside" your microprocessor in your computer while it is running. It will display any two 16-bit registers, any two 16-bit memory locations, or one register and one memory location on the screen in the upper right corner, while any program is running. You can use this utility to see how a program alters an interrupt vector, where it gets "stuck" in an endless loop, and for many other purposes. This utility was developed and used to debug ZPC, and get PC programs running under it. It works with or without DEBUG.

Breakout — This utility allows you to run a program under DEBUG, and then break out of the program back into DEBUG even though you have not hit or even set a breakpoint. It allows you to get out of endless loops or "runaway" programs.

Anti-Paranoid — This utility allows you to debug "paranoid" commercial programs that otherwise cannot be debugged because they destroy the breakpoint interrupt. Two versions of this utility are included, which take two different approaches to solving the "paranoid program" problem.

Requirements: You will need an H/Z-100 or H/Z-100 PC series computer, any version of MS-DOS or Z-DOS, and the DEBUG utility that came with your DOS, or another debugging utility. The second version of ANTI-PARANOID requires 512k of RAM, but the other utilities will work in a minimum (128k) system.

Here is a list of the files on the DEBUG Support Utilities disk:

README	.DOC	APNOID2	.COM
PWINDOW	.POM	APSET2	.BAT
PWINDOW	.ZOM	PWINDOW	.PSM
PW	.COM	PWINDOW	.ZSM
BRKOUT	.POM	PW	.ASM
BRKOUT	.ZOM	BRKOUT	.PSM
BRK	.COM	BRKOUT	.ZSM
APNOID	.COM	BRK	.ASM
APSETP	.COM	APNOID	.ASM
APSET	.BAT	APSETP	.ASM
APSET	.DAT	APNOID2	.ASM

Author: Patrick Swayne, HUG Software Engineer

PWINDOW.POM, PWINDOW.ZOM — These are two versions of Processor Window, for PC or Z-100 type computers. You must rename the extension of the version you use to .COM before you can run it. PWINDOW remains resident in memory, and is controlled by the PW program, described below, once it has been installed.

PW.COM — This program is used to "open" or "close" the processor window, and to set what it will display on the screen. For example, to display the values of the CS and IP registers on the screen, you would enter

```
PW CS,IP
```

The actual display is in the form nnnn:nnnn, where nnnn represents a hexadecimal number.

BRKOUT.POM, BRKOUT.ZOM — These are two versions of Breakout, for PC or Z-100 type computers. You must rename the extension of the version you use to .COM before you can run it. BRKOUT is a memory resident program. While it is loaded and active, you can break out of the program you are debugging by pressing a special key sequence. It will not break out if it detects that a DOS function is being executed at the time you press the key sequence, to protect the operating system.

BRK.COM — This program is used to enable or disable BRKOUT, once it has been installed.

APNOID.COM — This is the first version of Anti-Paranoid. It works by capturing nearly every interrupt vector, and fixing the breakpoint and single step interrupt vectors during each interrupt. The captured interrupts are passed through unchanged. APNOID is a memory resident utility.

APSETP.COM, APSET.BAT, APSET.DAT — These files are used to set up APNOID before each debugging session. They make sure that it restores the breakpoint and single step interrupts correctly. The batch file, APSET.BAT, controls everything else.

APNOID2.COM — This is the second version of Anti-Paranoid. Some programs will not run if they detect that the breakpoint interrupt has been fixed. They usually clear the breakpoint vector to all zeros, so APNOID2 places a jump at 0:0 that eventually gets to the breakpoint routine. Some Microsoft programs clear the breakpoint vector to 4E4E:4E4E, so APNOID2 places a vector there, too, if it detects enough free memory. The single step vector is not protected by this version, and the divide-by-zero interrupt is destroyed by the jump placed at 0:0.

APSET2.BAT — This runs APNOID2.COM under the control of DEBUG, so that the vectors are set properly.

***.ASM, *.PSM, *.ZSM** — Assembly source code for the DEBUG Support Utilities programs.

P/N 885-3039-37
HelpScreen

Introduction: HelpScreen is a program to create and place in upper video RAM on the H/Z-100 (not PC) computer, useful, user-generated help messages. These messages (help screens) can be requested at any time during the execution of a piece of software.

Requirements: HelpScreen requires 64k video chips and version 2.5 or higher Monitor ROM on an H/Z-100 (not PC). It will run under Z-DOS (MS-DOS ver. 1), or any version of MS-DOS.

The files included on this disk are:

HELPSCRN	.ASM	- Source code for the program
HELPSCRN	.COM	- Executable program
SAMPLE	.HLP	- Example "help screen" file
WORDSTAR	.HLP	- Wordstar "help-screen" file
ZPC	.HLP	- ZPC (PC emulator by Pat Swayne) "help screen" file
README	.DOC	- ASCII program documentation file

Authors: Dennis Myers and George Crawford

Program Content: HelpScreen is a program written to give users of the Zenith H/Z-100 (not PC) computer the ability to create their own "help screens" for any program they wish. The program consists of (1) a small text editor that allows the creation of a "help screen message", (2) a non-resident module that allows the "loading" of a "help screen message" into video RAM, and (3) a resident module that "toggles" video memory whenever the appropriate "toggle key" (either the HELP or SHIFT-HELP) is struck. When this toggle occurs, the program in execution is "interrupted", and the help screen message is instantaneously displayed. When the toggle key is again struck, the interrupted program resumes EXACTLY where it was interrupted from.

Comments: Excellent for complex programs having hundreds of commands (like Wordstar) that you know exist, but don't feel like looking up in the manual.

TABLE C Rating: (9)

P/N 885-3040-37
HADES

Introduction: HADES is an acronym for Hug's Absolute Disk Editing System. In short, HADES is a screen oriented byte (or disk) editor with file recovery and attribute modifying capabilities.

Requirements: HADES requires MS-DOS version 2.0 or greater on any Heath/Zenith 16 bit computer with at least 128k of RAM. These systems include: H/Z-100, 110, 120, 130, 140, 150, 160, 170, 180, and 200 series of computers. HADES will also work with the IBM PC, XT, and AT.

The following files are included on the HUG 885-3040-37 HADES disk:

README	.DOC	- Preliminary information and disclaimer.
DHADES	.EXE	- Demo/Non-Destructive version of HADES.
HADES	.EXE	- Full implementation version.

Also included with this software, is an extensive users manual.

Author: Jim Buszkiewicz (Heath Users' Group)

Program Content: HADES is a program that gives the MS-DOS user, almost total control over the data residing on his disk. In addition, file attributes can be displayed and modified (within the capabilities of MS-DOS). Finally, the software has the ability to recover any file or sub-directory that's been accidentally erased (providing no other disk writes have occurred since the erasure).

When HADES first signs on, the main menu is displayed, and looks like the following:

```
F1 - Help
F2 - Directory Mode
F3 - Sector Mode
F4 - File Mode
F5 - Un-Erase Mode
F6 - Change Drives
F7 - Color/Monochrome

F9 - Exit To MS-DOS
```

Online help is always available, and can be called up by pressing the F1 function key.

The F2 enters the Directory Mode. From this mode, the user can view all the files (one page at a time), on his currently logged directory, along with each files' attributes. These include. <R>ead Only, <H>idden, <S>ystem, <A>rchive, and <D>irectory. Each file can have its attributes changed or removed including hidden sub-directories! The user can also change directories from this mode.

The F3 key enters the Sector Mode. This mode gives the user a 128 byte window into each sector on his disk. This window can be moved anywhere within the sector, as well as to any sector or cluster. Any byte in any DOS accessible sector can be viewed, modified, and then permanently recorded on disk! Data can be entered in hex or ascii. The entire disk can be searched for strings of hex or ascii data. Once found, the same string can be searched for again from the current disk position. Finally, the currently viewed sector can be displayed on any listing device. In this sector mode, the keypad keys act as your 'steering wheel' to all the data on your disk. On the H/Z-100 (Not PC), not only are the cursor and HOME keys active, but the rest of the keypad acts in the same manner as the keypad on the PC series of computers, allowing both systems to be operated in an identical fashion.

The F4 key enters the file mode of operation. The name of an existing file must be entered before HADES allows this mode to continue. Once found (in the currently logged directory), each cluster of the file is displayed, in the same manner individual sectors are. Any byte, in any of the file's clusters, can be viewed, modified, and then permanently recorded back on disk. HADES always displays the current cluster, along with the next eight clusters (if the file is that long) of the file. As the user moves through each cluster, the cluster list is updated in ticker-tape fashion. No other sectors or clusters can be viewed or modified except those contained in the original requested file. Like in the Sector Mode, you can search for strings of either hex or ascii data. Only each cluster in the file itself will be searched for this data.

The F5 key allows the user to recover a file or sub-directory that's been accidentally erased. The file recovery is done automatically, and two important conditions must be met before a successful recovery can be made.

1. The file being recovered must be the LAST file to have been erased on the disk.
2. After the actual file erasure, no disk writes should have occurred.

The file recovery method used, is called a 'blind search'. HADES uses the first cluster pointer in the directory entry into the FAT. From there, free clusters are allocated sequentially to the lost file until the file size is satisfied.

The F6 key allows the user to log into a different drive. This function allows HADES to record all the necessary parameters of the drive being used.

The F7 key toggles between a white on black monochrome display and a white on blue with gray border color display.

The F9 key returns you safely to the MS-DOS operating system. This is the only SAFE way to exit other that a cold boot.

Comments: The abilities of HADES have been tested on virtually every Zenith 16 bit computer and drive combination including the H/Z-100 with 8" single density single-sided drives, as well as the new Z-181 with new 3" drives. HADES has yet to fail!! In the hands of an experienced MS-DOS user, HADES can be a very powerful tool. To the beginner, HADES is a window to the secrets of disk formats and file structures. Even if you never use HADES for anything other than to recover a single file, the day you see that file magically return to the world of the living, you'll say "..thank Heaven for HADES"!

TABLE C Rating: 10

P/N 885-3041-37 SCREENDUMP

Introduction: SCDMP is a utility that allows reproduction of a complete video screen on a dot matrix printer, including both text and graphics, without having to exit the current program. The SCDMP program may be loaded manually (by entering SCDMP <cr>) or automatically, via 'autoexec.bat', into memory at the beginning of a session where it remains resident until needed. This version of SCDMP is a update to and supersedes the version released on HUG P/N 885-3022-37, ZDOS/MSDOS Useful Programs I. Versions for both the Z-100 and Z-150 (IBM PC and most compatibles) are included. Additional features have been added to the programs which provide greater screen dump flexibility. A summary of the new features are as follows:

For Z-100

- Dumps All VRAM banks (everything on screen regardless of color), as well as choice of red, green, or blue.
- Dumps TEXT only (similar to PSC.COM).

For Z-150

- Dumps GRAPHICS (must be in graphics mode) or TEXT (even if in graphics mode).
- Version for ZPC on the Z-100 (all Z-150 features supported) or both.
- Dump either a positive or negative image of screen.
- Higher density dump supported on all printers.
- Dump either a 24 or 25 line screen.
- Change default settings by the command line on initial entry or via SHIFT-F12/SHIFT-PrtSc.
- Print out current default settings any time desired.
- More printers supported (C. Itoh, Epson, Gemini, IBM, MPI, NEC, Anadex, and IDS) (Versions in preparation for the Epson, Toshiba, and other 24 pin printers).
- Sample routines to call from within your own program. See the documentation file (SCDMP.DOC) for complete description of features and instructions for use.

Requirements: This program requires MSDOS operating system (Version 1.1 or higher) on an H/Z-100 or H/Z-150 computer. The printers currently supported are the C. Itoh 8510/1550 Series with 2K buffer, NEC 8023A, Epson MX/RX/FX Series with Graftrax, Star Micronics Gemini Series, Okidata Microline Series, Zenith/MPI 99/150 Series, Anadex Silent Scribe Series, IBM Proprinter, and IDS Paper Tiger printers.

The following files are included on the HUG P/N 3041-37 SCREENDUMP disk:

README	.DOC	Initial startup info and disclaimer
SCDMP	.DOC	Screen Dump information
SCDMPCIT	.100	Z-100 Vers for C. Itoh 8510/1550
SCDMPCIT	.150	Z-150 Vers for C. Itoh 8510/1550
SCDMPCIT	.ZPC	Z-100 ZPC Version for C. Itoh 8510/1550
SCDMPNEC	.100	Z-100 Version for NEC 8023A
SCDMPNEC	.150	Z-150 Version for NEC 8023A
SCDMPNEC	.ZPC	Z-100 ZPC Version for NEC 8023A
SCDMPCIT	.ASM	Source for C. Itoh 8510/1550 and NEC 8023A
SCDMPEPS	.100	Z-100 Version for Epson MX/RX/FX
SCDMPEPS	.150	Z-150 Version for Epson MX/RX/FX
SCDMPEPS	.ZPC	Z-100 ZPC Version for Epson MX/RX/FX
SCDMPIBM	.100	Z-100 Version for IBM Proprinter
SCDMPIBM	.150	Z-150 Version for IBM Proprinter
SCDMPIBM	.ZPC	Z-100 ZPC Vers for IBM Proprinter
SCDMPEPS	.ASM	Source for Epson MX/RX/FX and IBM Proprinter
SCDMPGEM	.100	Z-100 Version for Star Micronics Gemini
SCDMPGEM	.150	Z-150 Version for Star Micronics Gemini
SCDMPGEM	.ZPC	Z-100 ZPC Vers for Star Micronics Gemini
SCDMPGMX	.100	Z-100 Vers for Star Micronics Gemini 10X
SCDMPGMX	.150	Z-150 Vers for Star Micronics Gemini 10X
SCDMPGMX	.ZPC	Z-100 ZPC Vers for Star Micronics Gemini 10X
SCDMPGEM	.ASM	Source for Star Micronics Gemini Series
SCDMPOKI	.100	Z-100 Vers for Okidata Microline
SCDMPOKI	.150	Z-150 Vers for Okidata Microline
SCDMPOKI	.ZPC	Z-100 ZPC Version for Okidata Microline
SCDMPOKI	.ASM	Source for Okidata Microline
SCDMPMPI	.100	Z-100 Vers for Zenith/MPI 99/150
SCDMPMPI	.150	Z-150 Vers for Zenith/MPI 99/150
SCDMPMPI	.ZPC	Z-100 ZPC Version for Zenith/MPI 99/150
SCDMPMPI	.ASM	Source for Zenith/MPI 99/150
SCDMPANA	.100	Z-100 Vers for Anadex Silent Scribe
SCDMPANA	.150	Z-150 Vers for Anadex Silent Scribe
SCDMPANA	.ZPC	Z-100 ZPC Vers for Anadex Silent Scribe
SCDMPANA	.ASM	Source for Anadex Silent Scribe
SCDMPIDS	.100	Z-100 Version for IDS Paper Tiger
SCDMPIDS	.150	Z-150 Version for IDS Paper Tiger
SCDMPIDS	.ZPC	Z-100 ZPC Vers for IDS Paper Tiger
SCDMPIDS	.ASM	Source for IDS Paper Tiger
SCDMP-RL	.SKL	Skeleton vers for use in building a program
SCDMP-LR	.SKL	for your unique printer or application
SCDMP	.BAT	Batch file for auto load of SCDMP .COM (rename the appropriate program to SCDMP.COM)
INT5	.BAS	Sample BASIC program to call int-5
INT5	.ASM	Assembly subroutine for above
INT5	.BIN	Assembled subroutine for call from BASIC
CINT5	.BAS	Sample BASIC program for Compiler to call int-5
CINT5	.ASM	Assembly subroutine for above
CINT5	.OBJ	Object file for linking with Compiled BASIC

Program Author: Leslie L. Bordelon

Operation: For the Z-100, the program allows a choice of which color bank of video RAM is dumped (if the user has all banks of color RAM in his Z-100). The number of VRAM banks installed in your computer is determined by SCDMP upon initial load. For the color version, entering a <B> for blue, <R> for red, <G> for green, or <A> for all banks immediately after the <SHIFT-F12> will select the VRAM bank to be printed. If no character is entered, <A>ll banks is the default. If only one bank of color RAM is installed, only the green bank can be dumped. Entering a <T> will cause only the text on the screen to be dumped unformatted to the printer.

For the Z-150, you can option to print only text, even if in the graphics mode, by entering a <T> for text immediately after the <SHIFT-PrtSc>. However, if in the Z-150 text mode (modes 0, 1, 2, or 3) then only screen text can be dumped (using the ROM text dump), even if SCDMP is set for graphics dump.

The program allows the printing of the screen image as either a positive or negative. Entering a <P> for positive or <N> for negative after the <SHIFT-F12> or <SHIFT-PrtSc> will change the image printed. When set to negative image, text on a black

background is printed as black on white. This is the default setting for SCDMP. A positive image would appear as white text on a black background. This provides some additional flexibility when printing complicated artwork using various shades of colors.

The program also allows multiple density printing. This is accomplished by using a higher dot density in graphics mode if the printer supports such. For those printers that do not, high density is achieved by overprinting each line a second time. Entering an <H> immediately after the <SHIFT-F12> for Z-100 or <SHIFT-PrtSc> for Z-150 or color selection would cause the printer to use a higher density mode for printing. The default density is normal or standard density.

The program also allows a choice of printing the twenty-fifth line (only if displayed for the Z-100). Entering a <D> immediately after the <SHIFT-F12> for Z-100 or <SHIFT-PrtSc> for Z-150 or color or density selection will cause SCDMP to ignore the 25th line even if it is displayed.

Two skeleton versions of the program are also provided as an aid in building a program for a non-supported printer. The skeleton versions present an outline for both options of scanning the Z-100/Z-150 screen depending on your specific type of printer. With this data and a little trial and error on the user's part, a successful product for a unique printer can be developed.

Comments: none

TABLE C Rating: (10)

885-3042-37

See Page 26

P/N 885-6002-37 MS-DOS CP/EMulator II & ZEMulator Update

CP/EMulator II is a program that allows you to run CP/M programs under MS-DOS on an IBM-PC compatible computer, such as the H/Z-150 series, etc. ZEMulator is a program that emulates the Z-100's function keys and escape codes. They have been improved considerably and re-released under the same HUG part number. For a description of the original program, see page 42 of your HUG Software Catalog Update #1.

CP/EMulator II has been improved in the following ways:

- Support of the V20. If you have a V20 processor in your computer, CP/EMulator II will use it to execute the 8-bit code in CP/M programs, which will cause them to run much faster. If you do not have a V20, CP/EMulator II will emulate the 8-bit code itself. It automatically detects the V20 and uses it, if one is installed.
- Faster screen output. Whether you have a V20 or not, CP/EMulator II will be faster than before, because screen output has been speeded up.
- Runs more programs. CP/EMulator II has been improved to run more CP/M programs, including WordStar (all functions), PIP (all switches), and ED.

ZEMulator has been improved to include a special graphics mode that provides all H19 graphics characters for use on the newer Heath/Zenith computers, that do not have the graphics characters built-in. For older H/Z PCs, such as the H/Z-150 series, the built-in H19 characters can still be used.

In addition to the above improvements, the CP/EMulator II and ZEMulator disk comes with two new programs that were not on the original disk. These programs were designed for the H-8 or H-89 CP/M user who also has a PC-compatible computer.

HRDCPM — This program works like the RDCPM program included with your Heath/Zenith MS-DOS, but it can read H-89 or H-8 format double-density, 48 tpi, single- or double-sided, soft-sector disks, as well as Z-100 CP/M disks. The Heath/Zenith RDCPM program for PC compatibles can read Z-100 disks and IBM CP/M-86 disks, but not H-89 disks. **Note:** HRDCPM cannot read SINGLE-DENSITY, soft-sector disks or hard-sector disks, because the PC disk controller is incapable of reading such disks.

TF89 — This program allows you to connect your Heath/Zenith PC and your H-8 or H-89 together with a serial cable, and transfer CP/M files from the H-8 or H-89 to the PC. PIP is used on the H-8 or H-89 to send the file, and TF89 receives it and saves it on your MS-DOS disk. The transfer rate is 9600 baud, and any file (text or machine code) can be transferred. If your H-8 or H-89 cannot produce a disk format that HRDCPM can read, you can still transfer files using TF89.

If you have the original CP/EMulator II and ZEMulator disk, and would like to upgrade, send in your original HUG disk and $5.00 to Heath/Zenith Users' Group, Attn: Nancy Strunk, Hilltop Road, St. Joseph, MI 49085. Make checks payable to: Heath/Zenith Users' Group.

P/N 885-6008-37 MSDOS NAVPROG

Introduction: NAVPROGseven is a database management system designed for pilots flying cross-country. The system is built around a latitude/longitude referenced navigation program designed to prepare a flight log that is ready for use in the cockpit. It is equally adaptable to the needs of VFR and IFR flight.

The system stores performance data for each aircraft the user flies, navigation data about each checkpoint, airport, or navaid the user flies over, and saves this information for easy access on subsequent flights.

Requirements: This version of NAVPROGseven is designed to run on the MSDOS operating system version 2.0 or greater on the H/Z-100 PC with at least 64k of memory. NAVPROGseven requires a dual-disk drive system and a line printer. The programs are written under and requires the Microsoft GW-BASIC version 1.0+.

The following files are included on the distribution disk 885-6008-37:

NAVPROG7	.BAS	DISKAID	.DAT
DISKBID	.DAT	MENU	.BAS
AIRINPUT	.BAS	AIRCRAFT	.BAS
AIRROUTE	.BAS	OLDROUTE	.BAS
RNAVREF	.BAS	AIRALPHA	.BAS
AUTONAV	.BAS	N73116	
N81259		AIRINDEX	.RND
AIRPORTS	.RND	ROUTINGS	.DAT
RNAVLIST	.DAT	BEH	.LUK
LUK	.BEH	README	.DOC

Program Authors: Originally written by Alan Bose for use on the H-89 under HDOS. An update for CP/M was prepared by Glen Hassebrock Jr. This version was adapted for the PC by Peter Ambrose.

Files: The main program content will be described below. The following is a brief description of the data files used by NAVPROGseven:

N73116 and N81259 — These files are sample aircraft data, which may be deleted manually or by the program after the user has experimented with NAVPROGseven.

AIRINDEX.RND and AIRPORTS.RND — These data files contain over 100 checkpoints already on file. These files can be revised from within NAVPROGseven or the user can delete them and start over with his own data.

RNAVLIST.DAT — This file saves the fixes or checkpoints that have RNAV cross-bearings.

ROUTINGS.DAT — This file contains a sample index of routes on file. This file will be updated through the program.

BEH.LUK and LUK.BEH — These data files are sample routes on file.

Program Content: The title of NAVPROGseven comes from the features and functions designed into the system, many of which are not found in similar programs.

1. Easy input & revision of the airport/navaid database.
2. Two RNAV (area navigation) functions that return the latitude and longitude of a location based on cross-bearings from known points.
3. Aircraft performance data stored for each airplane you fly.
4. Easy access and display of airport and checkpoint information using standard ICAO identifiers as you plan your route of flight. Automatic flight planning selects navaids closest to your great circle route and prepares several alternate routings. Often flown routes can be saved for later use.
5. Great circle navigation between checkpoints using aircraft performance data, and printout of ready-to-use flight log.
6. Climb/descent profiles calculated based on aircraft performance data.
7. Multiple sort criteria to organize airport/navaid data into easy-to-read printouts.

The comprehensive flight log tells the field elevation of the departure and destination airports, navaid frequencies enroute, distances for each leg and total remaining, true and magnetic course, magnetic heading corrected for wind and magnetic compass variation, groundspeed corrected for wind and climb and/or cruise leg segments, ETE and ETA for each leg, fuel usage based on climb and/or cruise with startup/taxi/takeoff fuel accounted for, fuel remaining, and a warning if reserves will be less than IFR or VFR minimums.

In addition, a synopsis of the flight tells the fuel used, reserves in gallons and time, fuel/time/distance required to climb, how far out from the destination the user should begin his descent to maintain a 2 degree descent profile.

Master Menu: There are eight programs called by six user selectable items on the master menu. The master menu includes the following options:

- Input/Revise Airport and Navaid Data
- Input Aircraft Performance Data
- Automatic Route Preparation
- Air Navigation and Flight Planning
- Navigate Pre-Planned Route
- Sort & List Data on File

These options provide a complete capability for using the stored information to plan flights, prepare comprehensive flight logs for in-flight use, add new data to the database and to maintain the accuracy of the database.

Comments: NAVPROGseven was written for aircraft navigation but is not limited to pilots alone. The great-circle navigation and radio-beacon cross-bearings can be helpful to sailors who also have a need to navigate efficiently, though at a slower pace. The system is menu-driven and includes all necessary documentation for use. The programs are self-prompting with one-key responses and many safety checks that allow the user to go back to the menu and start over.

As mentioned above, the programs come with sample data that allows the pilot to 'test-fly' the system before creating his own database, and there are over 100 airports and navaids already on file that will get the pilot off to a running start.

TABLE C Rating: (10)

NAVPROGseven Update

HUG P/N 885-6008-37, NAVPROGseven for the H/Z-150, has been updated, by the author, to NAVPROGeight. This latest version has a new feature which performs the weight and balance calculations for the aircraft. Only this newest version will be shipped when ordering.

P/N 885-6009-37 MS-DOS Screen Saver Plus

Introduction: This disk contains four MS-DOS utilities for the H/Z-100 PC computer systems: ScreenSaver, DualScreen, ChangeSpeed, and a Print SCreen utility for Text Modes.

Requirements: All four programs require MS-DOS version 2.0 or greater, and a minimum amount of memory. The ChangeSpeed utility is specifically for the H/Z-200 computer system, while the other three, will run on any H/Z-150/160/200 or IBM compatible. CS, requires that both the Z-309/409 color graphics card and the Z-329 high resolution monochrome card be installed in the computer system, as well as a monitor be connected to both cards.

The following files are included on the HUG P/N 885-6009-37 Screen Saver Plus disk:

SS	.ASM	SS	.COM
DS	.ASM	DS	.COM
CS	.ASM	CS	.COM
PSCTM	.ASM	PSCTM	.COM
README	.DOC		

Authors: SS, DS, and CS, by Jim Buszkiewicz, PSCTM by Pat Swayne.

SS (ScreenSaver) is a program specifically for the H/Z-100 PC series of computers (H/Z-150/160/200) or IBM compatible. SS

will, after a predetermined length of time of screen and keyboard inactivity, blank the color graphics screen or high resolution monochrome graphics screen, eliminating the possibility of 'burned' phosphor on the CRT. Upon any key entry, or any screen activity, the original screen information will be restored and updated. ScreenSaver works in all video modes except 4 and 5 (medium resolution color graphics mode), which is normally used for game playing. ScreenSaver can be set for any length of time between 1 and 60 minutes of delay before blanking the screen because of inactivity.

DS (DualScreen) is a utility that allows any text that appears on the color graphics screen, to appear on the Z-329 high resolution monochrome screen. This eliminates the need for changing video modes when doing word processing or editing. The 'action' of this program can be turned 'on' and 'off' at will, once it has been installed in memory. Take note that, due to the time needed to refresh the video screen, this utility will not work simultaneously with modem communication packages.

CS (ChangeSpeed) is a utility for the H/Z-241 series of computers. It is also the same program that appeared on page 50 of the March 1986 issue of REMark magazine. This utility takes advantage of an undocumented feature of the '241, and allows the user to change the speed of the computer to that of a standard 5 Mhz H/Z-150/160, and then back again to the computer's normal speed at will.

PSCTM (Print SCreen utility for Text Modes) is designed to be used in conjunction with a graphic PSC (Print Screen) utility, to allow it to work in the text modes. It allows you to print a duplicate of what is on the screen, including text mode graphic characters and special symbols. It works with any printer for which you have a graphic print screen utility.

TABLE C Rating: (10)

P/N 885-8035-37 MS-DOS Documat & Doculist UPDATE

This popular Word Processor/Text Formatter is being re-released under the same part number 885-8035-37, and will now work with either the H/Z-100 or H/Z-100/200 PC computer systems. This latest version, 2.1, now includes the following enhancements:

1. Macros can now be longer than 256 characters.
2. Full MS-DOS path names are now permitted.
3. Proper operation with RAM drives and windowing software.
4. Output from DOCULIST can now be sent to a file.

For a more complete description of this product, see page 60 of the HUG Software UPDATE catalog, or issue 70 (Nov. '85) of REMark.

P/N 885-8038-37 MSDOS RF-CAD Ver. 3.50

Introduction: RFCAD is an integrated collection of programs written in BASIC which will aid the user in designing many types of electronic circuits and antennas. This package should be invaluable to radio amateurs, electronic engineers, or anyone who has occasion to design circuitry or antennas for RF or Microwave frequencies. It is particularly useful to persons interested in satellite earth station design and construction, and also those who wish to purchase a ready made earth station. RFCAD is also useful as an instruction aid in teaching electronic theory. The user is free to experiment with various configurations and values without having to build the circuit to determine the results.

Requirements: RFCAD requires an H/Z-100 PC/200 PC system with a minimum (128k) amount of memory. A single 5-1/4" disk drive is required, and an 80 column printer is optional. Any version of MSDOS and Microsoft's BASIC is also needed.

In addition to the printed users' manual that comes with this product, the following programs or files are included on this HUG RFCAD disk P/N 885-8038-37:

AELIPT	.BAS	AFILTER	.BAS
AFPLOT	.BAS	BFILTER	.BAS
CADMENU	.BAS	CHORN	.BAS
COIL	.BAS	CONFIG	.BAS
DBCONV	.BAS	DISH	.BAS
EME	.BAS	EQUALZ	.BAS
FED	.BAS	FREQWAV	.BAS
HELIX	.BAS	HELP	.BAS
HORN	.BAS	LHFILTER	.BAS
LPI	.BAS	MATCHER	.BAS
MFILTER	.BAS	MOD	.BAS
MSCONV	.BAS	MSTRIP	.BAS
NE555	.BAS	NFCONV	.BAS
OSC	.BAS	PATH	.BAS
PELIPT	.BAS	PFILTER	.BAS
README	.DOC	RESNET	.BAS
RESONNCE	.BAS	SATANT	.BAS
SPLIR	.BAS	TLINE	.BAS
WNDLD	.BAS	YAGI	.BAS
ZCONV	.BAS		

Program Author: Gary A. Field

Program Content: Ease of use is one of RFCAD's primary features. Wherever possible, the user is presented with menus of choices and examples of input data being requested. Since full source code is provided, the user may if he wishes, modify any of the programs to suit his own needs.

The designs covered by this package have been selected based mainly on needs of the author. Whenever the need to design a circuit involving extensive calculation arose, a program was written to perform the necessary task. After a large number of functions were available, a menu driver was created to make access to all the functions simpler and more uniform. The entire set of programs was written in the simplest form of BASIC with particular attention to readability and maintainability, so that the user can modify it for his own use.

The information required to perform the calculations was obtained from a great many sources; magazine articles, textbooks, papers and verbal information from friends (Joe Reisert - W1JR and Peter Reilley - KA1LAT). The particular source is listed in the program listing. Any formulas or algorithms not credited in this manner were derived by the author or taken from his own memory.

Upon execution of the program, the following menu of design aids is available:

(1) Low Frequency circuit design
(2) High Frequency circuit design
(3) UHF and Microwave circuit design
(4) Antenna and Transmission line design
(5) Filter design
(6) Space Communications Aids
(7) Miscellaneous conversions
(8) Strays
(9) Help
(10) Return to O/S

Included with the documentation are schematics of various design aids, which are referenced by the actual program itself.

TABLE C Rating: (10)

P/N 885-8039-37 MS-DOS DPATH

Introduction: DPATH is an MS-DOS utility which provides a data directory path search facility. Once loaded into memory, DPATH remains resident, and provides directory searching for data and overlay files in much the same way that the MS-DOS 'PATH' command causes searches for executable files.

Requirements: DPATH was designed for use on a Z-100 computer running MS-DOS version 2, but can be easily modified for use on any machine running MS-DOS version 2 or MS-DOS version 3. A version is supplied for use on Z-100 PC systems, and any other PC, XT or AT compatible.

The following files are included on this distribution disk:

DPATH	.COM	Z-100 version of DPATH
DPATHPC	.COM	Z-100 PC version of DPATH
DPATH	.DOC	Documentation file
DPATH	.ASM	Assembler source for DPATH
STRUCT	.ASM	Structure macros for DPATH.ASM
README	.DOC	Startup info

Program Author: Gordon Buchanan

DPATH.COM — An MS-DOS utility program that can help you to organize data and programs within the MS-DOS hierarchial file structure. DPATH searches for data files and program overlays in much the same way that the MS-DOS PATH command searches for executable command files. Once loaded into memory, DPATH becomes part of DOS and provides a directory search facility that is available to all subsequently executed programs.

When DPATH is used in conjunction with the PATH command, all programs, program overlays, device drivers, configuration files, global databases, help files, etc., can be stored in one or more user defined "system" directories, and removed completely from all application directories. The files in your system directories will be accessible from anywhere in the hierarchial file structure. The following benefits are thus gained.

- Better organized file structure, resulting in fewer files in application directories, and making it easier to find information on a disk.
- More free disk space because copies of programs and associated files are not needed in each application directory.

DPATH.DOC — Documentation for DPATH suitable for output on a printer. Includes information on the internal operations of DPATH and tells how to modify the program for use on different MS-DOS computers.

DPATH.ASM — Assembler source code for DPATH, using the MS-DOS assembler. Well documented, and written in a structured manner.

STRUCT.ASM — A set of macros which are required to assemble DPATH.ASM. These macros provide a set of coding structures for the MS-DOS assembler programmer. Includes WHILE-ENDW, REPEAT-UNTIL and IF-ELSE-ENDIF, which are completely nestable.

Comments: This program provides a facility which should have been built into DOS. A must for the hard disk user.

TABLE C Rating: (10)

P/N 885-8040-37 MS-DOS HELP

Introduction: This package provides a comprehensive interactive HELP facility for Zenith Data Systems' implementation of both Version 2 and 3 of the Microsoft Disk Operating System (MS-DOS) for Zenith Z-100 series personal computers and IBM-PC compatible (Z-100 PC) personal computers.

The HELP programs and database files in this package allow quick and efficient access to complete MS-DOS command information which eliminates the need to have several manuals at the computer when command reference information is needed. The database files include all of the standard Zenith MS-DOS commands as documented in the Zenith MS-DOS manuals for both the Z-100 and Z-100 PC series computers, as well as the Zenith MS-DOS Programmer's Utility Package.

The database files are user extensible. The HELP programs and format of the database files were designed to be easily updated using a standard text editor. You can even create new HELP database files for your favorite word processor, modem communications program or programming language. Complete BASIC language source code is provided so that you can modify or enhance the programs as desired.

Requirements: An H/Z-100 series or H/Z-100 PC series personal computer and the MS-DOS operating system (either Version 2 or 3) are required. About 120k of disk space is required for the HELP program and database file, although the database file can be edited to reduce its size, if desired. The HELP programs require 128k bytes of memory. The HELP database can be modified using any standard text editor and the CNVT utility program provided. To modify the HELP programs, you must have either the Z-100 Z-BASIC compiler, or an IBM-PC compatible BASIC compiler.

The following files are included on this distribution disk:

README	.DOC	— Documentation file for the HELP program
HELP100	.BAS	— BASIC source code for Z-100 HELP program
HELP100	.EXE	— executable version of Z-100 HELP program

HELPPC	.BAS	— BASIC source code for the Z-100 PC HELP program
HELPPC	.EXE	— executable version of Z-100 PC HELP program
CNVT	.BAS	— BASIC source code for data base conversion program
CNVT100	.EXE	— executable version of Z-100 conversion program
CNVTPC	.EXE	— executable version of Z-100 PC conversion program
HELPS	.DAT	— sequential HELP data base file
HELP	.DAT	— random access HELP data base file
SD100	.COM	— Z-100 sorted directory utility program
SDPC	.COM	— Z-100 PC sorted directory utility program
SD	.DOC	— documentation for sorted directory program

The sorted directory utility programs are provided strictly as a convenience to the user and are not required to use the HELP programs.

Program Author: John F. Stetson

Program Content: The HELP programs are designed to be easy to use and efficient in operation. The HELP database is a BASIC random-access file for high speed access, even on floppy based systems. Over 100 entries are presented using a full-screen HELP menu and may be easily selected using the keyboard arrow keys. The commands in the HELP database are divided into the following functional categories:

Reference Commands — General reference information for MS-DOS concepts and capabilities.

Resident Commands — Information for commands which are resident in memory.

Resident Command Aliases — Information for command aliases for the resident commands.

Resident Batch Processing Commands — Information for commands which are used in batch processing.

Transient Commands — Information for transient commands which are loaded and executed from disk.

Transient Utilities — Information for commands which are part of the Zenith MS-DOS Programmer's Utility Pack.

Once a command is selected, the following information is displayed:

Command — General information about the command: alias names; Z-100 vs. Z-100 PC; MS-DOS V2 vs. MS-DOS V3; etc.

Function — Brief description of the function or purpose of the command.

Syntax — Complete, detailed command line syntax of the command including all file names, option switches, etc.

Examples — One or more examples which illustrate typical uses of the command.

Comments: As the MS-DOS operating system has evolved, it has become more complex. In addition, most end-users are overwhelmed by the amount of documentation which accompanies the operating system. This package organizes this information and makes it available to end-users in a friendly and easily accessible environment. In addition, the package is both comprehensive and user-extensible, which make it valuable for more sophisticated users.

TABLE C Rating: (10)

P/N 885-8041-37 ORBITS

Introduction: This software package called "Orbits", is a set of simulation programs which show what possible orbital paths look like and how satellites move while orbiting in these paths. Each colorful ellipse pattern that is created, with its moving satellites, has a beauty all its own. Now we can see the harmony of the spheres! This package was written (over a years period of time) to help students visualize the basic mathematical concepts involved in orbital mechanics.

Requirements: This package will run on an H/Z-100 with ZDOS/MSDOS version 1.25 or higher. The hardware also requires 192k of memory, as well as 64k color RAM chips installed on the video board. The monitor can be monochrome, but color displays are much easier to interpret. More than one disk drive will be useful for data storage, but is not required. Printing is optional; any printer will print the data tables, but an MPI 99 or compatible printer is required to use the included printscreen function.

The following programs are included on the HUG P/N 885-8041-37 ORBITS disks:

Disk A

ORBITS	.DOC	.ORMEC	EXE
ORSYS	.EXE	SETUP	.EXE
SETUP	.FIL	ORBEND	.COM
README	.DOC		

Disk B

AMOR	.ORB	APOLLO	.ORB
DEMO10	.OSY	DEMO3	.OSY
DEMO4	.OSY	DEMO5	.OSY
DEMO6	.OSY	EARTH	.ORB
FAYE	.ORB	HALLEY	.ORB
HIDALGO	.ORB	JUPITER	.ORB
MARS	.ORB	MERCURY	.ORB
NEPTUNE	.ORB	ORBEND	.ASM
ORMEC	.BAS	ORSYS	.BAS
PLUTO	.ORB	SATURN	.ORB
SETLIP	.BAS	URANUS	.ORB
VENUS	.ORB		

Program Author: Larry MacNeil

Program Content: ORMEC was written to help people visualize the mathematical concepts presented in Kepler's Laws. Given any 2 out of 7 elliptical parameters that describe an orbital path (semi-major axis, semi-minor axis, linear eccentricity, semi-latus rectum, eccentricity, radius at perigee, radius at apogee), the program solves for the other 5 parameters. If the central mass is also given, the program will solve for the velocities of a satellite at apogee and perigee, and for the period of the orbit. Then, colorful graphic displays, in high resolution, 640 × 480 interlace mode using Z-GRAPH-100 subroutines, show the contructed orbital path ellipse, the area of the ellipse divided into equal areas with an integration routine, and a satellite orbiting with a velocity directly proportional to its true velocity. The parameters can be saved in a file for later use in developing an orbital system with ORSYS.

ORSYS will combine the files created in ORMEC to construct a system of up to 10 satellites orbiting around a common central mass. The angle of perigee and the starting point may be specified for each orbit. A system can also be saved as a file, so reviewing a system is easy. The data tables can be viewed on the screen and printed out to a draft printer. The program uses a number of matrix operations to scale and rotate the orbital paths. The graphic displays, again in interlace mode, show dashed and colored ellipses for each orbital path, so the paths may be distinguished on either a color or monochrome monitor. A zooming feature allows the user to choose the orbit that is shown, full scale. The satellites can be viewed with or without the ellipses on the screen, and the overall speed of the satellites can be varied for different effects. The velocity variations (accelerations) in each orbit and the relative velocities of different orbits can easily be seen. Some sample orbit and system files are included for initial demonstration purposes.

Both programs are compiled ZBASIC programs, so they run fairly quickly. The displays are of the ecliptic plane and do not take into account orbits that go out of the ecliptic. It is assumed that the central mass is spherical and enormously larger than the mass of the satellites, and that the satellites themselves are small enough so they do not collide or affect each other's orbital paths. Thus, it is assumed that the gravitational field of the central mass exerts the only force in effect and has an inverse square relationship. The orbits are, therefore, re-entrant (stable). This is close enough to reality to simulate many known orbits and allow the user to ask "What if . . ." questions. Extensive error handling and correction techniques are employed.

Comments: The author of this package is a senior physics major at San Jose State University, and has spent many hours in developing this software. This software is intended for the serious minded individual or student involved with the concepts of Astronomy and Kepler's Laws.

TABLE C Rating: (10)

P/N 885-8042-37 Poker Party

Introduction: For lighthouse keepers, military personnel on solitary assignments, confirmed bachelors, and anyone else who hungers for a little human companionship during long hours spent alone; this disk is for you. The programs which make up Poker Party will bring to your computer terminal the faces and the voices of three rustic cow hands out of the old west who invite you to try your luck with them in a friendly game of old-fashioned draw poker, America's national game. You'll meet Shorty, Ole, and Cisco who play a conservative brand of poker that's hard to beat. Yet, with patience and shrewdness just as in a real poker game, you can come out the winner. But it ain't easy, pardner!

Requirements: Poker Party is designed to run on an H/Z-100 (not PC), with at least 128k of system memory. Z-DOS or MS-DOS is also needed along with ZBASIC. Although not required, fuller enjoyment can be obtained if the P-SST board from Software Wizardry is installed. A color monitor is highly recommended, however, the program will work properly on a monochrome monitor.

The following files are included on the HUG 885-8042-37 Poker Party disk:

ADIOS	.DAT	ANTE	.DAT
DEAL	.DAT	IBET1	.DAT
IBET2	.DAT	IBET5	.DAT
ICALL	.DAT	ICHECK	.DAT
IDROP	.DAT	IRAISE1	.DAT
IRAISE5	.DAT	ISTAY	.DAT
IWIN	.DAT	PPRTY	.BAS
PPRTY2	.BAS	PPRTY3	.BAS
PPRTY4	.BAS	RULES	.TXT
TALK3	.DAT	TRIO	.BLU
TRIO	.GRE	TRIO	.RED
README	.DOC		

Author: Robert E. Newlon

Program Content: While draw poker is played differently in various places, this program generally follows the rules and procedures described in the book ACCORDING TO HOYLE by Richard L. Frey. The game is limited to four players. Three of them are controlled by the computer. You are player number four, and must make your own decisions. The cards used in this game are the typical new pack which comes with two jokers. These jokers are completely wild and can be used as any card you choose.

Comments: Before I reviewed this program, I wondered, 'How much fun could a computerized version of 'draw poker' be? Boy, was I in for a surprise!' The graphics are outstanding, and I really felt as though I were playing with three other people (the author uses graphics to display the other three players on the screen).

TABLE C Rating: (10)

P/N 885-8043-37 CALC

Introduction: CALC is a faithful, working, full-function simulation of the Hewlett-Packard HP-25 pocket calculator. There are only two differences. These are, all ten registers may be used as storage registers rather than the first eight, and the number of program steps has been arbitrarily set to 100 rather than 49. User programs may be stored on disk for subsequent loading. The calculator uses RPN (Reverse Polish Notation) like most HP calculators. Input to the calculator is via a light pen.

Requirements: To properly use this program, you need an H/Z-100 (not PC) series computer with at least 128k of system RAM. It is in full color so all video RAM planes should be installed (192k). Finally, a light pen must be connected to J4 on the rear panel. This program requires MS-DOS version 2.0 or greater; it will not work with ZDOS.

The following programs or files are included on the HUG P/N 885-8043-37 CALC disk.

CALC	.COM	FACT	.PRG
README	.DOC	ABSTRACT	.DOC

For those of you who don't have a light pen for your H/Z-100, HUG has made special arrangements with the Lite-Pen Company of Los Angeles, California to enable you to purchase a very high quality lite pen at a distributor's price. Included with this software is a coupon allowing $114.98 off the standard retail price for this lite pen. This single pixel resolution pen normally sells for $204.95 but can be purchased with this coupon for only $89.97. Included with this lite pen are two cables (one for the H/Z-100, and one for a standard IBM PC). Even if you never use CALC, the coupon alone is worth the price of this HUG package.

A more detailed review of this pen can be found in the September 1986 issue of REMark.

Author: Robert F. Doolittle

Comments: Each key is labeled with a 2 character label. These labels change dynamically in both color and content when a calculator 'f' or 'g' function key is pushed. An on-line HELP facility is included to further define these key labels. It is toggled on and off by the keyboard HELP key. More extensive instructions and explanations are provided in the README.DOC file.

TABLE C Rating: (5), (10)

P/N 885-8044-37 MS-DOS TCSpell

Introduction: TCSpell is a spelling checker designed to be quick and easy to use. Dictionary size is only limited by disk space while the document size is limited only by the memory if the number of unique words exceeds the room left in memory.

Requirements: TCSpell will run on systems with as little as 64k of memory but the number of unique words in a document is limited to approximately 600 words. It runs on the H/Z 150-PC compatible computer series, either monochrome or color monitor, with MS-DOS (any version).

This disk contains the following files:

TCSPELL	.COM	TCSPELL	.TUT
TCSPELL	.DOC	MASTER	.DIC
UNCOMP	.COM	COMPRESS	.COM
TCMERGE	.COM	README	.DOC

Author: Tim Schultze

Program Content: The TCSpell program is a spelling checker program that uses up to 10 disk based dictionaries. The dictionaries may exist in compressed format or as a sorted list of lowercase words separated by a carriage return and linefeed. The program reads all the unique words in from the file to be spell checked and then checks each specified dictionary in order to eliminate all valid words. The user is then prompted for action on each unknown word. Available actions include: Add to dictionary, store in CR/LF file name SAVE.$$$, Correct in file, Show word in context, and Ignore the word.

TCSpell operates on standard ASCII (CR/LF) files and Wordstar format files. Soft hyphens and hyphens across line boundaries are handled correctly. Hard hyphens are included as part of a word, whereas soft hyphens are ignored.

The TCSpell program was designed to be easy to use, fast, and as complete as each user requires. A dictionary, containing approximately 20,000 words, is included along with utilities to compress, expand (uncompress), and merge existing dictionary files. The user then has the option of expanding the supplied dictionary, editing it with any editor, merging an existing dictionary, or compressing an existing dictionary for faster access and less storage space.

Included on the disk are a tutorial/manual (TCSPELL.DOC) and an example file (TCSPELL.TUT) to be checked in parallel with the tutorial.

Comments: None

TABLE C Rating: (9)

P/N 885-8045-37 MATT

Introduction: MATT is a Turbo Pascal program designed to facilitate operations on one and two-dimensional matrices. The program is entirely menu-driven, and uses a spreadsheet type of display to make matrix entry and editing very fast and easy. Turbo Pascal is a product of Borland International, Inc.

Requirements: Two versions of MATT are included. One is for the H/Z-100 (not PC) and requires MS-DOS version 2 or above. The program uses the H-19 graphics and, therefore, requires the graphics version of ALTCHAR.SYS be on the boot disk. The other version of MATT is for the PC compatible series using MS-DOS version 2 or above. Color is not required for either version, and only the basic 128k memory is needed.

The following files are included on the disk:

MATT.DOC — Complete indexed documentation with examples.
WSMATT.DOC — WordStar formatted version of the documentation.
README.DOC — HUG disclaimer and any last minute updates.
MATT.PAS — Source code for the Z-100 version.
MATT.COM — Z-100 executable version.
PCMATT.PAS — Source code for the PC compatible version.
PCMATT.COM — PC executable version.

The following are Z-100 specific include files:

BOX	.PRO	MYIO	.PRO
PAGESWAP	.PRO		

The following are PC specific include files:

BOX	.PC	MYIO	.PC

The following are included in both versions:

DIREC	.PRO	INV	.PRO
SUM	.PRO	MULT	.PRO
TRANS	.PRO		

Author: Dennis K. Greer

Program Content: MATT is designed to provide a very user-friendly environment in which to perform most operations on one and two dimensional matrices. Matrix operations are performed on two input matrices with the results stored in a third. Maximum size for each of the matrices is 59 rows by 59 columns. Among the operations available are:

- Determinants and Inverses
- Element, Row, and Column editing
- File and Directory Operations
- Matrix Initialization and Copying
- Multiplication
- Output to Printer (with titling)
- Row-Reduction
- Summation and Subtraction
- Transpose
- Disk Reading and Writing (ASCII or binary)

Comments: MATT was written with ease-of-use and speed in mind. The menu items are designed to be mnemonic. For instance, "M" performs multiplication, "S" performs summation, etc. In short order, the new user can be performing matrix operations without needing to look at the menu. "One touch" menu response, spreadsheet type matrix entry and editing, and input "garbage filters" make MATT very friendly. Support for the 8087 numeric coprocessor can be added by simply recompiling the source using Turbo-87 from Borland International, Inc. Z-100 owners having the MOUSEPACK by Paul F. Herman will find the spreadsheet editing compatible with their mouse system.

TABLE C Rating: (10)

P/N 885-8046-37 Assembly Language Utilities

Introduction: This package includes a variety of utility programs designed to be used with Zenith Data Systems' implementation of both Version 2 and 3 of the Microsoft Disk Operating System (MS-DOS) for Zenith Z-100 series personal computers and IBM PC-compatible (Z-100 PC) personal computers. Most of the programs will work fine on other vendor's versions of MS-DOS (IBM's PC-DOS, for example), although this can't be guaranteed in all cases.

Since the 8088 assembly language source code is provided for the programs in this package, it can be used as a tutorial on assembly language programming. More sophisticated users may wish to study the techniques used in order to apply them in their own programs. Some of the advanced techniques used include terminate-and-stay-resident processing, dynamic memory management, and child process execution.

Requirements: You will need either an H/Z-100 series or H/Z-100 PC series computer and either Version 2 or 3 of the MS-DOS operating system.

If you wish to modify the programs in this package, you will need the Zenith MS-DOS Programmer's Utility Package, or either the Microsoft or IBM Macro Assembler and Linker. All of the assembly language source files included in this package can be assembled using any version of MASM from 1.27 through 4.0

Author: John F. Stetson

Content: In addition, there are several documentation files provided which cover a variety of MS-DOS related topics. These include an overview of the new capabilities in MS-DOS 3.1, problems with the ECHO command, use of the PROMPT command, modifications to the Z-100 MS-DOS BIOS to support the use of up to four 5" 48 and 96 tpi floppy disks, and the following modifications to the MDISK.DVD memory disk device driver supplied with the Zenith MS-DOS Programmer's Utility Pack:

- Modifications to allow MDISK to retain its contents across a warm system reboot.
- Modifications to add a software "LED" graphic symbol which indicates when the memory disk is being accessed, and whether a read or write operation is occurring.
- Modifications to add a disk volume label to the memory disk and to fix various bugs.

README	.DOC	- Documentation file
ASMCOM	.BAT	- Sample .BAT file used to assemble the programs

The following files are Z-100 specific.

KEYS	.ASM	- Display Z-100 function key definitions
KEYS	.COM	- Executable version of KEYS

The following files are designed to be used together as a simple time logging system under MS-DOS. By placing the LOGON.BAT file at the end of your AUTOEXEC.BAT file, you will have the date and time you last powered down displayed. By executing the LOGOFF.BAT file prior to powering down the system, you will have the date and time you last booted the system displayed.

DATETIME	.ASM	- Display system day, date, and time
DATETIME	.COM	- Executable version of DATETIME
LOGON	.BAT	- Display last date/time off system at boot time
LOGOFF	.BAT	- Display last date/time on system at exit time
LOGON	.DAT	- Data file used by .BAT files above
LOGOFF	.DAT	- Data file used by .BAT files above

The following files are designed to be used together to provide an automatic method of rebooting the operating system in such a way that it is free from any device drivers, or terminate-and-stay-resident type programs. This is helpful when testing new versions of these types of programs in order to avoid any possible conflicts.

BOOT	.ASM	- Reboot the operating system
BOOT100	.COM	- Z-100 executable version of BOOT .COM
BOOTPC	.COM	- PC compatible executable version of BOOT.COM
NATIVE	.BAT	- Reboot without device drivers or resident programs
NORMAL	.BAT	- Restore normal system operation after running NATIVE

The following files will run on both Z-100s and PC compatibles.

BEEP	.ASM	- Generate a tone in .BAT files
BEEP	.COM	- Executable version of BEEP
CMD	.ASM	- Execute COMMAND.COM as a child process
CMD	.COM	- Executable version of CMD.COM
CPU	.ASM	- Determine the speed of the CPU chip
CPU100	.COM	- Z-100 executable version of CPU .COM
CPUPC	.COM	- PC compatible executable version of CPU.COM
CRLF	.ASM	- Send CR and LF to console from a .BAT file
CRLF	.COM	- Executable version of CRLF
FF	.ASM	- Send a form feed character to the printer
FF	.COM	- Executable version of FF
MODEM	.ASM	- "Dumb" terminal modem program
MODEM100	.COM	- Z-100 executable version of MODEM.COM
MODEMPC	.COM	- PC compatible executable version of MODEM.COM

PASSWORD	.ASM	- Password protection for hard disk systems
PASSWORD	.DVD	- Executable version of PASSWORD
RAM	.ASM	- Display total RAM, RAM used, and RAM free
RAM	.COM	- Executable version of RAM
RAMFIT	.ASM	- Display or change RAM allocation strategy
RAMFIT	.COM	- Executable version of RAMFIT
RAMLIM	.ASM	- Limit the amount of system RAM
RAMLIM	.COM	- Executable version of RAMLIM
SD	.ASM	- Sorted directory utility program (V5.2)
SD	.DOC	- Documentation file for SD.COM
SD100	.COM	- Z-100 executable version of SD .COM
SDPC	.COM	- PC compatible executable version of SD.COM
SHELL	.ASM	- Execute COMMAND.COM from within programs
SHELL100	.COM	- Z-100 executable version of SHELL .COM
SHELLPC	.COM	- PC compatible executable version of SHELL.COM
SPEEDUP	.ASM	- Console speed-up utility program
SPEED100	.COM	- Z-100 executable version of SPEED-UP.COM
SPEEDPC	.COM	- PC compatible executable version of SPEEDUP.COM
WAIT	.ASM	- Conditionally pause .BAT file execution
WAIT	.COM	- Executable version of WAIT

The following files provide useful information on several Zenith MS-DOS related topics.

MSDOS31	.DOC	- Overview of new capabilities in MS-DOS 3.1
ECHO	.DOC	- Problems with the MS-DOS ECHO command
PROMPT	.DOC	- Use of the MS-DOS PROMPT command
Z100BIOS	.DOC	- Modifications to the Z-100 MS-DOS BIOS
MDISK1	.DOC	- 1st file of modifications to MDISK .DVD
MDISK2	.DOC	- 2nd file of modifications to MDISK .DVD
MDISK3	.DOC	- 3rd file of modifications to MDISK .DVD

Comments: Most of these utility programs were written to fill a need that existed; Microsoft has a tendency to only superficially document the complex internal capabilities offered by MS-DOS; much effort and experimentation is required to make some of these capabilities actually work! In addition, many of the capabilities inherent at the MS-DOS system call level are often not brought out into the end-user command language; this package shows how to write your own programs to use these features.

TABLE C Rating: (10)

Continued from Page 22

P/N 885-3042-37
ZPC Upgrade Disk

Introduction: This disk upgrades ZPC (885-3037-37) version 2.0.x to version 2.1.x. ZPC is a program that allows H/Z-100 (dual processor) computers to run many IBM-PC compatible programs. This upgrade allows you to run more programs, and provides support for hardware enhancements (such as the "Scottie Board") to support even more PC programs.

Requirements: To use this disk, you need ZPC Version 2 (885-3037-37), an H/Z-100 computer with 768k of memory, and MS-DOS version 2 or 3.

The following files are included on the disk:

README	.DOC	ZPCUP	.DOC
ZPCUP	.COM	INT14	.COM
MASK	.COM	PATCHER	.COM
PATCHER	.DAT	SETZPC	.COM
FIXLTS	.COM	FIXSYM	.COM
BLINK	.COM	DOS	.ACM
KEY	.ACM	ZPCASM	.TXT
INT14	.ASM	MASK	.ASM
PATCHER	.ASM	SETZPC	.ASM
FIXLTS	.ASM	BLINK	.ASM

Here is an explanation of some of the files on the disk:

ZPCUP.COM — This program automatically patches and upgrades your ZPC.COM file. The improvements made include the following:

Improved Keyboard Handling. The codes returned by ZPC as you type keys more closely resemble PC codes, so that difficult programs, such as QuickBASIC version 2 can be made to work, that would not work previously.

Support For More Hardware. The modified ZPC supports new hardware that allows programs which change video modes or colors by writing to ports to work properly.

Improved Control-C and Control-Break Handling. Handling of these codes more closely approximates the real PC world.

INT14.COM — This program provides support for a real IBM-style serial port, such as is provided as an option on the "Scottie Board".

MASK.COM — ZPC unmasks some interrupt lines on the S-100 bus when it is loaded. This program allows you to mask off those lines, in case you experience any difficulty with software that otherwise runs OK with ZPC not loaded.

PATCHER.COM, PATCHER.DAT — A new PATCHER.COM is provided because some early copies of ZPC Version 2 contained a flawed PATCHER.COM. The new data file, PATCHER.DAT, contains patches for more programs.

SETZPC.COM — A new SETZPC is included because some early copies contained bugs.

FIXLTS.COM, FIXSYM.COM — These programs patch LOTUS 1-2-3 release 2 and Symphony for use under ZPC.

BLINK.COM — This program allows you to have a non-blinking cursor while ZPC is in the PC mode.

DOS.ACM, KEY.ACM — These modules are part of the ZPC assembly source code that have been upgraded.

ZPCASM.TXT — This file lists changes that must be made to your ZPC.ASM file in case you want to reassemble the upgraded version of ZPC. *

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S & K Technology, Inc., 4610 Spotted Oak Woods, San Antonio, Texas 78249, (512) 492-3384

Current Local HUG Clubs

As Of September 26, 1986

ALABAMA

AL, Birmingham
BEARHUG (Birmingham HUG)
c/o Jack Goertz Rte 19, Box 248
Birmingham, AL 35244
(205) 991-5519 Group Size: 20
Contact Person: Jack Goertz
Meeting time and place varies

AL, Huntsville
Club no longer in existence

AL, Mobile
MOBHUG (Mobile HUG)
6204 Pine Needle Drive S.
Mobile, AL 36609
(205) 675-9742 Group Size: 25
Contact Person: Gordon Marsh
Meeting time and place varies

AL, Montgomery
HUG of Montgomery
2948 Willow Lane Drive
Montgomery, AL 36109
(205) 272-6964 Group Size: 50+
Contact Person: Ronald Travis
Meet 1st Tues 7:30 pm at AF Logs Mgt Ctr

ALASKA

AK, Eagle River
Alaska HUG
PO Box 770951
Eagle River, AK 99577
(907) 276-5917 or 279-7754
Group Size: 15
Contact Person: Roger Pickels or Ben Sevier
Meet 3rd Mon 7:00pm Horizon Recovery Center (1650 S. Bragaw)
RBBS 9pm-9am Pac Time (907) 276-5917

AK, Ft. Greely
Club no longer in existence

ARIZONA

AZ, Phoenix
PHUG (Phoenix HUG)
c/o Tom Luikens, PO Box 37783
Phoenix, AZ 85069
Group Size: 60
Contact Person: Tom Luikens, President
2nd Tues at 7:00 pm at Phoenix HEC
Membership $5 initiation $12/year

AZ, Sierra Vista
HuacHUGa
1964 Viola Drive, c/o Gerald King
Sierra Vista, AZ 85635
(602) 459-2119 Group Size: 30
Contact Person: Gerald King
Meet monthly at homes of members

AZ, Sun City
Sun Cities HUG
12739 Mesa Verde Drive
Sun City West, AZ 85375
(602) 584-9181 Group Size 12+
Contact Person: Andrew Weilkeiwicz
Meet 3rd Sun at 1:00 pm At HEC

AZ, Tucson
SUNHUG (Tucson HUG)
7109 E Broadway
Tucson, AZ 85710
(602) 325-0096 Group Size: 40
Contact Person: Allan Anderson
Meet even months third Sunday 2:00 pm Tucson HEC
Meet odd months first Tues. 7:00

ARKANSAS

AR, Fayetteville
TRY-STATE HUG
2617 Country Way
Fayetteville, AR 72701

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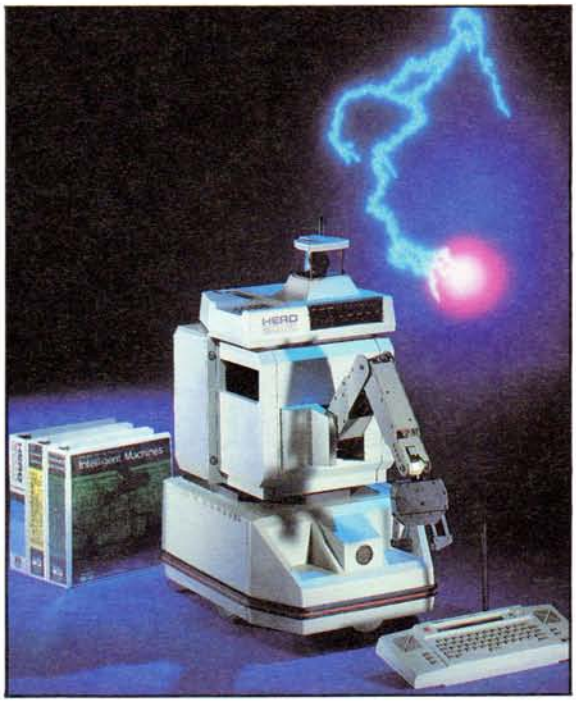

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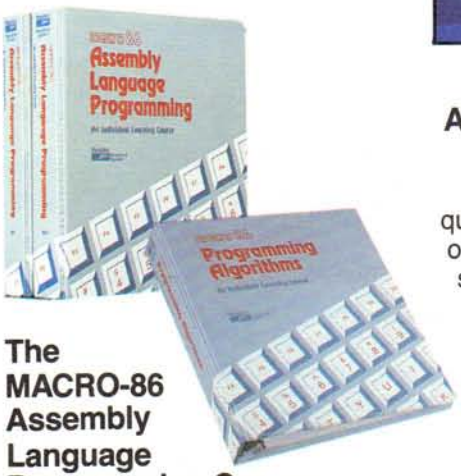

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(501) 521-4818
Contact Person: Gil Hoellerich
Meet 3rd Sat 1pm at NW Voc-Tech School Springdale
Group just starting, but growing!

AR, Little Rock
Little Rock H/ZUG
c/o David Schade, 113 Dakota
Jacksonville, AR 72076
(501) 988-5273 Group Size: 30
Contact Person: David Schade
Meet 2nd Sat 12:00 noon at AR College of Tech.
Phone for Fri meeting time & place

CALIFORNIA

CA, Anaheim
Anaheim Chptr Wstrn Rgnl HUG
330 E. Ball Road
Anaheim, CA 92805
(714) 529-7535 Group Size: 103
Contact Person: Al Solomon, President
3rd Thursday 7:30 PM at HEC
BB (714) 774-7860

CA, Campbell
San Jose HUG
2350 S Bascom Avenue
Campbell, CA 95008
(408) 377-8472 Group Size: 70
Contact Person: Gerlene York, Sec.
Meet 1st Wed from 7-8pm at the Campbell HEC

CA, El Cerrito
ECHUG (El Cerrito HUG)
6000 Potrero Avenue
El Cerrito, CA 94530
(415) 236-8870
Contact Person: Alan Biocca
Meet 4th Tues

CA, El Monte
ETUG (ET/ETA 3400 Users Group)
Club reorganizing as of 9/85

CA, Fresno
FresHUG (Fresno HUG)
4833 East Santa Ana
Fresno, CA 93726
(209) 291-6258 Group Size: 12
Contact Person: Harlen Collins

CA, Glendora
Southern CA H11 Users Group
430 W. Highland Avenue
Redlands, CA 92373
(714) 886-4766 Group Size: 40
Contact Person: Dr. M.J. Di Girolamo
Meets at 625 E. Palm, Glendora, CA

CA, Lancaster
AVZUG (Antelope Valley ZUG)
PO Box 4529
Lancaster, CA 93535
(805) 942-7576 Group Size: 25
Contact Person: Jerry Jones
Meet 2nd Thurs at 7:30 pm at members homes

CA, Los Angeles
Los Angeles HUG
c/o Jim Price, 12849 Millbank St.
Studio City, CA 91604-1354
(213) 675-4920 Group Size: 90
Contact Person: Doug Biddle, President
1st Thursday 7:00 PM at HEC

CA, Los Angeles
LAETUG (Los Angeles ET3400 GP)
2309 S Flower
Los Angeles, CA 90007
(213) 749-0261 Group Size:
Contact Person: Gilbert Murillo
Other contact Charlie at (213) 443-2237
Contact for meeting time and place

CA, Monterey
Naval Pstgrd Sch Hobby Com Clb
c/o Dave Smith, 376 Bergin Dr #F
Monterey, CA 93940
(408) 373-4202 Group Size: 175
Contact Person: Dave Smith, President

CA, Pomona
Pomona Chptr Wstrn Rgnl HUG
1555 N Orange Grove Avenue
Pomona, CA 91767
(714) 985-5303 Group Size: 102
Contact Person: Herb Friedman, President
Meet 4th Thursday each month at 7:30 pm at HEC
BB (714) 624-5191

CA, Redding
Redding Heath Users' Group
22526 Bridlewood Lane, PO BOX 370
Palo Cedro, CA 96073
(916) 547-3461 Group Size: 6
Contact Person: Dave Ballard
Meet monthly various locations

CA, Redwood City
BAHUG Bay Area HUG
2001 Middlefield Road
Redwood City, CA 94063-2890
(415) 365-8155 Group Size: 60+
Contact Person: Bob Bance, Sec.
Meet 4th Tues 7:00 pm at HEC
BB (415) 365-7836

CA, Riverside
Club No Longer In Existence

CA, Sacramento
SHUG (Sacramento HUG)
7607 Maran Ave
Sacramento, CA 95820
(916) 739-8074 Group Size: 55
Contact Person: Delven Hamric, President
Meet 2nd Wed 7:30pm at Sacramento HEC
Send mail ATTN: Delven Hamric

CA, San Diego
San Diego HUG
PO Box 33046
San Diego, CA 92103-0340
(619) 484-5120 Group Size: 106

Contact Person: Clem Pepper
Meet 1st Wed 7:30pm at Kearny-Mesa Rec. Ctr.
Monthly guest speakers, Newsletter

CA, San Diego
San Diego Comp Soc H/Z SIG
PO Box 81444
San Diego, CA 92138
(619) 698-2945 Group Size: 176+
Contact Person: Jon Melby, Chairperson
Meet 1st Sat 10:00 am at La Mesa HEC
24hr. RC System (619) 461-5117

CA, San Rafael
Bay Area Zenith Users' Group
4 G Street
San Rafael, CA 94901
(415) 454-2445 Group Size 25+
Meet 3rd Thurs 7:30 pm at above address
BB (415) 454-2446

CA, Santa Maria
4168 Glenview Drive
Santa Maria, CA 93455
(805) 937-6938 Group Size: 24
Contact Person: Raymond S. Isenson
Meet 1st Mon 7:00 pm at Vandenburg Air Force Base
Meet in Base Library

CA, Santee
WCHUG (West Coast HUG)
c/o Van Christopher
10784 Magnolia Ave 2H, Santee, CA 92071
(619) 449-7298
Contact Person: Van Christopher
Monthly Newsletter - 12 issues/$15.00
Software Lib ZDS Bulletin Bd Notebk

CA, Visalia
Visalia HUG
5230 San Joaquin Avenue
Visalia, CA 93277
(209) 739-7228 Group Size: 3
Contact Person: Peter Shkabara
Meeting time and place not on regular schedule

CA, Woodland Hills
LUVAHUG
22504 Ventura Boulevard
Woodland Hills, CA 91364
(818) 906-7425 Group Size: 80
Contact Person: Rick Gaitley
Meet 2nd Thurs. 7:00 pm at HEC

COLORADO

CO, Colorado Springs
CSHUG (Colorado Springs HUG)
c/o Innovative Computer Service
125 E Arvada Street
Colorado Springs, CO 80906
(303) 632-3019
Contact Person: Richard Evers
Group is reforming - meeting times not set
24hr BB (303) 598-4662

CO, Denver
DENHUG (Denver HUG)
c/o Rob Chapman
PO BOX 20023
Denver, CO 80220-0023
(303) 377-3228 Group Size: 86
Contact Person: Rob Chapman Sec/Tres
BB (303) 331-0982 Support newsltr exchange
Meet 2nd Monday 7:00 pm at HEC

CO, Denver
Club no longer in existence

CO, Ft. Collins
FT HUG (Fort Collins HUG)
3317 Buckskin Trail
Laporte, CO 80535
(303) 493-2987 Group Size: 30+
Contact Person: Charles McJilton
Meet 3rd Tue 7:00 pm at members homes
$6.00 dues, Newsletter

CONNECTICUT

CT, Avon
CONNHUG (Connecticut HUG)
c/o Bob Conlon, 71 Pardee
Bristol, CT 06010
(203) 589-3824 Group Size: 50+
Contact Person: Bob Conlon, President
Meet at Greater Hartford Chapter Amer. Red Cross
Meet 1st Wed at 7:00 pm

CT, Mystic
Mystic ZDS/HUG
PO Box 279
Mystic, CT 06355
(203) 536-6953 Group Size: 45
Contact Person: Larry Moxon
Meet last Thurs 7:00pm at 11 Allen Street, Mystic, CT

FLORIDA

FL, Cocoa Beach
Brevard Heath Users' Group
Club no longer in existence

FL, Fort Myers
SWFHUG (Southwest Florida HUG)
PO Box 05-0037
Tice, FL 33905
(813) 334-6190 Group Size: 30
Contact Person: Robert Sloat
Meet 2nd Wed 8:00 pm
Meet at J. Hamilton Welch Academy

FL, Fort Walton
NWFHUG (NorthWest Florida HUG)
PO Box 3275
Ft. Walton Beach, FL 32548
(904) 682-6013 Group Size: 45
Contact Person: Allan White, President
Meetings 2nd Wed at DATATEC Inc. 7 PM

FL, Jacksonville
Jacksonville Users Group Inc.
PO Box 17547

Jacksonville, FL 32245-7457
(904) 264-9763 Group Size 150
Contact Person: Harry Walker
Meet 1st Wed at 7:30 pm at Englewood HS Library
BB (904) 725-4995 24 hrs

FL, Miami
Miami Amateur Computer Club
c/o Heathkit Electronics Center
4705 W 16th Avenue
Hialeah, FL 33012
(305) 823-2280 Group Size: 85
Contact Person: Charlie Robertson, Secretary
Meet 2nd Thurs each month 7:00 pm at HEC
BB (305) 823-2281

FL, Orlando
HUG of Central FL Computer Sc.
121 Talmeda Trail
Maitland, FL 32751
(305) 644-6847 Group Size: 20
Contact Person: Joseph Walker, President
Meet 4th Wed at Kane Furniture (address below)
Intersection of 436 and Red Bug Road

FL, Pensacola
PENSAHUG
221 E. Government
Pensacola, FL 32501
(904) 438-7805 Group Size: 15
Contact Person: Gerry Harris
Meet 2nd Sun each month 2:00 pm at above address
Meet at Professional Business Sys.

FL, Plantation
PHUG (Plantation HUG)
7173 W Broward Boulevard
Plantation, FL 33317
(305) 791-7300 Group Size: 60
Contact Person: Warren Reeves
Meet 2nd Tues from 7-9 pm at H/Z C&E Ctr
BB (305) 791-7302 24 hrs on Z-150

FL, Tallahassee
Tally HUG
c/o LPLC, PO Box 4276
Tallahassee, FL 32315-4276
(904) 562-1412 Group Size: 10
Contact Person: Bill Hill
Meet 3rd Tues at Leon Co. Resource Center
In the lower level Northwood Mall

FL, Tampa
Al Lynch HUG
PO Box 151762
Tampa, FL 33684-1762
(813) 885-1923 Group Size: 80
Contact Person: Jim Cottingham, Secretary
Meet 1st and 3rd Wed 7:30 pm at Tampa HEC
Dues $10.00 year

FL, Winter Park
Martin Marietta Computer Club
1730 Shiloh Lane
Winter Park, FL 32789-5847
(305) 356-3782 Group Size: 300
Contact Person: George McClure
Meeting time and place varies
Newsletter; BB being established
Evening Phone number (305) 647-5092

GEORGIA

GA, Atlanta
HUG-GA (Georgia HUG)
c/o HEC 5285 Roswell Road
Atlanta, GA 30342
(404) 449-3328 Group Size: 30
Contact Person: Tom Campbell
Meet 2nd Mon at 7:00 pm at HEC
BB (404) 252-4345 24 hrs.

GA, Warner Robins
MGHUG Middle Georgia H/ZUG
PO Box 1989
Warner Robins, GA 31099-1989
(912) 923-1353 Group Size: 30
Contact Person: Gary H. Arnett, President
Meet 3rd Tues at Nola Brantley Public Library

GA, Augusta
CSRA Computer Club
PO Box 284
Augusta, GA 30903
(803) 648-3603 Group Size: 10
Contact Person: Dave Howard
Meet 4th Wed-location rotates
BB (803) 279-5392

HAWAII

HI, Hilo
BIHUG (Big Island HUG)
PO Box 4271
Hilo, HI 96720
(808) 959-8985 Group Size: 20
Contact Person: R.A. Curtis
Meet 1st Thurs 7:00 pm at HELCO Conference Room
BB (808) 961-4818

HI, Honolulu
HUGH (HUG Hawaii)
1255 Nuuanu Avenue #1405
Hononlulu, HI 96817
(808) 531-8843 Group Size: 107
Contact Person: Jim Branchaud, President
Meet 3rd Wed 7:00 pm at Pearl City HEC
BB (808) 487-8755

ILLINOIS

IL, Champaign
CCCC Champaign County Cmp Club
1004 Kinch
Urbana, IL 61801
(217) 344-2178 Group Size: 150
Contact Person: Jim Mullen
Meet 1st Wed 7:30 pm at Urbana Civic Center
24hr Public Service BB (217) 359-9090

IL, Chicago
CHI-HUG (Chicago HUG)

c/o Heathkit Electronics Center
3466 W Devon Chicago, IL 60645
(312) 674-2491 Group Size: 20
Contact Person: Hank LaBarbara, President
Meet 2nd Thurs 7:30pm at Chicago HEC
BB (312) 679-8980 after store hours

IL, Davis
NI-HUG Northern IL HUG
427 Lockwood Rt 1
Davis, IL 61019
(815) 248-2241 Group Size:
Contact Person: Jim Isenhart
Just starting

IL, Downers Grove
I-HUG (Illinois HUG)
6116 Lane
Downers Grove, IL 60516
(312) 971-1660 Group Size: 15
Contact Person: Len Bateman
3rd Wednesday at various locations

IL, Downers Grove
HUG Metro (Local Chicago)
124 Arlington Road
Barrington, IL 60010
(312) 358-6293 Group Size: 40
Contact Person: Marvin Gino, Secretary
Meet 2nd Monday of each Month 7:30pm at HEC

IL, Peoria
CIHUG (Central Illinois HUG)
2422 Willow
Pekin, IL 61554
(309) 347-3366 Group Size: 18
Contact Person: John Cole, Jr.
3rd Sunday at 3 PM (Jan, Mar, May, Jul, etc.)

IL, Springfield
Springfield HUG
2621 S. College
Springfield, IL 62704
(217) 525-1878 Group Size: 12
Contact Person: Jim or Bobbie Suttie
Club just forming

INDIANA

IN, Indianapolis
Indiana HUG (IHUG)
7610 Home Drive
Noblesville, IN 46060
(317) 841-0576 Group Size: 75+
Contact Person: Mark Siminski
Meet 2nd Wed 7:30pm at HEC

IN, South Bend
MIHUG (Michiana HUG)
620 S. Logan Street
Mishawaka, IN 46544-4834
(219) 255-3923 Group Size: 6
Contact Person: Mark L. Meidel
Meet 3rd Monday 7:30 pm
Meeting location varies-call first
24 hr BB (219) 255-4980

IOWA

IA, Ames
Ames HUG
5006 Todd Drive, c/o George Covert
Ames, IA 50010
(515) 292-1231 Group Size: 40+
Contact Person: George F. Covert
Meet 1st Wed 7:00pm Will exchange Newsletters
Meet in room 204 Eng Anx Bldg at ISU

IA, Des Moines
DMA HUG (Des Moines Area HUG)
10275 NE 23rd Avenue
Mitchellville, IA 50169
(515) 967-6042 Group Size: 21
Contact Person: Harold Dykens
Meet third Mon each month 7:00 pm

KANSAS

KS, Ellinwood
Library Users' Group-Zenith
Ellinwood School-Community Library
210 N. Schiller
Ellinwood, KS 67526
(316) 564-2306
Contact person: Scott B. Mitchum
Meet semi-monthly at different sites around the state
Yearly membership $10.00
Other contact: Elaine den Hoed (316) 225-4171

KS, Mission
MUG (Mission Users' Group)
5960 Lamar Avenue
Mission, KS 66202
(913) 381-5470 Group Size: 80+
Contact Person: Jerry Royse, Sec/Treas
Meet last Sun of the month 2:00pm at Mission HEC
BB (913) 362-9583 and Newsletter

KS, Wichita
Wichita HUG
c/o Joe Cross, 1029 Burrus
Wichita, KS 67207
(316) 794-2698 Group Size: 30
Contact Person: Don Robinson
Meet 2nd Thurs at 7:00 pm at Wichita St Univ
Meet in Clinton Hall Room 326

KENTUCKY

KY, Louisville
LHUG (Louisville HUG)
6802 Crossmoor Lane
Louisville, KY 40222
(502) 426-9433
Contact Person: Ray Donner
Meet last Sun at 8:00pm at Louisville HEC

LOUISIANA

LA, Baton Rouge
LSU H/Z Users' Group
Dept of Chem Eng LA State Univ
Baton Rouge, LA 70803

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(504) 388-1426 Group Size: 40
Contact Person: Danny Reible, President
Meet 2nd Wed at 4:00pm Ctr for Eng & Bus Admin
$5.00 dues/yr

LA, Lafayette
ZUG (Zenith Users' Group)
318 W. St. Mary Boulevard
Lafayette, LA 70506
(318) 948-7804 Group Size: 40
Contact Person: Tommy Billiodeaux
Meet every other Tues 6:00 pm
Meet at Zenith Computer Depot

LA, New Orleans
NOHUG
5305 Janice Avenue
Kenner, LA 70062
(504) 455-3583 Group Size: 60+
Contact Person: Don Berkowicz
Meet 2nd Thurs.at 7:30 pm at HEC
24hr BBS 504 467-9896, Newsletter

LA, Shreveport
SHRUG Shreveport Heath Regional Users' Group
c/o Colvin L. Sammons, PO 752
Barksdale AFB, LA 71110
(318) 742-8552 Group Size: 31
Contact Person: Colvin L. Sammons
Meet 3rd Wed 7:00 pm at Shreveport-Bossier Votech

MARYLAND

MD, Baltimore
Baltimore HUG
c/o Heathkit Electronics Center
1713 E Joppa Rd Baltimore, MD 21234
Group Size: 50
Contact Person: James Kratzer
2nd Mon 7:00 pm at Park School - Old Court Road
May also meet at the Heathkit Center

MD, Rockville
MD Z100 Special Interest Group
c/o HEC, 5542 Nicholson Lane
Rockville, MD 20852
(301) 384-1040 Group Size:
Contact Person: Jerry Horwitz
Meet 1st Mon at 7:30pm at Rockville HEC
This club is a sub-unit of CHUG

MASSACHUSETTS

MA, Northampton
Hampshire Computer Club
37 Drewson Drive
Northampton, MA 01060
(617) 584-6227 Group Size: 80
Contact Person: George Scheurer
2nd Tuesday 7 PM at McConnel Hall Smith College
Beginners Group 1st Tuesday

MA, Peabody
HUG North Shore
12 Stanley Road
Lynnfield, MA 01940
(617) 334-5128 Group Size: 60
Contact Person: Ernest Bay, President
Meet 2nd Wed at Peabody Heathkit Center
Meet 1st Wed in December
BB (617) 531-9332 24hrs

MA, Pittsfield
BerCHUG (Berkshire County HUG)
Box 1985
Pittsfield, MA 01202
(413) 499-2903 Group Size: 12
Contact Person: Paul E. Ouellette, President
Meeting place and time vary
Evening phone number (413) 443-1862

MA, Wellesley
HUG'EM
165 Worcester Ave
Wellesley, MA 02181
(617) 237-1510 Group Size: 200
Contact Person: Malcolm Partridge, Director
3rd Wed 7:00 p.m. at HEC
BB (617) 237-1511 24hrs

MICHIGAN

MI, Ann Arbor
A-SQR-HUG
895 Starwick Drive
Ann Arbor, MI 48105
(313) 769-6052 Group Size: 15+
Contact Person: Leonard E Geisler
Meet last Mon 7-9:30 pm Jun-Aug Ann Arbor Pub Lbr
Meet Sep-May at Northside School

MI, Detroit
Metro Detroit Area HUG
35681 Hees
Livonia, MI 48150
(313) 427-3905 Group Size: 65+
Contact Person: Neil Coffin-Sec, Tres, Libm
Meet 2nd Sat of alternate months at the 2 HECs
Club meets in the evening

MI, Kalamazoo
SMHUG (Southwest Michigan HUG)
Club no longer in existence 12/85

MI, Okemos
H/Z SIG a part of M3G
2283 Knob Hill Drive #12
Okemos, MI 48864
(517) 349-9657 Group Size: 10+
Contact Person: Bill Goodwin
Meet 2nd Wed at 7:30pm
Meet at All Saints Episcopal Church

MI, Saint Joseph
BLHUG (Blossomland HUG)
PO Box 414
Saint Joseph, MI 49085
(616) 983-0161 Group Size: 50
Contact Person: Vance A. Fisher, President
1st Tues 7:00 pm at St Joe High Sch Cmptr Classrm
$15.00 dues/yr Monthly Newsletter

MINNESOTA

MN, St. Paul-Minneapolis (SMUGH)
H/Z Computers & Electronics
101 Shady Oak Road
Hopkins, MN 55434
(612) 488-2028 Group Size: 180
Contact Person: Roy Tally, President
Meet last Sun 2:00 pm at Falcon Hgts Comm Ctr
BB (612) 778-1213 24 hrs

MISSISSIPPI

MS, Starkville
Mississippi St University HUG
PO Box 6269
Mississippi State, MS 39762
(601) 325-3050 Group Size: 30
Contact Person: Dr. Harry Cole
Do not meet on a regular basis

MISSOURI

MO, St. Louis
SLHUG (St. Louis HUG)
3794 McKelvey Road
Bridgeton, MO 63044
(618) 259-8113 Group Size: 140
Contact Person: Brad Pulaski, Treasurer
Meet 2nd Thurs 7:00 pm at HEC
24hr BBS (314) 291-1854

NEBRASKA

NE, Omaha
OMAHUG (Omaha HUG)
PO Box 777
Bellevue, NE 68005
(402) 291-4676 Group Size: 100
Contact Person: Robert Wasilewski, President
3rd Sun odd mos. 6:30 Bellevue W HS or Offutt AFB
Meet even mos Amer Red Cross 6:30 pm

NEW HAMPSHIRE

NH, Amherst
HUG of New Hampshire
61 Stearns Road
Amherst, NH 03031
(603) 673-6040 Group Size: 23
Contact Person: Dean Hayden-Macy
Meet 2nd Mon 7:30 pm at Systematic Solutions Inc.
BB (603) 673-7366 also (603) 465-2280

NEW JERSEY

NJ, Fairlawn
HUGNJ (HUG of New Jersey)
C/O AMBI-TECH, 319 Knickerbocker
Hillsdale, NJ 07642
(201) 666-0504 Group Size: 155
Contact Person: Matt Baum
BB (201) 791-6936 evenings
3rd Monday 8:00pm at HEC

NJ, Ocean
SHUG (Shore HUG)
1013 State Hwy 35
Ocean, NJ 07712
(201) 775-1231 Group Size: 71
Contact Person: James J Jones Jr. (Sec)
Meet 1st Wed 7:30 p.m. at Ocean HEC
BB (201) 775-8705 24hrs.

NEW MEXICO

NM, Albuquerque
Albuquerque HUG
1200 Madeira Drive, SE #126
Albuquerque, NM 87108
(505) 266-0677 Group Size: 25+
Contact Person: Jim Pattee, President
Meet 3rd Sun at Que Pasa Recreational Ctr, Kirkland AFB
Newsletter, 24hr BB (505) 292-6770

NEW YORK

NY, APO New York
BWHUG (Bentwaters HUG)
PSC Box 3703 RAF Bentwaters
APO New York, NY 09755
Group Size: 6
Contact Person: TSGT Rodney Jones
Phone Autouon 225-2161 or Saxmundham 3519

NY, APO New York
BAHUG (Bad Aibling HUG)
UNIT AA Box 561
APO New York, NY 09098
Group Size: 10
Contact Person: Louis J. DeMichele
Phone 08061-4519/6340 West Germany

NY, Buffalo
BUG (Buffalo Users Group)
223 Clark Road
Kenmore, NY 14223
Group Size: 75
Contact Person: Bob Allen
Meet 3rd Tues 7:30 pm at Amherst HEC
Club doesn't meet July, Aug or Dec
BB 24 hr (716) 835-0443

NY, Long Island
Jeri-HUG (Jericho HUG)
5 Helen Place
Glen Cove, NY 11542
(516) 676-5616 Group Size: 75
Contact Person: Alan Scott Dodge, Sec./Tres.
Meet 2nd Thurs at 8:00 pm at the Jericho HEC
Newsletter, Software library, BB

NY, North White Plains
North White Plains HUG
c/o HEC, 7 Reservoir Road
North White Plains, NY 10603
(914) 761-7690 Group Size: 50
Contact Person: Ed Koch
Meet 2nd Tues. ea mo 7:30 pm at HEC

NY, Potsdam
CUHUG (Clarkson University)
Attention: Educational Computing
Clarkson University

Potsdam, NY 13676
(315) 268-6455 Group Size: 60
Contact Person: William Kaster
Meet monthly-call for date, time and place
Alternate Contact Person: Donna Lee

NY, Rochester
RH/ZUG (Rochester H/ZUG)
937 Jefferson Road
Rochester, NY 14623
(716) 424-2560 Group Size: 55
Contact Person: RHUG Editor, Blanche Nail
Meet last Tuesday each month 7:30 pm at HEC
BB (716) 424-2576

NY, Schenectady
Schenectady HUG
c/o T. Budge, 715 Sanders Avenue
Scotia, NY 12302
(518) 377-4273 Group Size: 20
Contact Person: Walter Whipple
Meet 3rd Wed 7:30 pm at above address

NY, Syracuse
SYRHUG (Syracuse HUG)
c/o Garrett Voss Box 6
Oran, NY 13125
(315) 682-5113 Group Size: 18
Contact Person: Garrett Voss
Meet 1st Wed at 7:00 pm
24 hr BB (315) 682-6912

NORTH CAROLINA

NC, Charlotte
HUG Charlotte
4415 Emory Lane
Charlotte, NC 28211
(704) 364-9667 Group Size: 25
Contact Person: Mike Lafleur
Meet 1st Tues at 7:30 pm

NC, Fayetteville
Club no longer in existence

NC, Glen Alpine
Western Piedmont HUG
Rt 2, Box 371
Morganton, NC 28655
(704) 584-3684 Group Size: 10
Contact Person: Bill Poteat
Meeting time and place varies
Will have BB

NC, Greensboro
Carolina HUG
2711 Azalea Drive
Greensboro, NC 27407
(919) 855-5188 Group Size: 40
Contact Person: Graham Andrews
Meet 3rd Thurs at 7:30 pm at Greensboro HEC
BB (919) 292-5392 after hours

NC, Hillsborough
HUG-RTP
Rt 3, Box 39A
Hillsborough, NC 27278
Contact Person: Joe Williams
Meeting place and time unknown

NORTH DAKOTA

ND, Grand Forks
GFHUG (Grand Forks HUG)
19 Vail Circle
Grand Forks, ND 58201
(701) 772-3033
Group Size: 3
Contact Person: Charlie Robertson
Meeting time and place varies

OHIO

OH, Cincinnati
Cincinnati HUG
10133 Springfield Pike
Woodlawn, OH 45215
(513) 771-8850 Group Size: 90
Contact Person: President
2nd Tuesday 7:00 pm at HEC, $10.00 dues/year
Newsletter, 24hr BB (513) 772-6190

OH, Cleveland
NOHUG (Northeastern Ohio HUG)
7838 Valley Villas Drive
Parma, OH 44130
(216) 845-6752 Group Size: 54
Contact Person: Don Danko, Sec.
Meet 2nd & 4th Thurs 7pm at St. Gregorys Church

OH, Cleveland
Cleveland HUG
28100 Chagrin Boulevard
Cleveland, OH 44122
(216) 291-0698 Group Size: 30
Contact Person: Kent Currie
First Thurs 7:00 p.m. at HEC
BB (216) 292-7554 Non-store hrs only

OH, Columbus
Columbus HUG
2095 Milden Road
Columbus, OH 43221
(614) 457-0419 Group Size: 40
Contact Person: Jay Eikes
Meet 2nd Tues at HEC
BB (614) 475-7201 after store hours

OH, Dayton
Dayton HUG
c/o George Elwood
1670 N Laddie Court
Beaver Creek, OH 45432
(513) 426-5014 Group Size: 179
Contact Person: George Elwood
Meet 3rd Thurs at 4:15 at Flt Dyn Lab, Bldg 146, Rm 203E

OH, Toledo
THUG (Toledo HUG)
c/o Heath/Zenith Computers & Electronics
48 S. Byrne Road
Toledo, OH 43615
(419) 862-2417 after 6:00 pm Group Size: 300

Contact Person: Tim Tribble
Meet 2nd Wed of the month at 7:00 pm at HEC
BB (419) 537-1888 24hrs also 729-4221

OH, Youngstown
YOU-HUG
1502 S. Raccoon Road
Youngstown, OH 44515
(216) 799-5028 Group Size: 12
Contact Person: Mario DeSantis
Club just getting started

OKLAHOMA

OK, Oklahoma City
OKC TUGS
c/o Bill Cadwallader, PO Box 1171
Lawton, OK 73502
(405) 848-7593 Group Size: 40
Contact Person: Bill Cadwallader
Meet 3rd Thurs 7:30 pm at HEC
BBS (405) 848-9329 24 hours

OK, Tulsa
Tulsa HUG
23 Glenwood Estates
Claremore, OK 74017
Group Size: 5
Contact Person: Christian Kessler
Meet 2nd Tues at members homes
Club just starting - No dues

OREGON

OR, Salem
SHUG Salem Heath Users' Group
PO Box 13434
Salem, OR 97309
(503) 393-0786 Group Size: 21
Contact Person: Ken Hiigel
Meet 2nd Tues each month
Contact Ken Hiigel for location

PENNSYLVANIA

PA, Allentown
Lehigh Valley HUG
c/o Bob Kendi Cpt Ctr Lehigh Un
Mart Library 8-B Bethlehem, PA 18015
(215) 770-5993 Group Size: 30
Contact Person: James Batug
2nd contact Bob Kendi (215) 861-3992
Meet 2nd Sat at Lehigh University

PA, Frazer
FUG (Frazer Users Group)
4631 Pine St G-101
Philadelphia, PA 19143
(215) 387-5572 Group Size: 80
Contact Person: Colin McGowan, President
Meet 1st Wed 7:00 pm at Frazer H/Z C&E Ctr
BB (215) 644-7661

PA, Harrisburg
CPaHUG (Cent Pennsylvania HUG)
7540 Mourningstar Drive, c/o Ernest Asper
Harrisburg, PA 17112
(717) 545-2764 Group Size: 7
Contact Person: Ernest E. Asper
Meeting time & place varies
Club just getting started

PA, Philadelphia
Philadelphia Heath Users' Group
PO Box 8184
Philadelphia, PA 19101-8184
(215) 387-5572 Group Size: 58
Contact Person: Colin C. McGowan
Meet 2nd Wed each month 7:30 pm at HEC
RBBS (215) 288-0262

PA, Pittsburgh
Pittsburgh HUG
3482 William Penn Highway
Pittsburgh, PA 15235
(412) 882-5932 Group Size: 53
Contact Person: Bill Pridemore, President
Meet 3rd Tues at 7:00 pm at HEC
Newsletter

RHODE ISLAND

RI, Warwick
HUG-`RI' (HUG of Rhode Island)
558 Greenwich Avenue
Warwick, RI 02886
(401) 738-5150 Group Size: 150
Contact Person: Dave Haskell or Bill Rothman
2nd Wed 8:00 pm at HEC

SOUTH CAROLINA

SC, Anderson
Anderson HUG
401 Tiffany Drive, Regency Park
Anderson, SC 29621
(803) 225-0084 Group Size: 8
Contact Person: John R. Miller
Meet time and place varies
Club just starting

SOUTH DAKOTA

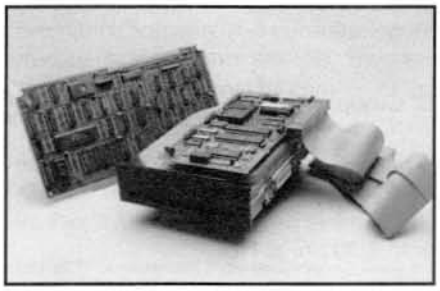
SD, Sioux Falls
Sioux Falls Area HUG
2001 S Spring Avenue
Sioux Falls, SD 57105-2820
(605) 336-8629 Group Size: 20
Contact Person: Lorin Dobson
Meet once a month on Sat-time and place varies
BB (605) 336-3935 24 hrs

TENNESSEE

TN, Knoxville
ETCHUG East Tenn Central HUG
1304 Witthollow Road
Sevierville, TN 37862
(615) 428-2057 Group Size: 20
Contact Person: G.R. Stradley

NEW PRODUCT ANNOUNCEMENT

UCI Mini Catalog:



EasyWIN

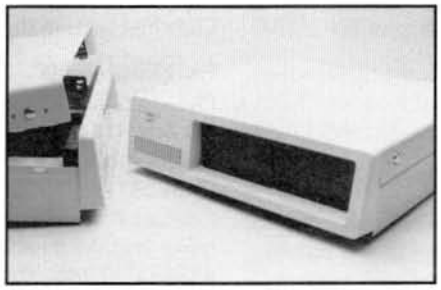
Most economical hard disk system available for the Z-100. It replaces the Z-217 hard disk system and works just like it. You can prep it, part it, and boot from it.

Features:

▪ Direct replacement of Zenith Z-217 Winchester disk. ▪ Controls 2 physical drives. ▪ Supports auto boot, all Z-100 formats, and Zenith diagnostics. ▪ Operates in any Z-100 with or without EasyPC. ▪ Future support of other hard disk controllers, removable cartridge drives, etc. ▪ Operates at 5 or 8 MHz.

Includes:

▪ Intelligent controller card to adapt IBM PC compatible hard disk controller to the Z-100. ▪ Western Digital PC hard disk controller card. ▪ Seagate 10/20/30 MB hard disk drive (ST215/225/238). ▪ Drive cables. ▪ Fully documented User's Manual.



Z-148 Expansion Chassis

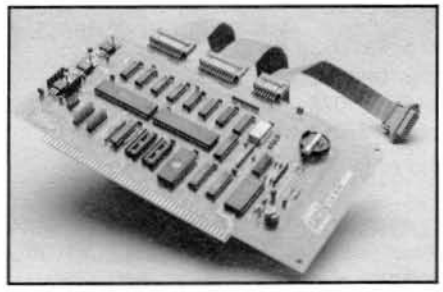
Finally a way for Z-148 users to take advantage of the growing world of IBM PC hardware including EGA, PGA, modems, hard disk drives, multifunction cards, etc.

Features:

▪ 8 available slots: 6 full PC slots and 2 half-size slots. ▪ 135 watt switching power supply with built-in fan. ▪ UL and FCC approved chassis and power supply. ▪ 5 or 8 MHz no wait state. ▪ Standard internal mounting brackets for 2 full-height or 4 half-height drives. ▪ Easy access, flip top metal case.

Includes:

▪ Z-148 adapter. ▪ 5 ft. shielded cable. ▪ Fully documented Installation Manual. ▪ Dimensions: 17.5″ D × 19.5″ W × 5.5″ H. ▪ Weight: 25 lbs. ▪ Color: Ivory.



I/O Plus

The least expensive way to obtain respectable but limited PC compatibility in a Z-100. Will run many, but not all, popular PC programs. Some copy protected programs may present problems unless patched.

Features:

▪ ZPC™ program and hardware circuit. ▪ ZPC program on EPROM (optional). ▪ One game port (2 joy sticks). ▪ Up to 115k baud rate. ▪ 2 IBM 8250 serial ports. ▪ Clock calendar with battery back-up. ▪ Fully documented User's Manual.

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UCI CORPORATION

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(216) 673-5155 / 800-UCI-COMPUTER

Meet 3rd Thurs 7:30 pm
Meet at John XXIII Center

TN, Memphis
Memphis HUG
Club inactive as of Jan 1986

TN, Nashville
Mi Te HUG (Middle Tenn HUG)
c/o Radio Ser Ctr, 116 17th Ave S
Nashville, TN 37203
(615) 242-0556 Group Size:
Contact Person: Charlie Wolf
Meet 2nd Monday 6:30 pm at Radio Service Center

TEXAS

TX, Austin
AHUG Austin Heath Users' Group
4206 Tamarack Trail
Austin, TX 78727
(512) 255-0376 Group Size: 60
Contact Person: George Koehler
Meet 1st Thurs 8:00pm Univ. of TX $10.00/yr dues
Meet at Robert Lee Moore Hall

TX, Dallas
Dallas Personal Robotics Group
814 Mockingbird Circle
Lewisville, TX 75067
(214) 690-1575 (between 6-10 pm)
Contact Person: Joe Rowe, President
Meet the third Sat 3:00 pm at the Dallas H/Z Computer Center
Have Newsletter, annual dues of $10.00

TX, Dallas
DFW HUG (Dallas-Fort Worth)
N2715 Ross Avenue
Dallas, TX 75201
(214) 826-4053 Group Size: 70
Contact Person: Henry Gardiner, President
1st Thursday and 15 days later (Wed.) at 7:30 PM
At HEC BB (214) 742-1380

TX, El Paso
EPHUG
5436 Van Horn
El Paso, TX 79904
(915) 821-3488 Group Size: 30+
Contact Person: Rick Peterson
Meet 3rd Wed. 7:00 pm 444 Executive Ctr Blvd
Suite 100 24hr BB (915) 821-3638

TX, Ft. Worth
FWHUG
6825A Greenoakes Road
Ft. Worth, TX 76116
(817) 737-8822 Group Size: 60
Contact Person: Kent Young
Meet 4th Thurs 7:30 pm at HEC

TX, Houston
HUG-H
7798 Braniff
Houston, TX 77061
(713) 644-5689 Group Size: 75
Contact Person: Tom McCormick, President

TX, Houston
NHHUG (North Houston HUG)
20207 Cotton Glade
Humble, TX 77338
Group Size: 50+
Contact Person: Barbara Gabner, Secretary
Meet 3rd Tues 7:30 at HEC
24 hour BB (713) 583-1287

TX, San Antonio
San Antonio (SAHUG)
7111 Blanco Road
San Antonio, TX 78216
(517) 341-8876 Group Size: 65
Contact Person: Tom Schneider
First Tuesday at HEC, 7:30 PM

TX, Wichita Falls
NORTEX HUG (N. Texas, S. Okla)
4510 Allendale Road
Wichita Falls, TX 76310-2102
(817) 691-0814 Group Size: 42
Contact Person: Alan D. Martin
Meet 3rd Sat 9am at MicroEducation Institute
Meet at 4550 Seymour Hwy

UTAH

UT, Castle Dale
Castle Mesa Computer Group
670 N 90 E, Box 587
Castle Dale, UT 84513
(801) 381-5173 Group Size: 10
Contact Person: Doug Sorensen
Meet 2nd Mon 5:30 pm at above address

UT, Midvale
UHUG (Utah HUG)
58 E. 7200 South
Midvale, UT 84047
(801) 262-8810 Group Size: 130
Contact Person: Wayne Newland
2nd Wednesday 7:00 PM at HEC
BB (801) 566-4551

VIRGINIA

VA, Arlington
CHUG (Capital HUG)
PO Box 16406
Arlington, VA 22215-1406
(703) 339-9857 Group Size: 1000
Contact Person: Recorded Message
Meet 3rd Mon 7:00 pm at Fairfax High School
Large Software Library (150+ disks)
CHUG FIDO (703) 339-9856

VA, Christiansburg
New River Valley HUG
c/o CCS Data Sta., 8 Roanoke Street
Christiansburg, VA 24073
(703) 382-4234 Group Size: 42
Contact Person: Ted Fleshman
Meet 1st Thurs 7:30 pm Christiansburg High School

VA, Richmond
RHUG (Richmond HUG)

4302 Smithdeal Avenue
Richmond, VA 23225
(804) 231-6759 Group Size: 20+
Contact Person: Carlos Chafin
Meet 3rd Mon 7:30 pm
Meet at Alpha Audio 2049 W Broad

VA, Virginia Beach
THUG (Tidewater HUG)
1055 Independence Boulevard
Virginia Beach, VA 23455
(804) 467-4783 Group Size: 90
Contact Person: Hank Rogerson
Meet 1st & 3rd Thurs. 7:30 pm at H/Z C&E

WASHINGTON

WA, Bellevue
PNHUG (Pacific Northwest HUG)
54 Glacier Key
Bellevue, WA 98006
(206) 747-2322 Group Size: 250
Contact Person: Dave Banks
Meet 2nd Thurs odd months Federal Way HEC (both 7:00)
Meet 2nd Thurs even months Seattle HEC

WA, Kennewick
Tri-Cities HUG/ZUG
2714 W. John Day
Kennewick, WA 99336
(509) 735-7008 Group Size: 20+
Contact Person: Pete Roberson
Meet 4th Tues 8:00 pm - location varies
2nd Contact John Nelson 509 375-0300

WA, Spokane
SPOHUG (Spokane HUG)
S. 3810 Havana
Spokane, WA 99204
(509) 448-9727 Group Size: 25
Contact Person: Charles Ballinger/Ron Hodges
Meet last Thurs 7-9pm at Acme Business Computers
Alternate phone # (509) 448-5009

WA, Vancouver
Portland-Vancouver HUG
516 SE Chkalov Drive
Vancouver, WA 98663
(206) 254-4441 Group Size: 46+
Contact Person: Dan Heims
1st Thursday at 7:30 PM at HEC
Portland OR and Vancouver Area
BBS (503) 648-5591 (special section for ZPC users)

WA, Walla Walla
HUG/ZUG of Walla Walla
112 N. Division
Walla Walla, WA 99362
(509) 525-8404 Group Size: 8+
Contact Person: Pat Hanna
Meet 2nd & 4th Tues 8pm at 112 N Division
2nd cont Pete Parcells (509) 527-5267

WISCONSIN

WI, Madison
Madison Area HUG
3519 Tally Ho Lane
Shorewood Hills, WI 53705
(608) 233-4588 Group Size: 25
Contact Person: Thomas Gans
Meet 1st Wed 7:30pm at Wisconsin Union South

WI, Madison
UWHUG (Univ of Wisconsin HUG)
109 N Few
Madison, WI 53703
(608) 257-0373 Group Size: 30
Contact Person: Walter Burt
Meet 1st Wed 7:30pm at Univ WI Union South
Club newly formed 12/83

WI, Milwaukee
MHUG Milwaukee Heath Users' Gp
9040 N. Lake Drive
Milwaukee, WI 53217
(414) 352-3346 Group Size: 80
Contact Person: Marvin Olson, Tres.
Meet 3rd Sat 2:00pm at Milw Sch of Eng Rm L-100

WI, Mosinee
CWHUG-Central Wisconsin HUG
PO Box 66
Rothschild, WI 54474
(715) 359-4156 Group Size: 10
Contact Person: Edward Ignace Porwit
Meet 2nd Tues

INTERNATIONAL

BELGIUM
27, Avenue des Marguerites
B-1970 Wezembeek-OPPEM BELGIUM
Group Size: 4+
Contact Person: Will Degeest
Meet 1st Tues 8:00 pm at Cafe "Alice's"
Cafe is in Brussells, BELGIUM

CANADA, Calgary, ALBERTA
Heath Users of Calgary
#101-5809 Macleod Trail South
Calgary, Alberta T2H 0J9 CANADA
(403) 252-2688 Group Size: 20
Contact Person: Bill Jones
Meet 1st Tues at 7:00pm at Calgary HEC
Club reorganized March 1985

CANADA, Edmonton, ALBERTA
HUGOE (H/Z Users' of Edmonton)
17314 106 Avenue
Edmonton, Alberta CANADA T5S 1H9
(403) 483-4656 Group Size: 12
Contact Person: Edward Hrdlicka
Meet 1st Wed at 7:30pm Meeting place varies.
BB (403) 454-6093

CANADA, Ottawa, ONTARIO
HUG `O' (HUG Ottawa)
866 Merivale Road
Ottawa, ONTARIO K1Z 5Z6 CANADA
(613) 728-3731 Group Size: 30
Contact Person: Brian Fultz, President
2nd Wednesday 8:00 PM at HEC

CANADA, Toronto, ONTARIO
THUG (Toronto and area HUG)

54 Camrose Crescent
Scarborough, Ont. CANADA M1L 2B7
(416) 755-0853 Group Size: 20
Contact Person: Stephen Dugas, President
Meet 2nd Thurs 7:30pm - meeting place varies
BB (416) 755-8823

CANADA, Vancouver BC
VANHUG (Vancouver HUG)
3058 Kingsway Attn Robert Hudak
Vancouver BC, CANADA V5R 5I7
(604) 437-7626 Group Size: 50+
Contact Person: Robert J Hudak
Meet last Tues 7:30 pm at HEC

CANADA, Vancouver, BC
Vancouver Island HUG
Suite 304, 560 Johnson Street
Victoria, BC CANADA V8W 3C6
(604) 384-3134 Group Size: 9
Contact Person: Greg Greene, President
Meet 2nd Wed 7:30 pm at Dogwood Software

ENGLAND, Gloucester
United Kingdom Users' Group
ZDS Limited Bristol Road
Gloucester, GL2 6EE, ENGLAND
0452-29451 Group Size: 80
Contact Person: Philip Meek
Group does not hold regular meetings

FRANCE, Paris
GUFI (French HUG)
37 Boulevard Saint-Jacques
75014 Paris, FRANCE
1 565 10 11 Group Size: 350
Contact Person: Dr. Bernard Pidoux
Meet every WED at 7:00 pm at club address
CBBS +33 (1) 45 65 10 09

HOLLAND, Apeldorn
See NETHERLANDS club listing

HONG KONG
Compudragon
273 Prince Edward Road
11/C Kowloon, HONG KONG
3-711-8904
Contact Person: K.T. Lee
Club just organizing

JAPAN, OKINAWA
OKIHUG (Okinawa Users Group)
c/o American Computer Services, PO Box 443
Okinawa, JAPAN 904-99
Phone: 09893-6-4321 Group Size: 22
Contact Person: American Computer Services
Meet 2nd Fri at 7:00 pm at American Computer Services Clsrm

KOREA, Yongsan, Seoul
K-HUG
HHC 1st SIG BDE, c/o LTC Dismukes
APO San Fran, CA 96301
293-4132 Group Size: 6
Contact Person: LTC William Dismukes
Just started-monthly meetings not established.

NETHERLANDS
Dutch Heath Users' Group
NIEUWE KERKHOF 16
9712 PV Groningen, NETHERLANDS
050-180203 Group Size: 120
Contact Person: Evert Jan Stokking
Meet quarterly at Amersfoot

NEW ZEALAND
HUG New Zealand
94 Dowse Drive
Maungaraki, Lower Hutt, NEW ZEALAND
695-924 Group Size: 1
Contact Person: Mr. R. Siebers
Would appreciate New Zlnd REMark readers contact
Eager to expand group

PANAMA CANAL
Club no longer in existence

PUERTO RICO, Rosario
PRHUG (Puerto Rico HUG)
Calle La Paz #706, Miramar
Santurce, PR 00907
(809) 722-1612 Group Size: 30
Contact Person: Joseph Gonzalez
Meet 2nd Sunday of odd numbered months

SCOTLAND, EDZELL
EDZELL HUG
Box 517 NSGA EDZELL
FPO New York, NY 09518
EDZELL-7254 Group Size: 3
Contact Person: Lt. Dave Smith
Club very interested in expanding

SPAIN, Zaragoza Air Base
Small Computers Users' Group
1986 ISS/DOA
APO NY 09286-6346
Contact Person: MSGT John E. Johnson, Jr.
Formalized group in March 1986

WEST GERMANY, Frankfurt
Club no longer in existence

*

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A magazine for Kit Hobbyists

KIT BUILDERS JOURNAL

Special Edition

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Volume 0, Issue 0 • January 1987 P/N 000-0000 Issue 0

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The Kit Builders Journal,
The Magazine For The Kit Building Hobbiest

- *The reader will be able to enjoy indepedent reviews on both electronic and non-electronic kits.*
- ***KBJ** will feature a wide variety of kit building information for Heath products as well as other do-it yourself projects.*
- *The **K**it **B**uilders **J**ournal is available through subscription only and will be delivered every other month, starting in January of 1987.*
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Subscribe now and get your Kit Builders Journal! Order KBJ-2000-NM and get six big issues for only $9.95. Use your Visa, Mastercard or Heath Revolving Charge. Call TOLL FREE 1-800-253-0570. In Alaska and Michigan call 616-982-3411.

For outside U.S. orders send your name and postal address to Heath Company P.O. Box 1288, Benton Harbor, MI 49022. Rates in U.S. Funds for Canada, APO/FPO and all others: $17.95.

Heath/ Zenith Related Vendors

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

A. U. Software
P.O. Box 8369
Wichita, KS 67208

Contact: Martha Talley Phone: (316) 682-0156

Comments: Software available. Products: Exam Builder — A complete test generation and storage system. Entry/edit of questions, random or teacher selection of test items. Password protected answer keys, easy to use. Special Notes: Zenith, IBM, Tandy, Apple, Compatibles — $99.95.

Abe Dweck Programs
RD 4 Rosedale Road
Carmel, NY 10512

Contact: Abe Dweck Phone: (914) 225-5621

Comments: Hardware, software and consultation available. Products: Software and hardware installations to Legal, Medical, and Accounting professions.

Ackerman Digital Systems, Inc.
216 W. Stone Court
Villa Park, IL 60181

Contact: Lawrie Ackerman Phone: (312) 530-8992

Comments: Hardware, software and consultation available. Products: Board level microcomputers for S-100 and Z-100 systems. Special Notes: PROM Programming Card programs up to 256K parts. Speech Synthesizer uses Votrax SC-01.

AdminAid Micro Software
886 Brunsford Court
Fairfield, CA 94533

Contact: George M. Aldridge Phone: (707) 425-2275

Comments: Software and consultation available. Products: Teachers Grade Book: Supports alpha and numeric grades. Solitaire game. Special Notes: Both products for H/Z-100 and PCs.

Advanced Technology Resources
14700 North Airport Drive, Suite 202
Scottsdale, AZ 85260

Contact: Bob Herbert or John Manos Phone: (602) 951-6298

We can provide professional support to your human resources staffing organization in several ways: • Contingency recruiting; • Contingency recruiting with retainer; • Retained search for high level positions; • Retained recruiting to support a client interview/recruiting trip to a targeted area. We are targeting our resources on locating engineers and professionals with experience in the "leading edge technologies" for product design and manufacture. Special Notes: For further details and clarification on our services and how we can help you locate those hard to find specialists, please call our office.

Air Capital Computer
1909 Siefkin
Wichita, KS 67208-1760

Contact: David L. Horwitz Phone: (316) 681-0011

Comments: Hardware, software and consultation available. Products: Full Zenith Data Systems product line, also C. Itoh printers. We specialize in Medical and Aviation software and turn key systems. Special Notes: A live person normally answers the phone between 8:00 pm and 10:00 pm Central Time. Caution a computer controlled answering machine answers at other times.

American Cryptronics Inc.
1580 Corporate Drive, Suite 123
Costa Mesa, CA 92626

Contact: Gary H. Kakert Phone: (714) 540-1174

Comments: Hardware available. Products: A 32K CMOS Static RAM Memory Module specifically designed to increase on-line memory in the ZP-150 Lap Top.

American Planning Corporation
4600 Duke Street, #423
Alexandria, VA 22304

Contact: John E. Cleckner Phone: (703) 751-2574

Comments: Software available. Products: MegaBASIC Automated Programming Language includes these features: direct addressing of one megabyte of memory; automatic network support for IBM, Novell, 3COM, and PCNet. Special Notes: Supports GEM graphics; transportable between computers and operating systems; run-time semi-compiler speeds execution.

Amherst International Corporation
540 North Commercial Street
Manchester, NH 03101

Contact: David Mackey Phone: (603) 644-3555

Comments: Software and consultation available. Products: Cover Craft — Anti-static computer covers for more than 500 models; Field-Pro — Computer & video carrying case with "Style"; Regatta — Fabric covers with style and features for the executive computer user; Stat-Pruf — Anti-static protective mats; Uni-Cover — Leather grained VCR covers; Diskette Libraries — Portable Disk Library in two sizes for 3½" & 5¼" diskettes. Special Notes: Besides the various products listed above, available for a number of different models, we also do custom/special order work on a quote basis.

Analytical Products
213 Teri Sue Lane
Buellton, CA 93427

Contact: Peter Shkabara Phone: (805) 688-0826

Comments: Hardware and software available. Products: Hardware for H-89: 4MHz and 6MHz upgrades, auto key repeat module, real time clock w/battery. Software: Bootable Z-System for H-89, EMULATE program for H-89 to read/write to over 40 CP/M formats, CP/M 2.2.04 patches for KRES 4MHz module, WordStar key patches for H-89/H-19. Special Notes: Discount prices on CDR Systems products, DateStamper, and other software. Free catalog available.

Applied Knowledge Groups
Commerce Park
1095 East Duane Avenue, Suite 203
Sunnyvale, CA 74086

Contact: Anthony Fister Phone: (408) 739-0300

Comments: Software available. Products: Low cost local area network software product that enables both PCs and Z-100 machines to share printers, storage devices, and applications up to six machines. Special Notes: Pricing as of October 1, 1986: -Knowledge Network PC — $149.50 per node; -Knowledge Network Z-100 — $199.00 per node.

Applied Software Technology, Inc.
Box 397
Los Gatos, CA 95031-0397

Contact: Debra M. Atlas Phone: (408) 370-2662

Comments: Software available. Products: VersaForm XL — Does invoices, inventory, and accounts receivable. Now faster, bigger forms, larger screen, display scrolling, more fields, more data per form, more column lines, bigger lookup tables, full support of color displays, support of subdirectories for data files, no more "cold boot". Run on PC/XT/AT or compatible, requires 512K bytes of RAM memory.

Applied Software Technology, Inc.
430 Tenth Street, NW, Suite N-210
Atlanta, GA 30318

Contact: Nancy Mansfield Phone: (404) 892-1339

Comments: Hardware, software and consultation available. Products: Specializing in AutoCAD and related architectural and engineering software applications; in-house Zenith support.

Artificial Intelligence, Inc.
P.O. Box 569
Renton, WA 98057-0569

Contact: Sheila Boswell Phone: (206) 271-8633

Comments: Software and consultation available. Products: A practice management system for the veterinary office, includes billing, accounts receivable, invoicing, complete reminder system, reports system inventory tracking and mail list manager. Special Notes: Prints Rabies Certificates and Spay/Neuter Certificates.

Aspen Ribbons Inc.
555 Aspen Ridge Drive
Lafayette, CO 80026

Contact: Peter C. Williams Phone: (303) 666-5750

Comments: Consultation available. Products: Ribbons for computer printers.

Autodesk, Inc.
2320 Marinship Way
Sausalito, CA 94965

Contact: Sandra Boulton Phone: (415) 332-2344

Comments: Software available. Products: AutoCAD(tm) is a full-featured multi-purpose CAD design program with 3-D visualization that runs on over 30 microcomputers. AutoCAD can be customized for any drawing application. Special Notes: CAD-camera(tm) and AE/CADD(tm) are two new Autodesk, Inc. products available through our Dealers.

Avocet Systems, Inc.
P.O. Box 490
Rockport, ME 04843

Phone: 1-800-448-8500

Comments: Hardware, software and consultation available. Products: Avocet's XASM cross-assemblers offer a proven alternative to expensive development systems. They save you time, effort, and money by turning your personal computer into a workbench for microprocessor software. For more information contact Avocet Systems, Inc.

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BPI Systems, Inc.
3001 Bee Cave Road
Austin, TX 78746

Contact: Cheryl L. Seeman Phone: (512) 328-5400

Comments: Software and consultation available. Products: The BPI ENTERPRISE SERIES offers: complete functional integration, built-in chart of accounts, flexible financial report design, user-defined journals, pull-down menus, local area networking. Special Notes: The BPI ENTRY SERIES offers basic accounting and management information for the small to medium-sized business.

BV Engineering
2200 Business Way #207
Riverside, CA 92501

Contact: Wilda Daggett Phone: (714) 781-0252

Comments: Software available. Products: Electronic Engineering Software: AC & DC Circuit Design & Analysis, Graphics, Plotter Drivers, Signal Processing, Root Locus, Transfer Function Analysis, Active Filter Design and Synthesis. Special Notes: Call or write for our FREE 52 page catalog and tutorial guide.

Barry A. Watzman
Microcomputer Systems and Consulting
560 Sunset Road
Benton Harbor, MI 49022

Contact: Barry Watzman Phone: (616) 925-3136

Comments: Software and consultation available. Products: Perks Desktop Utility, CP/M-86 Operating System, MP/M-86 Operating System, CP/M-Plus Operating System, all for the Z-100 computer system. Consulting service and custom software also available.

Bear Computers, Inc.
1300 Hamilton Road
P.O. Box 1166
Bloomington, IL 61702

Contact: Pam Littel Phone: (309) 663-9412
(Outside IL) (800) 327-BEAR

Comments: Hardware, software and telephone consultation available. Products: Our legal software incorporates Time and Billing, Docket Control, and Conflict of Interest. Management reports create ideal management tool. "User-friendly" software.

Bit Zero
1413 Redeker Road
Des Plaines, IL 60016

Contact: Hank La Barbara Phone: (312) 298-1504

Comments: Hardware, software and consultation available. Products: Low cost 8" floppy controllers H-8/H-89, disk drive repair, H-89 Real Time Clock, H-89/H-19 CRT Video Blankers, RS232 Line Monitor, special interfacing of H-8 or H-89 to external devices.

Blaise Computing Inc.
2034 Blake Street
Berkeley, CA 94704

Phone: (415) 540-5441

Comments: Software available. Products: Pascal TOOLS — A package of Pascal units extending the capability of IBM and Microsoft Pascal compilers. C TOOLS — A powerful package of C functions which enable the user to augment the libraries of existing compilers. View Manager — A screen management system, comprising four components, developed explicitly for the IBM Personal Computer. EXEC — Implements program chaining using the standard DOS program loader. And many more!

Buccaneer Software Ltd
P.O. Box 502
Oakdale, NY 11769

Contact: Peter Ruber Phone: (516) 567-2374 After 6 PM

Comments: Software available. Products: Publishes software for Heath/Zenith computer systems. CP/M SCREEN DUMP UTILITIES, Z-TERM/89 (full featured terminal/BBS communications, HOUSEHOLD INVENTORY, Z-DRAW/89, Z-EDIT/89 (replacement editor for HDOS). Descriptive catalog available.

Budget Software
P.O. Box 221
Berrien Springs, MI 49103-0221

Contact: Charlynne Clark Phone: (616) 471-4830

Comments: Software and consultation available. Products: Interlaced GRAPHICS for the H-100, CRTSAVER, SWAPTALK, STRIP, CALENDAR programs for the H-100 and the H-150, source included. Send self-addressed stamped envelope for free catalog, or call bulletin board (616) 471-4830. Special Notes: Telephone line is a computer bulletin board except Sunday afternoon from 1:00 to 4:00 for voice consultation.

Business Support Services, Inc.
705 Butternut Avenue
Royal Oak, MI 48073

Contact: Evelyn S. Kennedy Phone: (313) 585-4736

Products: Ribbons, printwheels, and thimbles for letter quality printers and electronic typewriters. Ribbons for computer printers. Printwheel/Thimble modification service. Special Notes: Free catalog has ribbons and printouts of printwheel or thimble typestyles.

ByteSize Concepts, Inc.
18101 Euclid Avenue
Cleveland, OH 44112

Contact: Michael Nelson Phone: (216) 486-1114

Comments: Software and consultation available. Products: Home Budget Manager, Home Data Manager, Home Mechanic . . . The Home series. Each helps manage a specific area of work around the house. Electronic typewriter makes your computer/printer work like an electronic typewriter. All four in CP/M or MS-DOS formats for H-8, H-89, H-100. Electronic typewriter also available for 150 series.

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C&C Engineering
Rt. 4 Box 364
Lexington, NC 27292

Contact: Carol Bernhardt Phone: (704) 787-4131

Comments: Software and consultation available. Products: Plotter Scribe — Allows plotter to print fancy text, any size/direction. Attorney's Deed Check — Checks closure and plots deed on printer/plotter. Land Surveying and Earthwork Computation programs. AD2 Mapping — A comprehensive computer mapping and design system using interactive screen graphics. Programs available for Z-100 and Z-100 PC computers.

C.D.R. Systems, Inc.
7210 Clairemont Mesa Boulevard
San Diego, CA 92111

Contact: Marc D. Brooks Phone: (619) 560-1272
Bulletin Board: (619) 560-8929

Comments: Hardware, software and consultation available. Products: H/Z-89/90 Megabyte RAM Drive System, RTC and SCSI Hard

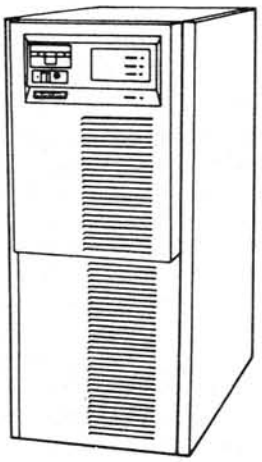
Now with Cambridge Script Processing

HONEYWELL USERS

Connect Your Z-100 Series Or Z-100 PC Series Computer To Honeywell Host Systems

The ultimate micro-to-mainframe link

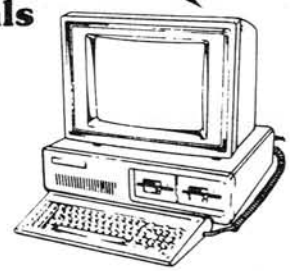
PC77/78 — Emulates the Honeywell VIP7700/VIP7800 series of synchronous terminals



Features:
• color attribute mapping • hot key to DOS • access host via multiple windows • print redirection • script processing • help facility • print spooling

File Transfer:
• menu driven • macro capability to bypass menus • data compression • file identification security features • attended and unattended mode of operation • restart capability • help facility

PC73/78 — Emulates the Honeywell VIP7200/VIP7300/ VIP7800 series of asynchronous terminals



Features:
• color attribute mapping • hot key to DOS • print redirection • script processing • help facility • print spooling

File Transfer:
• Kermit • Xmodem • ASCII • menu driven • macro capability to bypass menus • attended and unattended mode of operation

The personal computer can be connected to any Honeywell host via a modem, modem-by-pass or multiple interface unit (MIU) and may reside on a communications line with other PC's or terminals. No host system or application software modification, regardless of the operating system is required.

High-performance communications software from:

Cambridge Computer Corporation
80 Mount Sanford Road, Mount Carmel, CT 06518-1210
203/288-6004, Telex 6502236599

Honeywell is a trademark of Honeywell, Inc.

Disk options. Double Density 8"/5.25" Floppy Drive Controller. ZS-100 7.5 MHz Speed Module. 2.4Meg. 5.25" Floppy package. Special Notes: C.D.R. Systems has manufactured quality products for the Heath/Zenith community for many years.

CLEO Software
Division of Phone 1, Inc.
461 N. Mulford Road
Rockford, IL 61107

Contact: Kim Hagemeyer Phone: (800) 233-CLEO

Comments: Hardware, software and consultation available. Products: CLEO 3270 SNA or BSC allows your Z-100 PC to emulate a remote cluster of IBM 327x terminal devices anywhere a 3274/76 cluster might be used. 3780Plus is for fast, accurate file transfers using IBM's bisync protocol. CLEO 5251/12 supports remote SYSTEM 3x terminal emulation for the Z-100 PC. Now you can share mini-frame resources, such as high speed printers, with PC-users at remote sites. SYNCmodem is an internal synchronous auto-dial/auto-answer modem for the Z-100 bus. It comes fully integrated with your choice of CLEO 3270 SNA, BSC, 3780Plus, or CLEO-5251/12 software for easy dial-up operation.

CPAids, Inc.
1061 Fraternity Circle
Kent, OH 44240

Contact: Cary Parker Phone: (216) 678-9015
Vice President (800) 227-2437

Comments: Software and consultation available. Products: The Master Tax program provides the tax preparer with the ability to bring computerized tax preparation in-house. The Client Write-Up is a comprehensive accounting system designed for the accounting professional doing write-up work and for the small to medium business performing general ledger work. The Tax Planner is a comprehensive stand alone program that provides the user the ability to do "what if" tax planning applications. The CPAids 1120 Corporation program prepares the 1120 corporate tax return and performs associated functions.

Cambridge Computer Corporation
80 Mount Sanford Road
Mount Carmel, CT 06518

Phone: (203) 288-6004

Comments: Software and consultation available. Products: PC77/78 — Honeywell VIP7700/VIP7800 series synchronous terminal emulator and file transfer software for the Zenith Z-100/110/120 and Zenith Z-150/248. Special Notes: Honeywell VIP7200/VIP7300/VIP7800 series asynchronous terminal emulator also available.

William N. Campbell, M.D.
855 Smithbridge Road
Glen Mills, PA 19342

Contact: William N. Campbell, M.D. Phone: (215) 459-3218

Comments: Software and consultation available. Products: "Getting Started With MS-DOS & BASIC Random File Handling" — for Z-150/160, MS-DOS & GWBASIC. Price $25.00. "Getting Started With CP/M & MBASIC Random File Handling" — for H-89 CP/M or Z-100 CP/M-85 and ZDOS. Price $25.00. Both above products include disk (specify hard or soft sector) with ready to run mail list programs and demo programs, and manual of detailed tutorials and extensive instructions. "Getting Started With HDOS & Assembly Language Programming" — 36 page tutorial. Price $15.00. All items sent first class upon receipt of check.

Central Point Software
9700 SW Capitol Highway #100
Portland, OR 97219

Contact: Catherine McGreevey Phone: (503) 244-5782 X204

Comments: Software and consultation available. Products: Copy II PC is a backup utility for the IBM PCs though user reports of compatibility on the Zenith are excellent. Backs up most protected software quickly and easily, even allows several to be run from the hard disk without a key disk in drive A! PC Tools combines the popular features of Norton Utilities with a DOS Interface and makes them MEMORY RESIDENT! Fast and user friendly! Also excellent compatibility reports.

Chi Corporation
26055 Emery Road
Cleveland, OH 44128

Contact: Lel F. Somogyi Phone: (216) 831-2622

Comments: Hardware, software and consultation available. Products: Chi offers a complete line of terminal emulation products that provide PCs with the ability to emulate the IBM 3270 family of terminals, DEC VT family, and Sperry UTS family. Also available is ChiLAN CS-1,MasterLink File Transfer System, PC 9-Track Tape Drive System, MP-1 Terminal.

Chuck Atkinson Programs
Lake Benbrook Drive
Fort Worth, TX 76126

Contact: Chuck Phone: (817) 249-0166

Comments: Hardware, software and consultation available. Products: Quick Check — $49.95. Simplified bookkeeping. Enter (or print) checks, deposits, cash spent, and income, and more. Add Accounts Payable for $45.05 and Accounts Receivable for $100. Quick Register — $395.00. Enter the quantity and item number as you make a sale. Print the invoice (or quote) and do the totals, sales tax, sales records, analysis, and inventory control at the same time. Does more. Add customer Records and Mail Management for $200.00. Sell-A-Matic (SAM) $995.00. All of the above, and serialized inventory and a quick letter writer. Available for IBM — CP/M and MSDOS.

Church-Related Computer Programming
305 SE Terrace
Roseburg, OR 97470

Contact: Larry Monk Phone: (503) 673-6689
INA (503) 672-1629

Comments: Software and consultation available. Products: Church administration software for congregations under 350 members: Treasurer, Contributions, Membership data. H/Z-89, H/Z-100, IBM-PC, Apple II+. Needs 64K, MBASIC, and a printer. Special Notes: Quality user-customized software at affordable prices.

Cleveland Codonics Inc.
18001 Englewood Drive
Middleburg Heights, OH 44130

Contact: Michael Kolberg Phone: (216) 243-1198

Comments: Hardware and consultation available. Products: Manufacturer of graphics add-on boards for the H/Z-19 and H/Z-29

Display Terminals. Graphics add-on boards also available for the H/Z-89 computers.

CometSoft Technology
634 Tealwood Drive
Dayton, OH 45430

Contact: Roger Patterson Phone: (513) 426-7486

Comments: Software and consultation available. Products: ZCHESS for Z-100 (NOT PC). Use MS-DOS Vers. 3.0 for hours of tournament chess. 20,000 openings, set up position, save, restore, change sides, keep time. Thinks on opponents time. Change colors and many more features.

COMMSOFT
2257 Old Middlefield Way
Mountain View, CA 94043

Contact: Robin Platts Phone: (415) 967-1900

Comments: Software and consultation available. Products: Roots II for Genealogy. Organize your family tree and print camera-ready family books containing charts, text and indexes. Compatible with the Z-100 and the Z-150 series computers.

Compewterware
700 Milford Road
East Stroudsburg, PA 18301

Contact: H. Dean Moxness Phone: (717) 421-0367

Comments: Hardware, software and consultation available. Products: Full line of Zenith computers, Star Micronics printers, Gusdorf computer furniture, software and supplies. Special Notes: "Let Us Show You Productivity."

Computer Associates
Micro Products Division
2195 Fortune Drive
San Jose, CA 95131

Contact: Leanna Gaskins Phone: (408) 942-1727

Comments: Software and consultation available. Products: Products available through regular channels: H/Z-89 — SuperCalc2; H/Z-150 — SuperProject, EasyBusiness Systems, EasyWriter II System. Products available through Zenith Dealers only: H/Z-100 — *SuperCalc3; H/Z-150 — *SuperCalc3 Release 2 (*SuperCalc3 Release 2.1 soon) *These are special OEM versions.

Computer Covers
P.O. Box 551
Chagrin Falls, OH 44022

Contact: Sue Hanson Phone: (216) 247-3983

Comments: Consultation available. Products: Contoured covers are made of simulated leather vinyl with double stitched seams and custom made to client's special configuration in Brown or Black. Vinyl is fabric backed and cover has handy self loop for hanging when using unit.

Computer Information, Ltd.
P.O. Box 1870
Kailua, HI 96734

Contact: R. H. Morrison Phone: (808) 262-2533

Comments: Hardware and consultation available. Products: Computer Entrepreneur — 100 ways to make money with your personal computer offering simple services.

Computer Smyth Magazine
P.O. Box 176
Peterborough, NH 03458-0176

Contact: E. T. Dell Phone: (603) 924-9464

Comments: Software available. Products: Computer Smyth is a hands-on quarterly journal for the microcomputer hardware enthusiast. The magazine publishes computer construction projects, modifications and enhancements.

Computer Support Corporation
2215 Midway Road
Carrollton, TX 75006

Contact: Charles Hinds Phone: (214) 661-8960

Comments: Software available. Products: Diagraph, containing 5000 symbols and forty typefaces, is used to produce professional presentation aids. Data-driven Picture Perfect, simplifies the creation of bar, pie, and bar/line charts. Special Notes: Both Micro IBM compatible PC products support a variety of printers, plotters and film recorders.

CompuView Products, Inc.
1955 Pauline Boulevard, Suite 300
Ann Arbor, MI 48103

Contact: Diane Renaud Phone: (313) 996-1299

Comments: Software available. Products: VEDIT PLUS — Text editor with windowing, macro capabilities, text registers, numerical abilities. Ideal for technical writers, programmers and word processors; VEDIT — Slightly lesser version of VEDIT PLUS; V-SPELL — Spelling checker/corrector, menu driven, with complete hyphenation; V-PRINT — Print formatter, pagination, indenting, indexing, plus much more; TRANSYS & SYSTRAN — Transfer utility programs between CP/M-86 and MS-DOS.

Condor Computer Corporation
2051 South State Street
Ann Arbor, MI 48104

Contact: Kathleen A. Fulton Phone: (313) 769-3988

Comments: Software and consultation available. Products: Condor 3 — Database Management Software. Condor 3 is the ONE that combines the simplicity of a file manager with the performance you expect from a relational database management system.

Conlon
71 Pardee Street
Bristol, CT 06010

Contact: Dale or Bob Conlon Phone: (203) 589-3824

Comments: Hardware, software and consultation available. Products: We provide custom accounting systems and currently market packages for churches, small manufacturing companies, blacksmiths, non-profit organizations, daycare centers and nursery schools, etc. Special Notes: We are ZDS dealers with a full line of peripherals, supplies, packaged software and custom programming.

Consumer Product Development
6242-B Rumford Lane
Houston, TX 77084

Contact: Michael Holcombe

Comments: Hardware and consultation available. Products: Currently available is a CPU Clock Speed Enhancement for both Z-

100 and Z-150 series computers. Plans for the new Zenith line. Special Notes: Possibly the above for the IBM PC. Also, a light pen for the Z-100.

Cover Craft
540 N. Commercial Street
Manchester, NH 03101

Contact: Joy Grant Phone: (603) 644-3555

Products: Anti-static dust covers, carrying cases, static control mats, high fashion Regatta protective covers. Special Notes: Cover Craft Anti-Static Dust Covers are the best selling U.S. brand.

Custom Software Services, Inc.
P.O. Box 65, 2500 Highway 79 South
Guntersville, AL 35976

Contact: Tyrus M. Dorman, Jr. Phone: (205) 582-4168

Comments: Software and consultation available. Products: Medical Billing Program, Dental Billing Program, Legal Office Management with time and billing. Written in dBASE-II. Special Notes: Source code provided. Menu driven. Custom modifications and more information on request.

DDDDDDDDDDDDDDDDDDDDDDDDDDDDDD

D-G Electronic Developments Company, Inc.
700 S. Armstrong
Denison, TX 75020

Contact: Bruce Denton Phone: (214) 465-7805 (9 to 4 CST)

Comments: Hardware, software and consultation available. Products: D-G Heartbeat computer (H/Z-89 compatible), D-G Super 89 CPU for the H/Z-89, H-8 Static and Dynamic Memory boards, H-8 Z-80 CPU Card, Super 89 BIOS, MP/M II for the Super 89 and Heartbeat. Special Notes: Above products, as well as a line of products for the H/Z-150 series available through many Heathkit Electronic Centers.

Data Management Associates, Inc.
24 E. King Street
Shippensburg, PA 17257

Contact: Dr. Gary L. Martz Phone: (717) 532-7493

Comments: Hardware, software and consultation available. Products: Church Conference (C) — DMA has developed various software applications for the central office of a church denomination. Dairy System (C) — Daily, monthly and yearly reports to assist in the decision-making process. Veterinary Clinic System (C) — Designed to provide the office manager and staff manager with a means to manage client information, patient records, financial records and reports, clients billing, hospital records, inventory control and analysis, and procedures records. And many more! Call for information. Special Notes: Contact DMA for more information on their products.

Data Transforms
616 Washington
Denver, CO 80203

Contact: Margaret Devere Phone: (303) 832-1501

Comments: Software and consultation available. Products: Typesetting and graphics software. Multiple fonts, text/graphics merge, database interface. Multiple word processor/printer support.

Al Davis
187 Lake Chapin Road
Berrien Springs, MI 49013

Contact: Al Davis Phone: (616) 471-1792

Comments: Hardware available. Products: Heath/Zenith computer circuit boards — Z-100, Z-151 and H-89. Also, cabinets, etc. H-89 kits $150.00. HDOS H-89 operating system — $5.00/Box. Special Notes: I ship UPS and COD.

DelSoft
564 Calle Anzuelo
Santa Barbara, CA 93111

Contact: Gary Deley Phone: (805) 967-9566
Eves and Weekends

Comments: Software and consultation available. Products: WordKey makes WordStar the easy-to-use professional word processing program it should be. PSC-PRO graphics screen dump utility for the Prowriter printer. Special Notes: Programs are for H/Z-100 computers under Z-DOS and MS-DOS. WordKey $49.95, PSC-PRO $19.95, shipping included.

Digital Pathways, Inc.
201 Rayendale Drive
Mountain View, CA 94043

Contact: Robert Lewin Phone: (415) 964-0707

Comments: Hardware and consultation available. Products: Digital Pathways offers three computer access systems that prevent unauthorized dial-up access to computers: the Defender II, Defender IID and the Defender IIk. Special Notes: DPI carries a wide range of data security products.

Dimensional Business Systems, Inc.
250 NW 4th Diagonal
Boca Raton, FL 33432

Contact: Ralph Avery Phone: (305) 368-0276

Comments: Software and consultation available. Products: A property and casualty insurance agency management and accounting system designed specifically by and for insurance agencies. The accounting is totally interactive; provides full daily and month end reports on customer history; customer coverage profile and full access to files for marketing. Requirements: Z-150 IBM compatible, minimum 128K memory, hard disk, one floppy plus 132 column printer. Price: $2000.00 plus options. Special Notes: Original design on the Z-90 using CP/M in 1980. 1982 converted to MS-DOS using the Z-151.

Disk Movers, Inc.
8534 McCormick Boulevard
Skokie, IL 60076

Contact: Miriam Campbell Phone: N/A

Comments: Hardware and consultation available. Products: Disk Movers sells to end users with special prices to Corporations and Institutions. Computer Diskettes: 5-1/4", 3-1/2", 8" and 14" removable disk pacs. Disk Storage Cases: We sell Control Data, Sentinal and other leading manufacturers' brands.

Dixie Data Services
P.O. Box 4417
Columbus, GA 31904-0417

★★★ UPGRADE ACCESSORIES FOR Z-100 ★★★ SERIES COMPUTERS

ZMF100A by FBE Research. A modification package which allows 256K chips to be used on the old-style motherboard to reach 768K. Simple assembly with no soldering or trace cutting. Compatible with Easy PC and Gemini Emulator. $60.00 alone or $148.50 with 27 256K RAM chips included.

SmartWatch by FBE Research. If you don't have a clock for your Z-100, get this one. More details under Z-150 upgrade listings $44.00

GEMINI EMULATOR BOARD. Makes the Z-100 compatible with the IBM PC library of programs $432.00

UCI EASY PC. IBM PC Emulator. Makes your Z-100 IBM Software Compatible. Full 8 MEG operation, color graphics and audio compatible. Retail $699.000, Payload $477.00

UCI EASY 87. Add an 8087 Numeric Coprocessor. $69.00 for the board without an 8087 Chip. With 5 MEG 8087 $197.00 or with 8 MEG 8087 installed $234.00

UCI MEMORY UPGRADE CARD. We recommend this one highly. The board has sockets for up to 2 MEG of RAM. With no RAM installed $328.00. With RAM installed and fully tested, 512K $387.00, One MEG $446.00, Two MEG $564.00 Add $35.00 for EasyDrive RAM Drive Software if desired.

UCI RAMSAVER. Maintains power on UCI MEMORY CARD RAM when computer is off. Save your programs in RAM with your computer off. Payload $177.00

UCI EASY-I/O. S-100 board that provides IBM PC communications port compatibility with your EasyPC. Easy I/O-1, One Serial Port $91.00. Easy I/O-2, Two Serial Ports, One Game Port, Clock-Calendar $127.00

UCI EasyWin. Winchester Drive Systems at reasonable prices. Complete Hard Disk Systems for mounting inside your Z-100. Systems complete with Seagate Drives, 21 MEG $745.00, 31 MEG $865.00. System without Dirve $277.00

CDR Z-100 SPEED MODULE. Run your Z-100 Computer at 7.5 MHz. Installs easily with no soldering. Externally switchable between Speed and Normal mode. Payload $48.00

★★★ ZENITH SOFTWARE FOR THE ★★★ Z-100 SERIES COMPUTERS

Zenith packages with software, manuals and registration cards for the original Z-100 computer series (not for the IBM compatibles).

PART NUMBER	DESCRIPTION	LIST PRICE	SALE PRICE
MS-463-1	Z-Basic (16 bit) interpreter	$175.00	$24.00
MS-463-7	Multiplan	$195.00	$24.00
CB-463-11	Z-Chart	$150.00	$15.00
CD-463-2	Condor File Manager	$299.00	$24.00
PK-100-4	All 4 listed above	$819.00	$62.00
MS-253-1	Microsoft BASIC-80 (8-bit)	$175.00	$24.00
OS-53-2	CP/M-85 (8 bit)	$150.00	$24.00
OS-63-4	Z-DOS	$150.00	$35.00
CB-463-9	PECON Peachtree to Condor	$99.00	$15.00
RS-463-1	Peachtree General Ledger	$399.00	$38.00
RS-463-5	Peachtree Inventory Management	$499.00	$38.00
RS-463-75	PeachText 5000	$395.00	$77.00
SC-463-1	SuperCalc	$195.00	$38.00
WI-463-1	Remote Batch Terminal Emulator	$899.00	$28.00

★★★ CHIP SPECIALS ★★★

The finest RAM available and at PAYLOAD prices. Order one to one thousand chips and add only $2.00 for shipping.

64K Dynamic RAM, 150 ns .....$1.35 each
256K Dynamic RAM, 150 ns .....$3.28 each
256K Dynamic RAM, 120 ns .....$3.87 each

V-20 CHIPS. High Speed NEC V-20-8 8088 replacement. These run at up to 8 MEG and are said to increase CPU speed 10-30%.
Payload $14.75

8087 MATH COPROCESSOR CHIPS. Speeds and improves numeric processing. 5 MEG 8087-3 .... $129.00, 8 MEG 8087-2 .... $165.00

★★★ UPGRADE ACCESSORIES FOR Z-150/160 ★★★ SERIES COMPUTERS

SmartWatch from FBE Research. Installs in ROM Socket on CPU Board in Zenith computer series Z-100/150/158/160. This tiny jewel of a product contains a ten year battery and keeps your computer informed of both time and date at each boot-up. Complete instructions and software included $44.00

MEMORY KIT #150-256-18. Includes a ZPAL chip which allows use of 256K RAM chips included (18 pieces 256K 150 ns RAM chips). Kit increases 128k memory to 640K or 256K memory to 704K. All chips plug into your existing Zenith Memory Board. Unbelievable but true $87.00

Winchester Hard Disk Drive Internal Set-up. Includes Winchester drive, controller/interface card, cables and all hardware. With 20 MEG (formated) drive $478.00. May be installed in Z-148 using an Expansion Card sold below.

PTZ-148 Expansion Card for Z-148. Includes 2 expansion slots plus a clock/calendar. $129.00

EVERCOM INTERNAL MODEM. Fully Hayes compatible 1200/300 baud with powerful BitCom software included $163.00

★★★ ZENITH SOFTWARE FOR THE ★★★ Z-150/160 SERIES COMPUTERS

PART NUMBER	DESCRIPTION	LIST PRICE	SALE PRICE
RS-463-75	PeachText 5000	$395.00	$77.00
BP-5063-71	BPI Series Self-Training	$69.00	$25.00
BP-5063-8	BPI Personal Accounting	$195.00	$55.00

★★★ UPGRADE ACCESSORIES FOR H/Z-89 ★★★ COMPUTERS

Magnolia Microsystems Double Density Controller. Soft-sectored disk controller. Supports up to four each 5.25" and 8" disk drives. Complete with cables, installation instructions and CP/M ...$294.00

INTERNAL DUAL DRIVE SETUPS. Includes two half height double sided disk drives and all hardware and connectors required to mount inside your H-89. Steel mounting shield/case included.
MITSUBISHI MF501 Setup, 48 TPI, 6 MS seek, 320K $279.00
MITSUBISHI M4853 Setup, 96 TPI, 3 MS seek, 640K disks ..$284.00

★★★ HALF HEIGHT FLOPPY ★★★ DISK DRIVES

MITSUBISHI M2896	8"	48 TPI DS/DD	1.2 MEG	.....$375.00
MITSUBISHI M501	5.25"	48 TPI DS/DD	320K/360K	....$110.00
MITSUBISHI M504	5.25"	96 TPI DS/DD	360K/1.2 MEG	.$177.00
MITSUBISHI M4853	5.25"	96 TPI DS/DD	640K	.....$130.00

★★★ SEAGATE HARD DISK DRIVES ★★★

ST-225 20 MEG Winchester Hard Disk $393.00
With Western Digital Controller & Cables $478.00
ST-238 30 MEG, Requires RLL type controller $424.00
With Adaptec RLL Controller & Cables $528.00
ST-4026 20 MEG High Speed for Z-200 .....$588.00
ST-4038 30 MEG High Speed for Z-200 .....$669.00
ST-4051 40 MEG High Speed for Z-200 .....$859.00
ST-4096 80 MEG High Speed with Software $1425.00

PAYLOAD
COMPUTER SERVICES

15718 SYLVAN LAKE, HOUSTON, TEXAS 77062
PHONE (713) 486-0687

Please **MAIL** or **PHONE** your order today and expect prompt service. **MASTERCARD** and **VISA** gladly accepted with no additional charge. All hardware carries a 90 or more day warranty. Add $5.00 to all prepaid orders for handling and shipping, we pay the balance. Texas Residents please add 6.125% sales tax. We accept purchase orders from schools, government and approved accounts.

Phone: (404) 323-7715

Comments: Software and consultation available. Products: Integrated Records System/DDS is a complete accounting computer software package for the small to medium-sized wholesale or retail business. All functions are selected from menu-type screens and data entries are solicited by friendly on-screen prompts. Some included functions: Accounts Receivable, Accounts Payable, Inventory Control, Payroll, Utilities, General Ledger.

Domino Computer Services, Inc.
P.O. Box 1051
Arlington Heights, IL 60004

Contact: Doug Balut or Tony Domino — Phone: (312) 870-8707

Comments: Hardware, software and consultation available. Products: DCS has a large inventory of Z-89/90 and Z-100 software for sale in addition to selling new Zenith Data Systems products. Special Notes: We also write custom software for micro's and mini's.

Dundee Software
499 Sierra Lane
State College, PA 16803

Contact: Henry Harpending — Phone: (814) 234-7462

Comments: Software and consultation available. Products: ANTANA: Software for statistics, multivariate data analysis, and matrix algebra. Uses standard free-format ASCII files. Available for CP/M, MS-DOS microcomputers, includes 100 pp. tutorial manual. Price is $200, $120 in personal funds.

Dynacomp, Inc.
P.O. Box 18129
Rochester, NY 14618

Contact: B. Rivers — Phone: (716) 671-6160

Comments: Hardware, software and consultation available. Products: Dynacomp's catalog contains the largest collection of mathematical, scientific, engineering, business, and educational software available for MS-DOS systems. Available on written request. Special Notes: Dynacomp specializes in engineering and scientific software with many offerings in electrical and mechanical engineering.

Dysan Corporation
CE Division
1244 Reamwood Avenue
Sunnydale, CA 94089

Contact: Customer Service — Phone: (408) 734-1624

Comments: Software and consultation available. Products: Drive alignment/diagnostic products including Interrogator consisting of menu-driven software program using Digital Diagnostic Diskette (DDD) to evaluate floppy drives for personal computers. Special Notes: Order Dysan P/N 201116 for H/Z-100 series or Dysan P/N 201131 for ZF-148 and ZF-150/160.

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ETTS, Incorporated
19224 S.E. 164th
Renton, WA 98058

Contact: Eric Therkelsen — Phone: (206) 226-3916

Comments: Software and consultation available. Products: ZDRAFT creates and edits drawings for printing on a dot matrix printer. Size of drawing is limited only by RAM. ZDOS and MS-DOS on Z-100. Special Notes: $139.00; demo disk and full documentation $25.00

EWDP Software, Inc.
Box 40283
Indianapolis, IN 46240

Contact: Barbara Markowitz — Phone: (317) 872-8799

Comments: Software and consultation available. Products: FILEBASE(TM) $125.00 — Variable length fields data manager. Comma delimited format for letter-merge programs such as MailMerge, WordPerfect, etc. Built-in computation and report generation. Also functions as files processor. Special Notes: $125 price includes PROFLOSS(TM) which generates 14-column profit loss statement from FILEBASE(TM) check register file.

EZWare Corporation
29 Bala Avenue, Suite 206
P.O. Box 620
Bala Cynwyd, PA 19004

Contact: Joyce Gerritsen — Phone: (215) 667-4064

Comments: Software and consultation available. Products: TAX-PREP — Personal income tax preparation for individuals or accountants. EZTax-PLAN PRO — Individual & Corporate Tax Planning. EZTax-PLAN — Individual Tax Planning. Special Notes: All require Lotus 1-2-3 or Multiplan spreadsheet. Available for Zenith 100 (MSDOS) and some CP/M.

Eigenware Technologies
13090 La Vista Drive
Saratoga, CA 95070

Contact: Karl Remmler — Phone: (408) 867-1184 After 5 PM and Weekends

Comments: Software and consultation available. Products: C Scientific Functions Library, C Getting Started Examples, C Compilers by Computer Innovations and The Software Toolworks, C Interpreter/Training Systems by Computer Innovations, Small C and Small MAC. Special Notes: RBBS (408) 867-6575 with C database, available 24 hours all 7 days.

Elektrokonsult A/S
Austadgangen 4
N-3001 Drammen, NORWAY

Contact: Terje Bolstad — Phone: +473 83 1500

Comments: Software and consultation available. Products: 'Disk Utility Package' for CP/M, and data communication programs, 'FILE MOVER' and 'TERMINAL', for all Heath/Zenith computers, both for CP/M and MS-DOS. Special Notes: Disk Utility Package (6 Programs) — $99.00; File Mover (for 2 computers) — $99.00; Terminal — $99.00.

Elliam Associates
24000 Bessemer Street
Woodland Hills, CA 91367

Contact: Bill Roch — Phone: (818) 348-4278

Comments: Software and consultation available. Products: We specialize in CP/M products, our own and regular commercial pro-

grams. We also supply CP/M Public Domain software (375 volumes from the CP/M, SIG/M BDS-C and Pascal/Z User Groups). Special Notes: Disk copying is available supporting some 50 CP/M formats, as well as MS-DOS and DEC MS-DOS.

Emerging Technology Consultants
4760 Walnut Street
Boulder, CO 80301

Contact: Maria A. Pardee Phone: (303) 447-9495

Comments: Software and consultation available. Products: Professional Writer's Package — Word processing system; EDIX — Text Editor. Special Notes: To order, call: (800) 782-4896 or (303) 447-9495

Enthusiastic Software
P.O. Box 510
St. Joseph, MI 49085-0510

Contact: Gregg Chandler Phone: (616) 927-8088

Comments: Software and consultation available. Products: GAC-PAC-1 — A diskette of 10 utility programs for DOS 2.0 or higher, $15.00. Special Notes: Enthusiastic Software has extensive background in systems programming.

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FBE Research Company, Inc.
11648 Military Road South
Seattle, WA 98168

Contact: Dave Phone: (206) 246-9815

Comments: Hardware, software and consultation available. Products: Enhancement products for H/Z-100 (ZMF100A, ZRAM-205), H/Z-150 (MegaRAM-150, ZP640+, COM3), and H/Z-89 (H89PIP, SpoolDisk-89, Slot4) series of computers, SmartWatch no-slot calendar/clock module. Special Notes: Call or write for latest information. Thank you for your support!

FINA Software
16144 Sunset Boulevard #3
Pacific Palisades, CA 90272

Contact: Larry Fina Phone: N/A

Comments: Hardware and consultation available. Products: H/Z-25 Super Chip Set: Four Chips, 12 New Features, 256 Characters, Super/Sub Script, Double Strike, Underline, Italics and more. Special Notes: Compatible with any operating system.

First Capitol Computer
1106 First Capitol Drive
St. Charles, MO 63301

Contact: Tom Jorgenson
Craig S. Ware
Phone: (314) 946-1968

Comments: Software and consultation available. Products: Full line Zenith Data Systems dealer, and all major software and peripherals. Specialize in custom configured and enhanced Zenith Data Systems computers. Special Notes: Specialists in CAD and Novell network systems; also high capacity disk drive installation.

Friendliware
P.O. Box 21206
Lansing, MI 48909

Contact: Bob Griewski Phone: (517) 882-1675

Comments: Software and consultation available. Products: For the '89 and '100, eight CP/M Compuzzles(tm) include realistic DISARM, $35 and factual ATLANTIS, $40. Interactive PID-control instruction, $11. Phosphor Essence(tm) interlaces for MS/ZDOS, Z-100, full color option, and an RGB monitor: COLORGEN, color synthesis tool for determining minimal-data seeds, $25. Public domain LACE87 (an enhanced version of the original LACE and LACE86), $5 cost. Marvelous ED48 full-screen text editor, 48 80-character lines and interactive CribStrip(tm), $60. General 640 × 480 RGB development. $2 ($3 overseas) S&H/order.

FriendlySoft, Inc.
3638 W. Pioneer Parkway
Arlington, TX 76013

Contact: Andrea Vanchura Phone: (817) 277-9378

Comments: Software available. Products: FriendlyWare Introductory Set: A blend of education, games and home finance programs. FriendlyWare Arcade: 10 well known Arcade games. FriendlyWriter/Speller: An easy-to-learn, easy-to-use word processor/spelling checker. Special Notes: We will be coming out with a multi-use checkbook register in 1987.

Future Communications
210 West Benson Street
Atlanta, GA 30030

Contact: Todd Merriman Phone: (404) 373-4831

Comments: Software and consultation available. Products: CHECKZ: A full-featured and inexpensive checking account maintenance package for small businesses and individuals. FRIENDZ: A large set of business and programming utilities and productivity aids. Special Notes: Software available for CP/M-80, MSDOS, and PCDOS.

FutureWare Systems
4839 - 52nd Street
Lubbock, TX 79414

Contact: Pat Parrish Phone: (806) 795-7802

Comments: Hardware, software and consultation available. Products: Zenith products, most software including our own Future-Plot program for designing and drawing plots, graphs, and charts.

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GEBEX GRUPPEN AB
Box 4070
S-182 04 ENEBYBERG
STOCKHOLM, SWEDEN

Contact: B. Schmidt Phone: 08/768 09 45

Comments: Hardware, software and consultation available. Products: Management, consulting, computer strategies, marketing, sales and distribution, and export services. Distributor in Scandinavia for Zenith and Heath Products. Special Notes: Telex: 14238. U.S. Subsidiary GEBEX INTERNATIONAL INC., 5 Dunwoody Park, Suite 116, Atlanta, GA 30338 USA 0091 (404) 9577.

Gehr Oswald
221 Hope Street
Bristol, RI 02809

Contact: Gehr Oswald Phone: (401) 253-6479

Comments: Software and consultation available. Products: Stock Portfolio and Check-book Balancer — Accountant (both, templates), large letter video display, Space-Evaders game. $20, $10, $5 respectively, if you send a formatted disk. Special Notes: Free if you send public domain program (call first).

Gemini Technology Inc.
11-11151 Horseshoe Way
Richmond, B.C.
CANADA V7A 4S5

Contact: Sales: Julie Phone: (604) 274-1283
Tech. Suprt: Robert Carlson Phone: (604) 274-0620

Comments: Hardware available. Products: Computer Enhancement Devices for H/Z-100 series micros including: Gemini IBM EMulator board and optional Sound Board attachment, Gemini Cradle card (S100 to IBM Bus converter) —Gemini PEGASys+ multi-standard graphics adapter board. Gemini is the recognized leader in IBM emulation technology for H/Z-100 series computers.

Generic Computer Products, Inc.
P.O. Box 790 — Dept HD116
Marquette, MI 49855

Contact: Lyn Durant Phone: (906) 249-9801

Comments: Software and consultation available. Products: Computer software developer/distributor with a program line encompassing: entertainment, financial, utilities, decision management; Priding ourselves on full end-user dealer support, customizing, problems, questions. A 1-year warranty is supplied on all programs. New authors are always welcome.

Geographics Corporation
1318 Alms Drive
Champaign, IL 61820

Contact: Jacob Woolfson Phone: (217) 351-8591

Comments: Hardware, software and consultation available. Products: Geographics manufactures low cost digitizers, compatible to Z-100s and all PC-compatibles. Allows up to 72" wide input digitizing into AutoCAD(TM) and other CAD programs. Special Notes: Geographics also sells its own proprietary software, DigiGraph(TM) and MeasuGraph(TM) for specialized mapping applications.

Graphic Communications, Inc.
200 Fifth Avenue
Waltham, MA 02254

Contact: John Brock Phone: (617) 890-8778

Comments: Software available. Products: FREELANCE(tm) is a new graphics software package that creates professional visuals for use in business reports and presentations. 35 mm slide, paper, or transparency visuals can be produced using the freeform drawing feature, or you can enhance and edit charts already created with GRAPHWRITER(r) (a business graphics package that produces charts and graphs for formal presentations), Lotus 1-2-3 and Symphony. FREELANCE can import Lotus PIC files and ASCII text files. Special Notes: Site License and Corporate Account programs are available.

Graven Image, The
970 North Meridian Road
Mason, MI 48854

Contact: Jim Scott Phone: (517) 676-4648

Comments: Hardware and consultation available. Products: Engraved plates, H-89 keys. Special Notes: Ask for a quote.

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H-Scoop
2618 Penn Circle
Sheboygan, WI 53081

Contact: Subscription Dept. Phone: (414) 452-4172

Products: H-Scoop, the #1 rated independent newsletter for H/Z computer support is mailed monthly via first class mail. Contains general information on all H/Z computers (except for H-11 series), covering general information, new product news, technical information, good guys and bad vendors to deal with, tips and ideas, feedback, who's doing what with their systems, requests for help, classifieds, etc. $24 for a 12 issue year USA and Canada. $32 foreign AIR MAIL 8 page (minimum) condensed print in each issue (equal to about 16 normal pages). Back issues and package deals available. VISA/MC accepted.

Hand Tool Industries, Inc.
1933 Lake Street
Kent, OH 44240

Contact: George G. Martin Phone: (216) 678-4737

Comments: Consultation available. Products: Hand and power tools, tool kits (standard and special), meters, and related items for electrical and electronic technicians. Special Notes: Company specializes in specialty hand tools and tool kits to customer specifications.

Hawkeye Grafix
Box 1400
Oldsmar, FL 33557

Contact: Will Pierce Phone: (813) 786-8161

Comments: Software and consultation available. Products: COMMX — Multi-terminal emulator and multi-protocol file transfer; COMMX/M — Mainframe companion module for file transfer with micro; CONSOLX — Remote computer access and operation via telephone; Business Board System (BBS) — 24 hour information center; DES-PAC — The U.S. Govt. Data Encryption Standard in "C"; Casino card games. Special Notes: Send for product brochure.

Helu Corporation
627 Kaiemi Street
Kailua, HI 96734

Contact: W. L. Rankin Phone: (808) 263-6323

Comments: Software and consultation available. Products: General Ledger, Accounts Receivable, Accounts Payable, Payroll, Sales Order, Inventory, Property Management Commercial, Property Management Residential.

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Your computer can do a lot for you—*if* you have the support you need. One source of support thousands of Heath/Zenith users rely upon is *Sextant* magazine—the *only* independent magazine about your Heath/Zenith computer. Whether you use an H/Z150, H/Z100, H/Z89, or H8, you'll find articles in every issue which apply to your system.

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Sextant, Dept. R87, 716 E Street S.E., Washington, DC 20003

Paul F. Herman, Inc.
3620 Amazon Drive
New Port Richey, FL 33553

Contact: Paul F. Herman Phone: (813) 376-5457

Comments: Hardware and software available. Products: DOODLER Graphics package, Mouse Pack Mouse Driver package. Programs for the Z-100 and PC-compatibles. We also stock the Logitech Mouse. Special Notes: DOODLER and Mouse Pack may be purchased at your nearest Heath/Zenith Computer Center.

Hersey Micro Consulting, Inc.
P.O. Box 8276
Ann Arbor, MI 48107

Contact: Mark Hersey Phone: (313) 994-3259

Comments: Software and consultation available. Products: FANSI-CONSOLE — Fast, powerful ANSI.SYS replacement with scroll recall, keyboard and screen speed-up, and many more features. The integrated console utility!

Hilgraeve, Inc.
P.O. Box 941
Monroe, MI 48161

Contact: Matt Gray Phone: (800) 826-2760
In Michigan: (313) 243-0576

Comments: Software and consultation available. Products: HyperACCESS communication software for all Zenith 16-bit computers, Z-100 thru Z-248. Emulates assorted terminals and transfers files FAST, using Xmodem, Kermit, or ASCII methods. Special Notes: HyperACCESS is rated #1 against 15 of the best-known communications programs, by Software Digest.

Hoyle and Hoyle Software, Inc.
111 Sparrow Drive
Isle of Palms, SC 29451

Contact: Hughes B. Hoyle, III Phone: (803) 886-5801

Comments: Software available. Products: Query III and Calculator — A general database management system and arithmetic — $99.95 and $49.95. Adventure games — A Remarkable Experience, A Galactic Experience, A Physical Experience — $29.95 each. Special Notes: Available in HDOS, CP/M, and MS-DOS.

Hudson & Supinger Computers, Inc.
2060 Walsh Avenue, Suite 270
Santa Clara, CA 95050

Contact: Jim Hudson Phone: (408) 970-0242

Comments: Hardware, software and consultation available. Products: SCSI PC HOST ADAPTER: For PC/XT/AT: Half height board features, internal and external SCSI connectors. Connect your computer to SCSI hard disks, tapes, CD ROMS. Special Notes: SCSI software drivers available.

InchSoft
64 Fanchers Street
Pickerington, OH 43147

Contact: Richard E. Lucka Phone: (614) 837-8446
Weekday Nights And Sundays

Comments: Software and consultation available. Products: EDT (HDOS), EDT-80 (CP/M-80), and EDT-85 (CP/M-85) — Full screen editor for H-8/H-89 and H-100. Special Notes: RTTY software available, packet software under development.

Innovative Software, Inc.
9875 Widmer Road
Lenexa, KS 66215

Phone: (913) 492-3800

Comments: Software available. Products: The Smart Software System (Version 3.0) is composed of five basic applications: Smart Spreadsheet, Business Graphics, Data Base Manager, Word Processor and Communications. System Requirements: IBM PC, XT, AT and other 100% compatibles. Special Notes: Telephone consulting is provided for registered SMART software owners.

InterContinental Micro Systems Corporation
4015 Leaverton Court
Anaheim, CA 92807-1692

Contact: Rosemary Perez Phone: (714) 630-0964

Comments: Hardware, software and consultation available. Products: Manufactures Novell compatible and Arcnet networking products for the Zenith Z-100 line and IBM PC compatibles. Also manufactures complete line of S-100 8-bit and 16-bit products. Special Notes: Manufactures a complete line of S-100 products that include 8-bit and 16-bit fileservers, application processor, and controller cards.

Intersecting Concepts
4573 Heatherglen Court
Moorpark, CA 93021

Contact: Mark Graybill Phone: (805) 529-5073

Comments: Hardware, software and consultation available. Products: Media Master Plus — capable of converting eight bit CP/M software to run on 16 bit MS-DOS and PC-DOS machines. The ACCELER8/16 — A high performance version of Media Master Plus and is capable of converting eight bit CP/M software to run on 16 bit PC-DOS machines. Media Master — A direct disk-to-disk format conversion program that allows microcomputer users to read, write and format up to 70 different 5-1/4" diskettes from CP/M, MS-DOS, and PC-DOS operating systems. File Mate — A complete integrated file maintenance program.

Jay Gold Software
Box 2024
Des Moines, IA 50310

Contact: Jay H. Gold, MD Phone: (515) 279-9821

Comments: Software and consultation available. Products: Complete Home Finance System that keeps track of checking, asset and credit accounts. Prints checks, includes many reports. Requires H/Z-89 or H/Z-100. CP/M 2.2.03 or 2.2.04. Special Notes: Price $89.00. Manual $21.00 credited to complete system.

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KCK Enterprise
P.O. Box 492
Richmond, IN 47375

Phone: (317) 966-4052

Comments: Consultation available. Products: Unlimited possibilities for customized covers available in various colors and sizes without paying a premium for quality. We can fit your needs. Write for your brochure. Special Notes: Covers for Zenith, Apple, IBM, Sonyo, Epson, Okidata, etc. Commercial kitchen equipment included.

Kandueazy Computer Software Services (KCSS)
6218 Blossom Lane
Alexandria, VA 22310

Contact: James E. Kandul Phone: (703) 922-9450

Comments: Hardware, software and consultation available. Products: Disk-to-tape and tape-to-disk file backup/restore (TAPEIO). Text formatter with 36 commands (PRINTIT). Structured Programming preprocessor for assembly language (STRUCTUR). Line drop out and surge protector (GRAY BOX). Special Notes: All Heath/Zenith software/hardware discounted 10-30%. Custom made leatherette dust covers. Above software is for CP/M only; Hard or soft sectored.

Ken's Custom Bookbinding
P.O. Box 2247
East Chicago, IN 46312

Products: Bound Deluxe Editions of REMark. Volumes 1-4 $30.00 each. Volumes 5 & 6 $35.00 each. $2.00 per Volume shipping.

C. Kingston
P.O. Box 564
Elmsford, NY 10523

Contact: C. Kingston Phone: (914) 949-7870

Comments: Software and consultation available. Products: K-Base —A screen oriented file manager with indexing, string searching within fields, soundex search, report functions, mailing labels, input and output ASCII data, etc. Special Notes: for H/Z-100, 150 and 200 series computers (specify). $99.00

Kres Engineering
P.O. Box 1268
La Canana, CA 91011

Contact: Ken Smith Phone: (818) 957-6322

Comments: Hardware, software and consultation available. Products: H/Z-89 advanced 4 MHz speed module, 89 replacement back panel, 7 slot I/O expansion for 89, H/Z-89 supplemental cooling fans, enhanced 89 monitor ROM, dual drive kit mounts inside 89, H/Z-89/100 transportable conversion kits, 100 detached keyboard kit. H/Z-150 and 160 reset and font switch (150 front mount, 160 rear), H/Z-150 vertical floor and desk stands. Special Notes: All Kres products are available directly or from many authorized Heath store and ZDS dealers.

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LWFW, Inc. Group
12700 Park Central, Suite 1805
Dallas, TX 75251

Contact: Bill Lloyd Phone: (214) 233- 5561

Comments: Software and consultation available. Products: The Work Management System(TM) supports maintenance and other field operations managers in developing preventive maintenance programs, analyzing infrastructure data, scheduling work, collecting costs, evaluating crew performance, and improving productivity. The PARTS Management System is material inventory control which provides inventory functions, charging material to jobs/work orders, tracking "truck stock" and multiple warehouses, reserving material, and providing material lists. Special Notes: The PARTS Management System interfaces with The Work Management System. MS-DOS; CP/M; 128K; 10 MB.

Lexicon Corporation
1541 N. W. 65th Avenue
Fort Lauderdale, FL 33313

Contact: Barry Sleight Phone: (305) 792-4400

Comments: Hardware and consultation (800-327-8913) available. Products: Lightweight, low-cost, high-performance, acoustically-coupled modem, "LEX-11" is available through Heathkit mail order and most stores as model WH-23 (part #800-1605). Special Notes: Call 800-327-8913 and ask for Customer Service concerning other Lexicon products including battery-portable modems.

Lifeboat Associates
1651 Third Avenue
New York, NY 10128

Contact: Sales Staff Phone: (800) 847-7078

Comments: Software available. Products: Software TOOLS for C programmers. Special Notes: Programs for Z-100, Z-100 PC and Z-200 under MSDOS.

Lightek
948 Cherry Street
Kent, OH 44240

Contact: D. Manner Phone: (216) 673-5358

Comments: Hardware, software and consultation available. Products: Full Z-100 Product Line: Memory upgrades, hard disk systems, IBM emulation, tape backup system, LANs, most software and ZDS spare parts. Special Notes: Free Z-100 Product Catalog upon request.

Lindley Systems
21 Hancock Street
Bedford, MA 01730

Contact: Robert or William Lindley Phone: (617) 275-6821

Comments: Hardware, software and consultation available. Products: Hard Disk systems (Z-100 and PC); Printers: PCPI LaserImage, Star Micronics daisy-wheel, dot-matrix; Quick Disk Copy program; Hard and Soft Sector Diskettes; Ribbons. Special Notes: Call or write for free catalog.

LINKS COMM
11456 Links Drive
Reston, VA 22090

Contact: Dale Grundon Phone: (703) 437-3710

Comments: Software available. Products: TAXEZ 1986 is a series of income tax preparation worksheets that are designed to operate with MicroSoft's MultiPlan spreadsheet program. Over 20 IRS forms are supported. Special Notes: Price $30.00. Requires MicroSoft MultiPlan. Versions available for ZDOS, MS-DOS, CP/M, IBM PC-DOS. Dual drives recommended. Annual updates at reduced cost.

Lotus Development Corporation
55 Cambridge Parkway
Cambridge, MA 02142

Phone: (617) 577-8500

Comments: Software and consultation available. Products: Lotus is the world's largest independent developer and marketer of personal computer software. Lotus 1-2-3 heads a thorough product line which includes information services as well.

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MSW Company, The
P.O. Box 229
Penfield, NY 14526-0229

Contact: Dennis E. Hamilton Phone: (716) 586-6757

Comments: Software and consultation available. Products: EZCPR, SC80 Small-C Tools, and the Conclave RCP/M Construction kit for CP/M-80 and CP/M-85 systems. Special Notes: Free updates and notices distributed by CompuServe CP-MIG and network of RCP/M systems.

MARC Software International, Inc.
260 Sheridan Avenue
Palo Alto, CA 94306

Contact: Sheri Heffley Phone: (800) 835-2400
In CA (800) 854-9900

Comments: Software available. Products: WordMARC word processing for all applications. Composer(TM) for professional formatting of reports and technical documents. Author(TM), fully integrated with Composer designed for rapid idea communication. Special Notes: No codes or commands to memorize. Scientific typing and spelling checker included.

Marnoble Software, Inc.
P.O. Box 740468
Houston, TX 77274

Contact: Chris Noble Phone: (713) 660-9437

Comments: Software and consultation available. Products: TAXPERTISE — Preparer — Completes 30 of the most commonly used IRS Forms and Schedules; 706 Macro/Menu driven program — Completes Form 706 and accompanying schedules; State Prep — State personal Income Tax preparation for the states of NY, NJ, MD, OH and PA; Year End Prep — Computer generates batch processing of the following Wage and Tax statements: W2, W2P, 1099 Misc, 1099, DIV, 1099 INT, 1099R and 1099G; Estate Planner — Provides information to accountants, financial planners and individual taxpayers about various alternatives for estate tax preparation; Tax Planner — Personal Income Tax planner for use when a change in filing status, exemptions, or income is expected.

MELO Company
1462 62nd Street
Brooklyn, NY 11219

Contact: Jim Melville Phone: (718) 259-1104

Comments: Hardware available. Products: We provide soft protective cases for computer and related electronic gear and instruments. We also design cases and manufacture production runs for unique applications. Special Notes: We have the ability to design and manufacture small production runs at realistic prices.

Meridian Technical Associates, Inc.
2 Southboro Lane
Glen Rock, NJ 07452

Contact: J. Fitzpatrick Phone: (201) 445-8645

Comments: Software and consultation available. Products: Meta Input Controller (MIC) command file processor for HDOS batch, "submit" functions. Intelligent Modem Program (IMP) for terminal communication to mainframes, minis, other micros (CP/M or HDOS). Special Notes: Business applications, communications and integration into mini and mainframe environments our specialty.

Merlyn Computing Systems
2798 South Bascom Avenue
San Jose, CA 95124

Contact: Marketing Director Phone: (408) 559-1568

Comments: Hardware, software and consultation available. Products: Intelligent Universal Printer Buffer controller, 64K, 256K, 512K. Handles up to 8 computers. Shares plotters and laser printers, too. Special Notes: OEM, custom designs available. Dealer/Distributor inquiries welcome.

Micro Data Base Systems, Inc. (mdbs)
P.O. Box 248
Lafayette, IN 47902

500 Sagamore Parkway
W. Lafayette, IN 47906

Contact: David R. Leininger Phone: (317) 463-4561

Comments: Software and consultation available. Products: The KnowledgeMan/2 family of products provide synergistically integrated knowledge management processes. Guru is artificial intelligence that means business. MDBS III is a post relational database management system for professional applications developers. Special Notes: All MDBS products run on Local Area Networks, as well as standalone PCs.

Micro Doc
3108 Jackson Street
Bellevue, NE 68005

Contact: Fred Pospeschil Phone: (402) 291-0795

Comments: Software and consultation available. Products: Flexi-Graph provides high performance graphics routines for MS Pascal, FORTRAN, and many compilers. Supports EGA, CGA, and all Z-100 video modes including the 640×480 interlace. Special Notes: No royalties or restrictions on routines linked into your programs. Compatible with all versions of MS-DOS and ZDOS!

Micro Peripherals, Inc. (MPI)
4415 South 500 West
Salt Lake City, UT 84123

Contact: Kay Zaike Phone: (801) 263-6000

Comments: Hardware, software and consultation available. Products: PrintMate 99, Sprinter, Xprinter, SXprinter, PrintMate 350. High performance Dot Matrix Printers with speeds up to 300 cps, 80 column and wide carriage, Softswitch keypad eliminates DIP switches, IBM compatible. Special Notes: Print anything you can display on your CRT with MPI AP-Pak's. Z-89, Z-100, Z-150 compatible.

Microcomputer Games, Inc.
Division of The Avalon Hill Game Company
4517 Harford Road
Baltimore, MD 21214

Contact: Jackson Y. Dott Phone: (301) 254-9200

Comments: Software available. Products: Four adult strategy games for the H/Z-100 or Z-90: Telengard-fantasy, $28.00; B-1 Nuclear Bomber, $21.00; Football Strategy, $21.00; Stocks & Bonds, $25.00. Special Notes: Buy any two, get one free.

Micronics Technology
449 Barbados Way
Niceville, FL 32578

Contact: Darrell Pelan Phone: (904) 897-4257

Comments: Hardware and software available. Products: Speed Mods for H-89, H-150/160 (Norton Index 2.7) assembled or kits. 20 Meg Winchesters for H-89, H-150/160. Payroll, printer, accounting software for ALL Heath/Zenith computers. Special Notes: Hours: 6-8 PM CST, Monday - Friday, 9-12 AM Saturday. Please leave a message on our answer machine during other times.

MicroPro International
33 San Pablo Avenue
San Rafael, CA 94903

Contact: Jan Swanberg
Sr. Prod. Manager Phone: (415) 499-7676 (X4043)
Candace Engelsen
Sr. Prod. Mgr. (415) 499-7676 (X4165)

Comments: Software and consultation available. Products: WordStar, WordStar Professional, Easy, EasyExtra — Contact Jan Swanberg at above phone. WordStar 2000 Release 2.0, WordStar 2000 Plus Release 2.0 — Contact Candace Engelsen at above phone. Special Notes: Contact local MPI sales office for consultation — Dave Eubanks (312) 490-0092.

Miracle Computing
313 Clayton Court
Lawrence, KS 66044

Contact: Richard Elliott Phone: (913) 843-5863

Comments: Hardware, software and consultation available. Products: We sell vertical market software. We have programs for Manufacturing, Distributors, Dentists, Municipals, and much more.

MMorroware
12503 Gristmill Cove
Austin, TX 78750

Contact: Mark Morrow Phone: (512) 250-1303

Comments: Software and consultation available. Products: MMORROWARE publishes software for the Heath/Zenith Z-100 series microcomputer. Categories are: Educational, Scientific, Engineering, disk file cataloging, and printer utilities. Special Notes: Contract programming is available in the above software areas.

Mountain View Press
P.O. Box X
Mountain View, CA 94040

Contact: Roy Martens Phone: (415) 961-4103

Comments: Software available. Products: MYP-FORTH programmer's kit for learning and writing FORTH computer language programs, $175.00.

Mycroft Labs, Inc.
2615 North Monroe Street
Tallahassee, FL 32303

Contact: Carla Markus Phone: (904) 385-1141

Comments: Software and consultation available. Products: MicroMite — Communications software with the basic facilities to originate calls and transfer readable text. MiniMite — Has standard sending and receiving capabilities including: password protection, pre-configured plus automatic logons, menu and command driven. MaxiMite — Multi-protocol asynchronous functions including auto-dialing, auto re-dialing, auto-answer, auto-logon, transfer of binary and text files, and 10 programmable function keys. MaxiMite + — All the functions of MaxiMite, plus a script file Command Language and Terminal Emulation. Special Notes: Fully staffed Technical Support department with Electronic Bulletin Board for on-line, 24 hour assistance.

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NBI, Inc.
3450 Mitchell Lane
P.O. Box 9001
Boulder, CO 80301

Contact: Jerry M. Ruhl Phone: (303) 938-2795

Comments: Hardware and software available. Products: NBI, Inc. manufactures high performance office automation systems, including: cluster controllers; clustered and standalone personal computers (IBM compatible) and word processors; UNIX-based text and graphics workstations; optical character readers; laser and impact printers, and a variety of software packages and communications capabilities.

New Generation Systems, Inc.
1800 Michael Faraday Drive, Suite 206
Reston, VA 22090

Contact: Paul Beck Phone: (703) 471-5598

Comments: Software and consultation available. Products: Disk Maker I for the Z-100 allows copying between over 275 disk formats, including 48/96 tpi 5-1/4", 3-1/2", 8" and IBM PCAT diskettes. Special Notes: Options for word processing, phototypesetting, DEC/IBM mainframe and UNIX formats are available for Disk Maker.

"Have Your Computer Talk To Ours!"
"HUGPBBS is on line 24 hours a day, with over 20 megabytes of free software available for downloading. There's software for every Heath/Zenith operating system, with the majority being for MSDOS, and specifically the Heath/Zenith PC compatible computer systems. Also included is software for HDOS, CP/M, and MSDOS for the H/Z-100 computer system. In addition to this software is a message base through which you can exchange information with other HUG members. Have your computer call (616) 982-3956, 'The Heath Users' Group Personal Bulletin Board System', and make connection at 300, 1200, or 2400 baud. Type a carriage return several times to get my attention. Registration requires that you supply your human's first name, last name, HUG ID number, and some sort of secret password (up to 16 characters). Alternatively, your human can call Jim Buszkiewicz at HUG and register via voice connection at (616) 982-3837. Call today! All it takes is a computer, modem, and a phone call for your computer to talk to ours!"
MdC

New Orleans General Data Services, Inc.
7230 Chadbourne Drive
New Orleans, LA 70126

Contact: David or Jean Troendle Phone: (504) 241-9495

Comments: Hardware, software and consultation available. Products: Z-GRAPH-100 and FLEXI-GRAPH (graphics support packages for the Z-100, Z-150 and IBM PC); HA-8-3 Color Graphics Boards; PASCAL/MT+ for HDOS. Special Notes: Demo disks are available for Z-GRAPH-100 or FLEXI-GRAPH for $3. Full 1-year warranty on *parts and labor* on sound/color graphics boards.

Newline Software
P.O. Box 289
Tiverton, RI 02878

Contact: Ron Rocheleau Phone: (401) 624-3322

Comments: Hardware and software available. Products: Full line of software and hardware for all Zenith - IBM compatible computers. Products include Word Processors, Typing Tutorial, BASIC Compiler, Mail List System, Disk Drives, Controllers, Diskettes. Special Notes: Send for free catalog. Indicate which computer type used.

Next Systems, Inc.
P.O. Box 2671
Toledo, OH 43606-0671

Contact: Thomas J. Menacher, V. P.
Christopher W. Beroset, Pres. Phone: (419) 385-2523

Comments: Software and consultation available. Products: Next Systems develops custom data system software for MS-DOS based computers including manufacturing, engineering, and "expert" systems. Special Notes: Next will help develop special hardware needs.

NORCOM
9630 Hayes
Overland Park, KS 66212

Contact: Roger Lembke Phone: (913) 888-6237

Comments: Hardware and consultation available. Products: Replacement character generators for H/Z-89 and H/Z-19. G-Prom improves graphics resolution: $19.95. T-Prom improves text characters: $19.95. GT-Prom provides both functions: $24.95. (Prices include shipping and instructions.) Special Notes: Write NORCOM for full details.

North American Business Systems, Inc.
3840 Lindell Boulevard
St. Louis, MO 63108

Contact: James L. Buckley Phone: (314) 534-7404

Comments: Software and consultation available. Products: <<MEMORY/SHIFT>> partitions available memory allowing loading up to nine MS-DOS programs and switching between them instantaneously without rebooting or reinstalling programs. Supports two monitors simultaneously. Special Notes: All levels of MS-DOS and EGA card plus data transfer between programs.

Northwest Analytical, Inc.
520 NW Davis
Portland, OR 97209

Contact: Lynn Theis Phone: (503) 224-7727

Comments: Software and consultation available. Products: NWA STATPAK (TM) is a multi-function statistics library. NWA Quality Analyst (TM) is a statistical quality control charting and analysis system for manufacturers. Special Notes: STATPAK and Quality Analyst are available in BASIC source code and interface with software producing ASCII, DIF, and SYLK files. In-house technical staff available during normal business hours.

Northwest Digital Systems
P.O. Box 15288
Seattle, WA 98115

Contact: Duncan Gilmour Phone: (206) 524-0014

Comments: Hardware available. Products: NDS manufacturers graphics upgrade boards for H-19 and H-29 terminals. Features include DEC UT100 and Tektronix 4014 emulation.

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OWI Inc.
1160 Mahalo Place
Compton, CA 90220

Contact: June Morioka Phone: (213) 638-4732

Comments: Hardware, software and consultation available. Products: MOVIT family of twelve educational electronic robot kits are a series of computerized (logic-controlled) battery robot kits that teach the basic principles of robotic sensing and locomotion. Special Notes: Three new members are now available: WAO, S-CARGO, and NAVIUS. MAKIT WITH MOVIT.

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PCsoftware
11627 Calamar Court
San Diego, CA 92124

Contact: Joseph Juhasz Phone: (619) 571-0981

Comments: Software available. Products: Presentation graphics for MS-DOS systems. Freeform paint and draw, slide shows, animation and logic, hard-copy. Special Notes: Also strategy games and customized presentation services.

Peter Norton Computing Inc.
2210 Wilshire Boulevard, #186
Santa Monica, CA 90403

Phone: (213) 453-2361

Comments: Software available. Products: Norton Utilities — File Recovery and Disk Management Utilities; Norton Commander — A control program for power users; Norton Editor — A fast and powerful programmers text editor. Special Notes: Technical support on these products is available.

Dr. M. E. Pittman
Scientific/Engineering Programming
57 Emile Avenue
Kenner, LA 70065

Contact: Michael E. Pittman, Ph.D. Phone: (504) 443-2355

Comments: Software and consultation available. Products: "Map Projections of the World" in which very high-resolution color

maps of either global (5000 points) or caribbean (12,000 points) coastlines are displayed with choice of scale, origin, window, rotation, grid, or any of seven different projections. One may also track hurricanes in animation, and more. $49.95 postpaid or at many H/Z Centers, with documentation and examples. Color graphics required, monitor recommended. Specify H/Z-100 or H/Z-150.

Pivar Computing Services, Inc.
165 Arlington Heights Road
Buffalo Grove, IL 60089

Contact: Gary M. Pivar Phone: (312) 459-6010

Comments: Software and consultation available. Products: Pivar, a data conversion services company, can convert data to or from over 700 computer systems, including Mag tapes, Mini Computers, Micro Computers, Typesetters, Word Processors and OCR Scanning.

Powerline Systems
131 Jumping Brook Road
Lincroft, NJ 07738

Contact: John W. Preusse Phone: (201) 747-2063

Comments: Software available. Products: JUPITER: Records Management program handling more than 25,000 records of personal information for H/Z-89, CP/M $49.95. COUPON: Grocery Coupon Management for the Z-100, Z-100 PC (Z-150) and IBM PC, MS-DOS $29.95. Special Notes: A Z-100/Z-150 version of JUPITER will be available in time for HUGCON 1986.

Premier Technologies
1890 McGaw Avenue
Irvine, CA 92714

Contact: Bobbe Holmes Phone: (714) 261-1184

Comments: Hardware available. Products: Manufacturer of LiteDrive(TM) internal hard disks and SUPERSCREEN(TM) supertwist liquid crystal displays for Z-171s and other laptop computers. Expansion boards for Z-148s also available. Special Notes: High performance peripherals designed with quality, integrity, and service in mind.

Professional Business Systems Of Pensacola, Inc.
221 E. Government Street
Pensacola, FL 32501

Contact: John Causey Phone: (904) 438-7805

Comments: Hardware and software available. Products: Zenith Data Systems computer sales, service, support and supplies.

Public Brand Software
P.O. Box 51477
Indianapolis, IN 46251

Contact: Bob Ostrander Phone: (800) 426-3475 Order Line

Comments: Software available. Products: Distributor of MS-DOS Public Domain Software. Suitable for Z-100, 151, 161 series, etc. All products are for MS-DOS 2.0 and above. Special Notes: Exclusive Public Brand Software Catalog available. All software is $5 per disk.

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Quadram Corporation
1 Quad Way
Norcross, GA 30093

Contact: Scott McIntyre, Supervisor Phone: (404) 564-5686

Comments: Hardware and consultation available. Products: Quadram Corp. is a major manufacturer of a complete line of PC oriented equipment ranging from memory and multifunction cards to video board products and storage devices. Special Notes: Our Technical staff is available directly Mon. - Fri. from 8:30 am to 7:00 pm EST at (404) 564-5686 for any of your technical needs.

Quikdata, Inc.
2618 Penn Circle
Sheboygan, WI 53081

Contact: Sales Dept. Phone: Orders (414) 452-4172
Tech. & Questions (414) 452-6854

Comments: Hardware, software and consultation available. Products: Oldest independent H/Z vendor in the business, being a high-tech innovative mail order company with complete support and service facilities, handling a wide variety of lowest priced hardware and software products for H/Z computer systems (only), including computers. ZDS Dealer. Specialize in disk drives and winchester drives, memory chips, tape backup systems, drive cabinets, cables, printers, software and computers. Consulting and custom dBII and dBIII programming available. VISA/MC accepted.

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RAM Technology
427-3 Amherst Street, Suite 265
Nashua, NH 03063

Contact: Iris Paddock Phone: (800) 662-0070

Comments: Hardware, software and consultation available. Products: Heath/Zenith computers and compatible monitors, modems, printers, accessory boards, software, supplies, memory chips, upgrades. Special Notes: Manufacture, distribute, and sell memory upgrades for H/Z PCs.

Real Estate Agent Computer Service
10275 NE 23rd Avenue
Mitchellville, IA 50169

Contact: Harold Dykens Phone: (515) 967-6042

Comments: Software and consultation available. Products: Programs that will help both the Agent and Broker more easily qualify their buyers and sellers. (Investment Analysis, Depreciation, Rent vs Buy, Wrap Loan, etc.) Special Notes: 11 Software Utilities with Source Code Supplied. $35.00 Money Order or COD ONLY! Z-89, Z-90, Z-100, Z-150 formats.

Real-E-Data, Inc.
2426 S. Carrier Parkway
Grand Prairie, TX 75051

Contact: Roger

Comments: Software available. Products: Real-t-Pro is a software product designed for use in residential real estate offices. Real-t-Pro provides inventory control, sales analysis, accounting and more. $150 - $1000 per module. Special Notes: Real-t-Pro requires 256k, DOS 2 or above, and 2 floppies or a hard disk system.

RealData, Inc.
78 North Main Street
South Norwalk, CT 06854

Contact: Dale Palmer Phone: (203) 255-2732

Comments: Software and consultation available. Products: RealData has been providing REAL ESTATE related software since 1981. Products for investors, brokers, bankers, developers, appraisers, and lawyers. Tax upgrades always prompt, and customarily a $15.00 charge. Special Notes: RealData, Inc. has continually added new products developed by professionals in their specific field. 14 titles at present. Product support available 8:00 am to 8:00 pm.

Realty Software
1926 S. Pacific Coast Highway #229
Redondo Beach, CA 90277

Contact: Pamela Beck Phone: (213) 372-9419

Comments: Software and consultation available. Products: Our systems reflect a combination of state-of-the-art programming and extensive real estate knowledge. We provide Property Management and Real Estate Analysis software packages. Our systems deliver, Plus, we keep you on top of this ever-changing market with yearly updates.

Red Wing Business Systems, Inc.
610 Main Street
P.O. Box 19
Red Wing, MN 55066

Contact: Patricia B. Brown Phone: (612) 388-1106

Comments: Software and consultation available. Products: The Red Wing General Ledger is a flexible, easy-to-use system that makes keeping good records fast and easy. Produces the reports you need to manage to profit. Handles up to three partners and a multitude of enterprises. The cornerstone for good financial management.

Reichert Digital Systems
29 Blazier Road
Warren, NJ 07060

Contact: R. Reichert Phone: (201) 469-3854

Comments: Software and consultation available. Products: Software for Personal Finance Management; Educational needs in Computer Aided Design, Logic Circuits; Permuted Index Generators; Data Plotting, etc. Supports MS-DOS, CP/M, ZDOS. Special Notes: Software available in several disk formats, depending on particular package.

Rex Service Company
6610 W. 111th Street
Worth, IL 60482

Contact: James Vallortigara Phone: (312) 448-5558

Comments: Consultation available. Products: Repair, upgrades, and modifications of more than 25 manufacturers of computers and peripherals; specializing in Heath/Zenith. Work done on-site (Chicagoland) or carry/mail-in. Special Notes: Mention your membership when contacting us for current specials.

Richmond Computerware
15807 Kenbrook
Missouri City, TX 77489

Contact: Jerome E. Banasik, P.E. Phone: (713) 437-8188

Comments: Hardware, software and consultation available. Products: Hardware — Disk Drive Shielding/Mounting Kit for H/Z-89. Panasonic 5-1/4" disk drives. R-67 internal hard disk system for H/Z-89. Software — Process control engineering programs. Special Notes: Accepts contractual hardware and software work.

Rick Lutowski (Formerly MICROTRAN)
76 Flintwell Way
San Jose, CA 95138

Contact: Rick Lutowski Phone: (408) 226-4122

Comments: Software and consultation available. Products: FORTRAN support for HDOS: library manager, "CORE" graphics package; AM9511/AM9512 math libraries; overlay package; console I/O, sorting, metric conversion, bit manipulation, and HDOS interface libraries. Special Notes: Most libraries are interdependent. All include source code, documentation, and sample program on H-17 disk.

Robert J. Stalder
3508 Furey Avenue
Madison, WI 53714

Contact: Bob Phone: (608) 241-5483

Comments: Software and consultation available. Products: Maps out, on your terminal, 8 lines of information on the computer byte or word. Input can be in octal numbers or decimal bit numbers. Special Notes: At $49.95, an aid to H-11 or PDP-11 assembler programmers, students and hobbyists.

Robotronix, Inc.
Box 1125
Los Alamos, NM 87544

Contact: J. C. Solem Phone: (505) 662-3749

Comments: Hardware, software and consultation available. Products: Software and accessories for Hero 1 and Hero 2000. ANDROTEXT Compilers. Personalities: Hero Patrol, Hero Caller, Hero Butler, Hero Pet, Hero Santa. Games: Tic-Tac-Toe, Hop-To-It, Voice Control, Math Quiz. Special Notes: ANDROTEXT available for Zenith Z-100. Consultation by Mail Only.

Ross Custom Electronics
1551 Sandra Drive
Boulder City, NV 89005

Contact: J.D. Ross Phone: (702) 293-7426

Comments: Hardware, software and consultation available. Products: IntelliBurner EPROM, EEPROM, and 87XX Microcontroller Programmer $299.00 (PC Board Set $99.00). NEW! Firmware for 27512 EPROM and 2864 EEPROM! Other RS-232 Serial Programmers from $149.00 — PC Boards from $39.00. Special Notes: Complete software support included — HDOS, CP/M, ZDOS, or MS-DOS. UV lights and accessories available.

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S&K Technology
4610 Spotted Oak Woods
San Antonio, TX 78249

Contact: Steve Robbins

Comments: Software and consultation available. Products: WatchWord — Word processor: Z-100 Version $100; PC Version $99.95. Resident Speller — Dynamic spelling checker: Z-100 Version $100; PC Version $99.95. STRIKE — As-you-type checker: PC Version only $49.95.

St. Benedict's Farm
Box 366
Waelder, TX 78959

Contact: George Gannon Phone: (512) 540-4814

Comments: Software available. Products: BEEFUP is a cow/calf herd management performance data system for herds of up to 9999 cows. PEDIGREE dynamically constructs 5-generation annotated pedigrees on any kind of livestock. Special Notes: Available for CP/M-80, CP/M-86, MS-DOS (PC-DOS), dual floppy or hard disk, 132 column printer.

Sammamish Data Systems, Inc.
1413 - 177th Avenue, NE
Bellevue, WA 98008

Contact: Richard H. Schweitzer, Jr. Phone: (206) 644-2442

Comments: Software available. Products: Census Data System allows preparation of reports from 1980 Census data for microcomputers. DIDS prepares thematic maps of statistical data. QuickMap budget priced mapping software. Special Notes: Census Data System and DIDS available for Z-100, Z-150, Z-200. QuickMap available Z-150 and Z-200.

San Diego Scientific
815 Third Avenue #301
Chula Vista, CA 92011

Contact: Jack Stevenson Phone: (619) 425-2262

Comments: Hardware and software available. Products: Gemini Board, Z Power 150. Special Notes: Authorized Distributor for Gemini.

The Santa Cruz Operation, Inc.
400 Encinal Street
Santa Cruz, CA 95060

Contact: Telemarketing Phone: (800) 626-UNIX
(408) 425-7222

Comments: Software and consultation available. Products: SCO Lyrix is a comprehensive, fully user-configurable word processing system specifically designed for the UNIX/XENIX environment. SCO FoxBASE is both source language and data file compatible with Ashton-Tate dBASE II database managment system. SCO Professional is the multiuser alternative which offers full Lotus 1-2-3 functionality. And many more. Special Notes: All products require the Xenix Operating System.

Sapana Micro Software
1305 South Rouse
Pittsburg, KS 66762

Contact: Dr. Kailash Chandra Phone: (316) 231-5023

Comments: Software and consultation available. Products: Sapana: Cardfile, Mail-Track-I, Mail-Track-II, Mail-Track-III, Mail-Bulk-Rate-II, Mail-Bulk-Rate-III, Expense-Track-I, Expense-Track-II, Household-Inventory-Track-I for IBM PC and compatibles. Special Notes: 3.5" version available, free demo, TrialPak10 available in 3.5" and 5.25" formats.

Scottie Systems
2667 Cropley Avenue #123
San Jose, CA 95132

Contact: Barbara Phone: (408) 259-6226

Comments: Hardware, software and consultation available. Products: Scottie board with communications and clock options. HUG software, and more. New products in the works, 8087 support, AUTOCAD to GERBER support. Watch for new H/Z machine, and general Hi-Tech products. Special Notes: Scottie Systems is a new, but growing, company located in "Silicon Valley". Hi-Tech products at reasonable prices.

Secured Computer Systems
12011 Aclare Street
Cerritos, CA 90701

Contact: Lowell Halbasch Phone: (714) 952-3930

Comments: Hardware, software and consultation available. Products: Memory cards, multi-function I/O cards, clock cards for Z-89, Z-90. Custom data base software for Z-89, Z-90, Z-110, Z-120, IBM Compatibles.

Sextant Publishing Company
716 E Street, S.E.
Washington, D.C. 20003

Contact: Gabriele Burkhard Phone: (202) 544-0900

Products: *Sextant* magazine and *Buss* newsletter are independent publications for users of Heath/Zenith microcomputers. *Sextant* — $14.97/6 issues (one year); *Buss* — $28.00/20 issues (one year).

Sierra On-Line, Inc.
P.O. Box 485
Coarsegold, CA 93614

Contact: Sandy Crowe/John Williams Phone: (209) 683-6858

Comments: Software available. Products: Small business, Home Productivity, Entertainment, and Educational software available. Special Notes: Catalog available upon request or order direct from Sierra.

SigmaSoft And Systems
17000 Dallas Parkway, #207
Dallas, TX 75248

Contact: Clay D. Montgomery Phone: (214) 380-6187

Comments: Hardware, software and consultation available. Products: Complete Hard Disk Drive systems for only $795, including a Z37 compatible floppy disk controller. The Interactive Graphics Controller upgrade that provides 640 by 500 pixel resolution for only $395. CAD-89 Computer Aided Drafting package for only $175. Special Notes: We specialize in supporting the H/Z-89 and H-8 user. We have one of the broadest lines of high performance upgrade products for these systems.

Skycastle Computer Products
P.O. Box 1412
San Carlos, CA 94070

Contact: Mike Krivohlavek Phone: (415) 254-3931

Comments: Software and consultation available. Products: Offers software for dot matrix printers. Programs add an extra touch to your printed documents by combining graphics and custom fonts with standard text.

Softquest, Inc.
P.O. Box 3456
McLean, VA 22103

Contact: Susannah Rosenberg Phone: (703) 281-1621

Comments: Software and consultation available. Products: A personal and small-business financial management program, The Smart Checkbook, accommodates sophisticated financial needs while remaining simple enough for novices to use. It produces complete financial records, including budget reports, net worth statements, tax records, custom reports and summary tables. Money market, checking, savings, credit card and cash accounts can be organized with as many as 200 budget and 200 tax categories, and any amount split among 15 possible budget and tax categories. Special Notes: Available for Zenith Z-100 (Z-DOS and CP/M-80); Z-150, Z-160 (PC-DOS); Heath/Zenith 89 (CP/M 5-1/4" and 8").

Software Applications of Wichita
2204 Winstead Circle
Wichita, KS 67226

Contact: Nat Addleman Phone: (316) 684-0304

Comments: Software and consultation available. Products: Tax-Aide income tax preparation templates for Lotus 1-2-3. Menu driven. Easy to use. Produces IRS approved forms. Uses only 192K of memory. Special Notes: Satisfaction guaranteed. Full support provided to our customers. We specialize in customizing application software.

The Software Place
P.O. Box 151006
Tampa, FL 33684

Contact: B. Griffin Phone: (813) 238-3818

Comments: Software and consultation available. Products: Accounting s/w for the entire Zenith Product line, includes General Ledger, Accts/Rec, Accts/Pay, Payroll, Inventory and other modules not available from other vendors. Interfaces with WordStar and Lotus 1-2-3. Works on either floppies or hard disk, and is much faster than similar competitive products. Special Notes: On screen help menus, and better than average documentation. Maintenance/consultation contracts are available.

Software Solutions, Inc.
12 Cambridge Drive
Trumbull, CT 06611

Contact: Andrea M. Bugen Phone: (800) 243-5123

Comments: Software available. Products: DATAEASE(TM) is a fully relational menu driven database management system. DATAEASE helps you gather, file, and maintain information about your business. It can fully automate every aspect of your business (accounting, personnel, sales, production) and integrate all these functions by providing information flow between them. You can also use DATAEASE with mainframe computers to distribute information to other departments or offices. Even the first time computer user can start using DATAEASE in minutes. However, it also offers significant productivity gains to the experienced programmer. Special Notes: DATAEASE runs on the Zenith Z-150 and Z-160.

Software Store, The
706 Chippewa Square
Marquette, MI 49855

Contact: Rod Aldrich Phone: (906) 228-7622

Comments: Software and consultation available. Products: We provide the following PC-DOS and CP/M-80 software: Master-Com for telecommunications; Disk Fix for File Recovery; Program Map for BASIC Cross Reference; and INFO-80 for Application Development. Special Notes: 30 day money back guarantee on all software. Quantity discounts available for multiple purchases.

Software Wizardry, Inc.
1106 First Capitol Drive
St. Charles, MO 63301

Contact: Tom Jorgenson Phone: (314) 946-1968
Dale Wilson

Comments: Software and consultation available. Products: Software and hardware enhancement products for Zenith Z-100 and PC series systems. RamPal memory upgrade; P-SST Multifunction board; Palette, Zlynk/II, ESP, Whiz, and Umenu software. Special Notes: Software submissions invited; call for pre-approval before sending.

Southwest Accessories Network, Inc.
1423 Godwin Lane
Duncanville, TX 75116

Contact: Heath Store Manager
Heath/Zenith Electronics Center Nearest You!

Comments: Hardware available. Products: Computer cables, switch boxes, bulk cable and connector kits. All types of custom cables. Special Notes: Available at your nearest Heath/Zenith Electronics Center.

Spectrum Holobyte, Inc.
1050 Walnut, Suite 325
Boulder, CO 80302

Contact: Jeffrey Sauter Phone: (800) 621-8385 X262

Comments: Software and consultation available. Products: GATO —World War II submarine simulation; TellStar — Educational astronomy software; Art Studio — Graphics paint software; Executive Picture Show — Business presentation graphics. Special Notes: Our company is founded on the premise of graphics excellence. When you think of computer graphics, think of us.

Robert J. Stadler
3508 Furey Avenue
Madison, WI 53714

Contact: Bob Phone: (608) 241-5483

Comments: Software and consultation available. Products: Software maps out on your terminal eight lines of information on computer byte or word. Input can be in octal numbers or decimal bit numbers. Special Notes: At $49.95, an aid to H-11 or PDP-11 assembler programmers, students and hobbyists.

Standard Computer & Leasing, Inc.
P.O. Box 5628
Little Rock , AR 72215

Contact: Sharon Stark Phone: (501) 224-6660

Comments: Hardware, software and consultation available. Products: Autodealer system to operate finance and insurance department of car dealers including inventory and sales reporting. Special Notes: Interactive video programming and consultation.

Stress Analysis Associates, Inc.
285 N. Hill Avenue
Pasadena, CA 91106

Contact: Douglas B. Nickerson Phone: (213) 684-2478

Comments: Software and consultation available. Products: BEAMVIBS — Design Engineer may check the stresses and frequencies of his machine designs analytically. TORSVIBS — Advanced algorithm to obtain an explicit solution for lumped mass, torsional vibration problems. CODEFLANGE — Finds the stress in a pipe flange in conformance with the 1983 ASME Boiler Code. MATINVERT —Invert a matrix, solve a set of simultaneous equations or check the computational capabilities of your computer. And more.

Studio Computers Inc.
999 S. Adams
Birmingham, MI 48011

Contact: Ray Massa Phone: (313) 645-5365

Comments: Hardware, software and consultation available. Products: Authorized Zenith Data Systems Dealer. Hard-disk drives, 5¼" disk drives and enclosures also stocked. Pro-Driver Communications software for MS-DOS systems. Panasonic Printers and Monitors, Canon Laser and Bubble Jet Printers. Special Notes: Free 24 Page 1986 Catalog on request. VISA, MasterCard or C.O.D. orders welcome. Phone (313) 645-1272 for Consultation.

The Support Department, Inc.
3003 North Central
Plaza Mall, Suite 104
Phoenix, AZ 85012

Contact: Robert Zucker Phone: (602) 265-0393

Comments: Hardware, software and consultation available. Products: Zenith, Bondwell, Sanyo, Okidata, Fujitsu, Atari, Open Systems Software, Systems Plus Software.

SYMBIOTICS
431 Mishler Road
Mogadore, OH 44260

Contact: Bill Claxton Phone: (216) 699-4978

Comments: Hardware, software and consultation available. Products: Bible Tools/PKTBIBLE for Scientific Time Share Corp. APL*PLUS and POCKET APL for Z-150/other IBM compatibles. Weibul Analyses/Plots/Custom APL Programs/H19 APL EPROMS. Special Notes: APL*PLUS and PLUS*WARE are trademarks, of STSC. SYMBIOTICS is an authorized PLUS*WARE Dealer.

Systems Peripherals Consultants, Inc.
9747 Business Park Avenue
San Diego, CA 92131

Contact: Bob Richard Phone: (619) 693-8611

Comments: Hardware available. Products: Diskit "Z" series of hard disk drives for the Z-171 portable computer, portable external drives from 10 to 40 Mb with power supply, cooling fan, auto-head park, 2-drive controller, simple (no tools) installation. 65-80 ms. average across time, removable cartridge option.

Sunol Systems
1187 Quarry Lane
Pleasanton, CA 94566

Contact: Brad Baucus Phone: (415) 484-3322

Comments: Hardware, software and consultation available. Products: Universal Networking Mass Storage with capacities from 10 to 440 Megabyte Hard Disk with optional 26 Megabyte 1/4 inch tape drive, plus a fast and low cost LAN. Special Notes: Sun*Plus Networking Software allow single user application programs to be multi-user.

TCS Software, Inc.
6100 Hillcroft, Suite 600
Houston, TX 77081

Contact: Sales Manager Phone: (713) 771-6000
(800) 231-6454 or
(800) 392-6342 in TX

Comments: Software and consultation available. Products: Includes Ledger, Receivables, Payables, Payroll, Inventory, Sales, Assets, Purchasing, 1st Accounting System, Networking, Word Processing, Spreadsheet Interface. Also client write-up, tax preparation, and time & billing/practice management. Special Notes: Three product lines available: For accountants, for the average-sized business, and for the first-time business user.

Taranto & Associates, Inc.
68 Mitchell Boulevard, Suite 125
San Rafael, CA 94903

Contact: Arlene Schaffer Phone: (415) 472-2670

Comments: Hardware, software and consultation available. Products: Taranto & Associates offers complete integrated accounting and inventory control systems for the small computer. They have been devised for the most efficient use of your time and the time on the computer. They are practical, economical and have been simplified to adapt easily to your business. Special Notes: A uniquely designed point-of-sale system that provides complete inventory control, mailing list, and all accounting functions from a single entry is also available.

TEACO, Inc.
2117 Ohio Street, POB E
Michigan City, IN 46360

Contact: Paula D. Boehlke Phone: (219) 874-6234

Comments: Hardware and consultation available. Products: Computer Floppy Disk Drive Exercisers for 5-¼ inch, 8 inch, and microdrives, both standard and non-standard interfaces (with adaptors available). Read-Write Head Alignment aids. Cable continuity tester.

Techland Systems Inc.
25 Waterside Plaza
New York, NY 10010

Contact: Susan Beningson Phone: (212) 684-7788

Comments: Hardware, software and consultation available. Products: Techland has developed 5250 and 3270 emulation products which act as micro-to-mainframe links to allow your PC and mainframe to communicate.

Techni Service Corporation
106 Arbuelo Way
Los Altos, CA 94022

Contact: Ken Barnes Phone: (415) 949-1765

Comments: Consultation available. Products: Typesetting from text files.

Technical Advisors, Inc.
861 Washington Avenue
Westwood, NJ 07675

Contact: M.C. Baum Phone: (201) 666-0504

Comments: Hardware and consultation available. Products: A multi-port Parallel I/O board for the LEFT side of the H-89. Ideal for machine control. Up to 32 input AND 32 output lines.

Technology Services, Inc.
5703-B General Washington Drive
Alexandria, VA 22312

Contact: Susan Da Re Phone: (703) 354-8668
(703) 642-2311

Comments: Hardware, software and consultation available. Products: TSI carries a complete line of the most popular, and also hard-to-find, ZDOS and MSDOS versions of software on GSA Schedule. Special Notes: TSI can also arrange for evaluation copies and/or product demonstrations.

Technology Services, Ltd.
P.O. Box 4276
Tallahassee, FL 32315

Contact: Bill Hill Phone: (904) 562-1412

Comments: Hardware, software and consultation available. Products: MITE communications software line including DynaMITE. CDE software featuring "Checks & Balances". MicroPro software featuring "InfoStart". And a wide line of hardware featuring Mannesmann-Tally printers. Special Notes: We now offer Oasis Software's "The Word Plus" and "Punctuation & Style".

Teletek Enterprises, Inc.
4600 Pell Drive
Sacramento, CA 95838

Contact: Timothy E. Noxon Phone: (916) 920-4600
Sales Manager

Comments: Hardware, software and consultation available. Products: Teletek Z-150 Memory Board — The Teletek Z-150 MB offers 0K to 384K of parity checked RAM, "Timesavers" bundled utility software (which includes RAM Drive plus five other utility programs), and options of a battery backed up clock and/or a game port.

Tex-Matics Micro Systems
3059 W. 15th Street, Suite 100
Plano, TX 75075

Contact: Ken Patrick Phone: (214) 985-1811

Comments: Hardware, software and consultation available. Products: Authorized Zenith Data Systems Sales/Service. Business systems, multi-user, and 3rd party upgrades to ZDS. "RAM-Buddy" PALs for Z-150, 768K kit for old Z-100s. Drive alignment/repair. Inexpensive ZDS hard disk upgrades for *all* models. Specialists in Manufacturing Systems software. Special Notes: Dealer for DRI, UCI, OKIDATA, HAYES. Free newsletter subscription upon request.

J. J. Thompson
281 Warren Avenue
Kenmore, NY 14217

Contact: Jack Thompson Phone: (716) 873-0380
After 5PM EST

Comments: Software and consultation available. Products: Conversion programs between HDOS and CP/M, and from ZDOS to CP/M, RAMDRIVE/85 for CP/M-85 on Z-100 computers. Special Notes: Send SASE for product descriptions.

Thoughtware Publishing Company
P.O. Box 669
Grants Pass, OR 97526

Contact: William George Phone: (503) 476-1468

Comments: Software and consultation available. Products: 32 Business Management systems including Accounts Payable, Accounts Receivable, Payroll, General Ledger, Financial Statements, etc. For more information contact Thoughtware Publishing Company.

TIGERMARK Corporation
9369 Carroll Park Drive
San Diego, CA 92121

Contact: Steven Strull Phone: (619) 587-9999

Comments: Hardware available. Products: Parallel, Serial, Multifunction, Bubble Memory and Security plug-in cards for IBM Compatible Computers and 64K Universal Serial/Parallel Printer Buffer. Special Notes: TIGERMARK products are available through Heathkit, other computer stores and direct from the manufacturer.

Richard Tilden
Software Toolsmith
10 Thurston Street
Somerville, MA 02145

Contact: Richard Tilden Phone: (617) 625-8181

Comments: Software and consultation available. Products: Utilities and programming tools, graphic display generators for H/Z-100 dual processor custom programming and consultation.

Trionyx Electronics, Inc.
P.O. Box 5131
Santa Ana, CA 92704

Contact: Bill Perry Phone: (714) 830-2092

Comments: Hardware, software and consultation available. Products: Hardware for the H-8 computer: New 16-bit CPU card, 256

KB static memory, double density disk controller handles 8 drives (4 at 5 inch and 4 at 8 inch), 256 KB Dynamic memory, 64 KB Dynamic memory, Z-80 CPU card, Bank select card, reliable replacement motherboard and more.

UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU

UCI Corporation
948 Cherry Street
Kent, OH 44240

Contact: David Cheung Phone: (216) 673-5155

Comments: Hardware, software and consultation available. Products: EasyPC — Put an IBM clone into your Z-100. Includes PC compatible floppy disk controller, 16 color CGA, PC compatible BIOS. EasyIO — Gives you 2 IBM compatible serial ports, one game port and a battery back-up calendar clock. EasyWIN — Z-100 compatible winchester disk system. Includes hard disk controller, 10/20/30 MB hard disk drives, and cables. Easy87 — 8087 coprocessor board for the Z-100. EXP-CHS-PC/48 — A low cost PC expansion chassis for the Z-150, Z-148 computers. Includes 8 slot chassis, fliptop metal case, 135 W switching power supply, PC interface adapter. EasyRAM — Expandable RAM Memory board for the Z-100. Up to 512 KB of system RAM, up to 2 MB of banked RAM drive. RAM drive software available.

USS Enterprises
6708 Landerwood Lane
San Jose, CA 95120

Contact: Louise Cate Phone: (408) 997-0264

Comments: Hardware, software and consultation available. Products: The Critical Connection (TM) is a hardware/software product which allows any computer that has a 19,200 baud serial port (and which is running CP/M) to be connected to an Atari 400, 800 or XL. The Atari can be then use the CP/M system's disk drives and printer.

VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV

Vertex Systems, Inc.
6022 W. Pico Boulevard #4
Los Angeles, CA 90035

Contact: Nick Stein Phone: (213) 938-0857

Comments: Hardware, software and consultation available. Products: Xeno-Copy — Read, write and format 220 foreign disks in your Z-150 or compatible computer. Xeno-Disk — Xeno-Copy with 8" and Compugraphic MCS typesetter formats, and powerful table driven text translation utility. Apple Turnover — Read, write and format Apple II disks in your Z-150 and Z-151. Pipeline — Translates between spreadsheets, Dbase II, DIF, and Comma Separated file formats. Power Trak - Computerized power monitor. Detects high and low voltage, spikes, sags, brownouts, and high frequency noise. 80Mate — Emulates CP/M environment while running under MS-DOS.

Viking C Systems
2243 South Belaire Drive
Salt Lake City, UT 84109

Contact: Grant Phone: (801) 466-6820
7-9 AM, 5-10 PM

Comments: Hardware, software and consultation available. Products: HISPEED C/80 Library for M80 under CP/M; PI Editor in portable C source; ZDOS and HDOS copy to CP/M; HDOS products with source; WordStar keys and printer sources; Disk Crash utility; Utility for making dual-format CP/M and PC-DOS disks; H-89 4MHz kit; H-89 Eprom Programmer. Special Notes: Free catalog. Source in C or assembler for ZDOS, HDOS, MS-DOS, CP/M-80, CP/M-68K.

Visual Communications Network, Inc.
238 Main Street
Cambridge, MA 02142

Contact: Allison Bartlett Phone: (617) 497-4000

Comments: Software and consultation available. Products: VCN Execuvision is a presentation graphics software product that allows users to combine multiple text fonts, business data, charts, graphics, and pictures into screens suitable for presentations. EV Capture Plus is a universal interface to VCN's presentation graphics program. It allows the user to "Capture" screens from application programs and store them in an ExecuVision graphic format which can then be enhanced with a variety of graphic functions.

WWWWWWWWWWWWWWWWWWWWWWWWW

Barry A. Watzman
560 Sunset Road
Benton Harbor, MI 49022

Contact: Barry Watzman Phone: (616) 925-3136

Comments: Hardware, software and consultation available. Products: Perks Background Desktop Utility for both Z-100 and Z-100 PC/IBM compatible computers.

Weitzman and Wood Associates
580 NW 99th Way
Pembroke Pines, FL 33024

Contact: Nancy Weitzman Phone: (305) 432-8025

Comments: Hardware, software and consultation available. Products: UN/emulator. Hardware and software which allows you to run CP/M 2.2 at machine speed in a Z-150, IBM-PC or PC clone. Special Notes: Both 5 and 8 MHz 8088/8086 versions available. Also a Z-100 Gemini package.

Westcomp
517 N. Mountain Avenue
Upland, CA 91766-5016

Contact: Dave or Russ Phone: (714) 982-1738

Comments: Hardware, software and consultation available. Products: Software and hardware support for H/Z-100 products and IBM-PC, XT, AT. Entertainment, utilities, language and AI products — Free product info and prices. Special Notes: Many of our products now include the source code at no additional charge!

Winfield Software, Inc.
2364 Sylvania Avenue
Toledo, OH 43613

Contact: C. W. Beroset Phone: (419) 472-7515

Comments: Software and consultation available. Products: Custom MS-DOS software for business; complete Not-For-Profit Corporation system; small air fleet scheduling and maintenance. Real-time FORTH programming for process control.

Winterhalter, Incorporated
3796 Plaza Drive, Suite #1
Ann Arbor, MI 48104

Contact: Gary Stone Phone: (313) 662-2002

Comments: Hardware, software and consultation available. Products: Winterhalter, Incorporated provides a complete line of security and synchronous communications products, including 3780, 3270 SNA, 3270 BSC and X.25. Special Notes: Products are available on PC co-processor boards, DataSYNC modem board, or stand-alone DataTalker II co-processor box.

Woolf Software Systems, Inc.
6754 Eton Avenue
Canoga Park, CA 91303

Contact: Torie Daves Phone: (818) 703-8112

Comments: Software and consultation available. Products: Move-It is a full feature communications program for use between micros and other micros, minis, mainframes, information utilities, bulletin board systems, and telex networks. Special Notes: Consultation by appointment. *

TaxAide

Income tax preparation worksheets for use with your Lotus 1-2-3.

● PRODUCES IRS APPROVED PRINTOUTS - NO SPECIAL FORMS TO BUY ●
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● Screen Displays Resemble Actual IRS forms ●
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TaxAide Plus — Provides worksheets for Forms 1040, 1040A, 2106, 2119, 2210, 2441, 3468, 3800, 3903, 4562, and 6251; Schedules 1, A, B, C, D, E, F, G, R, SE, and W; plus IRS worksheets. Multiple Forms 2106 and 4562 and Schedules C and SE. TAXAIDE PLUS PRODUCES IRS APPROVED PRINTOUTS FOR ALL FORMS AND SCHEDULES, INCLUDING 1040 AND 1040A. Ideal for income tax preparers. **$59.95**

TaxAide Personal — Provides worksheets for Forms 1040, 1040A, 2106, 2441, and Schedules 1, A, B, D, G, R, and W, plus IRS worksheets. Two Forms 2106 are provided. Produces IRS approved printouts (except Forms 1040 and 1040A). **$29.95**

REQUIRES ONLY 192K of RAM — If you have more memory, you may still run your background program such as SideKick or Perks.

Requires Lotus 1-2-3 Release 1A or later, and DOS 2.0 or later.

To order, send check to:
Kansas residents add 5% sales tax

Software Applications of Wichita
2204 Winstead Circle
Wichita, KS 67226

For VISA or MasterCard orders, call (316) 684-0304.

TaxAid is a trademark of Software Applications of Wichita
Lotus and 1-2-3 are registered trademarks of Lotus Development Corp.
SideKick is a trademark of Borland International, Inc.
Perks is a trademark of Barry A. Watzman.

UP YOUR RAM

AND OTHER HI/Z DISCOUNT ENHANCEMENTS

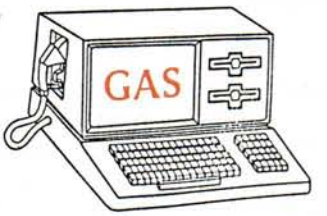
256K D-RAMS, 150ns: 9/$27, or package priced as shown 120ns for Z240 - 9/$30, 100ns for Z248 - 9/$33
Z-100 Motherboard kit to maximize memory to 768K, Z-MAX only $49, with 27 256K RAM's for $119.
ZMF100a by FBE, old Z-100 NO WIRE kit, $59, $129 w/27
Z-100 RAMBOARD by UCI, new version for 192K or 768K, 8mhz, RAMDISK software, .5MB/$399, 2MB/$549.
Z205 Upgrade Kit to use 256K's creating 1MB RAMDISK, wiring required, $49, $119 w/27 RAM, $144 w/36 RAM
Z-150/160 640/704K Upgrade using PAL chip for $19, with 18-256K DRAMS, $69
1.2MB using PAL & 5 banks 256K with RAMDISK software as reviewed by REMark 8/86, $169, $119 w/3 banks 256K's, $49 w/no RAM, specify system memory of 640 or 704K.
Z-148 PAL to utilize 704K instead of 640K, $19, $69 w/18
Z-200 Memory Board, 128K/serial/parallel expandable to 1-1/8MB or 2-5/8MB, base price $269

EASY PC - UCI's three board set for complete IBM hardware/software compatability, $479.
ZVM 135 cable with intensity control for 16 IBM colors, $23
Utility disk with drivers, communications, diagnostics, $40
I/O board with single IBM COM port, $89, with 2 COM ports, game port & clock, $119
ZPC HARDWARE UPGRADE - circuitry added to multi-port I/O board, $169, with ZPC software in ROM, $209
NEW UCI PRODUCTS - check on availability of the following: EasyMATE 8" & cross partition drivers, EasyWIN winchester interface, LANlink network software & hardware, Expansion chasis for PC, Z148, Z100, improved RAMSAVER, etc.
MATH CO-PROCESSOR SUPPORT, UCI daughter board for use with Easy PC or plain Z-100 motherboard. $66
8087-2 math chip, 8mhz, $155. UCI board & chip, $211.
80287-3, Math chip for Z-200, 6mhz, $179

HARD DISK UPGRADES - CDR's 317 SCSI disk controller for Z-100, 2 card kit with hardware/cables, $555 packaged with 20MB/$888, 30MB/$988, 40MB/$1088
HIGH DENSITY CONTROLLER card for PC clones by Adaptec, "RLL" format increases capacity 50%, $169 packaged with 30MB hard disk for $499, 45MB/$649 with 60MB, 40MS access, half high by NEC for $949

OTHER PRODUCTS:
V-20 by NEC for faster 8088 execution, 8mhz version, $14.
V-30 by NEC for faster 8086 execution, 8mhz version, $19.
Z-100 speed-up kit, 7.5mhz by CDR, $39
CLOCKS - SMART WATCH ROM socket plug-in for Z-100 & PC's, $39
1.2MB 5-1/4" floppy drive, $155, cable for Z-100, $30
2400 baud Anchor Lightning ext. modem, "HAYES", $299

We specialize in the unusual, state of the art upgrades. Our prices reflect the current market as of 12/1/86, but they are subject to change up or down, especially the RAM prices. Quantity Discounts available. P.O.'s accepted from government, schools, and large corporations. Shipping and handling charges are $5 for small chip kits, $10 for large board sets, etc. add extra $5 for P.O.'s, COD's, & A.P.O.'s.



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Have you ever wondered why most new microcomputers are called "personal computers?" Many people believe that the name was a result of the fact that the computers were small and the price was so low that they could be purchased by an individual. Most of you have probably observed that description is simply not true. I certainly have. It has become clear to me that personal computers are "personal" because if someone makes a derogatory comment about your computer (or accessories or opinions), you take it "REAL PERSONAL." If you don't believe that definition, just ask an IBM computer owner when they will get a REAL computer and watch their blood pressure rise instantaneously! Oh well, on to bigger and better things . . .

Why Don't You Have Any Articles On MY Computer?

In an attempt to keep CURRENT with the latest news at HUG, I usually talk to the HUG secretary, Margaret Bacon, at least once a month. Based on some of the letters that HUG receives, I understand that there is concern among some Huggies that REMark does not have any articles about their specific computer systems. Let's take a look at that issue.

In general, there are two parts to the answer. First, and perhaps most important, is the fact that most articles written about the '150 series computers (i.e. the '151 and '158) ALSO apply to the '138 (discontinued), '148, '161 (discontinued), '171, and '181. Many of those same articles also apply to the Z-200 series including the '241 and '248 which are AT compatible.

For the most part, any article written about one of those specific models will usually be applicable to the entire PC Series which is frequently referred to as the Z-100 PC (by Zenith) or the Z-150 (series) in many REMark articles. That includes articles about virtually all software, most PC compatible hardware, and virtually all PC type program listings in whatever language for the PC Series.

As far as I am concerned, I used to call the Z-100 PC Series the Z-150's because Zenith's name was too easy to confuse with the "standard" Z-100. I have started using the name "PC Series" to refer to all PC compatible models from the Z-138 to the Z-248. That may be one standard that we can all agree on.

Lest we get too carried away with this "standard", you should know that the term "PC compatible" may not mean Z-241 or Z-248 (or IBM AT) compatible. More on that in a minute.

So what's the answer to the question: "Why doesn't REMark have any articles about MY computer?" As a matter of curiosity, I went through the last 12 issues of REMark. In every case, there was at least part of one article that mentioned the Z-100 and PC series computers. In my "general information series" for example, discussions are intended for all MS-DOS and PC-DOS systems with emphasis on the unique features of Heath and Zenith computers and operating systems. But I think that there is another important point that some people may have overlooked.

Exchanging Ideas

HUG (and REMark) is provided as a service to its members for the purpose of fostering the exchange of ideas to enhance their usage of Heath/Zenith equipment. In case you are wondering how I came up with that profound statement, you can find it in every issue of REMark. But there's more to HUG than that.

If you read that statement carefully, the idea is to promote the exchange of ideas among HUG members. That means that the articles in REMark are written by HUG members for HUG members. I hear that HUG occasionally receives letters that something about a particular piece of hardware or software hasn't been in REMark. I occasionally get letters asking about a subject for an article in REMark. Many of those questions sent to me eventually end up as articles in one form or another.

The real point of this rambling is that if you want to see an article in REMark, why don't you consider writing it? Remember that all

REMark articles are written by HUG members — that's part of the deal. Your article contribution to REMark does several things.

First, you get to see your name in print which is a noteworthy accomplishment. Perhaps more important is that you will become an "expert" on whatever the subject matter is. If you can write a good article on a particular subject, part of that is the research and understanding that you gain in the process.

Many people tell me that they don't write articles because they are not "qualified". I think that they may have missed the point. I wasn't "qualified" when I began writing the FlipFast books either, but by the time I finished them, I had spent the time and effort necessary to become "qualified" — whatever that means. The end result is that I became intimately familiar with CP/M-80, CP/M-85, and MS-DOS.

Virtually all of my articles also involve some kind of research. I choose subjects that I personally think are interesting. Then it's up to me to try to make it interesting (or at least readable) to you. It's important to recognize that few writers are experts on all subjects in any field. But they become experts by doing the research and development of an article or book during the process.

The bottom line of this whole discussion is that I am trying to persuade you to write articles for REMark. If you want to know more about something, do the research and write about it. I think it's too bad that some people write to REMark saying that their membership does not "fill their needs" and then fail to mention exactly what those needs are. My experience is that telepathy does not seem to work well in helping any of the REMark staff to make changes that you want. Enough of that, let's take a look at some aspects of the various computers.

In The Beginning . . .

Heath Company has marketed a wide variety of computer kits for a number of years. The H-8, H-11, and H-89 have been superseded by the newer models, but many people still like them for a variety of reasons. As I've mentioned before, I have always regretted trading in my H-89 for the '100 -- I wish I had kept it. Such is progress I suppose.

At this point, it looks like the '100 is being phased out in favor of the newer PC compatible line. I don't care what anyone says, including IBM, I still think that the '100 is still one of the most advanced microcomputers available today. Due to its inherent incompatibility with the "IBM standard", I suspect that's the reason for its inevitable decline in sales.

But there is considerable confusion as to what is what in the Heath and Zenith computer lines. Try to explain the difference between the Z-100 and the Z-100 PC, and watch folks stare at you with a dazed, blank look of total misunderstanding.

I think that Zenith made a horrendous mistake in calling the PC Series the Z-100 PC. Although I have heard several stories as to why that happened, I don't think they are worth mentioning. And so, one of the objectives of this particular article is to try to correct this problem. And part of the problem is now the new format of the Heathkit catalog.

The Heathkit Catalog

Since I have been building Heathkits for nearly 30 years, I have seen one or two catalogs during that time. The current catalog (204 - Christmas 1986) is absolutely terrible. Some of you may have noticed the significant format change in the catalog that first appeared in the Fall 1986 (203) issue.

My particular objection to the format is that the specification blocks have been almost completely deleted in the new format. Someone missed the boat on that! My experience is that most kit buyers in general and Heathkit buyers in particular are technically inclined in one way or another. And they want to know about the technical specifications for a product before they buy it. I agree. Let's look at an example from the Christmas catalog that is not about computers.

Consider the various multimeters that are shown on pages 50 and 51. One factor that you usually want to know about is the sensitivity of a meter — usually called the input impedance. Even though you might know the general ranges (and sensitivity) is usually a function of price, it's still nice (and I think essential) to be able to compare the various features listed in a specification block. Why spend money for features you don't need?

By the time you take a look at the computers, it's nearly impossible to get the information from the text of the description. Pages 86 and 87 describe the HS-148 and HS-158 in one big lump. The similarities and differences of those two computers have been thoughtfully and carefully mixed together to the extent that it will take a couple of hours of detailed study — with paper and pencil for notes — just to decipher all of that text. Even then, some of the important information is omitted from the text so that it is nearly impossible to compare the features of each computer.

In my opinion, that is NOT the way a catalog should present information. A simple specification block showing the amount of memory, disk drives, expansion slots, size, and power requirements is a lot more helpful to a prospective buyer. All of the model numbers and options are confusing enough without omitting some of the easy to read details.

My solution to the problem was to prepare some listings showing the different views of the computers. That is easy to say, but it was really difficult to find the information since it was not in any of the current catalogs. My thanks to Bill Steward of Heath Company for coming to my rescue by providing specifications for the computers.

Listing 1 shows the standard Heath/Zenith PC series computer systems. The '138 is the portable computer that has been discontinued, but I thought it might be of interest to include it since I already had the specifications. As you can see, the '138, '148, and '158 are essentially the same so far as the specifications of the machines are concerned. Note that I have not listed the '151 or the '161 because they have been discontinued even though they are in the same general category as those listed systems.

Listing 2 shows the Heath/Zenith AT compatible computer systems, as well as the recently announced Zenith Z-386 that I just saw in InfoWorld. It was supposed to be at ComDex, so I'm looking forward to hearing reports on that. I wonder what they will use for an operating system since DOS 5.0, DOS 286/386, A-DOS or whatever they're calling it now is still not available.

Listing 3 shows the Zenith portable computers for those interested in comparing them. I think these type of listings are much better for comparing features, although I should note that I haven't included every single feature of each computer. These lists took more time to compile than I originally planned, and although I've taken considerable care in compiling these listings, be sure to check any specific questions with a dealer or the factory just in case a typo managed to sneak in.

I've noticed that typos seem to creep in various manuscripts when I have been absolutely positive that there were no errors at all. My

Listing 1
Standard Heath/Zenith PC Compatible Computer Systems

	Z-138	Z-148	Z-158
CPU	8088-2	8088-2	8088-2
8087 Socket	Yes	Yes	Yes
Clock Speed	4.77/8 mhz (Switch selectable)	4.77/8 mhz (Switch selectable)	4.77/8 mhz (Switch selectable)
Memory	128K (standard) 8 bits wide. Expansion to 640K on board.	256K (standard) 9 bits wide. Expansion to 640K on board.	256K (standard) 9 bits wide. Expansion to 640K on board.
Operating System	ZDS PC (MS-DOS) or IBM PC-DOS	ZDS PC (MS-DOS) or IBM PC-DOS	ZDS PC (MS-DOS) or IBM PC-DOS
KEYBOARD	Detached low-profile 128 ASCII char. set. 10 function keys. Caps Lock, LED Numeric Lock, LED Auto-repeat with rate advance.	Detached low-profile 128 ASCII char. set, 10 function keys, Caps Lock, LED Numeric Lock, LED Auto-repeat with rate advance.	Detached low-profile 128 ASCII char. set, 10 function keys, Caps Lock, LED Numeric Lock, LED Auto-repeat with rate advance.
DISK DRIVES			
Floppy	1 - 5 1/4", DS/DD, 48 TPI (standard), 2nd drive optional.	1 - 5 1/4", DS/DD, 48 TPI (standard), 2nd drive optional.	1 - 5 1/4", DS/DD, 48 TPI (standard), 2nd drive optional.
Hard Disk	PC compatible with optional controller	PC compatible with optional controller	PC compatible with optional controller
DISPLAY	Internal 7" amber CRT 80 × 25 display	External (optional)	External (optional)
Std/Color	320 × 200 pixel	320 × 200 pixel	320 × 200 pixel
Monochrome	640 × 200 pixel	640 × 200 pixel	640 × 200 pixel
Optional	Interlace mode	Interlace mode	
Output	RGB (9 pin D connector) Composite (phono plug)	RGB (9 pin D connector) Composite (phono plug)	RGB (9 pin D connector) Composite (phono plug)
I/O PORTS			
Serial	RS-232C DB25 male asynchronous	RS-232C DB25 male asynchronous	RS-232C DB25 male asynchronous
Parallel	Centronics compatible DB25 female	Centronics compatible DB25 female	Centronics compatible DB25 female
POWER	115/220 VAC - switch selectable, 50/60 Hz, xxx wats maximum.	115 VAC, 60 Hz, xxx watts maximum.	120/240 VAC - switch selectable, 50/60, 300 watts maximum.
EXPANSION			
Slots	1 - PC compatible	1 - PC compatible w/optional board	5 - PC compatible, 1 - ZDS video
PHYSICAL			
Weight	24.2 lbs (10.9 kg.)	22.5 lbs (10.2 kg.)	42.0 lbs (18.9 kg.)
Size	8.5" High (21.6 cm) 18.0" Wide (45.0 cm) 17.0" Deep (43.2 cm)	4.8" High (12.2 cm) 16.0" Wide (40.6 cm) 16.1" Deep (40.9 cm)	6.3" High (15.9 cm) 16.0" Wide (40.6 cm) 16.5" Deep (41.9 cm)

conclusion is that gremlins must use my computer at night. I guess that is an occupational hazard for anyone who does much writing.

Looking At Heath Computers

The most important point about the current line of Heath Computers is that there are two completely separate types of computers that have similar names.

The original Z-100 is a dual processor system that has two Central Processing Unit (CPU) chips. The 8-bit processor, called an 8085, is generally compatible with CP/M software that was available for the H-89. The compatibility exception to that is that some programs were written in assembler code that was compatible with the H-89's CPU — the Z80 —, and it's important to know that Z80 code does not run on the Z-100's 8085 CPU. That's why some programs that work fine on the H-89 will not run correctly (or at all) on the Z-100.

The Z-100's 16-bit processor is an 8088 CPU that is the same as the IBM PC uses. The 16-bit side of the Z-100 runs the Zenith MS-DOS, as well as other Zenith operating systems. From a technological point of view, the Z-100 is still one of the most advanced computers on the market today because of its dual CPUs.

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For H37 with Heath CP/M..... $59
For C.D.R. BIOS 2.91.....$49
Check for Magnolia version.

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An easy to install plug-in module. No trace cutting or soldering. Speed may be toggled with software. Includes a replacement Z80A (4MHz). Includes CP/M software support for Heath , CDR Systems and Magnolia. Call or write for info on HDOS support. Specify disk format.

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Similar to our 4MHz modification, but increases the CPU speed to 6MHz. Requires some soldering on the CPU board. Includes a replacement Z80B (6MHz). May require replacing additional parts. Some technical knowledge is recommended for installation. CP/M support only. Specify disk format.

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The Z-100 series of computers is generally distinguished by model numbers in the form of 10x, 11x, and 12x. Specific model numbers include the Z-101 and Z-111 (or H-1101 — usually called the H-110) for the Low Profile units. The All-in-One computer with the built-in CRT has model numbers like Z-121 or H-1121.

Everything else in the Heath/Zenith computer line is IBM PC compatible to one extent or another. I've noticed that "PC compatible" is a term that is often confusing to just about everyone since it is used in several different contexts.

PC And AT Compatibility

In many cases, the term "PC compatible" refers to the entire Zenith PC (or IBM) series of personal computers including the original IBM PC, the XT, and the AT. But there are exceptions. For example, nearly all software that is "PC compatible" will run on all Zenith PC and AT compatible systems. The major exception to that is the copy-protected software that will only run at 4.77 mhz which is one reason that the '148 and '158 computers have a selectable clock speed. Games are the major category of software that are usually speed sensitive because of copy protection.

In many cases, that is simply due to the fact that the software uses a copy protection scheme that depends on the speed of the computer's internal clock. The PC's clock runs at 4.77 megahertz; the AT's at 6 megahertz. That's the reason that some software will only run on a Z-158 in the 4.77 megahertz mode.

Hardware is another story. Most "PC compatible" hardware is also Zenith compatible at the "standard" clock speed of 4.77 mhz.

Listing 2
Standard Heath/Zenith AT Compatible Computer Systems

	Z-241	Z-248	Z-386
CPU	80286	80286	80386
80287 Socket	Yes	Yes	Yes?
Clock Speed	6 mhz (no wait states)	8 mhz (no wait states)	?
Memory	512K (standard), 9 bits wide, Expansion to 640K w/Z-405 board	512K (standard), 9 bits wide, Expansion to 640K w/Z-405 board	512K (standard)?, 9 bits wide?, Expansion to ?
Operating System	ZDS PC (MS-DOS) or IBM PC-DPS or Xenix	ZDS PC (MS-DOS) or IBM PC-DOS or Xenix	ZDS PC (MS-DOS)? or IBM PC-DOS? or Xenix?
KEYBOARD	Detached low-profile, 128 ASCII char. set, 10 function keys, Caps Lock LED, Scroll Lock LED, Numeric Lock LED, Auto-repeat with rate advance.	Detached low-profile, 128 ASCII char. set, 10 function keys, Caps Lock LED, Scroll Lock LED, Numeric Lock LED, Auto-repeat with rate advance.	Detached low-profile?, 128 ASCII char set, 10 function keys, Caps Lock LED, Scroll Lock LED, Numeric Lock LED, Auto-repeat with rate advance.
DISK DRIVES			
Floppy	1 - 5 1/4", DS/HD, 96 TPI (1.2 MB), 2nd drive optional, (48 TPI or 1.2 MB)	1 - 5 1/4", DS/HD, 96 TPI (1.2 MB), 2nd drive optional, (48 TPI or 1.2 MB)	?
DISPLAY	External (optional)	External (optional)	External (optional)?
Video	Compatible Video Cards w/248	Compatible Video Cards w/241	?
Output	RGB (9 pin D connector) Composite (phono plug)	RGB (9 pin D connector) Composite (phono plug)	RGB (9 pin D connector)? Composite (phono plug)?
I/O PORTS			
Serial	RS-232C DB25 male, asynchronous	RS-232C DB25 male, asynchronous	RS-232C DB25 male?, asynchronous
Parallel	Centronics compatible, DB25 female	Centronics compatible, DB25 female	Centronics compatible?, DB25 female
POWER	115 VAC, 60 Hz, 200 watts maximum	115 VAC, 60 Hz, 200 watts maximum	115 VAC, 60 Hz?, xxx watts maximum?
EXPANSION			
Slots	2 - 8-bit PC 4 - 8/16-bit PC/AT 1 - ZDS compatible	2 - 8-bit PC 4 - 8/16-bit PC/AT 1 - ZDS compatible	?
PHYSICAL			
Weight	35.0 lbs (15.9 kg)	35.0 lbs (15.9 kg)	?
Size	6.5" High (16.5 cm) 21.0" Wide (53.3 cm) 16.5" Deep (41.9 cm)	6.5" High (16.5 cm) 21.0" Wide (53.3 cm) 16.5" Deep (41.9 cm)	?

Listing 3
Standard Zenith Portable PC Compatible Computer Systems

	Z-171	Z-180	ZP-150
CPU	80C88	80C88	80C88
8087 Socket	No	Yes	No
Clock Speed	4.77 mhz	4.77 mhz	4.77 mhz
Memory	256K (standard), 8 bits wide, Expansion to 640K on board.	256K (standard), 8 bits wide, Expansion to 640K on board.	32K (standard)?, 8 bits wide, Expansion to 416K, w/optional 32K modules
Operating System	ZDS PC (MS-DOS) or IBM PC-DOS	ZDS PC (MS-DOS) or IBM PC-DOS	ROM-based ZDS MS-DOS
KEYBOARD	Attached QWERTY, 128 ASCII char. set, 10 function keys, Calculator keypad overlaid onto main keyboard.	Attached QWERTY, 128 ASCII char. set, 10 function keys, Calculator keypad overlaid onto main keyboard.	Attached QWERTY, 128 ASCII char. set, 10 function keys, Calculator keypad overlaid onto main keyboard.
DISK DRIVES			
Floppy	2 - 5 1/4", DS/DD, 48 TPI (standard)	2 - 3 1/2", DS/QD, 96 TPI (standard)	None - Data storage in 32K RAM (standard)
DISPLAY	Internal 10" LCD 80 × 25 display	Internal 10.5" LCD 80 × 25 display	Internal LCD 80 × 12 display
Std/Color	640 × 200 pixel	640 × 200 pixel	?
Adapter	Optional external	included	?
Output	RGB (9 pin D connector)	RGB (9 pin D connector)	?
	Composite (phono plug)	Composite (phono plug)	?
I/O PORTS			
Serial	RS-232C DB25 male, asynchronous	RS-232C DB25 male, asynchronous	RS-232C DB25 male, asynchronous
Parallel	Centronics compatible, DB35 female	Centronics compatible, DB35 female	Centronics compatible, DB25 female
POWER			
AC	115/220 VAC - switch selectable, 50/60 Hz w/included adapter, xxx watts maximum	115/220 VAC - switch selectable 50/60 Hz w/included adapter, xxx watts maximum	115 VAC w/included adapter
DC	12 VDC or optional battery pack	12 VDC or optional battery pack	10 AA alkaline batteries (option.)
EXPANSION			
Modem	Optional 300/1200 baud	Optional 300/1200 baud	Included 300 baud
PHYSICAL			
Weight	14.3 lbs (6.5 kg.)	11.8 lbs (5.5 kg.)	10.5 lbs (5.1 kg)
Size			
Open	9.5" High (24.1 cm)	3.1" High (8.0 cm)	?
	13.0" Wide (33.0 cm)	13.4" Wide (34.0 cm)	?
	14.0" Deep (35.6 cm)	11.6" Deep (29.5 cm)	?
Closed	9.5" High (24.1 cm)	3.1" High (8.0 cm)	?
	13.0" Wide (33.0 cm)	13.4" Wide (34.0 cm)	?
	6.6" Deep (16.8 cm)	11.6" Deep (29.5 cm)	?

Unfortunately, many hardware manufacturers have either intentionally or unwittingly limited their hardware to running at that "compatible" clock speed. In many cases, that can be corrected simply by installing faster chips, such as 120 nanosecond RAM. In others, it's a problem with the hardware and/or software design.

In the '158 for example, I have seen problems while trying to run the Novell network at 8 mhz — the Novell hardware and software seems to have problems at any clock speed greater than the standard 4.77 mhz, and sometimes there are problems even at that speed. That's not limited to the '158 since I have been involved in some incredible problems using Novell network hardware and software on a total IBM PC system.

Another hardware problem has occurred with the '241 because of the "no wait states" operation. Even though the '241 runs at 6 mhz like the IBM AT, the elimination of one wait state (compared with

the IBM AT) causes speed conflicts that do not allow some AT compatible expansion boards to run in the normal "Zenith" mode. Part of the problem is due to chips that are simply not fast enough, and as a matter of fact, most of this hardware does not run on the 8 mhz IBM AT either for the same reason. Many of those same boards also do not run in IBM's 8 mhz AT as I have mentioned in previous articles.

Even more important, you may see that some software and hardware is advertised as AT compatible. Your first assumption should be that it is NOT compatible with the PC series (like the '148 and (158) computers. There are some significant hardware changes in the AT compared to the PC even though they both use the same operating system. The most obvious is that the AT uses an 80286 CPU as opposed to the PC's 8088. The 80286 CPU has some specific hardware features that are used by some programs. As new operating systems are developed, this will become even more significant.

I suggest that you specifically ask if the software is strictly AT compatible or whether it will run on a PC or compatible. You may be surprised to find that "nobody knows" — I've had that happen to me at a well known IBM retailer here in the Dallas area.

The Heath PC Series Computers

In general, when someone talks about the Heath or Zenith PC series computers, that includes everything from the discontinued '138 transportable (luggable) through the new Z-181 that would have been a good model for IBM to use in the development of the Convertible. In some cases, that may also include the Z-200 series. Unfortunately, you may have to read the context of a comment to determine whether something refers to the '138 through the '181, as well as the Z-200. Even then it's not always clear.

What to do? When you see the term PC series or PC compatibles, you can safely assume that includes the following models: H/Z-138, 148, 151, 158, 161, 171, and 181. Since all of the PC related items that I specifically mention in these articles are tested on my '241, you can also assume that, unless I specifically state otherwise, the PC compatible software is also Z-200 compatible. In the event that I find something that requires the unique Z-200 hardware, such as the 80286 CPU, I will attempt to be specific that such is a hardware requirement unique to the '200 and the AT series computers.

User Hateful Software

There is nothing quite as enlightening as introducing students to the mysteries of the IBM PC and various software. As I have mentioned before, I teach a course on "Introduction to Business Data Processing" at the University of Texas at Arlington. One of the objectives is to help students become familiar with the operation of personal computers since that seems to be the standard in the business world.

The first assignment in my course is to ask the students to prepare a short essay containing their views on personal computers, DOS, and the application software that we are using for the course — PC-TYPE for the word processing. I made the mistake of discussing some of the common terms that are used in the world of personal computers and specifically mentioned the term "user friendly software" in class along with my observation that it usually is not. In the assignment, one of my students, Vicky Moritz by name, says that she believes DOS and PC-TYPE are good examples of "user hateful" software because they are so complex and difficult. I agree.

In general, operating systems are not very user friendly. That applies to microcomputers using CP/M, MS-DOS or PC-DOS, and various Unix derivatives, as well as mainframe operating systems. One could conclude, as Vicky did, that there is a lot of "user hateful" software around.

A Look At PC-TYPE

I first became familiar with PC-TYPE last summer when I taught it for the first time as part of the class. Learning new software is not an easy task for anyone, and many times the difficulty in learning it translates to: "It is no good or I do not like it".

I did not care much for PC-TYPE the first time, and I like it even less now. Regardless of price, it is a very poor introduction to PC software in general and word processors in particular. Although it was part of the "Evaluation Version" that is limited to about 200 lines, I do not believe that it is very well thought out. Block functions — copy, move, and delete — are especially clumsy, and they work somewhat differently than virtually all other word processors. Most of my students have found that the formatting features are also difficult to understand as are the special print functions like bolding and underlining.

PC-TYPE is mostly function key driven, but there are some significant inconsistencies in the way the function keys work. Most of them are fairly obvious, such as F5 (Dline), to delete an entire line. The F3 key is a printer toggle that displays a special menu for bolding, underlining, and such which are also toggles. Even that is complicated by the fact that, for example, Shift-F3 turns on bolding and CTRL-F3 turns it off. One of the key problems is that a new student has tried to delete one of these "printer markers" with the delete or backspace key and that doesn't work. You must use a Shift-F2 to delete a printer marker for bolding or underlining — not very intuitive as opposed to using a delete or backspace key.

Even if you have used "standard" word processors before, that process is rather confusing at first. It does not work like WatchWord, Word, Word Perfect or WordStar. Even students familiar with one or more of those have had problems with PC-TYPE.

Formatting a paragraph in PC-TYPE can be a real chore. Older word processors, like WordStar, and some of the less expensive new word processors, like PC-TYPE, require a user to reformat a new paragraph to even up margins after changes. That is not too bad in itself since WordStar's CTRL-B command works just fine. But there is nothing about PC-TYPE's reformatting that is intuitive at all.

Many people are used to word processors that allow a paragraph indentation at some standard value on the order of five spaces or so. Most word processors provide for that "intuitive" indentation by setting the Tab key spacing at five spaces so that paragraph indentation is simple — press the Tab key. Not so with PC-TYPE.

You must set the paragraph indentation on the ruler line by entering an "I" in the appropriate column. If you do not, and you use the CTRL-R reformat command (like WordStar's CTRL-B), to "fix" the paragraph, PC-TYPE will cleverly reformat the paragraph by removing the tab indent so that you have a block style paragraph instead of an indented one. I can't recall seeing any other word processor that does that.

As a rule, most word processors begin in the "insert mode" as a standard default. I had previously thought that was a generally accepted standard, but the PC-TYPE default is the "overwrite" mode. While that is not particularly bad by itself, there is no way to

change that default, so you must remember to press the Ins key every time you want to insert text.

Even though PC-TYPE is a shareware (i.e. free) program, I find it difficult to recommend it. Although I have only mentioned two of the really clumsy features, there are others. And since block functions and paragraph reformatting are an inherent advantage to using a word processor in the first place, the PC-TYPE implementation makes it very difficult to teach and learn those concepts. All in all, PC-TYPE is not even close to what I consider appropriate in a word processor.

Many of the "free" shareware programs are quite good, so don't judge them all by the problems that PC-TYPE has. PC-WRITE is an outstanding example of a very excellent shareware program that has some rather incredible features and is also easy to use.

Closing REMarks

This year promises to be interesting with Zenith's announcement of the Z-386 (or Z-348 depending on where you read it). It's interesting that many of the major manufacturers like Zenith, Compaq, Tandy, and Kaypro have already announced 80386 systems, but IBM seems to be holding back.

As usual, I'll be glad to answer any questions about information in this article if you enclose a stamped, self-addressed envelope (business size preferred) with your letter.

Products Discussed

Software

MS-DOS Version 3	
PC only (OS-63-31)	$ 150.00
Z-100 only (OS-63-30)	150.00
Programmer's Utility Pack (CB-3163-30)	150.00

Hardware

Advanced Personal Computer (HS-248)	$2499.00
Monochrome/Color Video Card (Z-409)	239.00
High Resolution Video Card (Z-329)	200.00
High Resolution Video Card Kit (H-329)	159.95
20MB Winchester (ZD-200)	1199.00
40MB Winchester (ZD-400)	1699.00
Winchester Cable (Z-417-1)	20.00
Compact Personal Computer (HS-148-2)	899.00
Expandable Personal Computer (HS-158-1)	1399.00
H-100 Desktop Computer (HS-1108-41)	999.00
Advanced Portable Computer (ZF-171-42)	2399.00
Portable Personal Computer (ZFL-181-92)	2399.00
Laptop Computer (ZP-150)	699.00
Monochrome Monitor Kit - Amber (HVM-1220A)	89.95
Monochrome Monitors (Flat Display)	
Amber (ZVM-1220A)	119.95
Green (ZVM-1230A)	119.95
TTL High Resolution (ZVM-1240)	169.95

Heath/Zenith Computer Centers
Heath Company Parts Department
Hilltop Road
St. Joseph, MI 49085
(800) 253-7057 (Heath Catalog orders only)

PC-TYPE (Production Version)	$ 59.95

ButtonWare Inc. ($5 shipping and handling)
P.O. Box 5786
Bellevue, WA 98006

PC-WRITE (Version 2.7)	$ 89.00
Software/tutorial only	16.00

Quicksoft
213 First N #224
Seattle, WA 98109-9990
(206) 282-0452

*

V-20 8 Meg	$11.00
(33% duty works on Z-100)	2.00
	13.00
External Hard Disk Case	120.00
Case, Surge Suppressor and Power Distribution System	
Bare ST225	$310.00
Hard Disk Cables Z-100	$50.00
External Z-100 Hard Disk	$450.00
(Use your own controller card)	

Bea-Soft Computers
Box 319
Shalimar, FL 32579
(904) 651-9231

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- no tool installation
- 30 ms. high speed option

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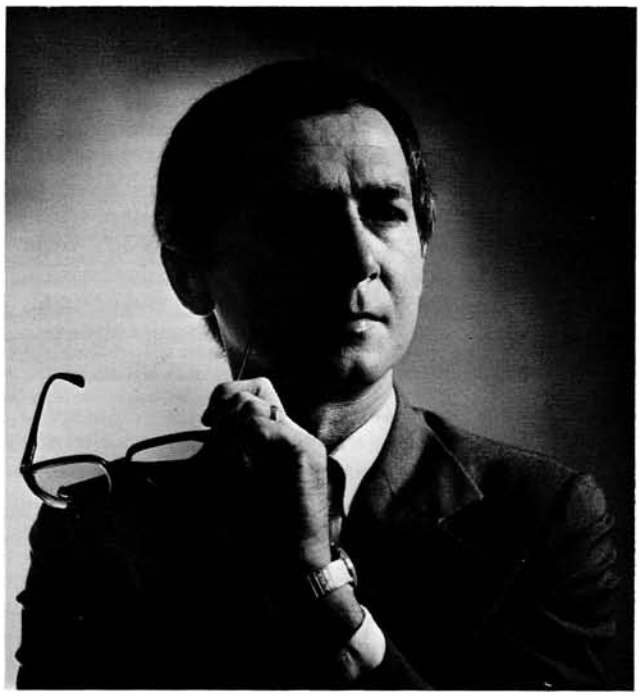


Mainstream Computing

Joseph Katz
103 South Edisto Avenue
Columbia, SC 29205

I was interested to learn the other day that MicroPro International just bought Newstar Software. If you're a *WordStar* fan you ought to appreciate that announcement. MicroPro is the manufacturer of *WordStar*. NewStar is the manufacturer of *NewWord 3*. It should mean that *WordStar* will begin moving again. The announcement is good news because *WordStar*, once leader of the pack, has been sniffing the flowers much too long.

In a curious way we've all benefited from *WordStar*'s long rustication. There is precedent. The first word-processing program for the IBM PC was written by Captain Crunch in his spare time, of which he had quite a bit right then because he was doing a stretch for defrauding Ma Bell out of long-distance phone charges. With such competition *WordStar* could have dominated the market and made competition difficult if not impossible: it was so great a superstar, a veritable Lassie in a pack of dogs. But MicroPro forgot, or got confused, or something, and began competing with itself. With that kind of competition it had to lose. When *WordStar* no longer was the obligatory first thought in choosing a word processing program, we had the opportunity to get splendid niche products such as *XyWrite III* and Microsoft *Word*. The result right now is that most major word processing programs for compatibles are at least pretty good.

Don't mistake me. I'm not saying you can pick a package at random and expect to find happiness ever after. The way things are right now, you'll probably waste your time and money making a choice that way. I'm not convinced you'll do much better poring over reviews either. Even most really good reviewers make the fatal mistake of judging all word processing programs as general tools — as the single best word processor for every job. You might as well march forth as Mr. Fixit equipped only with a hammer.

Someday I'd like the opportunity to write at length on the subject because I'm tired of battles over word processing tools provoked by people who have used only one or a couple. They miss the point. Worse, they mislead other people into making bad choices of perfectly good programs. What's the function of the person using the program? A typist transcribing a document needs a different kind of program from a professional writer composing at the keyboard and a businessman batting out correspondence. What's the nature of the business or profession? The thing passing as English exposition in business circles would be bogged down by a program that drags around the potential for displaying Greek and printing footnotes, while the English professor who might kill for such capabilities will get frustrated pretty soon by a program that does complex math in the middle of his immortal prose. What's the intended output? It's awful taste and a misunderstanding of situation to send business letters that look like badly-printed junk mail. I toss them, unread. In my role as Professor of English, I discourage students from submitting papers like that too: I want them to display their knowledge of clearly-defined writing conventions, not disguise them with misunderstood conventions of printing design. Besides, who can read with comprehension a paper presented in justified lines of 8-pt. characters 65 columns wide?

The situation reminds me of the toaster oven we got years ago: it doesn't toast well, doesn't broil well, doesn't bake well, doesn't heat frozen foods well, and doesn't do anything else well. But, my oh my, just look at the sheer number of things it does not well.

Why, really, should any one word processing program be expected to meet any better the infinitely more complex needs of people writing different kinds of things for different kinds of purposes?

Because I do several different kinds of writing, I'm interested in a variety of word processing programs. I'm much more open and receptive, an attitude that has been saving me from putting my foot in my mouth too often. Some years ago a lawyer friend mentioned that his office had standardized on *DisplayWrite 3*. I

winced, grimaced, and twitched creatively enough so he hired me to analyze his real needs and recommend the word processing program that would meet them. I did, diligently. I winced, grimaced, and twitched to deserve an award as I ruefully delivered a report that led inexorably to the conclusion that his office should standardize on *DisplayWrite 3*. Awful experience. I work a lot now on controlling my winces, grimaces, and twitches. You can't do general recommendations of a word processing program, and you can't trust your friends to know what you need.

Notice that I haven't even mentioned the subject of taste and personal preference, both of which are important to choosing a word processing program. I am an absolute sucker for multicolored programs and I will spend hours getting the colors just right. I've never written anything with them though: not one complete paragraph. My mind seems to wander to the glittering display and focuses on distinctions among hues or colors I see there. I begin fine tuning the colors once again. Crisp monochrome is what hooks my brain to my fingers. I don't know why, although I have some thoughts of interest mainly to me.

Taken from that perspective, the current crop of word processing tools is excellent, with remarkably few culls that I've seen. One big reason why there's so much so good is that *WordStar* was neglected so long that it didn't simply dominate the word processing market. It could have been on MS-DOS what it was on CP/M: nearly the perfect toaster oven, a general-purpose word processing program that does well almost everything it does.

WordStar Revividus

As near as I can figure, the last version of *WordStar* — version 3 — appeared in April 1983. It was eons ago in the evolution of word processing software for microcomputers. So *WordStar* has been frozen in time while new species were born and developed into titans. MicroPro continued selling *WordStar* but stopped working on it. The company's attention, already misspent on products such as the weak spreadsheet *CalcStar*, went instead to the entirely new word processing programs *WordStar 2000* and *Easy!* What's odd is that months before each of these things appeared the grapevine began to shake with anticipation about a forthcoming new version of *WordStar* itself. People ran around panting with desire for it. You'd think someone in charge of MicroPro might have gotten the point that maybe people really wanted its flagship product *WordStar*. But there are none so blind as those who will not hear.

If you've been around a while, you'll know that the PC versions of *WordStar* were translations of the last CP/M version. Before I dumped *WordStar* altogether a while back I used to patch my IBM PC version with the aid of code locations I had worked out for my Kaypro 4-84 version, and that ancient bundle of sheets was born long before I bought my Kaypro. As the kids would say, we're talking *old*.

There must be reasons why so many of us still care after all these years of neglect. I can point at a few of my own specifics. *WordStar* is available for so many different kinds of microcomputers that it's almost a universal tool. I had it on my TRS-80 Model II, on my Kaypro, on my Z-100 under CP/M and MS-DOS, on my 152, on my 158, on my 241, on my IBM PC 3270 at the University, and on just about every microcomputer I've ever used — from Apples to Xeroxes. (I've already covered the Zs and I can't bring myself to misspell "Xerox.") *WordStar* works exactly the same on all of those machines. So ubiquitous is it that *WordStar* files — even the document files with control codes that make other word processing programs choke — have become a medium of exchange. There are other specifics I could offer in explanation of *WordStar*'s longevity and you, if you're a *WordStar* user, will have more of your own.

When we're through with specifics, though, we'll both probably agree that at least one overweening reason for *WordStar*'s long life is that its basic concepts are superb. It is a document-oriented program that processes words marvelously well and rarely breaks. If you don't like the way something works, and if you have the knowledge to do the fiddling, you can change the program: it has a nice, open architecture. So open is it, in fact, that MicroPro used to publish *WordStar Customization Notes* with an accompanying diskette that allowed you to change the user interface however you'd like. My own childhood included an embarrassing phase in which I reconfigured *WordStar* to work nearly like Radio Shack's *Scripsit*. Janet refused to touch that thing I made and I hope you won't betray my confidence.

NewWord 3

The reason why I keep referring to *WordStar* as belonging mostly to my past is that for some time now I've been using *NewWord* instead on all my computers: the CP/M machines, such as the Kaypro and one side of the Z-100, as well as my compatibles. It's just like *WordStar* in availability. I use other word processing programs, editors, and print formatters too, because I like using the right tools for each job and because I'm fortunate enough to have access to almost any tool on which I'm willing to spend time exploring. When I want a *WordStar*, though, I use *NewWord 3*.

NewWord 3 is *WordStar*'s descendant. It's much like what *WordStar* would have been if *WordStar* had continued to develop. The concepts of the two programs are exactly the same. So are the files. So is the approach to commands, the command structures, and even many of the commands themselves. There is no way you or any of your programs can tell whether a file has been produced with *NewWord 3* or *WordStar*. You therefore can edit a *WordStar* document with *NewWord 3* and *vice versa* — and no conversion is needed. You also can move from using *WordStar* to using *NewWord 3* with no instruction whatsoever: all but a few *WordStar* commands work just the same in *NewWord 3*. If you want even those things to be the same, you can change them easily from the customization program included with *NewWord 3*.

After a little while, though, you won't want to change those things because they work better in *NewWord 3*. For example, the backspace key deletes as it backspaces, the CTRL-N combination softens hard carriage returns, and the CTRL-Q-P combination jumps to the page you specify.

But *NewWord 3* is more than just *WordStar* fixed up.

Its additional capabilities start with a complete adaptation to MS-DOS. For example, the program handles subdirectories magnificently well. You can run *NewWord 3* from any subdirectory on your system, so you don't need a kludge like my *WordStar* directory changer. You can shell from *NewWord 3*, so you can drop from editing a document to run a DOS command and return to where you left off. Since *NewWord 3* is an MS-DOS program, not a translated CP/M program, it uses MS-DOS's additional memory well enough to give you at least two of the features you always wanted: the ability to undelete your last deletion, and the ability to see a decent onscreen display of formatting features such as underlining (real underlining on a high resolution monochrome monitor) and boldface.

My role here is not to spew the *NewWord 3* manual at you, so I won't continue this guided tour. I will, however, indulge myself

enough to talk about one big thing and one little thing. Both make *NewWord 3* a professional writer's dream. We often have to write to space, which really means to a specific number of characters. Press CTRL-Q-? in *NewWord 3* at any point while working in a document and you get a count of the characters in that document from its beginning to that point: 12,371 up to that colon. Once you know how far you've come, you know how far you have to go. It's a small touch, but valuable. One of the big touches is the spelling checker integral to *NewWord 3*.

The spelling checker inside *NewWord 3* is the first spelling checker I've seen in a word processing program that works the right way for a professional writer. It's really an interface to Oasis's *The Word Plus*, a decent but now creaky standalone spelling checker bundled with *NewWord 3* and other word processing programs. I wouldn't consider using *The Word Plus* alone anymore. But I don't have to think of doing that because some genius at Newstar designed his own brilliant interface to *The Word Plus* word lists. You might not realize that it's what's going on when you use that interface because the seams don't show. All you see is an easy-to-use, well-designed, apparently-simple spelling checker that is so thoroughly a part of *NewWord 3* that it seems to have grown there as a model of the organic principle applied to programming. You can check one word or the entire document or the document from your cursor to the end — all without leaving the document. When the checker hits a word not in its lexicon, it offers a numbered list of "close" words: you can choose by number and the substitution will be made for you. Of course you can enter a replacement of your own, skip the questioned word, or add it to the dictionary. And everything is lightning fast.

All those aspects of the spelling checker are very nice. What makes it distinguished, though, is that *NewWord 3* gives you the option of having it look up a word you're thinking of using. And you can use wildcards for uncertain parts of the word. So *NewWord 3* has neatly removed the problem of how to look up the spelling of a word you barely know how to spell. Press CTRL-Q-O and enter the letters you know, with "?" to mark the place for single letters you don't know and "*" to mark the place for groups of letters you don't know. *NewWord 3* will give you the numbered list of any matches in its dictionary. It's a much better approach than the one used by programs like *Turbo Lightning*, which has to monitor every keystroke if you want it to alert you to possible misspellings. Since I started using *NewWord 3* I pulled *Turbo Lightning* off my hard disk.

Big touches, little touches: *NewWord 3* is what *WordStar* might have been had it continued to develop. Now MicroPro has bought Newstar with the avowed intention of introducing — at long last — a new version of *WordStar* that will benefit from *NewWord 3*.

If you order *NewWord 3*, make sure yours is version 3.02: version 3.01 had a bug (phantom characters that sometimes remained on display after block deletes) on Heath/Zenith compatibles. Version 3.02 is fine.

XyWrite III

Fast, flexible, powerful, and irascible. That's the *XyWrite III* I love. It's James Cagney or, for a later generation, Richard Widmark. Nah, it's both of them together. If there's anything you want a word processing program to do — anything at all — *XyWrite III* will do it. And it will do so fasterthanaboltofgreasedlightning.

One of my favorite pastimes for a while was building really big documents in *XyWrite III* so I could watch its tricks. All I'd do is pull in a big ASCII file and copy it to itself several times until I got tired. Then I'd hit the keys to send me from one end to the other, then back again, then forward again. Snap. Snap. Snap. You could almost hear the whiplash each time. Then I'd change the line length at the beginning of the document and see if I could catch the reformatting in action. With a big enough document I could, almost. Justification, ragged right, ragged left, and centering: those all are show stoppers. Insert their codes anywhere in the document and try watching that sucker move.

XyWrite III is the fastest-moving editor I've ever seen, the fastest-moving editor I could ever imagine, and I won't believe you if you tell me you've seen faster. It can't be. I have it on my 152, my 158, and my 241, and the most noticeable difference I've found in its performance on all those machines is that its big spelling-and-hyphenation dictionary loads faster on the AT compatible than on the XT compatibles. Loading that dictionary is the only slow part about using *XyWrite III* and it's slow only by comparison with everything else about *XyWrite III*. Pure impression had been my gauge until a few minutes ago when I used a stopwatch. The total loading time — including the time it takes to load the spelling-and-hyphenation dictionary — is almost exactly the same for loading *WordStar*. *XyWrite III* is fast.

If you've done anything with typesetting, especially with computer phototypesetters, you'll have noticed that much of my vocabulary with respect to *XyWrite III* so far has been drawn from that world: "justification," "ragged right," "ragged left," and especially "spelling-and-hyphenation dictionary." While many other word processing programs now are groping towards tight control required to emulate typesetting on a personal computer, *XyWrite III* started there and has been moving towards geniality. It offers absolute control over console display and printer. If you need some odd character, you can configure *XyWrite III* to show it or — absent an equivalent in the IBM character set — at least to represent it on the monitor. If you have some odd printer, you can configure *XyWrite III* to use it. The program comes with drivers for many different printers including some as obsolete as my Radio Shack *Daisy Wheel II*. Should you have a printer for which there is no canned driver, it's a snap to roll your own provided you know the codes for your printer and are willing to follow instructions in one of the four manuals for *XyWrite III*. With both kinds of knowledge you ought to have no trouble using your compatible and *XyWrite III* as the front end to a phototypesetter. My hunch is you might even be able to get *XyWrite III* to carve hieroglyphics if you could figure out the interface to a hammer and chisel. *XyWrite III* provides *control*.

There are costs. *XyWrite III* takes over the computer almost completely, blocking the use of Terminate and Stay Resident programs like *SuperKey*. Others like *SideKick* and *Perks-PC* may cohabit with it. As a rule, though, forget most TSR programs when you use *XyWrite III*. You can change the keyboard driver to the supplied DOS.KBD and use just about any TSR program but then you lose *XyWrite III*'s own magnificent keyboard handling. If you tune into *XyWrite III* and have routines of your own, you might not need a keyboard redefinition program like *SuperKey* though: *XyWrite III* has excellent macro capabilities you can use instead. See, you're swapping options and benefits just as you have to do whenever you think about word processing programs. Is *XyWrite III*'s macro capability sufficient to compensate for the loss of ability to use something like *SuperKey*? Of course they are — unless they're not in your application.

Another cost of *XyWrite III*'s capability to control everything in the room is a complex set of commands. People new to word proc-

essing and people who move there from typesetting are two groups who should be troubled least of all. If you know nothing you have nothing to unlearn, and if you already have *XyWrite III*'s orientation you're going to mumble "piece of cake, piece of cake" and make the typists around you angry. All others pay cash. The real problem for me is that I can't figure out much consistency to the marriage between keys and commands. What the F keys do when shifted, unshifted, controlled, and alted seems altogether arbitrary. *XyWrite III* comes with one of those plastic cheat sheets you can hook around the F keys. It's the only one I've ever glued to the keyboard because this is the only program that needed constant help and didn't get jettisoned because it needed constant help. I won't give up *XyWrite III*. I sure wish, though, that XyQuest would hire a logician to get just a tad more consistency to the commands.

Nevertheless, what a marvelous thing is *XyWrite III*. If you are a real, honest-to-goodness professional wordsmith who knows the craft and wants a word processing *instrument* you can't do better than *XyWrite III*. I think of it as the word processing equivalent of a *Diplomat* pen.

Microsoft Word

I hated *Microsoft Word* version 1, which was bundled with my Z-152. I hated it so much that I turned down version 2 as not worth any time at all. With the passage of years I've calmed down enough about *Microsoft Word* so that when version 3 came I could face the thought of ripping it into little shreds and stomping the pieces into my office carpet and twisting them in with my heel. I'm nothing if not absolutely fair and open minded.

Much to my astonishment, I kind of like *Microsoft Word* version 3. It's faster than what I recall of version 1 and when I choose the **Library** function from the menu something happens other than a raspberry and a reprimand. They are what set off my epic tantrum: version 1 had a stub, a message programmers use to mark parts of a program they haven't gotten around to writing. But, then, I'm one of those odd people who think that since we pay real money we deserve real goods. Unreasonable, I know. Since *Microsoft Word* version 3 is a finished product, I'm able to look at it differently.

It just came, though, so I haven't had the time I want to spend seeing how it really works. What I notice right off the bat, in addition to my impression of more speed than I recall in version 1, is much more functionality than I remember. The obvious additions are outlining (apparently based on Living Videotext's *ThinkTank*, spelling (based on Oasis' *The Word Plus*), a garland of conversion utilities to import and export files (including Revisable-Form-Text DCA), and a host of printer description files for output to a book (one of three manuals) full of output devices including those that use *PostScript*.

That kind of advanced, intensive, across-the-board printer support is significant to the way I'm thinking of *Microsoft Word* now: as particularly useful for people who have to, or do, think of documents as graphics objects on a printout page. Janet thinks like that, just as any good graphics designer should. It's an orientation that can lead to "desktop publishing" (really "desktop page composition" or "desktop printing," because "publishing" means something entirely different). Even from the little time I've had with *Microsoft Word* so far, it looks useful for such purposes. You ought to be able to use it with a good dot matrix printer for inhouse jobs, catalogues, and newsletters. I have a colleague who is using *Microsoft Word* and an Apple LaserWriter to set foreign-language books he publishes. Knowing only version 1, I thought him quite mad. Now *Microsoft Word* seems finished, however, I'm going to look into the same thing myself.

What I have, by the way, is the "network version." It's supposed to work on most major local area networks. I'll let you know.

Control-Z

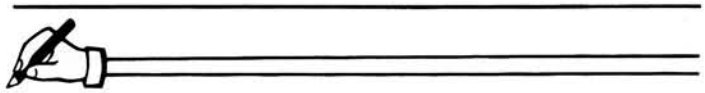
You've noticed the pattern, I think: each of the word processing programs I've discussed here is in its third major revision. The catch is that *NewWord 3*, *XyWrite III*, and *Microsoft Word* version 3 all are in their third major revision for compatibles. *WordStar* version 3 — still the current version — is still the first major version for compatibles. It has some catching up to do. The good news is that now it has a chance. At this stage in the development of word processing software, its revitalization with a healthy dose of *NewWord 3* should benefit us all.

Products Discussed

Microsoft Word (Version 3) $450.00
Microsoft
16011 N.E. 36th Way
Redmond, WA 98073
(206) 882-8080

NewWord 3 $349.00
Newstar Software
3351 Vincent Road
Pleasant Hill, CA 94523
(800) 932-2526/(800) 544-3377
In California/(415) 930-9400

XyWrite III
Xyquest
P.O. Box 372
Bedford, MA 01730
(617) 275-4439



Mainstream Mailbag

Monochrome Matters

Dear Dr. Katz:

I thought I'd take the time to tell you how much I enjoy your PC compatibles column in *REMark*. I have an H-151 which I built (3691 solder joints) with MS-DOS 2.11 and the H-329 high resolution monochrome board. What I've discovered is the enormous(!!) lump of information/knowledge to be assimilated prior to operating the PC with comfort and confidence. It's been 10 months, and I'm still not there yet. But your column is helping. Thanks for writing it.

Is there anything else I can do with the monochrome board besides word processing? Much to my sad realization, little of the common IBM software/games will work its display.

David A. Secrist
Cincinnati, OH

Dear Mr. Secrist:

The learning intrigues me too. Thanks for your letter: it's good to know my work makes a difference.

I kept your interest in mind when I wrote the last few columns. I'll continue to do so.

You ought to enjoy your H-329 high resolution monochrome board and monitor more for having read my own dismay that it took me so long to get them. They're really special-purpose tools for text work. Enjoy them for their superb character resolution and the attributes that the CGA (Color Graphics Adaptor) does not provide. I'll explain in a moment.

No, your monochrome setup will not run graphics software or most games I know. But all you need to run them is an inexpensive monochrome monitor. It plugs into the composite output on your 151. Since the 151 comes standard with a CGA, you're way ahead of those who own other brands of compatibles: you don't have to buy a CGA board. I'd most certainly do a little shopping for at least a monochrome monitor.

If you're serious about games or graphics software, you might want to look at RGB color monitors, which plug into the output just below the composite jack. They're considerably more expensive than composite monochrome monitors, but you might be able to get a good deal on one right now. Many dealers have attractive sale prices on them.

What I'm saying is that far from being stuck, you're really in an excellent position: all you need is the monitor itself (and the cable for it that came packed with your 151) to do everything you want to do.

If you follow my suggestions, you'll soon go nuts from having to use MS-DOS's Mode command to switch displays from one monitor to the other when you move from graphics to text. (Since you're used to the superior text displays on the high resolution monochrome monitor, you're going to find the CGA display of text absolutely unacceptable.) You'll therefore want DS.COM (on HUG software disk 885-6009-37), which will show text simultaneously on the CGA and monochrome displays. I'd therefore set the 151 to boot with the CGA display and use DS when you get down to business.

My guess is that the two things together (composite monitor and the HUG disk) will cost you around $110, assuming you get a good price on a composite monitor. I had to spend considerably more when I added the capabilities you already have. You're one up on me.

You don't say what word processing program you now use, so I hope it's one that takes advantage of those special attributes I mentioned earlier. I'm thinking of true underlining, for example. If your word processing program doesn't let you see it, you ought to examine NewWord 3, WatchWord for the PC, or XyWrite III.

What I'm trying to suggest is that you capitalize on the potential in your machine. You've already spent the big dollars.

Joseph Katz

Communications Programs For Four COM Ports

Dear Dr. Katz:

I am looking for software, preferably Public Domain, which I can use on my machine: a Zenith 151 with the ZOOM/Modem PC 1200 XL.

As your article mentions, the Z-151 machine came with two serial ports. So I configured the modem for COM3: and COM4: as the ZOOM manual directs. Yet the only known software which works with it, configured for COM3: and COM4:, are the ZOOM demo (no file transfer) and **Crosstalk XVI** (Version 3.5 or later — but poorly written manual). I have tried many sources for software recommendations or other suggestions including: Boston Computer Society, local bulletin boards, ZOOM Telephonics staff, Zenith staff, and Heath Users' Group staff. Could you suggest a software package?

I am also aware that there are software fixes which allow one to disable one of the standard serial ports. I would prefer not to go this route since I would be losing capability (although nothing is presently connected to either port).

Furthermore, your article mentioned that MS-DOS, with programming, can address four COM ports. In fact a programmer friend of mine tried this and failed. Could you provide information on how to do this for my machine?

Kevin W. Yearwood
Cambridge, MA

Dear Mr. Yearwood:

Nope, I don't have time to instruct you on assembly language programming by mail. Sorry. If your friend is a programmer and couldn't do it, maybe Mother Nature is painting a big sign telling you both to lay off? I'd pay attention to that sign: It's dangerous to diddle MS-DOS when you don't really know what you're doing.

I don't own an early H/Z-151 — the one that came with two serial ports — so I'm not familiar with canned software to disable one of its ports. All I think it should do is shift one port address temporarily, which would mean you wouldn't lose any capability at all. The most laborious thing you might have to do is reboot the computer if you wanted to use the original COM1: and COM2: ports. As I say, though, I'm really only surmising. Since you're not interested in that approach anyway, I won't pursue it.

*I do know three commercial communications programs that can be configured to address COM1: through COM4: — **HyperACCESS, Crosstalk XVI**, and **Mirror**. I haven't tried using any of them on COM3: or COM4: but all three are first-class packages that should perform in that respect.*

I don't know any public domain software with a menu option to address COM3: or COM4:. The best way I know to learn about every single one in existence is for me to say here that there aren't any. So, to help you out, I'll say that I don't think there are any. After all, not many people own machines with even two COM ports, much less four COM ports.

*What you really need, I think, is **HyperACCESS**. First reason: It supports COM1: through COM4: so all you have to do is tell it to use the port you want used. Second reason: It has a configuration option for the **ZOOM/Modem** so all you have to do is tell it to install itself properly. Third reason: It's produced by Hilgraeve, Inc., a company that has specialized in communications with Heath/Zenith computers since the beginning of time so they'll know communications on your machine better than any other company — perhaps even better than Heath itself. Fourth reason: Hilgraeve is one of those companies whose support of Heath/Zenith machines is so distinguished that it has become a reason why people in the know buy Heath/Zenith. Besides all that, you'll have the pleasure of knowing you own a communications program that has received nothing but rave reviews — from magazines specializing in IBM computers, from communications specialists, from everyone. You have a first-class modem in a first-class system, so get a first-class communications package written especially for your*

*equipment: buy **HyperACCESS**. Anything else would be a pointless compromise, I think.*

Joseph Katz

Note: Letters sent to Joseph Katz may be published, perhaps after condensation or other editing. He cannot guarantee a reply by mail, and he won't reply by mail unless you enclose a stamped, self-addressed envelope. *

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