

NOVEMBER

# newsletter

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## ALPHA MICRO USERS SOCIETY

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# 1

# fROM THE PRESIDENT

Jim Taylor and I just returned from the weekend International Alpha Micro Dealers Association (IAMDA) retreat in Vail. At this three day workshop/convention several promising things occurred. First and foremost is the cooperation that we observed between the dealers and Alpha Micro. One person commented that it appeared as if the entire Alpha Micro staff had taken the Dale Carnegie positive training course since the last time dealers had met with Alpha Micro. It was refreshing to have people look you straight in the eye, answer questions candidly, and respond that they didn't know, when they didn't know the answer to a question. The whole attitude has changed between dealers and the manufacturer from one of antagonism to one of cooperation. Communications are improving and Alpha Micro is supporting the dealer's organization which means that there will be more information flowing among dealers through the monthly newsletter, and more information flowing between the dealer's organization and Alpha Micro. We met with several dealers and discussed ways in which AMUS and IAMDA can cooperate. Among the items suggested were the creation and distribution of surveys on software and product performance, the cross publishing of articles of interest to both groups, and direct communication about such items as lists for bugs, new products, and available software.

One thing that a dealer's group can do is take the effort to study the competition to Alpha Micro and help dealers form a plan of attack for sales approaches to prospective customers who are evaluating several different brands. At the marketing meeting, many dealers were in a panic about IBM's recently announced System 23. The truth of the matter is that the System 23 is vastly inferior to the Alpha Micro in processing speed and other capabilities. The problem is that only

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**AMUS** office hours are from 8:00 AM to 4:00 PM mountain time. Our over-worked manager is Sharon Greene. She is happy to assist you with any questions you might have about **AMUS**, or the Alpha Micro Computer. If she doesn't know the answer to your question, she will try to direct you to someone who does.

The **AMUS** Newsletter is published monthly by **AMUS**, 1911 11th St., Suite 210, Boulder, CO 80302. Subscription rates are \$10.00 per year. Each member representative receives a one year subscription, the cost of which is included in the annual dues.

Additional copies and back issues of the newsletter may be ordered from Sharon. Bug fixes, articles, letters, reviews of software and information about Alpha Micro applications are happily accepted. Material must be received by the 10th of the preceeding month for inclusion in the following month's edition.

Second class postage is paid at Boulder, CO 80302, ISSN 0273-8708, USPS 567-330.

The Alpha Micro Users Society Network is a computer system meant to give members access to information and other Alpha Micro users with similar interest. It consists of an Alpha Micro computer with a Hawk disk drive, a 300 baud modem, a 1200 baud modem, and 160k of memory. **AMUS** members are given an individual account and password on the Network. Contact Sharon Greene for your account and password. Many thanks to Alpha Micro Systems of Irvine, CA; North American Title Co. of Houston, TX; and Dravac, of New Jersey who have donated equipment and software to the Network.

**AMUS** has a library of programs which have been donated by members for distribution to other members. Programs are available either through the **AMUS** Network, or, if you prefer, we can make floppy or Hawk cartridge copies and mail them to you. Order may be placed through Sharon.

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## FROM THE PRESIDENT CONTINUED

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one dealer took the time to go to the IBM demonstration to see what the competition was doing. A BASIC program that he quickly typed in during the demonstration took so long to execute 1000 for next loops that he aborted the program to see what was wrong.

Without spelling out the specifics, Alpha Micro loosed the rumors that both a smaller and a larger Alpha Micro are in the works. All the information that we could come across is in the form of rumors. We'll try to get complete details for you before the next AMUS Newsletter goes to press. The larger system will be a 32-Bit processor. Rumors among the people we talked to ranged from Alpha Micro designing their own chip to be produced by Western Digital or to the use of the Motorola 68000 32-bit CPU. Whatever the case, Alpha Micro will insure that software developed on the systems now in use will be runnable on the new systems. We look forward to an announcement of the new machines at COMDEX in mid-November with deliveries probably in March or so of 1982.

We saw the memory management board running in Vail, and it is nice to see several jobs running with 42K of memory, and the ability to shuffle around memory partitions, spoolers, and bitmaps without having to totally reboot the system. Also on display were the 32 Megabyte Winchester disk drive and the streamer and video tape backups. Most of the confusion about the Winchester was centered on what actually happens to the heads when they hit the surface of the platter. When the disk spins up and down, the head rests directly on the surface of the disk. If you do this gracefully through software (in AMOS 4.6 this will be done through the MOUNT command) the heads will move to a 'landing zone' where no data is stored. The surface of the disk has a lubricant on it and is intended to handle direct contact with the heads. If the disk spins down ungracefully (as in a power failure), the head will land on a track where there is data, but there should be no damage. Theoretically, the only way that you can damage the disk surface is to jar the machine while it is spinning hard enough to cause the head to chip away some of the surface of the disk. If that does happen, you still do not have a total disaster on your hands as you would on a removable disk system. You can recertify the disk by backing it up, running the certify program which will identify bad blocks, and then restoring the data onto the disk. The certify programs on the 32 Megabyte Winchester should take about two hours, and on the upcoming 60 Megabyte disk about five hours.

Now that you're excited about adding 60 Megabytes to your Hawk or Phoenix system for much less than the original price of your removable disk system, you can't. Alpha Micro will only sell the Winchester system bundled into a 100T system. There are two reasons for this:

1. There is such a demand for the Winchester that production can only handle a small amount of the demand so the newer systems get first priority, and,
2. Alpha Micro can make more money selling an entire new system than a Winchester sub-system.

This seems like a good business decision, but from my perspective, it seems that Alpha Micro is once again telling it's customers that once they purchase an Alpha Micro computer, that's the end of the show. In effect, Alpha Micro is forcing it's customers to go elsewhere to purchase add-on peripherals. For those of us faced with the immediate decision about how to expand our present storage, Alpha Micro has no answer, the answers come from Corvis and Konan, available through most dealers, Microcomputers of New Orleans, and Dravac. Not only are these systems available today, but in most cases they are very competitive in price.

Hopefully, Alpha's new attitude towards dealers will expand to include the masses, and we will see marketing decisions that will not only expand the list of Alpha Micro owners, but strengthen the systems of those who have already put their hard-earned dollars into AMOS.

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# hardware by dravac

**Software by Dravac** are words synonymous with quality. Designing Alpha Micro system software for over three years, Dravac software products solve problems for Alpha Micro users all over the world. We know the needs of the Alpha Micro community, and we have the expertise to meet them. That's why we've expanded our line—with **Hardware by Dravac**.

Why should you buy **Hardware by Dravac**? Because we probably know the Alpha Micro computer and AMOS better than anyone outside of Irvine California. Anyone can sell hardware, but Dravac can supply the total package—finely tuned software with complete local and national support. In other words, the same reasons that you've been buying **Software by Dravac**.

Our first **Hardware by Dravac** product is the DR-400 Winchester subsystem using the proven PRIAM 8 and 14 inch winchester drives. What makes ours different? The DR-400 software makes it **28 percent faster** than the AM-500. No one else even comes close. And we didn't stop with just a DVR for [1,6]. You get software for formatting, multi-volume backup (using data compression), and automatic power up/down—ideal for unattended operation. And, since our business is Alpha Micro software, you don't have to worry about new releases obsoleting your DR-400—we'll be here for AMOS release 5.0 and beyond.

Incidentally, hardware is not new to Dravac. Over 850 of our revolutionary Omnilock™ software protection boards are installed worldwide—without a single failure. That's a record few companies can match. We apply the same quality control techniques developed for the Omnilock™ to the DR-400.

The DR-400 is available today with the PRIAM 30 and 60 megabyte 14 inch drives. The subsystem includes everything you need—drive, power supply, cables, software, documentation, and interface card with boot PROM. Dravac will also make available the 150 megabyte 14 inch drive and the PRIAM 8 inch 30 megabyte drive as they become available—all at competitive prices. So don't wait, upgrade your Alpha Micro system with **Hardware by Dravac** today!

## Features:

- Controller hardware handles up to four disk drives.
- Media defects are handled transparently to the central processor. The controller automatically reassigns sectors or tracks that contain media defects.
- A program is supplied that allows you to specify a "time out" period for a drive. If the device is not accessed within this time period, the drive is powered down. The next access to the device will automatically power the drive back up, with no loss of data!
- A linear voice coil positioner is used which offers fast access to data as well as mechanical simplicity.
- Short start-up/spin-down time of 30 seconds.
- Operates with both the AM-100 and 100T cpu.
- Brushless DC motor which eliminates the belts, pulleys, etc. normally associated with AC motors in Winchester disk drives. Also eases use of battery backup.

- Light weight and small size ease installation.
- Microprocessor controlled self-test protects data and aids troubleshooting.
- Expected Mean Time Between Failures (MTBF) is 8000 power-on hours. The Mean Time To Repair (MTTR) is less than 30 minutes. No preventive maintenance is required.
- 30 and 60 megabyte units can be mixed on the same controller.

As you can see by the above list of features, the DR-400 is a smart system to own. The DR-400's cost of ownership is less than a conventional drive because:

1. No preventive maintenance needed. This means no filters to replace.
2. Winchester technology assures high reliability and therefore fewer service calls or problems. Maintenance times are reduced. MTBF times are double those of conventional drives.

Dravac supplies all the software needed to interface the DR-400 to your Alpha Micro computer. This software consists of a device driver, formatter, bootload program, and several utility programs. We will update this software as needed by changes in the Alpha Micro operating system.

### **Specifications:**

Capacity (formatted): 30 or 60 megabytes

Number of logical drives: 3 or 6 (10 megabytes each)

Bitmap size (words): 1210

Number of sectors/logical drive: 19355

Single track positioning time: 8 ms

Average track positioning time: 45 ms

Start/stop time: 30 seconds

Height (inches): 8.0

Width: 17.6

Depth: 20.0

Weight (pounds): 56

### **How About Backup?**

Dravac has designed a controller and support software for the Archive streamer tape drive, our model name: DR-300. This is a 20 megabyte tape device. It will backup your DR-400 at the rate of 2 megabytes per minute. The DR-300 uses the DC-600a 3M tape cartridge. The cartridge requires about the same shipping volume as a floppy disk.

The DR-300 may also be used to backup any other disk device that you own. Think of it, you can backup a Phoenix disk on a single \$35.00 tape cartridge instead of a \$330.00 disk pack. The time savings is also considerable. A Phoenix backup requires a 15 minute purge and up to 45 minutes of copying. The DR-300 backup requires 9 minutes. You can backup your entire drive (six platters) in about the same time as a single disk to disk Phoenix copy.

Software is supplied with the DR-300 that will enable you to save and retrieve files from the tape in a manner similar to a larger 1/2" 9 track tape drive. This allows you to exchange data with other DR-300 users using the tape cartridge rather than an expensive disk pack. Up to 20 megabytes of files may be transferred on a tape cartridge that is as easy to ship as a floppy disk.

**hardware by dravac**

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53 Deerhaven Road  
Mahwah, NJ 07430  
(201) 825-1616

# LOCAL NEWS

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## DC-AMUS

If you are interested in becoming involved in DC-AMUS, please contact Jay Gourley, 903 C Street, N.E., Washington, D.C. 20002, (202) 547-7607. Meetings are held the first Monday of each month at 903 C Street, N.E.

## CH-AMUS

Meetings are held the third week of every month alternating between Wednesday and Thursday at 1612 E. Algonquin Rd., Schaumburg, IL 60195. The main purpose is to get together to talk about problems. For further information, contact Jeff Fisher at (312) 397-8700.

## SC-AMUS

SC-AMUS holds meetings one Sunday each month at Fullerton Savings and Loan at 12860 Euclid (just north of Garden Grove Blvd.). SC-AMUS also publishes a newsletter each month with lots of good information. Membership dues are \$10.00 initially, plus \$12.00 per year. Send \$22 for first year to Phil Putman, 16168 Beach Blvd. #141, Huntington Beach, CA 92647. Or call him at (714) 842-4484. SC-AMUS has many helpful activities going on and knowledgeable and interesting speakers at their meetings.

## FAMOUS

FAMOUS, the Northern California Chapter of AMUS, holds general meetings the first Thursday of each month at the Betchel Building, 50 Beale St., San Francisco at 7:00 p.m. They are currently publishing a newsletter which will be available to paid members. For further information about FAMOUS, contact either Gerry Baugus or Bob Fowler at (415) 494-6221.

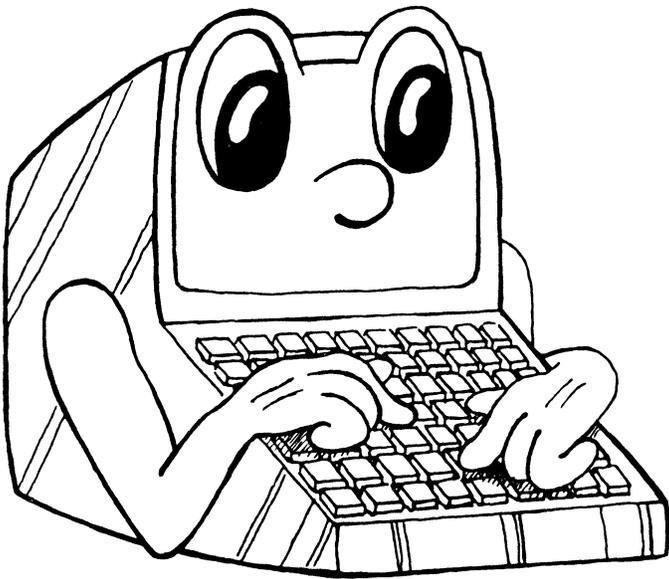
## PHOENIX ARIZONA CHAPTER

To get information about one of the newest AMUS chapters, Phoenix, Arizona, contact Charles Gale, 6975 W. Crafo Way, Chandler, AZ 85224 or call (602) 961-1645.

## PORTLAND OREGON CHAPTER

Information about our other new chapter, Portland, Oregon, is available from Ormand Beyl, 15051 SE Mt. Royale Ct., Milwaukie, OR 97223 or call (503) 241-5353.

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# PRGALL

Program to generate Alpha-Basic data entry files with add, change, or delete modes. Program allows direct, indexed, or keyed data file options.

**NOTE!!** All you do is type the map statement and the CRT display using vue.

Program asks only 3 questions

1. What do you want to call the program?
2. What data file type?
3. What two digit system code (AR, OE, GL, etc.)

Then it generates a complete program without compil error.

## A Must for Every Computer Owner without having the limitations of a Data-Base Manager

**Note:** Map statement is included, therefore, a future file structure change is possible by merely recompiling and changing only one map statement.

### ALLSYS

- System Management Program
- One program that will do system management of up to 18 data files created by PRGALL.
- Does not require compilation.
- Initializes files
- Expands files
- Contains all information to open files.
- Allows specification of other account numbers on an individual basis.
- Automatically dumps control records of all files—allowing modifications. Includes offset for utilization of direct access files.

### PSTALL

- Standardized Posting Program
- Post data from any data file to any data file. All you specify is file names and transfer assignments. A 5 minute job.

### EDTALL

- Standardized report generator.
- Generate sorted edit lists with up to 7 grand total columns in minutes.

### MENU

- Does not require compilation. Merely type screen display in vue.

With these programs a single programmer can generate a complete accounting package within days. This is a must for all computer owners.

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- **NEW MICROBYTE-64K DYNAMIC MEMORY . . . \$575.00**

### CABLES

- **50 PIN RIBBON CABLE . . . \$25.00 + \$3.00/FT**

\*All of the above are fully compatible with **ALPHA MICRO** systems.

\*\*These offers depend upon availability of items and reflect current costs. Items may not always be available for immediate shipment and prices may change.

## Suggested Phoenix Back-up Procedure

One of the most important procedures to implement when using a computer system is that of backing up your data. Under certain circumstances, a loss of data can occur; and if a copy of that data does not exist on a source other than the computer system, you could spend a great deal of time and energy reentering data files.

The Phoenix hard disk drive has a storage capacity of 90 megabytes and consists of five logical units (DSK0:, DSK1:, DSK2:, DSK3:, DSK4:) that physically make up the fixed media, and one removable cartridge (DSK5:). Because the Phoenix drive is capable of storing a great deal of data, it is important that you organize the disk files to make the back-up procedure as efficient as possible. We would like to make some suggestions as to the best method of backing up your data when using a Phoenix drive.

When initially installing the operating system, the System disk should be copied to the first fixed disk, DSK1: of the fixed media on the drive; do not leave it on the cartridge. Once this is done, that disk then becomes DSK0:. The disk on which the operating system resides is always DSK0:, whether it is the fixed media or the cartridge. To determine if your system disk is on the cartridge, enter the command *SYSTEM*. The following will appear:

```
***SYSTEM IS RUNNING FROM CARTRIDGE DISK***
```

Store the original System cartridge in a safe place. Place all utilities, RUN programs, work space, data that will require little or no updating, on DSK0: also.

Next, place your solid data files or random access files that will be updated and changed on a daily basis on one disk; for example, DSK1:. If necessary, place the same type of files on DSK2:. Disks 1 and 2 will hold those data files that are most active and most likely to change daily. The data that is to be updated only once or twice a week should be located on a separate disk; for example, DSK3:.

For back-up purposes, it is important to back-up the data that is accessed most often on a daily basis. Those files that are updated less frequently may be backed-up once a week. And, the System disk, which will probably have few changes, may only need to be backed-up once a month.

Before detailing the back-up procedure, it is important to remember that there are certain functions that need to be performed periodically. If the cartridge on which you intend to store a copy of your data has not been used previously, it should first be dynamically purged for at least 30 minutes. New packs must also be certified with the CRT410.PRG. We would like to recommend that any new cartridge inserted into the drive be left in the drive throughout a day of normal operations before introducing a second new cartridge. This will allow time for the heads to self clean any minor contamination introduced by a

new cartridge. For information concerning the CRT410 program, refer to the latest Software Update Documentation Packet.

We would also like to recommend that the DSKANA program be performed on all disks on a weekly basis to insure the integrity of the data and BITMAP on a particular disk. To have any errors that may exist reported by this program, use the /E option with the command — *DSKANA DSK0:/E*. Make certain that the switch option comes after the device name and not after the DSKANA command, or the program may not execute properly. For a more detailed discussion on the use of DSKANA, refer to the *AMOS System Commands Reference Manual*, DWM-00100-49.

The simplest way to perform a back-up procedure is to set up a command file that will perform the back-up for you. For detailed information on building command files, refer to the *AMOS User's Guide*, DWM-00100-35.

Build a simple command file for each disk you wish to back-up. For example, a typical back-up command file for DSK1: might be set up as follows:

```
EXAMPLE: BKUP1.CMD
```

```
:<IMPORTANT!!! BE SURE THAT THE WRITE-PROTECT  
IS IMPLEMENTED FOR THE FIXED MEDIA>  
:<DEPRESS CARRIAGE RETURN TO CONTINUE>
```

```
:K  
MOUNT DSK5:/U
```

```
:<INSERT BACK-UP CARTRIDGE FOR DSK1: INTO DRIVE  
AND DEPRESS CARRIAGE RETURN WHEN DRIVE IS  
READY>
```

```
:<IMPORTANT!!! BE SURE THAT THE WRITE-PROTECT  
IS IMPLEMENTED FOR THE FIXED MEDIA>  
:<DEPRESS CARRIAGE RETURN TO CONTINUE>
```

```
:K  
MOUNT DSK5:
```

```
DSKCPY
```

```
1
```

```
5
```

```
MOUNT DSK5:/U
```

```
:<REMOVE BACK-UP CARTRIDGE FOR DSK1: AND  
INSERT NEXT BACK-UP CARTRIDGE OR NORMAL  
SCRATCH PACK INTO DRIVE>
```

```
:<DEPRESS CARRIAGE RETURN TO CONTINUE>
```

```
:K MOUNT DSK5:
```

```
:<BACK-UP IS COMPLETE>
```

1. Any material between { and } will appear on the screen as a message to the operator.

It is important that the fixed media be write-protected before performing a DSKCPY.

## PHOENIX CONTINUED

2. :K denotes "Keyboard Entry" and insures that the command file will do nothing until a carriage return is entered. Once this is done, the command file will then continue implementing commands.
3. The MOUNT DSK5:/U tells the system to unmount DSK5:.
4. It is necessary to MOUNT DSK5: each time a new cartridge is placed on the system.
5. The DSKCPY command will create a back-up disk by making a literal image of one disk onto another. For more information concerning this command, refer to the AMOS Systems Commands Reference Manual, DWM-00100-49.

The 1 is the disk you want to copy from; the 5 is the disk you wish to copy to. If you were backing up

DSK2:, then your command file would have a 2 in place of the 1.

It is important when entering DSKCPY, 1 and 5 in your command file that you depress the carriage return immediately after the entry and leave no blank spaces. This will insure that the commands work correctly.

It will take approximately 38 minutes to perform a DSKCPY if your system contains an AM-100/T CPU; it will take approximately 45 minutes for a system containing an AM-100 CPU.

To run the back-up command file, simply enter -BKUP1. This will automatically start your back-up procedure.

## FACTORS

The following item appeared in the October issue of the ISSG Newsletter, and is reprinted with the permission of ISSG.

### Factors Which Increase the Monitor Size

Many times when adding new users to the system, you discover you have increased the size of the monitor to the extent that it goes over the current boundary limit. This can be especially true if you are attempting to keep it below the 16K limit. Once the monitor goes over this boundary, it is necessary to reconstruct such statements in the SYSTEM.INI as the TRMDEF Statement to reduce the monitor to the size you need. It is important to know which factors will increase the monitor size and by how much especially if you wish to add large programs to system memory.

The following information has been compiled from studies done by our Training Department using the 4.5 Software Release. It contains a summary of each line in the SYSTEM.INI before the SYSTEM command and the effect it has on monitor size.

#### JOBS

The JOBS command line will cause an increase of 300

bytes per job name listed on this line. The number of JOB command lines has no effect on the monitor size.

#### TRMDEF

The TRMDEF command line consists of different elements which will cause various size increases on the monitor. The buffer size has the greatest effect on the TRMDEF command line. Buffer size is listed as the last three elements of this line and consist of IN WIDTH, IN BUFFER, and OUT BUFFER. The decimal number of the buffer size is equal to the number of bytes in monitor increase for the IN WIDTH and IN BUFFER. The OUT BUFFER (last number in the command line) is equal to two bytes in size increase. For example:

```
TRMDEF TERM1,AM300=1:16,SOROC,100,100,80
```

The total monitor increase caused by the buffer size is 360 bytes.

The TRMDEF command line will "call in" the necessary interface driver. In this example, an AM300.IDV driver is

# AMUS MEMBER • DEALER DIRECTORY NOW AVAILABLE

If you would like your name to appear in the AMUS Member Directory, please fill out this form and return to Sharon Greene, AMUS, 1911 11th St., Suite 210, Boulder, CO 80302. Regardless of whether you want your name to appear, please be sure and fill out the information about your dealer and send it to Sharon.

- Yes, I want my name to appear.
- No, I do not want my name to appear.
- Enclosed is my check or money order for \$ \_\_\_\_\_ for \_\_\_\_\_ copies of the **AMUS Directory** at \$10.00 each plus .50 for postage and handling. (Please allow 2 weeks delivery.)

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\_\_\_\_\_

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Additional Comments \_\_\_\_\_

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## WHO IS YOUR DEALER?

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# SuperVUE

Micro Concepts 731 East Harmony • Fullerton, California 92631 • 714-738-0746

## SuperVUE

Are you using your Alpha Micro for word processing? Would you like to? If you are, then you're probably doing the old two step - edit a document with a bunch of mysterious format codes, and then print it to see what it **really** looks like. That's OK if you're a programmer. But if you just want to proceed from concept to perfect document with a minimum of time, money, and effort, then you need the one step word processor, SuperVUE.

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## FACTORS CONTINUED

used. This driver resides in PPN 1,6 as do all drivers used during the boot procedure, and the AM300.IDV size is 342 bytes. The appropriate terminal driver will also be brought in, the SOROC.TDV which has a size of 300 bytes. Sixteen bytes must also be added to the size of each driver regardless of the original size of that driver.

The basic TRMDEF command line requires 46 bytes. This must be added to the total of each individual element of the line.

In-Width Size	100 bytes
In-Buffer Size	100 bytes
Out-Buffer Size x 2	160 bytes
Interface Driver Size +16	358 bytes
Terminal Driver Size +16	316 bytes
Basic TRMDEF Command Line	46 bytes
Total	1080 bytes

If additional TRMDEF command lines require the same interface and/or terminal drivers, do not add these driver sizes or the 16 bytes per driver to the total. The "standard" pseudo TRMDEF line will have a total of 46 bytes plus the buffer size.

Typically, a PSEUDO-NULL TRMDEF is used to initialize jobs such as the Spooler. These jobs do not require that a terminal be attached after they are initialized; the terminal can be attached to another job after the WAIT SPOOL. The PSEUDO-NULL TRMDEF can be eliminated if an actual terminal is used and then attached to another job later.

If the NEWTRM program is used to generate a driver, two extra bytes will be needed each time that driver is referenced in a TRMDEF. For example, if there are six TRMDEF lines and the newly generated driver is referenced in each line, 12 additional bytes must be added. When the NEWTRM program is used to write your own driver, the number of required bytes will be specified by the programmer. Be sure to make a note of this number.

### MEMDEF

Each MEMDEF command takes 12 bytes including the first argument plus 4 bytes for each additional argument following the "/". The first MEMDEF will also take an additional 6 bytes. Refer to the *AMOS Monitor Calls manual*, DWM-00100-42, Section 3.4.1 for a more detailed discussion.

### MEMERR

The MEMERR command line has no effect on monitor size.

### SYSTEMEM

The SYSTEMEM command will add 10 bytes for each

SYSTEMEM command line used. The argument has no effect on monitor size.

### DEVTBL

The DEVTBL command line will add 16 bytes to the monitor for each device listed in the DEVTBL command. This includes 16 bytes for each logical unit listed as well as TRM, MEM and RES. If the device has an alternate track table, additional space is required. For the Phoenix disk drive, 60 additional bytes are needed for each logical unit.

### BITMAP

The BITMAP command line may be used with or without the /S option. If no /S option is used, the basic BITMAP command will use 34 bytes plus the size of the bitmap. Because the BITMAP size is stated in words, the word size must be multiplied by 2 for the correct size in bytes.

If the /S option is used, the BITMAP Statement will increase the monitor by 10 bytes for each BITMAP command line used. The size of the bitmap will be used by SYSTEMEM and will not increase the monitor. For example:

BITMAP DSK,606,0,1	34+(606 x 2)=1246 bytes
BITMAP SMD,1818,0/S	10+(1818 x 2)=3646 bytes*
BITMAP SMD,1818,1/S	10+(1818 x 2)=3646 bytes*
TOTAL	8538 bytes

\*The Monitor will increase by 10 bytes if the /S option is used, and the 3646 x 2 bytes will be used in bank-switched memory, not the monitor.

### QUEUE

The QUEUE command will add 16 bytes for each QUEUE block requested in the command line.

### CLKFRQ

The CLKFRQ command line has no effect on monitor size.

### SYSTEM Load Command

When the SYSTEM command is used to load programs into system memory, each SYSTEM command line will increase monitor size by 12 bytes for each line plus the size of the particular program that is loaded.

For example:

The VUE PRG file size is 14332 bytes  
The DDA.DVR file size is 848 bytes

SYSTEM VUE.PRG[1,4] 12+14332=14344 bytes  
SYSTEM DDA.DVR[1,6] 12+848=860 bytes

The programs that are loaded into system memory *must* be reentrant. You may consult the *Systems Command Reference Manual*, DWM-00100-49, to check to see if a program is reentrant. The LOG program is not reentrant.

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### IBM DATA EXCHANGE SOFTWARE

With this package you can dump data files or program files to/from your Alpha Micro formatted disks (either hard disks or floppies) from/to an IBM 3740 format floppy disk.

ASCII from/to EBCDIC translations are automatically performed. Any length record from 1 to 128 characters can be transferred.

Included are seven assembly language subroutines called from a user AlphaBasic program. These subroutines allow you to open an IBM floppy for input or output and read and write data. These subroutines are used with a basic program which controls the Alpha Micro file structure and any record reformatting.

This system is easy to use with over 30 installations. Some customization of the basic programs provided is need to fit your application.

All orders must be prepaid or COD. To order or request a the documentation package write or call today. Make your checks payable to North America Title Company.

**!!!!!! ATTENTION REMOTE ALPHA MICRO USERS - AUTO-BOOT IS HERE !!!!!!!**

AUTO-BOOT is designed from any modem or remote terminal connected to the Alpha Micro with a RS-232 serial connection. AUTO-BOOT listens for the break key from the terminal and will reset the system after giving a 1 minute audible alarm. We have tested AUTO-BOOT with Vadec modems and MI\*\*2 modems. It is currently in use with several other modems.

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### COMPLETE DEC VT100 TERMINAL DRIVER AVAILABLE

The new DEC VT100 family of terminals is now supported on the Alpha Micro. We have available an excellent driver which provides you easy access to all of the terminal attributes of this terminal. This drive will also work with any DEC VT100 look alikes such as the Visual 100 terminal.

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These indispensable programs are only \$35 with complete documentation. When ordering please specify AMS or STD format floppy disk or add \$125 for Hawk disk.

Sincerely,

Graham R. Evans,  
President

# eVALUATIONS

Jack Waller was the guest speaker at the September SC/AMUS meeting, and provided evaluations on the two FORTRANs available on the Alpha Micro. The two FORTRANs are ABSOFT FORTRAN built by Peter Jacobson, and ALPHA FORTRAN created by Bob Salita at Softworks. The following comparison chart comes from the September SCAMUS newsletter.

	ABSOFT FORTRAN	ALPHA FORTRAN
Available from	SOMA	Developer, Dravac, etc.
Runtime package	Required	Not required
Library availability	No	Yes
Graphics	No	Yes
Omni-lock board	Required for compiling and execution	Required for compiling only
Speed		About 15% faster according to Jack Waller
Can use Basic XCall type subroutines	No	Yes (for some Basic Run package may be needed)
Documentation	Available but has been found inaccurate at spots	Available, very good error message description. Manual not a tutorial

All in all, Jack felt that the Alpha Fortran is a superior package although he stated that the Absoft package is certainly an acceptable product and may be somewhat more similar to "standard" Fortran. When comparing Fortran with Pascal and Basic he used various tests with results such as the following:

30,000 Iterations of a FOR - NEXT loop  
 FORTRAN    BASIC    PASCAL  
 6 secs    36 secs    35 secs

# LETTERS

*I read and appreciated the article on Phoenix head crashes and the sensitivity of these drives. I recently took a trip to one of our remote users to install new software and generally review their system. I brought 2 cartridges into the same room as the computer. The first cartridge I put into the drive and left it (over night) to purge. I started the drive the next morning and proceeded to work as normal. No problems so far. When I finished with that cartridge, I put the second cartridge in the drive to purge and went to breakfast, etc., for one and a half to two hours. When I returned and started up the drive, kaboom! I assure you, as I am sure others could as well, that I was way beyond being reasonably careful. Yet, despite this, a head crash still occurred and I see no legitimate justification for it.*

*Another time on the local system I put a cartridge in and left it to purge 20 minutes or so and started the drive and the drive locked! I powered down the drive, removed the cartridge, looked at it, rotated it and put it back in the drive and cycled the drive up again. This time it worked fine.*

*This has lead me to some rather extreme views on the Phoenix.*

- 1. The mounting of the platter in the plastic is not perfect and can stick when putting a cartridge in the drive. This is not a problem and seems to be safe and will come up to speed ok; if it can't, it locks up.*

## THE SECOND ANNUAL AMUS CONVENTION

- WHERE?** The Deauville Hotel, Miami Beach, Florida
- WHEN?** January 24 through January 29, 1982
- WHAT?** Seminars, conferences, demonstrations, and meetings for businessmen, systems analysts and programmers based on the Alpha Micro System.

The Second Annual AMUS Convention is being held to bring end users of Alpha Micro systems together with the various software firms that provide software for the Alpha Micro and representatives of Alpha Micro. We have scheduled five days of meetings and software demonstrations where the customers can see the products first hand. This is the time and place to ask questions and get the answers you need. What can a word processor do for me? Is VUE and TXTFMT enough? What is a data base? Do I need a data base system? What data base system should I purchase? Has anyone documented the fixes to Alpha Accounting? What are other users doing with their system? How can I save money with my system? How can I use my system to make money? What steps should I take to prevent unauthorized access to my data? How can I possibly evaluate software systems? These questions and similar ones will be addressed during the AMUS convention.

Technical sessions will be held that are oriented toward programmers and system analysts.

Exhibitors will demonstrate first hand the various systems you have only been able to read about. Purchasing decisions can be made on a much more informed basis.

We are very proud that the first convention was so successful. This, the second convention, promises to be even better. There will of course be more exhibitors and attendees. The seminars and classes will be kept on a closer schedule. Meetings for special interest groups will be included in the master schedule.

For those with energy left over there is the ocean, pool, tennis, golf, etc.

**HOW MUCH?** *Registration \$180.00*—includes all seminars and classes for 6 days. *Additional registrants*—\$140.00 each additional registrant per company. *Exhibitor fee*—\$350.00. *Banquet*—\$30.00. *Hotel Convention Rates*—first come, first-served basis. \$60.00 per day per room. Children under 12 are free when accompanied by parents and using same room. Rooms will be reserved for a deposit of \$60.00. *Note:* We are able to hold down the room rates to last year's amount.

**WHAT DO I HAVE TO DO?** Make out two checks. Make the first check payable to: William L. Miller & Associates for Registration and optionally the banquet. Make the second check payable to the Deauville Hotel for the amount of \$60.00 per room you wish to reserve. Complete the form below. Send both checks and completed form to:

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8380 S.W. 151 Street  
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Do not send reservation requests to the hotel as this will delay matters. Reservation requests must be accompanied by the reservation deposit. Due to the limited number of rooms available, registration is limited to AMUS members. Sorry, travel agency commissions will not apply due to the special group rate. Reservation confirmation will be sent by mail. Make your reservations early to avoid disappointment.

Please call (305) 233-1216 for further information.

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# BIZCOMP INTELLIGENT MODEMS

incorporate an integral auto-dialer and a one number memory for easy redialing. All models are FCC registered for direct connect to the swithed telephone network.

## \*\* SPECIFICATION SUMMARY \*\*

MODEL	SPEED	USE	AUTO ANS	DIALING	PRICE
1012	300/1200	CPU	YES	ROTARY/TOUCH TONE	\$895.00
1022	110/300	CPU	YES	ROTARY/TOUCH TONE	\$895.00
1030	110/300	TERM	YES	ROTARY	\$395.00
1031	110/300	TERM	YES	ROTARY/TOUCH TONE	\$496.00
1080	110/300	CPU	NO	ROTARY	\$119.00
1084	110/300	CPU	YES	ROTARY	\$295.00

The BIZCOMP "computer" modems are "intelligent" because you can send ASCII commands (print chr\$( )) to the modem to make it perform various functions, such as number dialing, speed change, remote CPU reset etc.

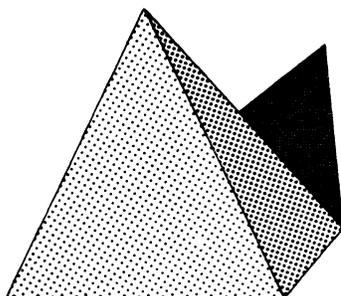
The 1012, 1022, and 1084 are recommended for use with Computers. They connect to an EIA port and each has a variety of features that are reflected in their price. The 1022, for instance, can be configured to remotely reset your computer via an ASCII command. The 1012 is the latest design in 212 type modems and incorporates several new "intelligent" features.

The 1030/1031 are recommended for use with remote terminals-dialing into a computer.

The 1080 is intended for the Personal Computer market. It connects to a TRS-80, Apple etc. via special cables. It can be uses for originate only service with EIA ports via a special cable.

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# GEMINI GROUP

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## LETTERS CONTINUED

- The purging method normally available to the end user is next to worthless! With time and patience anyone can have themselves a head crash. This is at least in part due to the fact that the normal purge method does not allow the platter to rotate, therefore only the part of the platter nearest to the vacuum is thoroughly drafted. The majority of the drive is drafted thoroughly only while the drive is cycling up. The "Dynamic Purge" is the only good assurance a user has that the entire disk surface is thoroughly cleaned.*

*The obvious question is "How can I perform a Dynamic Purge." My answer is not "lift up the disk cover and disconnect the . . ." My answer is "Have your service people install a 'Purge Switch' on the front of the phoenix cabinet." I personally think that's a great answer! If your local service center is not familiar with this you can have them contact:*

*NorthWest Support  
3486 S.W. Cedar Hills Blvd.  
Beaverton, Oregon 97005  
Phone: 1-503-644-5080*

*I am sure they will be glad to explain the procedure.*

*Hope this is received as joyous news to all those Phoenix users out there who are intuitive enough to know their good karma is about to catch up with them again.*

*Sincerely,  
Paul Gayeski*

*We have had our AM100 Phoenix dual drive Alpha Micro system with 8 Lear Siegler terminals and three printers for nearly two years. For the first year and a half we could not operate with the second drive. Our dealer went out of business shortly after installing our system so we had no help there. (We still are without a dealer. Is it possible to obtain a dealer when you already have your system, and some problems to go with it?)*

*Alpha Micro sent us a new EPROM which has corrected 90% of the problems. Previously we could not copy between drives and get the same hash totals, and whenever someone was working off the second drive, error's would occur in other running programs on the first drive, (ie illegal record number, ISAM #35 error, etc.). About 50% of the time the message seemed to be erroneous and the operator could just start over, the other 50% resulted in damaged files. Sometimes a spool file printing would get integrated into a file being VUE'ed. (Different disks, different ppn's.)*

*We can now copy between drives and are no longer plagued by the above problems, but some problems still exist, and they seem to be related to working with large files (ie 12,000 records or more). When simply reading records, with an ISAM #2, finding on another file with an ISAM #1 and updating the second file by increasing a numeric (F) field by 1, and writing that second file, the program would abort within fifteen minutes to two hours with a buss error, (various PC locations), and garbage would get written into the record. Sometimes it would lock up the entire system. (Although various PC locations, PC 076036 appeared more than once, and when the system locked the PC location was 17 something, and that time the error message printed on two other terminals as well.)*

*After about six attempts, I copied the files and programs to the first drive where the programs completed from start to finish with no problems.*

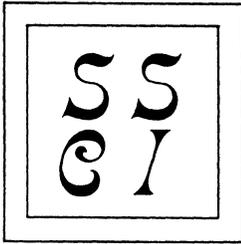
*If anyone has any suggestions as to what sort of problems could be causing this, I would greatly appreciate hearing about them.*

*Another frequent problem we have, and it doesn't seem related to the second drive, is receiving an "illegal record number" message when trying to add a record via an ISAM #5, and the file becomes unuseable for anymore adding of records. This happens on either drive under a variety of working conditions. It has happened when I've been running only one job on the first drive (but I always have the second drive powered up). Dumping the file via ISMDMP shows a ridiculously large number in the pointer to next free record field. This garbage number is frequently the same 056535056535 octal.*

*Is there a way to change this invalid next free record number for one who knows very little about assembly language programming? I usually just do an ISAM #6 code for record numbers I know are free to put good numbers in ahead of the bad ones but this is a nuisance.*

*A problem that occurs about once a month is an abort with "illegal record number" where the program is just reading an ISAM file. No damage seems to have been done and the program usually works okay if simply started over. (It is annoying however as sometimes a 12 hour job has to be started from the beginning.)*

*My documentation on ISAM ("ISAM SYSTEM USER'S GUIDE" DWM-00100-06 REVISION A01), is not as detailed as I desire. Is there a more detailed document on ISAM files (for the Alpha Micro) available, and if so what is the title or document number? I am especially interested in understanding what the numbers represent when dumping via ISMDMP. First, there is the*



# Software Systems Consulting Incorporated

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## MULTI-USER FILE-ACCESS METHOD

When we introduced our "Multi-User File-Access Routines" (MUFAR) program product back in June of 1978, we had the feeling that Alpha Micro was an excellent Multi-User computer. What it lacked, though, was a file-access method that exploited this Multi-User capability on a file that was large enough to be meaningful. (This was at a time when floppy disks were all that was available on an Alpha Micro computer.)

As we worked on this problem, we became more aware of the "price" that you actually pay for the use of ISAM with Multi-User record interlocking. What we discovered was that we were spending just about 14,000 bytes to support ISAM.PRG, its I/O areas, basic error checking, and record interlocking for Multi-User access. We also saw another 4,000 to 12,000 bytes disappear in support of a file that was too big to fit on one disk(ette).

When "overhead" consumes 14,000 to 26,000 bytes of a normal user area of 32,512 bytes, you are left with little room to fit your application program into. We solved this problem by taking all of this overhead coding out of each application program and moving it into a separate user area in its own bank of memory. The price we paid was less than 1,000 bytes of SYSTEM memory -- in return we were given another 14,000 to 26,000 bytes of room in each and every program that accessed the file. Quite a good trade, we felt.

The harder we looked at this solution, the better the bargain became. For example, with this system:

1. The data file can be protected under its own private [p,pn] since no application program ever accesses it directly.
2. Multi-User record interlocking is built in, since the file is accessed by one and only one program in the system.
3. Substantial amounts of execution time can be saved simply because the data file is not actually opened or closed by any user program.
4. Large files (multiple disks) are available to the user who needs them without penalty to the user who doesn't need them (yet). File size and location are independent of all user programs.

This software package is available today and at a very reasonable price. The standard MUFAR system, including all source code and extensive documentation, is \$695. The Multi-Extent Option for large files is an additional \$95. Our terms are either prepaid (we pay the freight) or COD (you pay the freight). Write or call for more information.

## LETTERS CONTINUED

block number and within it each key, but what are the numbers to the right of the key on the same line (that point to the data record?). They obviously are not the record number.

In some ISAM files I have resorted to not even using the freelist but just keeping track of the last record used and adding one for the next, but this doesn't free up deleted records for use easily. Is there possibly a bug in ISAM in connection with this free list concept?

One other question, should ISAM files be locked before opening and closing if others are using the files simultaneously? They are opened INDEXED, (NOT INDEXED'EXCLUSIVE), and I am locking them just before the read and unlocking after the write. Could a

problem occur if two users try to open the same file at the same time?

I enjoy reading comments from other users in the newsletter. They are always the first thing I read, and I wish there were more of them. Most of the articles are very helpful to me as there is so much about this system that I have yet to learn, and even in the cases where it does not solve my problem, it is an aid to realize others have this problem too. Keep up the good work, your efforts are greatly appreciated.

Shirley Chirico  
English Greenhouse Products, Corp.  
Data Processing Manager  
11th & Linden Streets  
Camden, New Jersey 08102

## HINT

Dalton Williams with Micro Business Systems has this tip for those of you who have forgotten to mount a disk after swapping packs. Write up a command file called CNGPAK.COM that allows you to change disk packs. For a Hawk disk system it might look like the following:

```
:R  
XY = 0  
:<
```

### CHANGE DISK PACKS

Important! Be sure that everyone using the system has saved their files, and is not planning to use the system until you have finished inserting the new disk!

Hit RETURN when you are ready to change packs.

```
>  
:K  
MOUNT DSK1:/U  
:<
```

To change disk packs:

1. Press the Start/Stop button.
2. Wait for the Start/Stop light to go out.
3. Remove the old pack.
4. Insert the new pack.
5. Press the Start/Stop button.
6. Wait for the READY light to come on.
7. Hit RETURN when the READY light has come on.

```
>  
:K  
MOUNT DSK1:
```

This should help avoid the problem of writing over bitmaps because of forgetfulness.

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...hours...days...months...quarters...fiscal periods  
...years...other

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...annual income...annual expenses...forfeited amounts

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Calculates Ending Balances

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-----  
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# STRUCTURED PROGRAMMING PART IV

by Steve Elliott

In the series of articles, I have been outlining my approach to programming, and giving examples of how I go through the process of creating a program. I don't believe that I am a terrific programmer, but I do think that good organization helps mediocre programmers like myself to do a better job. I would appreciate comments from other programmers who have better ideas about how to tackle certain problems and are willing to share their ideas with other AMUS members. It just happens that at this moment I'm the only one brave enough to bare my soul to the programming world. I'd like to have some company, so if you have ideas about how programming can be made more consistent, can make use of your prior programming efforts, and can be easily tested and modified in the future, I'm sure that other AMUS members would love to see your thoughts in print.

One eagle-eyed programmer actually read the first article in the July newsletter and noticed that all of my examples were bogus. True enough. It seems that the article was printed out on a Diablo printer, and the print wheel that was on the machine at the time had no ampersand on it, so all of the examples of how to extend lines will not work. If you want to update your copy of the July Newsletter, you should go through and add a & at the end of lines on most of the examples. The important thing to understand is that an ampersand allows multiple commands within a line. I think of a line in the COBOL sense where the command continues until a period. In AlphaBASIC, the line continues as long as there are ampersands. An IF THEN ELSE statement that spans several lines would look like the following example. Note the location of the colons and the ampersands.

```
If a condition exists &  
  THEN &  
    Do this :&  
    And also do this &  
  ELSE &  
    Do this process :&  
    And this process
```

The processes that are named are labels, and I usually use the CALL command to fetch the subroutine in question.

Meanwhile, back to our main program, already in progress. We've been trying to create a program that will show us a full listing of BASIC source code that uses the ++INCLUDE feature. The completed program is listed here for your inspection. You will notice some differences between the completed program and the design previously published.

During the design phase I didn't know how to read the PPN that the program was running under from within BASIC. If you will refer to the top-down design in last month's article, you will see that at the top there were two blocks labeled ENTER PPN, and VERIFY PPN FORMAT. Happily, Jim Rea (Mr. SuperVUE) visited the AMUS offices after the Alpha Micro Dealer's meeting in Vail last week, and he showed me how to get the information I needed. The two blocks have been replaced by one block which fetches the PPN from the system so that we can follow the same search path that COMPIL would in it's search for INCLUDED material. This uses WORD to fetch the PPN from the system, and AND to mask out the Project and the Programmer numbers. Since it's built as a subroutine, now you can copy off that subroutine, and you too can find PPN numbers if you ever need them with a simple ++INCLUDE GETPPN. (Assuming that you create a file called GETPPN that has the subroutine ready to go, and that you place MAP statements in your program for P and PN.)

# STRUCTURED PROGRAMMING<sub>CONTINUED</sub>

I've discovered a couple of things about INCLUDE that might be of interest: First, unlike every other command in AlphaBASIC that expects a filespec, ++INCLUDE does NOT expect quotation marks around the filespec. That kept me going for about 1/2 an hour with %CANNOT FIND filespec.SBI error messages, and second, COMPIL will report errors that it finds within INCLUDED files, but sometimes it's hard to tell if the error is in your source program code or an INCLUDED code.

I haven't experimented fully with it, but COMPIL now has a option "/M" which will list all unmapped variables for you. This is VERY handy if you are INCLUDING files and you want to be sure that every variable that you are bringing into the program has been MAPPED. The /M option WILL find variables in INCLUDED code that are unmapped, even if you INCLUDE all of the MAP statements. My compliments to the folks at Alpha Micro in the compiler department!

When I was finishing up FULIST.BAS I was tempted to just do some ++INCLUDE statements and then run FULIST on itself to get the completed version, but I thought that that would confuse the issue greatly, so you get a complete version of the program with no tricks published here.

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CHIME Kill input buffer, wait for and return a single key stroke. Alternately check and return immediately - returns key if depressed.  
DEVICX Returns a list of file oriented DEVICES on the system.  
DIREX Given an ".EXT", returns a list of what is on disk in an account.  
GURU What is my terminal, job, device, next terminal and PPN  
HOLESX Return LARGEST CONTIGUOUS and TOTAL free blocks on a device.  
NOISY Turn on echo mode/kill input buffer.  
QUIET Corrected version of NOECHO.  
PPNX Return a list of the PPN's on disk.  
SWITCH Switch my job to another terminal (similar to ATTACH).  
PROTEX Is a device protected?

## -----PROGRAMS -----

PROTEC Is the device protected?  
PAGE Wildcard file display/print program (NEC or DIABLO) PAGE fills the gap between VUE, TXTFMT & PRINT  
PPN2 Sequentially list each PPN and display first line of ZZZZZZ.ZZZ file (this comments each account).  
HOLES Shows length in blocks of bitmap holes.  
ATT Attention getter at terminal. Similar to DING.  
BCOUNT Keeps track of the number of system boots.  
C Clear screen and initialize CRT.  
DATES Comprehensive Date handling system.  
DATEX2.SBR - Basic interface to DATES.  
DSKDAT.PRG - Get or store system date on disk, update system date.  
Useful when booting.

## -----BASIC PROGRAMS -----

WORD Word Processing - Data Base of customers with selection by any field. Letter library function. Merge customers and letter or labels. VERY comprehensive.  
LIBRARY Automatic sorted list of files on disk, in an account. Types and prints the first non-blank line of each file as a comment line. No more confusion about what a file is.

## -----APPLICATION PROGRAMS -----

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### UTILITIES

DATATR: data transformations  
FIX: repair smashed file  
INDATA: input raw data  
INMAT: input matrix  
LIST: list raw data or matrix  
MOVE: copy a file  
QUERY: query a file  
REMOVE: erase a file  
SORT: sort raw data file  
TRANS: transpose raw data

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### MODIFICATIONS

ADDC: add cases to raw data  
ADDV: add vars to raw data  
ADDVM: add vars to matrix  
ALTER: alter raw data  
ALTERM: alter matrix  
DELC: delete raw data cases  
DELV: delete raw data vars  
DELMV: delete matrix vars  
LABELS: change var labels  
MERGEC: merge files by cases  
MERGEV: merge files by vars  
REORD: reorder raw data vars  
REORDM: reorder matrix vars  
SELECT: logically select cases  
SPLITC: split file by cases  
SPLITV: split file by vars

### PARAMETRIC

ANOVA: general analysis of variance  
CANON: canonical correlations  
CORR: Pearson correlations  
DESC: descriptive statistics  
FACT: factor analysis  
ITEM: item analysis  
MDA: multiple discriminant and manova  
MULTR: multiple regression  
PBP: Pearson-biserial-phi correlations  
TIMEA: time series correlograms  
TIMEB: analyze arima(p,d,q) models  
TTEST: t-tests  
ZT: z or T conversion  
IWAY: one-way anova

### NONPARAMETRIC

CATEG: categorize vars  
FANOVA: Friedman anova  
KENDW: Kendall's coefficient  
KS: Kolmogorov-Smirnov  
KW: Kruskal-Wallis  
MWU: Mann-Whitney U tests  
PHI: phi coefficients  
RANK: assign ranks  
RHO: Spearman rho  
RUNS: Wald-Wolfowitz  
TABLE: 2 to 5 way cross-tabulations  
UNRANK: change ranks to raw

### GRAPHICS

PLOT: printer plots  
SCAT: scattergrams

\*MPSS is a trademark of Munger, Inc.

*Computer Applications in the Behavioral Sciences*

# STRUCTURED PROGRAMMING<sub>CONTINUED</sub>

---

Now that we have a complete program we can relax—right?—wrong. Before a program can be considered in the can, and somebody says it's Miller time, we have to create all of the documentation. I think of documentation as having three major sections:

**Programmer documentation:** The purpose and scope of the program should be outlined, and a copy of the top-down, structured design should be placed here. Detail specific information about what files are accessed, any file locking that might affect other files or users, and information about how pointers and matrices are used, and any other information that would help another programmer later. If reports are created, note how they get to the printer (through XCALL SPOOL, or by being directly sent to the printer, etc.). Our program doesn't maintain files so some of this isn't necessary in this example.

**System Operator information:** This will be the instructions for how the program is installed in the system; what PPNs it should be placed in and any initialization that should be performed to create contiguous files, or link the programs into a menu-driven selection system. There should also be a list of any specified file and program names so that the system operator can check to be sure that there are no conflicts with program names already on the system. Also, there should be information about what files are data files, so that they can be specifically backed up. There should also be detailed instructions for how to expand files when they become full, and whether the files need to be purged from time to time. (Hopefully, you've created self-cleaning, stay-pressed files that take care of themselves.) If reports are generated and spooled out, you should note how they can be identified for purging prior to system backups. I like to give all my reports the extension .RPT so that you can do an ERASE \* .RPT and free up disk space once the reports are printed out. In our example the result file has the extension .FUL so that the same operation will apply.

**User Documentation:** This is all of the instructions about how to run the program. It should have some examples of screens, if there are menus, along with descriptions of what happens with each selection on the menu. There should also be a list of error messages that might occur, and instructions about how to correct the problems. In the program we have been using, the instructions are built into the program as a HELP file that is called in and displayed. This is very handy since you only have to create the HELP file, and it can be accessed either as a HELP file, or from within the program as it is running. If there are coding schemes that the users must use, the tables should be included here, along with any other specific formats that the program expects (does the user have to enter leading zeroes in dates, for instance?).

If the program is complex, uses several files, and needs to be operated by trained users, you should include sample files along with the system so that training can be held using test data without fear of destroying valuable information. Sample files will also help the system operator to understand the relationships of files within the system and see the entire system operate as a whole.

When you have completed the documentation, you should test it. Give the programs to someone on a disk as you would ship it out to a customer along with the documentation. They should be able to read your documentation, install the programs, and make them run without your aid. Have your test team write down notes about anything that they found ambiguous, or information that they had trouble finding in your documentation. Since TXTFMT can produce an index with little effort, you should make use of this to make your documentation a better reference manual.

---

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Write to us or call Mike for further information.

# STRUCTURED PROGRAMMING<sub>CONTINUED</sub>

If anyone is interested, I wrote a program that allows you to list all of the items that you want to be in the index, and then goes through a text file and does the /IX word thing. It takes forever because it's written in BASIC and does an INSTR on each line for each word in the list, but given a choice between me and the computer doing work, the computer gets the job every time.

We don't have space in this newsletter for the complete documentation for FULIST.BAS, but if you would like it you can either copy it off of the AMUS system, or you can send AMUS \$3.00 for copying and postage and we will send you a reprint of the last two articles, the complete listing for the program, the HELP file, and the documentation for the program.

Next month we will begin exploring the mysterious world of files. I would like to hear from programmers who have built their own indexing and linking structures. If you have good ways of fetching things from files, linking multiple files, handling XLOCK and FLOCK, or handling deleted records within a random file, we would love to have you send us an article, or information that could be incorporated within an article.

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# STRUCTURED PROGRAMMING CONTINUED

```

! FULIST.BAS FULL LISTING of BASIC programs that use the #INCLUDE
! feature. See the instructions for further information.
! There is also a HELP file in DSK0:HLPC7:11
! Steve Elliott 2/9/81

MAP1 SOURCE'FULL,S,10      ! only works on files within the user's PFN
MAP1 DESTINATION'FULL,S,10 ! Always has the extension '.FUL'
MAP1 INCLUDE'D'FILE,S,24   ! will take a full filename: DSK0:ccc:ccc:PFN
MAP1 ERROR'FILE,S,10,"ERRORS.FUL" ! Temporary file for lost INCLUDEs
MAP1 FILE'NAME,S,24        ! holding bucket for files while error checking
MAP1 EXTENSION,S,10        ! the extension for the PFNs on included files

MAP1 ERROR'MESSAGES,S,80   ! Get locked onto the end of the destination file
MAP1 TEXT'LINE,S,150       ! lots of room - you never can tell...
MAP1 TEMP'LINE,S,150       ! holds upper case TEXT'LINE for searches
MAP1 INCLUDE'D'TEXT'LINE,S,150
MAP1 OPEN'FILE(4),R,Y,I    ! keeps track of open files

MAP1 CHARACTER,S,1         ! used for the HELP display
MAP1 LINE'COUNT,F         ! also for the HELP display
MAP1 PFN,F                 ! number returned by the system for PFN
MAP1 P,S,10                ! project number
MAP1 PN,S,10               ! programmer number
MAP1 WORK,F                ! work variable for conversion to octal for PFN
MAP1 OCTAL,S,10            ! octal result for PFNs
MAP1 VALID'DIGIT,S,10,"0123456789" ! Play toy for octal conversion
MAP1 DOOMER,S,1            ! decides whether or not to destroy existing files
MAP1 X,F                   ! used by INSTR to see if a line has an INCLUDE
MAP1 Y,F                   ! used by INSTR to find a . in a file name
MAP1 Z,F                   ! used by LOOKUP to find files
MAP1 DUMMY,S,1             ! just that - used by FAUSE & other subroutines

MAP1 INCLUDE'SEARCHES,F   ! counter for attempted searches
MAP1 SUCCESSFUL'SEARCHES,F ! hopefully always same as INCLUDE'SEARCHES
MAP1 SOURCE'COUNT,F      ! counter for number of source file lines
MAP1 INCLUDE'COUNT,F     ! counter for number of include file lines

CALL GET'PFN

MENU:
! There's a weirdness here! - if the user chooses to do the full
! list thing, it automatically drops straight through to QUIT.
! This program should END before being run again so that
! variables get cleaned up & reset to nulls or zero.
? TAB(-1,0)
? TAB(2,30); "FULIST.BAS"
? TAB(4,10); "Full Listing for BASIC programs using the INCLUDE statement"
? TAB(10,10); "Would you like:"
? TAB(12,15); "1. Instructions"
? TAB(13,15); "2. A full listing of a BASIC program sent to a file"
? TAB(14,15); "3. To quit."
? TAB(16,15);
INPUT "Enter your choice -- ", CHOICE
ON CHOICE CALL INSTRUCTIONS, PROCESS, QUIT
GOTO MENU

INSTRUCTIONS:
? TAB(-1,0)
CHARACTER = ""
OPEN #99, "DSK0:FULIST.HLPC7,11", INPUT
LINE'COUNT = 1
CALL DISPLAY'LOOP
TEXT'LINE = ""
RETURN

PROCESS:
? TAB(-1,0); TAB(2,20);
? "FULIST.BAS - Full Listing of Source files"
INCLUDE'SEARCHES = 0 : SUCCESSFUL'SEARCHES = 0
SOURCE'COUNT = 0 : INCLUDE'COUNT = 0
CALL DETERMINE'SOURCE'FILE'NAME
CALL LOOKUP'DESTINATION'FILE
? TAB(10,1); "Processing source file"
OPEN #1, SOURCE'FILE, INPUT : OPEN'FILE(1) = 1
OPEN #2, DESTINATION'FILE, OUTPUT : OPEN'FILE(2) = 1
OPEN #3, ERROR'FILE, OUTPUT : OPEN'FILE(3) = 1
CALL READ'THROUGH'THE'SOURCE'FILE

QUIT:
? TAB(10,1); TAB(-1,10)
IF LEN(DESTINATION'FILE) = 0 &
THEN &
? TAB(23,1); "THE END" :&
FND
? "Closing files and tidying up - one moment please"
IF OPEN'FILE(1) = 1 &
THEN &
CLOSE #1 : OPEN'FILE(1) = 0
IF OPEN'FILE(3) = 1 &
THEN &
CLOSE #3 : OPEN'FILE(3) = 0 :&
CALL WRITE'ERROR'MESSAGES'TO'DESTINATION'FILE
IF OPEN'FILE(2) = 1 &
THEN &
CLOSE #2 : OPEN'FILE(2) = 0
IF OPEN'FILE(3) = 1 &
THEN &
CLOSE #3 : OPEN'FILE(3) = 0

```

# STRUCTURED PROGRAMMING CONTINUED

```

LOOKUP 'ERRORS.FUL', Z
IF Z = 0 &
  THEN &
  CALL 'ERRORS.FUL'
CALL 'DISPLAY' STATISTICS
? TAB(23,1); "THE END"
END

! ***** LEVEL 1 *****
DISPLAY LOOP:
INPUT LINE #99, TEXT LINE
IF EOF(99) # 1 AND UCS(CHARACTER) # "Q" &
  THEN &
  CALL 'LINE' DISPLAY :&
  GOTO DISPLAY LOOP &
ELSE &
  IF UCS(CHARACTER) # "Q" &
    THEN &
    CALL PAUSE
CLOSE #99
RETURN

DETERMINE 'SOURCE' FILE NAME:
CALL 'ENTER' SOURCE 'FILE' NAME
IF FILE 'CHECK' # "OK" &
  THEN &
  CALL 'BOGUS' FILE NAME :&
  GOTO DETERMINE 'SOURCE' FILE NAME
CALL 'LOOKUP' SOURCE 'FILE'
RETURN

LOOKUP 'DESTINATION' FILE:
Y = 0
Y = INSTR(1, SOURCE 'FILE', ".")
DESTINATION 'FILE' = SOURCE 'FILE' EC1, (Y-1) + ".FUL"
LOOKUP 'DESTINATION' FILE, Z
IF Z = 0 &
  THEN &
  CALL 'DESTINATION' ALREADY EXISTS
RETURN

READ 'THROUGH' THE 'SOURCE' FILE:
? TAB(11,1);
SOURCE 'READ' LOOP:
? ". ";
SOURCE 'COUNT' = SOURCE 'COUNT' + 1
X = 0
INPUT LINE #1, TEXT LINE
TEMP LINE = UCS(TEXT LINE)
IF EOF(1) # 1 &
  THEN &
  X = INSTR(1, TEMP LINE, "+INCLUDE") :&
  IF X = 0 &
    THEN &
    CALL 'PROCESS' INCLUDE LINE :&
    GOTO SOURCE 'READ' LOOP &
  ELSE &
  CALL 'PROCESS' NORMAL LINE :&
  GOTO SOURCE 'READ' LOOP
RETURN

DESTINATION 'ALREADY EXISTS:
? TAB(10,1); TAB(-1,10);
? 'DESTINATION FILE; " already exists, do you wish to destroy it'
INPUT LINE "and create a new one in it's place? -- ", DOOMED
IF UCS(DOOMED) # "Y" &
  THEN &
  CALL MESSAGE 'OF DOOM
? TAB(10,1); TAB(-1,10);
RETURN

WRITE 'ERROR' MESSAGES 'TO' DESTINATION 'FILE':
IF OPEN 'FILE(3) = 0 &
  THEN &
  OPEN #3, "ERRORS.FUL", INPUT : OPEN 'FILE(3) = 1
INPUT LINE #3, TEXT LINE
IF EOF(3) # 1 &
  THEN &
  CALL 'PRINT' ERROR 'FILE' HEADING :&
  CALL 'READ' SOME 'MORE' ERRORS
RETURN

! ***** LEVEL 2 *****
LINE DISPLAY:
LINE 'COUNT' = LINE 'COUNT' + 1
IF LINE 'COUNT' = 22 &
  THEN &
  ? TEXT LINE &
ELSE &
  ? TEXT LINE :&
  LINE 'COUNT' = 0 :&
  CALL 'BAIL' OUT :&
  ? TAB(-1,0)
RETURN

```

# STRUCTURED PROGRAMMING CONTINUED

```

BAIL'OUT:
  ? TAB(23,1); TAB(-1,10);
  INPUT LINE "Enter 'Q' to QUIT, RETURN to continue -- ", CHARACTER
  RETURN

ENTER'SOURCE'FILE'NAME:
  ? TAB(10,1); TAB(-1,10);
  ? "Please enter the name of the file to be listed."
  INPUT LINE "(.BAS is assumed as an extension - ", FILE'NAME
  ? TAB(10,1); TAB(-1,10)
  FILE'NAME = UCS(FILE'NAME)
  CALL CHECK'FILE'NAME
  RETURN

LOOKUP'SOURCE'FILE:
  LOOKUP SOURCE'FILE, Z
  IF Z = 0 &
    THEN &
      CALL ROGUS'FILE'NAME
  RETURN

PROCESS'INCLUDE'LINE:
  INCLUDE SEARCHES = INCLUDE'SEARCHES + 1
  Z = 0 ; X = 0
  X = INSTR(1,TEXT'LINE," ")
  INCLUDED'FILE = TEXT'LINE[X+1, LEN(TEXT'LINE)]
  CALL CHECK'INCLUDED'FILE'NAME
  ! This is a three step search:
  ! 1. in the local PPN
  ! 2. in the project, Programmer number 0
  ! 3. in USKO:[7,6]
  CALL ON'ID'18

  LOOKUP INCLUDED'FILE, Z
  IF Z = 0 &
    THEN &
      CALL ADD'PPN :&
      LOOKUP INCLUDED'FILE, Z :&
      IF Z = 0 &
        THEN &
          CALL ADD'DSKO :&
          LOOKUP INCLUDED'FILE, Z :&
          IF Z = 0 &
            THEN &
              CALL NO'INCLUDE'FILE'FOUND :&
              CALL PROCESS'NORMAL'LINE

  IF Z = 0 &
    THEN &
      SUCCESSFUL'SEARCHES = SUCCESSFUL'SEARCHES + 1 :&
      OPEN #4, INCLUDED'FILE, INPUT :&
      CALL READ'IN'INCLUDE'FILE'LINES :&
      CLOSE #4

  RETURN

PROCESS'NORMAL'LINE:
  ? #2, TEXT'LINE
  ? ". ";
  RETURN

PRINT'ERROR'FILE'HEADING:
  ? "Listings lost INCLUDED files at the end of 'DESTINATION'FILE"
  ? #2 : ? #2, " INCLUDED files not found:"
  ? #2
  ? #2, " "; TEXT'LINE
  RETURN

READ'SOME'MORE'ERRORS:
  INPUT LINE #3, TEXT'LINE
  IF EOF(3) # 1 &
    THEN &
      ? #2, " "; TEXT'LINE :&
      GOTO READ'SOME'MORE'ERRORS
  RETURN

MESSAGE'OF'DOOM:
  ? ; ? "This program can't continue until you rename that"
  ? "file or whatever. Please take whatever steps you think"
  ? "are necessary, and then come back and try this again."
  ? TAB(23,1); TAB(-1,10); "End of FULIST"
  END
  ! This subroutine dies here - no RETURN

! ***** LEVEL 3 *****

CHECK'FILE'NAME:
  Z = 0 : FILE'CHECK = ""
  Z = INSTR(1,FILE'NAME,".")
  ! If there's no extension, add .BAS as the default
  IF Z = 0 &
    THEN &
      IF IEN(FILE'NAME) = 0 AND LEN(FILE'NAME) = 6 &
        THEN &
          FILE'NAME = FILE'NAME + ".BAS" :&
          FILE'CHECK = "OK"
  IF Z = 0 &
    THEN &
      IF IEN(FILE'NAME) = 0 AND IEN(FILE'NAME) = 10 &

```

# STRUCTURED PROGRAMMING CONTINUED

```

        THEN &
            FILE'CHECK = "OK"
    IF FILE'CHECK = "OK" &
        THEN &
            SOURCE'FILE = FILE'NAME
            FILE'NAME = ""
            RETURN

CHECK'INCLUDED'FILE'NAME:
    Z = 0
    Z = INSTR(1,INCLUDED'FILE, ".")
    ! if there's no extension, add .BSI as the default
    IF Z = 0 &
        THEN &
            IF LEN(INCLUDED'FILE) = 0 AND LEN(INCLUDED'FILE) = 6 &
                THEN &
                    INCLUDED'FILE = INCLUDED'FILE + ".BSI"
            RETURN

NO'INCLUDE'FILE'FOUND:
    ! first strip off the DSK0: and the PFN from the name
    Y = INSTR(1,INCLUDED'FILE, "I")
    INCLUDED'FILE = [INCLUDED'FILE[6,(Y-1)]]
    ! tell the user about it on the screen
    CALL ON'TO'18
    ? TAB(20,1); TAB(-1,9);
    ? "Zcannot find included file: "; INCLUDED'FILE
    ! Send the name to the error file
    ? #3, INCLUDED'FILE
    RETURN

BOGUS'FILE'NAME:
    ? "I'm having a problem with the file you asked for. Perhaps"
    ? "you've misspelled the name, since I can't find it. Let's"
    ? "try it again."
    CALL PAUSE
    RETURN

CONTINUE'CALC:
    WORK = INT(PN/8)
    OCTAL = VALID'DIGIT1 + PN - WORK * 8 ; 1] + OCTAL
    PN = WORK
    IF PN # 0 GOTO CONTINUE'CALC
    PN = OCTAL
    RETURN

ON'TO'18:
    ? TAB(18,1); TAB(-1,9);
    ? "Searching for: "; INCLUDED'FILE
    RETURN

DISPLAY'STATISTICS:
    ? TAB(18,1); TAB(-1,10);
    ? INCLUDE'SEARCHES; "++INCLUDE statements were found in "; SOURCE'FILE; "."
    ? SUCCESSFUL'SEARCHES; "of those files were successfully found."
    ? SOURCE'COUNT; "lines were in the source program."
    ? INCLUDE'COUNT; "lines were in the INCLUDED files."
    RETURN

! End of listing for FULIST.BAS
ADD'PFN:
    EXTENSION = "I" + P + ",0]"
    INCLUDED'FILE = INCLUDED'FILE + EXTENSION
    CALL ON'TO'18
    RETURN

ADD'DSK0:
    Y = 0
    Y = INSTR(1,INCLUDED'FILE, "I")
    INCLUDED'FILE = INCLUDED'FILE[1,(Y-1)]
    INCLUDED'FILE = "DSK0:" + INCLUDED'FILE + "[7,6]"
    CALL ON'TO'18
    RETURN

READ'IN'INCLUDE'FILE'LINES:
    INCLUDE'COUNT = INCLUDE'COUNT + 1
    INPUT LINE #4, INCLUDED'TEXT'LINE
    IF EOF(4) # 1 &
        THEN &
            ? #2, INCLUDED'TEXT'LINE ; &
            ? ".," ; &
            GOTO READ'IN'INCLUDE'FILE'LINES
    RETURN

! ***** LEVEL 4 *****

PAUSE:
    ? TAB(23,1);
    INPUT LINE " Press RETURN to continue -- ", DUMMY
    RETURN

GET'PFN:
! setPFN.bas returns to you the PFN number that you're logged in under.
! This is a four stage process:
! 1. use the word(word) thing to get a decimal number that
! represents your PFN.
! 2. divide by 256 to set P; AND with 255 to set the FN (both decimal)
! 3. Convert P to octal
! 4. convert FN to octal

```

# STRUCTURED PROGRAMMING<sub>CONTINUED</sub>

```
'      If you plan to reproduce this, pay special attention to MAP pins;
'      Most work variables used in the octal conversion are strings !

PPN = word(word(78) + 16)
P = INT(PPN/256)
PN = PPN AND 255

OCTAL = '' ; WORK = 0
CONTINUE/CALC1:
  WORK = INT(P/8)
  OCTAL = VALD'DIGIT1 + P - WORK * 8 ; 11 + OCTAL
  P = WORK
  IF P # 0 GOTO CONTINUE/CALC1
P = OCTAL

OCTAL = '' ; WORK = 0
```

## W OOPS

In the September issue of the AMUS Newsletter there was a letter on page 23 suggesting a hardware modification to the S-100 board submitted by Alex Begin. We just got a phone call from John Proper at Alpha Micro, and if you have modified your system as per the instructions in Alex's letter, you could have a problem. Alex's fix only worked if you had an AM-100T prior to Revision F, and if you do not have an AM-700 board. After Revision F, Alpha Micro uses pin 99 for Buss Error detection sent from the AM-700 to the CPU. Also, Alpha Micro has taken care of the Power On Clear problem, using different strategy. If you have made the modification and you install Revision F, or the AM-700 board, the system will lock up and stay that way, refusing to boot up.

As always, we would advise caution when you make modifications to your system. If you make modifications to either the hardware or the operating system, you should be sure that you understand what you're doing. In several cases users have made changes to their system only to find that the next release of AMOS, or the next hardware revision, not only corrected the problem but did it in such a way that it interfered with the changes made. If you're a hardware whiz, you have the capability to repair any problems that might crop up, and now you probably don't need to worry about violating a maintenance agreement. If, on the other hand, you are operating with a maintenance agreement, you should be very careful about making changes to the system that might void your contract.

We will print any information that members send in, but you should use your own discretion about changes you make to your system.

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