

VORRES = ALL []

SECTION IX

Tape Drives

AM620 POWER SUPPLY INPUTS

PIN 1 +24 VOLTS DC +/- .25 VDC
PIN 2 +24 VOLT RETURN (GROUND)
PIN 3 NOT USED
PIN 4 +7.5 VOLTS DC UNREGULATED - 8.25 VDC OR SO
PIN 5 +5.0 VOLTS DC REGULATED +/- .5 VDC
PIN 6 +5 VOLTS RETURN (GROUND)

JUMPER W1 INSTALLED - INSTALLED WITH +7.5 VOLTS (PIN 4)
JUMPER W1 REMOVED - WITH +5.0 VOLTS (PIN 5)

Jumper W1 controls the regulator on the AM620 board. Installed, the 7.5 line (PIN 4) is then regulated, Removed The AM620 board is expecting to receive a regulated +5 Volts (PIN 5). You use +7.5 Volts when in an AM1042 chassis. This is from the bottom (Chassis P/S). The +5 VDC is when the Streamer has it's own power supply.

POWER SUPPLY PIN OUTS

+5 VDC			+7.5 VDC		
=====			=====		
2	GREEN	+24 VOLTS	2	GREEN	7.5 RETURN
5	GRAY	24 RETURN	4	RED	7.5 VOLTS
9	RED	+5 VOLTS	10	GRAY	24 VOLTS
10	GREEN	5 RETURN	12	GREEN	24 RETURN

<<<<NOTE>>>>

When having random problems with the streamer drive, Check the voltage level of the 5V line on the last board of the streamer drive WHILE THE DRIVE IS ACTIVE. (Not idle). When viewing the streamer drive from the front, the check point is the right-hand-forward board. (Closest to the tape cartridge). It has the LED on it. Check the voltage at the white connector, top two pins where they go into the board. (This absolutely must be 4.95 or better while the drive is doing something). Do a directory, or a write or rewind while checking this level.

It has been discovered that there can be quite a voltage drop in the cable between the power supply and the AM620. This is due to the small gauge of the wire. This can be the cause of a lot of random errors. If you measure the P/S output and the AM620 input voltage difference to be greater than 0.25 VDC, replace the cable. We are having new ones made up and will be distributed shortly.

IMPORTANT COMPATIBILITY NOTE FOR USERS OF 1/4" STREAMING TAPE DRIVES

Alpha Micro computer systems use two different types of 1/4" streaming tape drives which are not compatible with each other. Both types of drive use identical, rectangular tape cartridges, but the format of data on the tape is different. This means that a tape recorded on one type of 1/4" tape drive cannot be read on the other type. If you use streaming tape cartridges to transfer data between two Alpha Micro computers, it's important that you be able to tell the two types of drive apart.

1.0 TWO TYPES OF 1/4" STREAMING TAPE DRIVES

From the outside, there is not much to distinguish one streaming tape drive from the other, so they are usually referred to by the amount of space the drive occupies inside the cabinet. The one that takes up just about the same amount of space as a 5 1/4" floppy disk drive is called the 5 1/4" drive (and uses QIC 24 format) and the one that takes up the same amount of space as an 8" floppy disk drive is called the 8" drive (and uses QIC 11 format).

NOTE: If you are familiar with floppy disk drives, you already know that 5 1/4" floppy disk drives and 8" floppy disk drives are referred to by the diameter of the floppy diskette inserted into the drive, and not the size of the drive itself.

2.0 HOW TO TELL THEM APART

Since the tape cartridges look exactly the same, and the drives themselves are almost indistinguishable, the best way to tell them apart is by observing how the tape cartridges insert into the drive.

The 8" tape drive is only installed in computers not part of the AM-1000 and AM-1100 series of computers. To insert the cartridge, hold it by the long edge and push it into the drive until it clicks firmly into place, long side in. The cartridge sticks out a little from the cabinet so you can easily pull the cartridge out whenever you want to remove it.

The 5 1/4" drive may be part of any of Alpha Micro's wide range of computers. To insert a cartridge, hold it by the short end and push it all the way into the drive, short side in. The cartridge is now completely concealed within the drive.

4.3.4 S-100 Streamer Drive Configurations

Alpha Micro uses several models of eight (8) inch streamer drives in our systems. Some drives are QIC-11 format only; others may be QIC-11/QIC-24 selectable. Presently only the Archive model 3020-L is QIC-11/QIC-24 selectable. All other models are QIC-11 only and do not support QIC-24. Visual inspection is the best method of determining the format of the streamer drive in your particular system.

To determine if the system contains an Archive model 3020-L QIC-11/QIC-24 selectable streamer drive, inspect the number of logic cards attached to the drive. This model drive contains two logic cards; other models contain more. In order for the drive to operate in the correct format, both the drive and the AM-120 must be configured correctly. If they are not, intermittent errors may occur when reading from or writing to the streamer drive.

The AMOS/L 1.3 operating system supports the SET QIC-11/24 command. In order for this command to work correctly, the hardware must be configured correctly. Technical Support recommends that the drive's power-on default be QIC-11, the same default as the operating system.

Below are listed the correct configurations for each format for the drive and AM-120 circuit board.

For QIC-11 only:

AM-120 connections are:

pin/3 to pin 5
pin 6 to pin 15
pin 8 to pin 11 to pin 14

There are no format default jumpers on the streamer drives to be configured.

For QIC-11 / QIC-24 selectable:

AM-120 connections are:

pin/3 to pin 5
pin 6 to pin 15
pin 3 to pin 8 to pin 11 to pin 14

There is one format configuration jumper on this drive that determines the format of the drive at time of power on. This jumper is located on the large logic card and labeled "CC". With this jumper installed, the streamer drive will power on in the QIC-24 format.

With it removed it will be in the QIC-11 format.

Please note the AM-1000 uses QIC-24 format streamer drives only.

UPDATE ON VCR BACKUPS

by Steve Moore, AMUS

FILE COPY

After more than a year of continuous use of the AM610 VCR interface for daily system backup, AMUS has found it to be extremely reliable and efficient—but only after much trial-and-error manipulation of various facets of the system. Here is a short recap of what we have found to be important considerations when using VCRs for backup.

RELIABILITY

Reliability of recorded data is dependent on the quality of the recorder and tape used, proper alignment of the recording heads, the constant "real pack" of the tape, and the relative alignment of machines at different locations between which data must be transferred.

Alpha Micro software incorporates the CRT610 command to check the reliability of a completed recording. A display on the terminal screen keeps track of two types of errors: CRC (cyclic redundancy check) errors and hard errors.

CRC errors occur when the computer is unable to read one or more copies of a given block, but is able to read at least the last copy of that block. A hard error occurs when all copies of a given block are unreadable.

All magnetic media from floppy disks to 2" video tape are subject to hard errors, which are caused by actual defects in the magnetic recording surface. High grade tapes are manufactured to tighter quality control standards and therefore can be expected to generate fewer hard errors.

Reliability may be increased in three ways: by using a higher quality tape; by making more copies of each block (the default number of copies is six; the upper limit of 255 copies is unlikely ever to be necessary), and by recording at a higher tape speed (two-hour mode is the fastest available).

Experience with doing daily backups at AMUS has shown that both tapes and machines vary widely in reliability. Some tapes AMUS has received from members requesting public domain programs yielded near-perfect reliability (4,000:1 and higher), while others were unusable at a reliability of 4:1 to 6:1.

Until recently, AMUS had been using the same set of five tapes (AMUS uses VHS format tapes) for daily backups over the past year with little decrease in reliability. However, tapes do wear out and reliability ratios of less than 100:1 are considered unacceptable.

Average reliability ratios obtained at AMUS have been in the 300 to 500 range using a Panasonic NV-8200 recorder and T120 tapes from a variety of manufacturers. High grade tapes cost as much as 50 percent more but yield much higher reliability levels (1,000 to 5,000).

AMUS now uses only high grade tapes for daily backups because cheaper tapes are not only less reliable, but cause more wear on the record and playback heads.

A reliability ratio of 100 is sufficient for tapes that will always be read by the same machine. Tapes recorded at one site that are to be read on another machine at a second site should have higher reliability ratios to compensate for possible differences in head alignment between machines. The number of copies made of each block should be increased; AMUS has had good results recording each block 8 times.

Calibrated alignment tapes can be used to align machines between which data must be transferred, but, obviously, both machines should be aligned to identical specifications before data are recorded.

Other factors affecting reliability are the type of cables used to connect the VCR to the computer, the proximity of the recorder to the computer, and the "real pack" of the tape. Common shielded audio cable should not be used to carry a full-bandwidth video signal because it has too high a capacitance and acts like a filter, rolling off the frequency response of the recording. True coaxial video cable (foam or polyethylene core RG59U) should be used for best results.

The recorder should be installed at least four feet away from the computer to avoid interference from the computer itself.

To ensure that a tape has a constant, even "real pack" before it is recorded, fast-forward and then rewind the tape, then record it without removing it from the machine in the interim. This mechanically prepares the tape for the best possible recording quality by minimizing differences in tape packing and stretching, which in turn ensures a more constant orientation.

This is a subtle improvement, it is especially important with new cassettes and with any cassette upon which important data are to be recorded. There should be no compromise in the integ-

ity of crucial data; any factor overlooked simply subtracts from the overall quality and reliability of your recorded data.

A single-speed, two-hour machine is best. With any magnetic recording medium (all other factors being equal) the more surface you use while recording each item of data, the better the signal-to-noise ratio is. The two-hour mode is the fastest available for VCRs and therefore produces optimum results in terms of the amount of tape used per amount of information dumped on the tape.

The reason for using a single-speed two-hour machine rather than a machine that can record in the four, six and eight hour modes as well, is that most multispeed machines use a narrow head (designed for use with the slowest tape mode) for the faster speeds too. But the faster the speed, the wider the optimum head size; and for a given speed, the wider the head the better the quality of the recording. The more tape surface under the head, the stronger the magnetic current between the two surfaces and the less noise produced.

The signal-to-noise ratio is also affected by how closely the playback head goes over the exact path of the recorded signal. If a head is to be used for recordings made at different speeds, it must be as small as the tracks made at the slowest speed so that it doesn't touch adjacent larger tracks on recordings made at faster speeds. If you buy a machine that only has two-hour mode, it will have only a wide, thick head for both recording and playback. Most machines that play all modes will have only a narrow, thin head.

To repeat: the quality of your recorded data should not be compromised. Therefore there is no advantage to having a machine that plays speeds other than two-hour mode unless you plan to make it do double duty and show epic-length movies (Dr. Zhivago, anyone?) to your staff.

There are multispeed machines that have four heads: two thick, wide ones for the two-hour mode, and two thin, narrow ones for the slower modes. The JVC HR7100-U is one such machine available now; other manufacturers are likely to introduce them in the near future. The Panasonic HV8200 and HV8500 are much higher quality, and correspondingly higher priced, machines.

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VCR Backups continued from page 23

Top quality machines utilize capstan servos for maintaining extremely accurate tape speeds, which maximize accuracy of recorded data. It's a wise decision to buy the best machine possible within your budget; VCR backup systems offer more than enough savings in hardware cost and system efficiency to offset the cost of a premium machine.

MAINTENANCE

Long-term use and storage in an area that is dusty or where smoking is permitted can deposit a residue on the record heads. Regular maintenance of your machine is a must.

A cleaning cassette should be used to prevent buildup of oxides and other foreign particles on the recording heads, capstan and pinch roller. The cassette should be used after every 30 to 40 hours of recording time, and its use should be combined with at least quarterly alignment and more thorough cleaning of the machine by a skilled technician.

OTHER CONSIDERATIONS

A recent article about VCR backup systems in Mini-Micro Systems magazine stated that the video cassette recorder, through the AM610 VCR interface board, sees the computer as a black-and-white TV camera. Actually, according to computer graphics spec-

ialists Wyndham Hannaway & Associates in Boulder, the VCR sees the computer as a color TV camera; color timing is used, and burst and all the other color functions are present in the signal.

There is no actual color information transmitted, so the signal cannot be demodulated as color and there is no reason to use a color TV as a monitor; in fact, a black-and-white monitor will give higher resolution and thus allow better pattern recognition for determining whether data are being transferred.

Make all your VCR backup tapes bootable, and try booting the system with one to make sure you know how to do it and that it does work. Then try restoring a critical file like SYSTEM.INI to a work disk and check the hash total to make sure it was correctly restored. Actually running through these procedure before you need them (we hope you never do, of course) will give you confidence that you can get your system back in the event of a head crash or other catastrophe.

If removable Winchester disks come down enough in price, they will be competitive with VCR backup systems. Right now, they are prohibitively expensive for small business applications, and VCRs are an excellent choice in terms of media cost per megabyte of data stored.

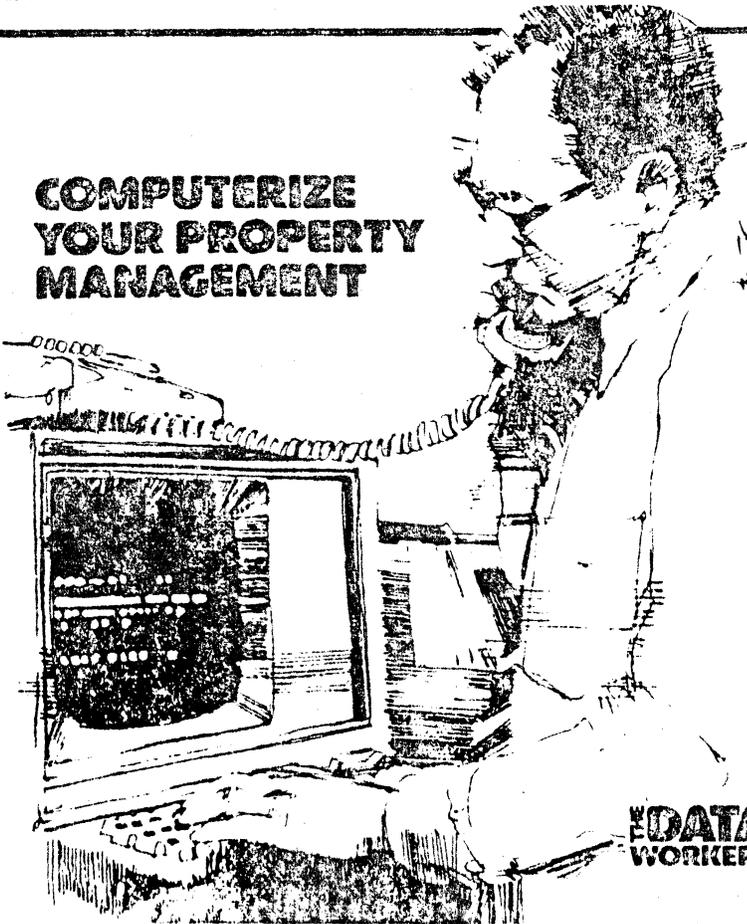


AMUS NOW HAS MANUALS AVAILABLE FOR THE AM-1000 and the 100/L

Contact Sharon
at the AMUS office
for details.



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6.1.25 AM-1000 Booting - VCR Delay Bypass

The AM-1000 Series Computers have the built-in capability of booting from an alternate device other than the system device. This provides a means of booting the system if for some reason it cannot boot from the primary device. A VCR can be such an alternate boot device.

When the VCR is used as the alternate boot device, a built-in time delay allows time for valid data to be received from the VCR. If the VCR is not being used and it is desired to bypass the 25 to 30 second delay, all that is required is to change the boot jumpers.

Figure 1 shows the location of the boot jumpers on the AM-1000 CPU circuit board and the jumper configuration required for different boot devices. Notice that Boot Device ID code 9 is the only configuration identifying the VCR. Assuming that the system contains a Winchester disk as the primary booting device, all that needs to be done to bypass the VCR delay is to reconfigure the boot jumpers to Boot Device ID code A (Floppy/Winch).

Note: Beginning with COO Revision Boot PROMS an additional delay will be encountered as the system looks to determine which Winchester disk drive is installed. This allows for the same PROM to be used for either the AM-1000 or the AM-1000E.

When the system begins to boot with this configuration, it will look to see if a floppy diskette is installed in the floppy drive. If a diskette is installed and the door is closed, the system will attempt to boot from the floppy. If these conditions are not met, the system will attempt to boot from the Winchester. If a floppy drive is not installed the system will attempt to boot from the Winchester. In both cases the VCR delay will be bypassed.

Reminder: If it is desired to boot the system using a VCR tape, the jumpers will have to be returned to the position shown for Boot Device ID code 9 (VCR/Floppy/Winch).

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APPENDIX A

AMOS ERROR MESSAGES

Below is a list of error messages that you might see when operating at AMOS command level. For information on the specific error messages you might see when using a particular command, see the documentation for that command.

The format of the error message may differ slightly between the AMOS and the AMOS/L systems, but the errors and their solutions are the same.

A.1 COMMON ERROR MESSAGES

The most common kind of error message that you will see on the system consists of two parts. The message begins with:

?Cannot {init, open, close, read, write, input, output, wait, delete, rename, assign, deassign, allocate record on, deallocate record on, read bitmap on, write bitmap on, lock directory on, unlock directory on, allocate random file, mount, unmount, load, or access} Filespec or Devn: -

and ends with one of the messages below (for example: Cannot read AMS3: - disk not mounted):

- BADBLK.SYS not found

The program BADBLK.SYS was not found on the disk, meaning that it was erased or somehow lost. See your System Operator for help.

- BADBLK.SYS has a bad hash total

The BADBLK.SYS program is damaged. See your System Operator for help.

- BADBLK.SYS is in wrong (unsupported) format

You will only see this error if you have an AMOS/L system and your version of BADBLK.SYS was certified on an AMOS system that was version 4.2 or earlier. The AMOS/L system will not support it. To correct this problem, your System Operator will have to transfer your files to an AMOS system that has version 4.3 or later, and then re-certify.

- bitmap kaput

Every time the system writes data to a file-structured device (e.g., DSK0:, AMS1:), it checks that device's bitmap to determine where on the disk to write the data. (A bitmap is a map of the device -- it tells the system what records on the device already contain data, and which are free for use.)

Every time the system checks the bitmap, it sums the data in that bitmap and checks it against the value it has previously computed; if there is a discrepancy, it means that something in the bitmap has changed, and you see the bitmap kaput error message.

To solve this problem, MOUNT the disk. If you still get this message, check with the System Operator for help -- he or she can run the DSKANA program that will reset the bitmap.

- buffer not INITed

Before your assembly language program can perform an open, read or write operation, the program must assign a buffer to the file DDB. (Because you can use the monitor call INIT to do this, we say that the buffer has been INITed.) If you fail to do this procedure, you will see this message.

If you should see this message within AlphaBASIC, the message may indicate memory problems; check with the System Operator.

- deadly embrace possible

You are trying to OPEN a file out of sequence from the sequence defined in the LOKGEN program. This occurs if you have the LOKSER file-locking system installed on your system. Check the LOKGEN program for the proper file-opening sequence.

- device does not exist

You've tried to access a device that the system does not recognize. For example:

```
.TYPE ASM1:FILE.TXT (RET)  
?Cannot init ASM1:FILE.TXT - device does not exist
```

You probably mis-typed the device name. You can use the DEVTBL command to see a list of all the devices on the system.

- device error

A hard disk error has occurred; that is, the system was not able to read data from a disk. Try to perform the operation again. If you still have no success, check with the System Operator for help; this message may indicate a hardware problem.

- device full

There is not enough room on the disk to complete the data transfer. Start over again with another device, or make room on the first device by erasing unnecessary files.

- device in use

Another user is using the non-sharable device that you wish to access (e.g., a paper tape punch). Wait and try again later.

- device not mounted

You have tried to access a valid system device, but that device is not mounted. Use the MOUNT command to mount the device, and try again.

- device not ready

You are trying to access a device that is not ready. For example, you will see this message if you try to mount a disk before that device is powered up and ready.

- disk not mounted

The disk drive that the command tried to access is not mounted. Use the MOUNT command to mount that disk, then try again.

- file already exists

You've tried to create a file that already exists. For example, if the file NEWCPY.MAC already exists in your account, and you try to rename another file to that name:

```
.RENAME NEWCPY=WRKFIL (RET)
WRKFIL.MAC to NEWCPY.MAC
?Cannot rename WRKFIL.MAC - file already exists
```

- file already open

Your assembly language program tried to open a file that is already open. Check your program to see if you are opening the file twice.

- file cannot be DELETED

You tried to delete a file that was specified as undeletable in LOKGEN. This only occurs if you have the LOKSER file locking system on your system.

- file cannot be RENAMEd

You tried to rename a file that was specified as unrenamable in LOKGEN. This only occurs if you have the LOKSER file locking system on your system.

- file in use

You tried to OPEN a file which is being used by another user. Either you or the other user requested an exclusive lock on the file. This only occurs when you have the LOKSER file-locking system on your system.

- file not found

AMOS cannot find the file you've specified. For example:

```
.TYPE LABDAT (RET)
?Cannot open DSKO:LABDAT.LST - file not found
```

Check your spelling, and make sure that you've specified the correct device and account.

- file not open

Your assembly language program has tried to access a file that is not open for input. Check your program to see if you are accessing the correct file.

- file specification error

You did not properly specify the command. Check your format and spelling, and try again.

- file type mismatch

You've tried to use a program designed for sequential files on a random file (or vice versa). For example, the TYPE program works only on sequential files; if you try to use it on a random file, you see:

```
.TYPE PRTIDX.DAT (RET)
?Cannot open DSKO:PRTIDX.DAT - file type mismatch
```

- first logical unit is not mounted

The first logical unit accessed by the command is not mounted. Use the MOUNT command to mount the unit once you have determined which device or unit is not mounted.

- illegal block number

Your program has tried to access a disk block that doesn't exist, or that is beyond the range of the file you are using.

- illegal user code

You've tried to access an account that does not exist. For example, if there is no account [100,2] on DSK1:

```
.TYPE DSK1:MYFILE.TXT[100,2] (RET)
?Cannot open DSK1:MYFILE.TXT[100,2] - illegal user code
```

- insufficient free memory

There is not enough room in memory to complete the operation you are attempting. Make sure that no unnecessary modules are in your memory partition.

- insufficient queue blocks

There were not enough queue blocks to perform the requested operation. Try the command again, and if that does not work, have the System Operator increase the amount of queue block space in the system initialization command file.

- invalid filename

You've specified a filename that AMOS does not understand. For example:

```
.MAKE .TXT (RET)
?Cannot open - invalid filename
```

In this case, the filename is a space, which AMOS does not recognize as a filename.

- LOKSER queue is full

All of the available queue space in LOKSER is used up. Have your System Operator re-run LOKGEN and allocate more memory blocks.

- MFD is damaged

Your Master File Directory is damaged. Copy as many programs as you can onto a backup media, and then run the SYSACT program with the I (initialize) option.

- PPN does not exist

You've tried to access a user account that does not exist. For example, if there is no account [100,2] on DSK1:

```
.TYPE DSK1:MYFILE.TXT[100,2] (RET)  
?Cannot open DSK1:MYFILE.TXT[100,2] - PPN does not exist
```

- protection violation

You've tried to create a file in an account other than your own that is outside of your project. For example:

```
.COPY [210,3]=ELIPSE.BAS[100,5] (RET)  
ELIPSE.BAS[100,5] to ELIPSE.BAS[210,3]  
?Cannot open ELIPSE.BAS[100,5] - protection violation
```

- record in use

You tried to access a record inside a file that is already locked by another user. Either one or both users have requested an exclusive lock on that record. This occurs only if you have the LOKSER file-locking system installed on your computer.

- record not locked for output

You are attempting to output a record that was not previously read and locked via an INPUTL statement. This only occurs if you have the LOKSER file-locking programs on your system.

- write protected

You are trying to write data to a device that is write-protected. Make sure the write-protect button is off and try again. Make sure also that you were writing to the correct disk.

A.2 OTHER ERROR MESSAGES

In addition to the error messages above, you can also see:

?Address error at nnnnnnnn

An address error occurred while your job was running. This error appears whenever a program tries to access a word or longword on an odd address boundary.

AMXXX ERROR n FOR DRIVE n BLOCK n (CYLINDER n HEAD n SECTOR n)

You will see a message something like this if you have SET DSKERR, and a hard error occurs on a system that uses an AM-500, AM-420, or AM-410 Disk Controller Hard Disk Subsystem (the XXX stands for whatever controller you have). This message indicates a hardware problem -- the Disk Controller wasn't able to successfully read data from the disk.

The message tells you what kind of error occurred (refer to the information supplied with the disk drive to find out what error conditions corresponds to that error code), and where on the device the data transfer operation failed (the drive, record, cylinder, head and sector). Check with the System Operator for help.

Bus error - PC ##

A bus error indicates that an illegal condition was recognized on the data bus. The number following the letters "PC" tell you the memory address the Program Counter was set to when the bus error occurred.

?Bus error at nnnnnnnn

A bus error occurred at location nnnnnnnn. This is a special type of error generated by the central processor hardware.

?CHK instruction at nnnnnnnn

Your job executed a CHK instruction which caused the trap to be taken. (This instruction is not currently supported on AMOS/L systems.)

?Command terminated - insufficient memory

You tried to execute a program from inside a command file, but there was not enough room to load the program into your memory partition.

Use the MAP command to see what modules are in your memory partition; delete those you do not need. If you still cannot use the command file, talk to your System Operator about getting more memory area allocated to your job.

?Divide by zero at nnnnnnnn

Your job attempted to perform a divide (DIV or DIVS) instruction with a divisor of zero.

?EM1111 at nnnnnnnn

Your job executed on of the EM1111 instructions which are not currently used by AMOS/L; they are reserved for future use. This error is commonly caused by a program which begins executing in non-existent memory.

ERROR n

You see this message if you SET DSKERR and a soft disk-error occurs on a system using an AM-200 or AM-210 Floppy Disk Subsystem. Frequent soft errors can indicate hardware problems with the drives; check with the System Operator.

The number following ERROR indicates the type of soft error that occurred; refer to the instruction supplied with the disk drive to see what error condition corresponds to that error code.

Because this message reports a soft error (the system had to retry a data read) and not a hard error (where the data could not be read at all), you do not necessarily have to worry unless you see a DEVICE ERROR message (see above), which indicates a hard error.

ERROR n CMD n, STS n, RECORD n (TRACK n, SECTOR n)

You see this message if you have SET DSKERR and a soft disk-error occurs on a system that is using an AM-400 Hard Disk Subsystem. The number following ERROR indicates the type of soft error that occurred; refer to the instructions supplied with the disk drive to find out what error condition corresponds to that error code. The message tells you where on the disk the error occurred. Check with the System Operator.

?Illegal instruction at nnnnnnnn

Your job attempted to execute an illegal instruction. Any bit pattern not currently recognized by the CPU is considered an illegal instruction.

?Illegal user interrupt on level n

An interrupt occurred on level "n" when none was expected. This can be caused by a program that does not initialize the interrupt vector locations properly, or by faulty hardware that generates spurious interrupts.

?Insufficient memory for program load

You do not have enough memory in your partition to load the program you want to execute. Use the MAP command to make sure that no unnecessary modules are in your memory partition. If you still receive this message, check with the System Operator to see if he or she can allocate more memory to your job.

?Login please

You've tried to enter an instruction to AMOS, but you are not logged into the system. Use the LOG command (see Section 2.4, "Logging on and off the System"). If you need help in figuring out what to do, you can use the HELP command even if you are not logged in (see Section 3.1, "The HELP Command").

?Memory allocation failed

You used the monitor call GETMEM from within an assembly language program to allocate space for a memory module within a memory partition -- there wasn't enough room in the partition to perform the allocation. Make sure that no unnecessary modules are in the memory partition, or see the System Operator about increasing your memory.

?Memory map destroyed

Each module in your memory partition maintains a pointer to the address of the next module in memory; if these connecting links become confused or broken, AMOS is not sure where your memory modules are in your partition.

You may not need to reset the computer, but you may want to delete the modules from memory and reload them just to be sure that your memory map is intact.

?Memory parity error

A memory parity error occurred while your job was running. After this error occurs on an AM-100/L system, you should examine the memory boards to determine which one the error occurred on. On both AM-100/L and AM-1000 systems, the System Operator may want to perform memory diagnostics to isolate the cause of the parity error.

?No memory available

There is no more free memory available on the system. Consult with the System Operator. The solution may be to change the amounts of memory allocated to each job on the system.

?Privilege violation at nnnnnnnn

Your job tried to execute a privileged instruction while in user mode. Certain privileged instructions, such as STOP, require that you be in supervisor mode.

?Privileged program - must be logged into OPR:

The program that you called can only be run from account DSK0:[1,2]. This is the System Operator's account, and you should have the System Operator run the command or program for you.

?Privileged program - must be logged into [1,2]

The program can only be run from account [1,2] (on any disk). Log into [1,2] and run it again.

?Trace return at nnnnnnnn

Your job returned from an instruction trace, but your job's trace trap address (JOBTRC) was not set up properly.

?TRAPV instruction at nnnnnnnn

Your job executed a TRAPV instruction which caused the trap to be taken. This instruction is not currently supported by AMOS/L.

? ^ specification error

The format of your command line was confusing. For example:

```
.VUE RND.COMD (RET)
? ^ specification error
```

In the case above, you entered too many characters for the file extension. Retype the command line, making sure that the syntax you use is the correct form for that particular command.