ALTOS

Series 5 and 580 Computer System

MP/MII Operating System

MP/M II 2.15S1 OPERATING SYSTEM
FOR ALTOS SERIES 5 AND 580 SYSTEMS
January 24, 1985

This version of MP/M II supercedes all previous versions.

Following are the enhancements in the step from version
2.14SO to version 2.15SO.

1) Support for 30 Mgb and 40 Mgb hard disk drives was
   added.

2) About 300H more RSP area is provided.

3) Setup file has now been expanded to include customized
   disk parameter blocks. This allows for easy modification
   of number of logical drives and drive sizes.

4) Mpmsetup has been modified to allow specification of
   Baud rates, Parity, Stop bits and Bits per character.
   These parameters can be changed dynamically. This func-
   tion can be used to reset port parameters without having
   to reboot the system. This is useful for example in
   resetting the port after FTP has been run.

5) TIP (Tape interchange program), to support MTU (Magnetic
   tape unit) has been added to the distribution disk.

For more information on the Setup.fil refer to Setxmpl.fil
on your distribution disk.

Following are the enchancements in the step from version
2.15SO to version 2.15S1.

1) Support for the half height 20 Mb drive has been added.
   This drive provides about 21 Mb of formatted capacity
   and is divided into three logical drives.

2) BACKUP calculates the number of disks required correctly
   and accepts filenames with the wildcard '?'.

SERIES 5 AND 580 COMPUTER SYSTEM

MP/M II OPERATING SYSTEM MANUAL

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ACKNOWLEDGEMENTS

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GENERAL INFORMATION

This manual provides the necessary instructions for the installation of the MP/M II Operating System after the Altos Diagnostic Executive (ADX) Program has been successfully completed.

MP/M II Program Functions

MP/M II is a group of control programs that coordinate the activity of your Series 5 or 580 computer system. The programs control memory utilization, manage files, access hardware devices, and perform other housekeeping chores. Some of these capabilities can be executed from the console and some can be used by applications programs.

A backup copy of the MP/M II master should be made before proceeding to use the system. To protect the master diskette, at least two copies should be made. One copy, the MP/M II system diskette, is for daily use. The other, the backup master, is used for making additional copies for daily use. The MP/M II master diskette is not for daily use but should be stored, together with the backup masters, in a secure location away from the computer to prevent accidental use. Refer to Chapter 2. INSTALLATION OF MP/M II for detailed instructions to create backup copies of the master diskette.

Booting From Floppy or Hard Disk Drives

There are two methods of bootstrapping or loading the MP/M II operating system that are available with the Series 5 or 580 computer system. One is booting from a floppy diskette and the other from a hard disk. When booting from a floppy diskette, regardless of the type/model of Series 5 or 580 computer, it is necessary to use the right-hand (RH) floppy disk drive. This is also designated as floppy drive 1.

DIGITAL RESEARCH MANUALS

For convenience, here is a brief look at the Digital Research
manuals for MP/M II. They are all furnished with your system,
and are the basic reference for MP/M II.

MP/M II OPERATING SYSTEM--USER'S GUIDE

This is the basic manual for all users of MP/M II, and explains
how to use the MP/M II operating system and run application
programs on it. It provides general information about the struc-
ture and facilities of MP/M II.

The manual gives information on system messages, commands, file
handling, and MP/M II utility programs. It also contains general
reference material, including command summaries, control charac-
ters, options, errors, and trouble-shooting procedures.

MP/M II MULTI-PROCESS MONITOR--PROGRAMMER'S GUIDE

This manual contains information on programming in assembler
language and, for the system programmer, explains how programs
can interface with the MP/M II operating system. It has informa-
tion useful to all assembly language programmers on the assembly
language, the assembler, and RDT, the relocatable debugging tool.

The manual gives functional explanations of the modules of the
operating system and how MP/M II monitors processes.

MP/M II MULTI-PROCESS MONITOR--SYSTEM GUIDE

This manual explains the system internal organization and how to
customize MP/M II.

The manual is for system designers who wish to modify the user
interface or the hardware interface to MP/M II. It assumes
knowlege of the USER'S GUIDE and PROGRAMMER'S GUIDE. The manual
includes information on the XIOS module which is used for basic
input/output operations for your system.

The system overview at the beginning of the manual and the dis-
cussion of the GENSYS utility are useful to all users of the
MP/M II system.

DOCUMENTATION CONVENTIONS

User input is in **bold face** when it is shown with system messages or in text. <CR> stands for Carriage Return, that is, for pressing the Return key. For example:

To execute the MPMSETUP program, enter:

0A>**MPMSETUP<CR>**

In this example, the 0A> is generated by the operating system, and the bold-faced material is entered by the user.

Keys on the keyboard are referred to with leading capital letters when mentioned in text. For example:

Space Bar

Carriage Return   Also shown as **<CR>**.

Control-P

Escape   Appears as the **ESC** key.

Y or **N**   Indicates a response from the user.

Control characters are used for certain functions. A control character, such as Control-P, is entered by holding down the control key (CTRL) while pressing the key, in this case, P. A control character may also be shown in <>s, such as **<Control-P>**. For example:

To print a directory, enter:

0A>**dir<Control-P><CR>**

The brackets keys, [and], are actual keys used in entering certain options in MP/M II. For example, "When using the verification option with PIP enter **[V]**."

SCOPE OF THIS REVISION

This revision of MP/M II version 2.13S0 supersedes all previous versions for the Series 5 and 580 computer system (2.10S0, 2.11S0, 2.12S0). It does not obsolete previous revisions of this document.

The following are the enhancements in the step from version 2.12S0 to version 2.13S0:

1.   Support for 20 megabyte hard disk drives was added (divided into two logical disks: 8 and 7 megabytes respectively).

2.   MUTIL.COM now performs boottrack copying. In addition, MUTIL.COM will recognize command line tails, allowing a knowledgeable user to bypass the main menu. See MUTIL in chapter 3.

The following are the enhancements in the step from version 2.11S0 to version 2.12S0.

1.   MP/M II can typically exhibit system through-put increases of up-to 30% particularly when software demands place heavy emphasis on directory operations and other hard disk intensive activities.

2.   10 megabyte hard disks may now be configured at installation time as either one (1) logical drive having 10 megabyte capacity or two (2) logical drives of 5 megabyte capacity.

3.   GENSYS.COM has been modified to keep all default values of system generation consistent with the performance enhancements of this version 2.12S0. This should allow for easier and automatic execution of GENSYS.COM.

4.   GENSYS.COM has also been modified to check that the base page of the resultant MPM.SYS does not extend below 6200H in bank 0. The reason for this is that all background hard disk buffering takes place between 4000H and 6200H in bank 0.

    If the following error message appears:

**** CONSOLE DAT cannot extend below 6200H - restarting GENSYS ****

    The number of files locked per process, and files locked in total should be reduced or the number of RSP type files with their respective BRS type files should be re-chosen for inclusion in MPM.SYS.

NOTE

    Since very few applications programs as yet use the record lock - per process/total - lists, these numbers can be kept quite small (i.e., 16/32).

For example, MPMSTAT.RSP, if included, forces MPMSTAT.BRS to also be included. Since MPMSTAT.BRS requires 0E00H bytes of memory the base of MPM.SYS moves down by 0E00H bytes in addition to the 0100H bytes required by MPMSTAT.RSP itself.

INTRODUCTION

To install MP/M II on your Series 5 or 580 system, execute the following steps:

1. Power-up your system and wait until prompted. The screen should display the following:

If your system has a hard disk.

          Enter 1 to boot from hard disk
          Enter 2 to boot from floppy disk

Insert the MP/M II master disk into floppy drive 1 (the right hand drive) and enter 2.

MP/M II will boot from the floppy drive and the following sign-on message will appear on the screen:

          Altos MP/M II V2.13S0
          Copyright (C), 1982, Digital Research

          0A>

If your system does not have a hard disk.

The following prompt will appear:

Booting From Floppy...

If a floppy disk containing the boot program was not
inserted into the right-hand drive the following prompt will
appear:

Insert Floppy Disk for Autoload.

Insert the proper disk and the system will boot automatical-
ly.

2.   Enter the following after the system prompt:

ØA>INSTMPM <CR>

The following message will then appear on the screen:

Altos series-5 installation program V1.1

NOTE

**Anytime an error message is encountered, see
the ERROR HANDLING section below.**

SYSTEMS WITH A HARD DISK UNIT

1. Initialization and Configuration (Time: 15 minutes)

If your system is configured with one or more hard disks, this step will read and verify the entire hard disk. The cylinder numbers of the hard disk will be displayed on the screen as they are being read. During the installation procedure, any bad sectors that are found on the hard disk are assigned alternate sectors that reside on cylinder 0. After the initialization is complete, the number of alternate sectors assigned will be displayed. The display will appear as follows:

```
Altos series-5 MP/M installation program V1.1
-------------------------------------------------
Verifying primary hard disk
Cylinder 100
Number of alternate sectors assigned = 1
Verifying system hardware configuration ... please wait
```

The above procedure is repeated for an add-on hard disk if your system has one.

The bootfile for the hard disk is also copied from the diskette during this process.

Next the configuration information about your system is displayed as follows:

```
Number of floppy drives = (1 or 2)
Primary hard disk capacity = (5Mb, 10Mb or 20Mb)
Add on hard disk capacity  = (5Mb, 10Mb or 20Mb)
Number of users = 3

Press any key to continue ...
```

2. Logical Drive Specifications (for systems with 10 megabyte drives only)

NOTE

Before you answer the next question, please read the following information very carefully.

All previous versions of CP/M and MP/M for your Altos Computer divided the 10 megabyte hard disks into two (2) logical drives, each having a 5 megabyte capacity.

If this is a new installation, the choice between having one 10 megabyte logical drive or two 5 megabyte logical drives can be made now.

If, however, this is an installation on an Altos Computer that already has a CP/M or MP/M Operating System installed on the Hard

Disk, **DO NOT CHOOSE A SINGLE** 10 megabyte logical drive without having backed-up all important files on the second logical hard disk.

Do you want to use the Primary hard disk as a single 10 megabyte drive? (Y/N)

NOTE

Use Control-C to abort the above step if a selection error is made.

3. Installing MP/M II to hard disk (Time: 15 minutes)

This step will set up the default settings for your system (for example the first logical drive on the hard disk will be designated as drive A). The files that are copied to the hard disk are displayed on the screen. The display will appear as follows:

Press any key to continue

Installing MP/M to hard disk

File copied:

4. Making a backup copy of the master MP/M II disk (Time 30 minutes)

This is an optional step in the installation procedure. The first prompt will ask the following:

Do you want to make a backup copy of the MP/M II diskette? (Y/N)

If the response is "Y" for Yes, then you will be asked to remove the MP/M II master disk from the floppy drive and insert a blank disk in the floppy drive. The blank disk will be formatted and the MP/M II files on the hard disk will be copied to the new floppy disk. The files that are copied will be displayed on the screen. After all the files have been copied the following message will appear on the screen:

MP/M II installation complete:

At this point MP/M II has been installed to hard disk and a backup copy of the MP/M master disk has been made.

Keep the original master disk in a safe place.

Press the reset button on the front panel. MP/M II will automatically boot from hard disk.

If the response is "N" for No, the following message will appear on the screen:

MP/M II installation complete:

At this point MP/M II has been installed to hard disk. Press the reset button on the front panel. MP/M II will automatically boot from hard disk.

NOTE

During the installation process SETUP.FIL is modified on the backup diskette to reflect the new configuration. DO NOT delete this file since it is used to configure the system when MP/M II is loaded. Also, to re-install MP/M II always use the original distribution diskette.

SYSTEMS WITHOUT A HARD DISK UNIT

1.   Initialization and configuration (Time: 15 minutes)

If your system does not have a hard disk unit then the configu-
ration information about your system is displayed when you enter
the INSTMPM command:

    MP/M configuration data:

    Number of floppy drives = (1 or 2)
    Number of users = 3

    Press any key to continue ...

2.   Making a backup copy of the master MP/M II disk (Time 10
      minutes)

This is an optional step in the installation procedure. The
first prompt will ask the following:

    Do you want to make a backup copy of the MP/M II diskette?
    (Y/N)

If the response is "Y" for Yes, insert a blank diskette into
floppy drive 2 (the left-hand drive). The blank disk will be
formatted and the MP/M II files on the diskette residing in
floppy drive 1 (the right-hand drive) will be copied to the new
floppy disk. After the full disk copy is complete the following
message should appear on the screen:

    MP/M II installation complete:

At this point, a backup copy of the MP/M II master disk has been
made. Place the orginal master disk in a safe place. The newly
created diskette will be the working master. Insert this disk-
ette into drive 1 (the right-hand drive). Press the reset button
on the front panel. MP/M II will automatically boot from the new
diskette.

If the response is "N" for No, the following message will
appear on the screen:

    MP/M II installation complete:

Although the installation is now complete, it is advisable to
make a copy of the MP/M II diskette as soon as possible.

NOTE

During the installation process SETUP.FIL is
modified on the backup diskette to reflect the
new configuration. DO NOT delete this file
since it is used to configure the system when
MP/M II is loaded. Also, to re-install MP/M
II always use the original distribution
diskette.

ERROR HANDLING

During the installation procedure, a number of error conditions
may cause the installation process to abort. The errors listed
below mean that the hard disk has not been properly initialized.

1)   Drive not ready.

2)   Cylinder 0 is bad, cannot install MP/M to hard disk.

3)   Too many bad sectors (34 is the maximum), cannot install
      MP/M to hard disk.

4)   I/O error during hard disk initialization.

Other errors that are encountered are less severe, it is ad-
visable to check the MP/M II distribution diskette to pin-point
the problem.

NOTE

> If installation is aborted for any of the
> above hard disk error conditions, it will not
> be possible to use the hard disk unit. Contact
> your dealer for details concerning repair or
> replacement of the hard disk.

LOGICAL DISK DRIVE ASSIGNMENTS

MP/M II organizes physical disk space into "logical" disk space. The system treats each logical drive as if it were an actual disk drive. It is considered to be independent of other logical disk drives, even though more than one logical drive may occupy space on the same physical drive.

Logical disk assignments for hard disks for the Series 5 or the 580 under MP/M II are presented below.

Number of Hard Disks	Number of Logical Drives
1) One Hard Disk	
A) 5 Megabyte	1
B) 10 Megabyte	1 or 2
C) 20 Megabyte	2
2) Two Hard Disks	
A) two 5 Megabyte	3
B) two 10 Megabyte	2, 3 or 4
C) two 20 Megabyte	4

When logical disk assignments are made, hard disk drives are always assigned before floppy disks. As a result logical drive "A" is always assigned to a hard disk unit (if one is configured into the system). As an example, a Series 5-5D system configured with a single 5 Megabyte hard disk drive and a single floppy disk drive will assign logical drive "A" to the hard disk and logical drive "B" to the floppy disk.

NOTE

Logical drive assignments can be changed using **MPMSETUP.**

MUTIL - UTILITY PROGRAM

This program allows you to format and copy entire 5-1/4 inch diskettes.

This program runs under MP/M II but should be used with caution. When this program is running all other users are denied access to any disk in the system.

To execute the program, enter the following after the system prompt:

    0A>MUTIL <CR>

The program will sign on as:

    ALTOS MP/M II utility monitor v1.0

    B. Bootcopy

    C. Copy

    F. Format

    Q. Quit

    Type a letter to make your selection:

Bootcopy

This allows you to copy the first two tracks, the "boot" tracks, from the diskette (source) to another (destination). When you choose the Bootcopy function the following is displayed:

    Altos 5-1/4 inch boot copy program

    Insert diskette to be copied in drive A: and type CR

    Insert diskette to be updated in drive A: and type CR

When the copy is complete the program exits to the menu.

Copy

This is a full disk copy routine and requires at least two floppy drives. When you select the Copy function the following is displayed:

    Insert diskette to be read from in drive 1

    Insert diskette to be written to in drive 2

    Press any key.

The track numbers will be displayed as they are copied. After copying is complete, the following message will appear:

    Disk copy complete.

    Control then returns to the main menu.

Format

When you choose the Format function the following is displayed:

    Format will erase all files, do you wish
    to continue (Y/N).

Type "Y" to continue, "N" to abort.

    Insert diskette to be formatted into
    available drive

    Enter drive number (1/2) to continue

If you have two floppy drives, you can insert the diskette into drive 1 (right hand drive) or into drive 2 (left hand drive). If you have only one drive then you must insert the diskette into drive 1.

The cylinder numbers that are formatted will be displayed. After formatting is complete, the following message will appear:

Disk format complete.

After the disk has been formatted, the entire disk is verified. The verification operation ca be aborted by pressing the escape key.

At the end of the verification control then returns to the main menu.

Quit

When you choose the Quit function control is returned to the operating system.

<center>**NOTE**</center>

> **The equivalent copy and format capabilities can also be accomplished by using the COPY and MFORMAT functions contained on the Altos Diagnostic Executive diskette.**

MUTIL Command Line Options

In addition to selecting options via the menu, MUTIL.COM will recognize command line tails. This allows a knowledgeable user to bypass the main menu. The following examples illustrate the user of the command line tails.

    ØA> **MUTIL FY2 <CR>**   Invokes the Format command, answers yes to the continue prompt, and selects drive A as the drive containing the disk to be formatted.

    ØA> **MUTIL B <CR>**   Invokes the Bootcopy selection.

MPMSETUP

The MPMSETUP program is not part of the ordinary installation
procedures. It allows some system changes to be made without
running GENSYS, and also provides some procedures that GENSYS
does not supply. For example, it allows the console and printer
baud rates or default names for the logical drives to be changed.
Drive A can be assigned to the hard disk instead of the floppy
disk.

The following is a sample of the MPMSETUP display:

    0A>**MPMSETUP** <CR>

    ALTOS MP/M II Setup Utility (Series 5 or 580) -- Version 3.0

    Copyright 1982 Altos Computer Systems
    Licensed by Altos for use on Altos systems only

    Reading SETUP.FIL from disk A.

    CURRENT SETUP

    System has parallel printer as #0, serial printer is #1

    Consoles:
         Console #1: 9600 BAUD
         Console #2 and #3: 9600 BAUD

    Disk Names:
         Physical floppy 1 is disk A
         First Hard disk, first logical drive is disk E
         Virtual disk is disk F

    Functions:

    P - Printer setup   C - Console baud rate setup
    N - Change default logical names Q - Quit
    U - Update the setup file

    Please select a function: [P]

MPMSETUP Functions

Before you run MPMSETUP, read the following information.

NOTE

> The changes made with MPMSETUP do not take
> effect until the update function (menu selec-
> tion U) is used. Changes are in effect when
> the system is again booted. If you exit from
> MPMSETUP without executing the update func-
> tion, the system will remain unchanged. This
> is convenient in case of a mistake.

The following menu functions are provided. Note that default
input to functions are contained in [ ]. If you wish to use
default values, simply press RETURN.

P - Printer Setup

Series 5 and 580 MP/M II version supports two printers, one
serial and one parallel (Centronics or Centronics-type). The
printers are numbered 0 and 1, and this function allows the user
to specify which printer has precedence (low number).

N - Change Default Logical Names

This function allows you to choose the names for the various
logical hard disk devices, floppy drives and virtual disk. Only
one name per device is allowed and one of the names must be 'A'.

U - Update the Setup File

This function updates the Setup disk file with the changes that
have been specified during the MPMSETUP session. To cancel the
changes made during the session specify 'N' for No to the prompt:

Enter Yes to write SETUP.FIL, No to go to menu [Yes].

C - Console Baud Rate Setup

This function is used to set up the baud rates for the consoles.
The baud rate values that are acceptable in this menu item are:
110, 300, 600, 1200, 2400, and 9600. The currrent baud rate
setting is contained within [] and will remain unchanged by
simply typing a RETURN.

Q - Quit

This function causes an exit from the MPMSETUP program. The
prompt:

Normal Exit . . .

will be displayed prior to return to the MP/M II command level.

MPMSETUP Command Line Options

The disk drive that contains SETUP.FIL and the MPMSETUP functions
can be specified on the command line. This allows the operator
to either enter options more quickly or to put the options in a
SUBMIT file.

The first option must be the drive letter (followed by a colon)
for the disk that contains the SETUP.FIL. The other functions
can be specified in any order, but the responses to the specific
questions (e.g. baud rates) for a function must be specified in
the correct order.

For example:

    ØA> **MPMSETUP A: C 12ØØ 3ØØ U Y Q**

This will read the SETUP.FIL from drive A and invoke menu item
C (Console baud rate setup). It will then set console #1 to 12ØØ
baud and console #2 to 3ØØ baud. Next the SETUP.FIL on drive A
will be updated. Note that this file is the MPMSETUP file. When
the update is complete, the quit (Q) function will cause an exit
from MPMSETUP. Control then returns to the MP/M Operating
System command level.

<div align="center">NOTE</div>

    **Even though MPMSETUP can read SETUP.FIL from
any disk, SETUP.FIL must reside on disk A when
the system is booted.**

DISKSTAT

DISKSTAT generates information about floppy and hard disk I/O errors. It should be used whenever I/O errors are suspected. This file also displays the device name and physical attributes.

A temporary error is an I/O error that is successfully completed during a retry. If, after nine retries, the error still exists, a permanent error is declared.

The error counts are cumulative from power-on until the system RESET button is pushed or power is turned off. Each time the system is turned on, the error counts are set to 0, and will increment any time an I/O error occurs.

The following is an example of DISKSTAT execution:

0A>**DISKSTAT** <CR>

ALTOS DISK STATUS v1.00

Drive(s) A Floppy 80 Cylinders, 2 Heads, 9 Sectors Per Track 0 Temporary Errors, 0 Permanent Errors

Drive(s) B Hard Disk 153 Cylinders, 4 Heads, 17 Sectors Per Track, 0 Temporary Errors, 0 Permanent Errors

MODIFYING THE SYSTEM WITH GENSYS

The GENSYS program is described in the MP/M II SYSTEM GUIDE. The USER'S GUIDE gives some background information. To modify the system, read this information carefully.

Changing The System To One Or Two Users

Altos Series 5 and 580 systems are generally set up for three users. To configure your system for use by less than three users is fairly simple. However, the SYSTEM GUIDE should be read before attempting the change.

For convenience, a short explanation of how to change the system for one user or two users is outlined below. This is supplementary information and does not replace the information in the MP/M II SYSTEM GUIDE.

1.   Bring up MP/M II and run GENSYS.

2.   Only two items need to be changed. All other questions can be answered by pressing the RETURN key to confirm the default value shown.

3.   The two entries that need to be changed are:

     a.   "Number of TMPs (system consoles) (#3)?"
     b.   "Number of User Memory Segments (#3)?"

     If you wish to specify a two-user system, reply #2 to **BOTH** of these.

     If you wish to specify a one-user system, reply #1 to **BOTH** of these.

Figure 3-1 shows a sample run of how GENSYS is used to change the system to a one-user system. It is a sample only, and some of the details and defaults may be different.

Virtual Disk

One reason to change the system to fewer users is that MP/M II can make available a virtual disk called disk E. This is a memory device of up to 96 kilobytes of storage capacity. If fewer than three banks of memory is used in the system, the remaining bank(s) are available for a virtual disk. The virtual disk has a capacity of 48 Kbytes for each bank not used by MP/M II. If three banks are in use, the virtual disk has zero bytes of storage.

This disk can be used as a real disk of the same capacity with one important exception. When the power is switched off, or when the power goes off unexpectedly, the contents of the disk are

erased. A good use for the virtual disk is temporary storage for
work files. These files would not normally be saved so the power
off problem would not be noticed. When working with important
information in virtual disk files, transfer a copy to an actual
disk from time to time for security. The advantage of the
virtual disk is that because all accesses to it are actually
memory accesses, the disk is very fast.

NOTE

By using the **MPMSETUP** utility, the name of the
virtual disk can be changed. For example, it
could be changed to disk **M**, for **Memory**.

GENSYS For A One Or Two Bank System

Figure 3-1 shows a sample run of GENSYS. <CR> stands for a
carriage return entered by the user. The default options (shown
inside parentheses) are entered by pressing the RETURN key. Only
two items are changed, these are required to reconfigure from
three system consoles to one and from three memory banks to one.
These changes are flagged by ** at the right.

To change a two-console, two-bank system, enter #2 in place of #1
at the two places flagged.

NOTE
Resident System Processors

This note applies only for those users doing
advanced system configuration. When including
Resident System Processors, be careful that
the base address of bank 0 does not go below
6200H. The sample run of GENSYS includes an
example of what occurs when the base address
does go below 6200H.

```
0A>GENSYS <CR>
00:00:16 A:GENSYS   .COM

MP/M II V2.1 System Generation
Copyright (C) 1981, Digital Research

Default entries are shown in (parens).
Default base is Hex, precede entry with # for decimal.

Use SYSTEM.DAT for defaults (Y) ? N
Top page of operating system (FF) ? <CR>
Number of TMPs (system consoles) (#3) #1 <CR> **
Number of Printers (#1) ? 2 <CR>
Breakpoint RST (06) ? 7 <CR>
Enable compatibility attributes (N) ? Y <CR>
Add system call to user stacks (Y) ? <CR>
Z80 CPU (Y) ? <CR>
Number of ticks/second (#60) ? <CR>
System drive (A:) ? <CR>
Temporary file drive (A:) ? <CR>
Maximum locked records/process (#16) ? <CR>
Total locked records/system (#32) ? <CR>
Maximum open files/process (#64) ? <CR>
Total open files/system (#128) ? <CR>
Bank switched memory (Y) ? <CR>
Number of user memory segments (#3) #1 <CR>**
Common memory base page (C0) ?
Dayfile logging at console (Y) ?

SYSTEM    DAT    FF00H    0100H
TMPD      DAT    FE00H    0100H
USERSYS   STK    FD00H    0100H
XIOSJMP   TBL    FC00H    0100H

Accept new system data page entries (Y) ? <CR>

RESBDOS   SPR    F000H    0C00H
XDOS      SPR    CE00H    2200H

Select Resident and Banked System Processes:

ABORT     RSP    (N)    ?    Y    <CR>
MPMSTAT   RSP    (N)    ?    Y    <CR>
SCHED     RSP    (N)    ?    Y    <CR>
SPOOL     RSP    (N)    ?    Y    <CR>

ABORT     RSP    CD00H    0100H
```

Figure 3-1.   Sample GENSYS Run

```
MPMSTAT    RSP    CC00H    0100H
SCHED      RSP    CB00H    0100H
SPOOL      RSP    CA00H    0100H

BNKXIOS    SPR    A400H    2600H
BNKBDOS    SPR    8100H    2300H
BNKXDOS    SPR    7F00H    0200H
TMP        SPR    7B00H    0400H

MPMSTAT    BRS    6D00H    0E00H
SCHED      BRS    6800H    0500H
SPOOL      BRS    6000H    0800H

LCKLSTS    DAT    5D00H    0300H
CONSOLE    DAT    5A00H    0300H
```

**** CONSOLE DAT cannot extend below 6200H - restarting GENSYS ****

Reduce the number of RSP and BRS type files ...

Press any key to continue

MP/M II V2.1 System Generation
Copyright (C) 1981, Digital Research

Default entries are shown in (parens).
Default base is Hex, precede entry with # for decimal

Use SYSTEM.DAT for defaults (Y) ? <CR>
Top page of operating system (FF) ? <CR>
Number of TMPs (system consoles) (#3) ? #1 <CR>
Number of Printers (#2) ? <CR>
Breakpoint RST (07) ? <CR>
Enable Compatibility Attributes (Y) ? <CR>
Add system call user stacks (Y) ? <CR>
Z80 CPU (Y) ? <CR>
Number of ticks/second (#60) ? <CR>
System Drive (A:) ? <CR>
Maximum locked records/process (#16) ? <CR>
Total locked records/system (#32) ? <CR>
Maximum open files/process (#16) ? <CR>
Total open files/system (#32) ? <CR>
Bank switch memory (Y) ? <CR>
Number of user memory segments (#3) #1 <CR>   **
Common memory base page (C0) ? <CR>
Dayfile logging at console (Y) ? <CR>

```
SYSTEM     DAT    FF00H    0100H
TEMPD      DAT    FE00H    0100H
USERSYS    STK    FD00H    0100H
XIOSJMP    TBL    FC00H    0100H
```

Figure 3-1.   Sample GENSYS Run (continued)

Accept new system data page entries (Y) ?

```
RESBDOS     SPR     F000H     0C00H
XDOS        SPR     CE00H     2200H
```

Select Resident and Banked System Processes:
```
ABORT       RSP     (N) ? y
MPMSTAT     RSP     (N) ? y
SCHED       RSP     (N) ?
SPOOL       RSP     (N) ?


ABORT       RSP     CD0OH     0100H
MPMSTAT     RSP     CC00H     0100H

BNKXIOS     SPR     A600H     2600H
BNKBDOS     SPR     8300H     2300H
BNKXDOS     SPR     8100H     0200H
TMP         SPR     7D00H     0400H

MPMSTAT     BRS     6F00H     0300H

LCKLSTS     DAT     6C00H     0300H
CONSOLE     DAT     6900H     0300H
```

Enter memory segment table:
```
Base, size, attrib, bank (69, 97, 80, 00) ?
Base, size, attrib, bank (00, C0, 00, 01) ?
Base, size, attrib, bank (00, C0, 00, 02) ?
Base, size, attrib, bank (00, C0, 00, 03) ?

MP/M II     Sys     6900H     9700H     Bank     00
Memseg      Usr     0000H     C000H     Bank     01
Memseg      Usr     0000H     C000H     Bank     02
Memseg      Usr     0000H     C000H     Bank     03
```

Accept new memory segment table entries (Y) ? <CR>

```
**GENSYS DONE**
0A>
```

Figure 3-1. Sample GENSYS Run (continued)

FILE TRANSFER PROGRAM (FTP)

Introduction

The File Transfer Program (FTP) resident on both CP/M and MP/M master distribution diskettes, is used to transfer files between two Altos Computer Systems through an asynchronous serial channel.

Description

FTP runs with either the Control Program Monitor (CP/M) or the Multi-Program Monitor (MP/M) Operating System, serving as a useful tool for transferring files between systems with 8 inch disks (such as the Altos ACS 8000-10 computers) and systems with 5-1/4 inch disks (such as the Altos Series 5 computers). Full error checking and correction is provided through a CRC-16 polynomial.

FTP Version 2.5 corrects the following problems:

1. More than 16 files can now be transferred using FTP under MP/M II.

2. FTP now works correctly with MP/M II V2.1.

   The copies of FTP provided on the distribution diskette use the printer port on the Altos computers. The printer ports can be connected to each other with a null modem cable or with two modems. (The null modem cable is a standard RS-232 cable that swaps lines 2 and 3. Such a cable is available from Inmac; part number 277 in the Summer 1982 catalog.)

NOTE

If you want to re-connect the printer after running FTP, be sure to re-boot the system.

FTP is brought up on both the sending and receiving computers. It does not matter which side is brought up first. Be careful that files transmitted with FTP do not have the Read Only (RO) attribute. If the file is Read Only, FTP will not be able to write it on the receiving side. If an RO file is accidentally received, erase it on the receiving side, change the attribute to Read Write (RW) using the SET command under MP/M II on the sending side, and transfer it again using FTP.

Baud Rates

There are several versions of FTP on the distribution diskette. The only difference between the various versions is the baud rate used for the transfer. The file named FTP.COM is the standard one that uses 9600 baud. The file name of each of the other versions indicates its baud rate. Both the sending and receiving sides must run at the same baud rate.

These slower versions may be used under either CP/M or MP/M:

```
FTP12 - 1200 bps
FTP24 - 2400 bps
FTP48 - 4800 bps
FTP   - 9600 bps
```

These faster versions only work in CP/M:

```
FTP31K - 31250 bps - max cable length - 75 feet
FTP41K - 41666 bps - max cable length -  8 feet
```

Experimentation with 9600 vs. 31250 baud rates has shown that there is very little difference in total transfer time. The experiment has run on floppy disk systems; on hard disk systems, there might be a greater difference.

Experimentation has shown that the maximum baud rate for FTP under MP/M II with one user is 9600. That is, only FTP12, FTP24, FTP48, and FTP (i.e. 9600 baud) work on MP/M II. If more than one user is active, the maximum baud rate could be as low as 1200.

Operating Instructions

The sending side of the transfer is started by the command:

FTP <afn>

where: <afn> is an ambiguous file name as described in the CP/M manuals.

For example, the command:

FTP *.COM

sends all of the .COM files to the receiving side.

Whereas the command:

FTP FILE.NAM

sends only file FILE.NAM. The sending FTP periodically types an 's' while waiting for the receiver to become active.

The receiving side is started by one of the following commands:

FTP or FTP u:

where: 'u' is the drive letter of the destination disk. If no drive letter is specified, the logged disk is the destination disk.

The receiving FTP periodically types a 'w' while waiting
for the sender to become active. Since the receiving
side normally does not exist by itself, enter [CONTROL] C
to get back to MP/M II.

BACKUP UTILITY PROGRAM

Introduction

The Altos Backup Utility, BACKUP, transfers files from a hard disk to one or more floppy diskettes, and restores hard disk files from those diskettes. The restore function can be for all files or selected files. BACKUP runs under either a CP/M 2.2 or higher operating system, or an MP/M (Multiple Program Monitor) operating system. Under MP/M, BACKUP should be run in the single user mode. Currently, the Backup Utility is available for the Z-80 based Altos systems; the Altos 8000, Series 5, and 580 systems.

Description

Features

The BACKUP Utility Program has many useful features that give it more power and flexibility than the PIP and COPY system utilities.

1. BACKUP uses the same disk file name conventions as PIP, the standard utility used for copying disk files. With either PIP or BACKUP it is possible to select files by name, or by categories of files using ambiguous file names (names using ? or *), or by user number, or by a combination of these.

2. BACKUP automatically verifies every read and write operation.

3. BACKUP condenses diskette file space. CP/M and MP/M allocate hard disk file space in fixed sizes, such as one kilobyte or four kilobytes. BACKUP removes unused space at the end of disk files.

4. BACKUP can save a file which is too large to fit on a single diskette. Files that do not fit on one diskette are automatically partitioned to fit onto as many diskettes as are needed. The maximum file size is eight megabytes.

5. BACKUP informs you how many diskettes you will need, after you have specified the files to be saved and before you begin operation.

6. When restoring files, BACKUP checks with you before writing over existing files.

7. BACKUP has intelligent mechanisms for consistency checking and error recovery.

Current Limitations

Currently, BACKUP has the following limitations:

1. The largest file that can be backed up or restored is eight megabytes.

2. The maximum number of files that can be backed up in one session is 1200.

3. The most data that can be backed up in one session is 64 megabytes.

File Concepts in BACKUP

Each backup floppy has two files, named MAP and DATA. The MAP file has a user-defined label, and a list of all files backed up and the diskette where each file resides. The MAP file for a BACKUP session is duplicated onto each diskette used in that session.

The DATA file contains backed-up data files from the hard disk, treated as one long file. Original files within the data file are carried across diskette boundaries when necessary.

Both MAP and DATA files are CP/M and MP/M compatible. The TYPE command can be used with the MAP file to display the user label. For example:

        A>**TYPE MAP<CR>**

Backing Up and Restoring Random Files

BACKUP can back up and restore random files. BACKUP determines the maximum size of the file and backs up from the first sector to the last, including undefined blocks. Caution must be used for that reason:

NOTE

If a random file has undefined blocks within its maximum allocation, those blocks will appear to have E5's when restored. BACKUP will provide sectors of E5's when backing up to floppy diskette, and those sectors will be restored to the hard disk.

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Operating Instructions

Installation of BACKUP

If the BACKUP program was supplied to you on a separate diskette, Altos recommends that you copy it to the hard disk or another floppy diskette, using the PIP utility. Save the original diskette to make duplicates from and use only the copied diskettes to run the program.

Operation of BACKUP

BACKUP is run by entering the name followed by a Carriage Return. It displays the menu shown below.

    A>**BACKUP<CR>**   (CP/M Prompt)

    0A>**BACKUP<CR>**   (MP/M Prompt)

    ALTOS Hard Disk Backup Utility   --   Version x.x

                Copyright 1982 Altos Computer Systems
              Licensed by Altos for use on Altos systems only

Functions:

        B - Backup files from hard disk to floppy diskettes

        R - Restore files from floppy diskettes to hard disk

        L - List filenames from a backup floppy diskette

        P - Print filenames from a backup floppy diskette
            (must be preceded by B, R, or L function)

        Q - Quit

    Please select a function: [default is B]

Respond by entering the letter, in upper case or lower case, and pressing Return. For example, to select Restore:

    Please select a function: [default is B] **R<CR>**

Backup includes the following functions which are described later in this section the heading INDIVIDUAL FUNCTIONS.

    Backup   Restore   List   Print   Quit

After performing a backup, restore, list, or print function, the program displays the menu again and allows another function to be done.

Aborting from within a Function

Control-A aborts the current command and returns to the program menu.

Control-C aborts the BACKUP program and returns to the operating system.

Individual Functions

Q   THE QUIT FUNCTION

This gives the message "Normal Exit" and returns to the operating system.

B   THE BACKUP FUNCTION

Back Up Files From Hard Disk To Floppy Diskettes

Before running the Backup function, be sure to have sufficient scratch diskettes on hand. These diskettes must be formatted and empty of files. Either a freshly formatted diskette, or a used diskette on which all files have been erased by the ERA command, is suitable. The diskette may have a system on the system tracks (boot tracks), and may have an MP/M diskette label. It must be writeable.

Hard disk files which are password read-protected, or locked, cannot be written to a floppy diskette by the Backup operation. If it is to be backed up, the condition must be changed.

The first prompt is

    From disk? [default is A]

Enter the drive identification, A-P, of the hard disk source file.

The next prompt is

    To disk? [default is A]

Enter the logical drive identification, A-P, of the floppy diskette destination drive. The From and To identifications cannot be the same.

The next prompt is

    Enter label:

Enter the information label you will use to identify these diskettes. The maximum number of characters is 80. Although

this field is optional, it is a good idea to provide a meaningful identification and the date. For example,

    User 7 Files, August 3

    Accounts Payable, 08/03/82

The next prompt is

    Enter Files to be backed up:

The BACKUP program will then ask you to enter the names of files that you want backed up. You can enter a list of names, or specify groups of files using ambiguous file names. File name specification ends when you enter a Carriage Return by itself.

Filenames and ambiguous filename specification, "afn,"is discussed in the CP/M or MP/M manuals provided with your system. Further examples are given in these manuals underthe PIP utility. In general, the information given on PIP which pertains to disk file operations also pertains to BACKUP. The PIP options used within brackets, such as [V], do not pertain except for the G option.

For convenient reference, here is some information on ambiguous filename specification. Consult the CP/M or MP/M manuals for details.

    ?   means match any character in this position. For example, JACK?.TXT specifies files such as JACK4.TXT and JACKV.TXT.

    *   is the equivalent of filling the rest of the field with a variable number of ?s. For example, *.FOR specifiesevery filename with an extension of FOR, and Q*.PAY specifies every file beginning with Q and having PAY as its extension, such as QUERY.PAY QR3.PAY. *.* specifies every filename.

    G   refers to user number. ("Get files from user n.") G can be followed by a user number (0 to 15) or * (all users). User numbers are implicit in MP/M file handling, and may be used in CP/M file handling, to categorize files as belonging to a particular user. If G is not used, the current user is assumed to be specified. "G" by itself is equivalent to "G0".

Examples of file specification:

    JACK4.COB,JACK4.DOC<CR> The two files named.

    .[g*]<CR>   Every file of every user.

    *.c<CR>   All .c files from current user.

```
       *.prl[g3]<CR>                    All .prl files of user 3.

       <CR>                             End of specifications.
```

BACKUP accepts file specifications until a line that contains
only a Carriage Return is entered. Then the program scans the
directory of the logical hard disk drive and creates an internal
list of all the files that match the specifications. This list
is in alphabetical order. If a file has been specified more than
once, the duplication is removed. Only one copy of a file will
be backed up. A file must have contents; zero-length files are
not backed up.

When the internal map is prepared, the screen displays it. Here
is an example.

       Projected MAP of Floppy Diskettes on Drive B:

       User#   Filename.ext   Records   On Disk
       ----
          0   ASM   .PRL   156   1
          0   DSKRESET.PRL   167   1
          0   PIP   .PRL   157   1

       3 files, 61 1K byte blocks, 1 diskette,

The prompt is

       Is this correct? [default is Y]

If you reply Y, the backup operation proceeds.

If you reply N to this query, you can re-specify the files. At
this stage, you can also verify that you have enough diskettes to
hold the specified files and take appropriate action if you do
not. That is, you can obtain more diskettes or use Control-C to
abort.

After you reply Y, you are prompted

       Backing up disk 1.
       Please place empty diskette in Drive x; hit RETURN
       to continue...

Place a scratch diskette in the designated drive and press the
Return key when ready. This prompt will be repeated for each
diskette needed.

If the diskette is not empty, the program says

       Diskette not empty, please use empty diskette

If this happens, place an empty diskette in the drive and press
Carriage Return.

BACKUP writes the user label information and the MAP file onto each diskette. Then it writes the data files in the order shown on the MAP.

    Writing MAP file onto Floppy Diskette.

    Backing up file: xxxxxxxx.xxx   User n

The program will continue to back up each file in the order shown on the MAP. If necessary, it will prompt you to insert new diskettes with

    Backing up diskette n
    Please place empty diskette in Drive a; hit RETURN to
    continue...

As you remove each diskette, write the user label information and the diskette number on it, and any other useful information. Use a felt-tip pen to avoid harming the diskette.

When the backup is finished, it advises

    Backup complete.

When all specified files have been written successfully, the program returns to the menu to do another operation or quit. At this point you may wish to use the P function to print a MAP of what you have saved.

R   THE RESTORE FUNCTION

Restore Files From Floppy Diskettes To Hard Disk

Before starting this operation, insure that all floppy diskettes to be used are available. This operation can restore all files saved on the set of floppy diskettes or selected files. If a file of the same name exists on the hard disk, you are prompted as to whether you wish to replace it or not with the floppy diskette file. An option allows you to have this choice for all files, whether or not the file is already on the hard disk. See the Command Line Option information.

The first prompt is:

    From disk? [default is B]

Specify the floppy disk drive identification, A-P.

The next prompt is:

    To disk? [default is A]

Specify the logical hard disk drive, A-P.

The next prompt is:

Please place a diskette to be restored in Drive a; Hit
RETURN to continue...

When the diskette has been inserted, the program will read its
MAP file and display information as shown in this example.

Diskette on Drive B is number 1 of 4:
Label: User 7 Files, August 3

The program will then list all files saved on the set of
diskettes. It gives the file sizes and user number for each
file. For example:

User #	Filename.ext	Records	On Disk
0	ASM .PRL	156	1
0	DSKRESET.PRL	167	1
0	PIP .PRL	157	1
	... ...		

If there are additional files to be displayed, the prompt will
be:

MORE   Hit RETURN to continue...

The file display is followed by a summary

nn files, nnn 1K byte blocks, 1 diskette.

The program then asks:

Is this the correct disk? [default is Y]

If you reply N, you can place a different diskette in the drive.

After a Y response, the next prompt is:

Enter files to be restored:

Each file is entered either by explicitly naming it or by using
the ambiguous filename conventions, (* or ?), followed by a
<Carriage Return>. The program will continue to ask for files to
be restored with the following prompt:

More (hit RETURN when done):

Specifying *.*[g*]<CR> will ask for all files to be restored.

If you specify the same file more than once, no harm is done.
Only one copy will be restored.

When only a <Carriage Return> is given to the MORE prompt, the
program gives the following messages:

Restoration will begin.

Restoring file: xxxxxxxx.xxx   User n

If the old file already exists on the hard disk, the program will warn you with the following message:

CAUTION file already on hard disk,
Type Y to erase old file and continue, N to skip this file: [default is Y]

When all files have been transferred back from the diskette to the hard disk, the message will be given that:

Restoration is complete.

Finally, the program will return to the menu to allow you to choose another function or to quit the program.

L   THE LIST FUNCTION

List Filenames From A Backup Floppy Diskette

The list function reads the MAP file from a diskette and displays its contents on the screen. The contents include the user label, which number the diskette is in its set, and the file names for all diskettes in the set. The diskette location of each file is shown.

If desired, you can use the Control-P facility of the operating system to print a copy of what you see on the screen. However, the Print function shown next gives a more concise copy.

When you start this function by indicating L for List, the prompt you will get is:

Which disk? [default is B]

After you choose the appropriate disk, the next prompt will be:

Please place the diskette to be listed in Drive x; hit RETURN to continue...

When the diskette has been inserted and the Return hit, the program will give the information as shown in the following example:

Diskette on Drive B is number 1 of 1
Label: User 7 Files, August 3

```
User#    Filename.ext    Records    On Disk(s)
------------------------------------------------
  0      ASM     .PRL      156          1
  0      DSKRESET.PRL      167          1
  0      PIP     .PRL      157          1
```

3 files, 61 1K byte blocks, 1 diskette

If the information cannot be displayed entirely on the screen, it is shown a page at a time. You are prompted with:

MORE?

Press Carriage Return when you wish to see the next page.

When all the contents have been listed, the program will return to the menu to choose another function or quit the program.

P   THE PRINT FUNCTION

Print Filenames From A Backup Floppy Diskette

This function must be preceded by a Backup, Restore, or List function, because it lists the MAP file currently in memory from a prior operation.

It allows the printing of a list of file names in a more concise manner than the List operation. Rather than printing directly on the printer, it is meant to be used with the Control-P facility. (Entering Control-P causes the operating system to print whatever is shown on the screen.)   After hitting the P key, the prompt given is:

Please type Control-P and ready printer, then hit
RETURN to continue...

The program then displays and prints the MAP information. File identifications are shown in a concise form, as user number, file name, extension. Five identifications fit on each line.

Diskette number n:

n:xxxxxxxx.xxx   n:xxxxxxxx.xxx n:xxxxxxxx.xxx ....

When the display and print is finished, the program asks you to stop printing with

Type Control-P again, then hit RETURN to continue.

A warning message is printed if either the first or last file is not on one complete diskette.

Error Handling

The error messages discussed below are generated by the BACKUP
program. You may also encounter error messages from your CP/M or
MP/M operating system. In some cases, you will see both system
error messages and BACKUP error messages. Note that when a CP/M
message, such as a BDOS Error, is displayed, the system pauses
requiring a Carriage Return to proceed. With MP/M, no operator
response is required. For information on system errors, consult
your CP/M or MP/M manuals.

ERRORS WHILE BACKING UP

1.   Permanent Error. Disk is bad.

BACKUP has detected a floppy diskette error while backing up
files, and could not recover. This warns of a potentially
hazardous error. The backup should be redone on another
diskette.

2.   Can't open hard disk file.

The hard disk file is password read-protected or locked. BACKUP
aborts. Turn off password protection, or set a default password,
and retry the Backup function.

3.   ERROR on hard disk, file is marked.

A read error has occurred on the hard disk. BACKUP will skip the
hard disk sector and fill the corresponding floppy disk sector
with E5's. On the MAP file list for this backup session, the
error will be noted alongside the file name. When this file is
restored, the error sector will have E5's.

4.   (System error message.)

Will restart backup from beginning of this diskette.

This message follows an error message caused by a floppy-disk
failure during reading or verifying the backup files. The opera-
tor is then instructed to place another diskette into the floppy
drive and press Return to continue the backup operation. The
contents of the diskette with errors on it will be rewritten.

ERRORS WHILE RESTORING

1.   Please insert PROPER diskette.

BACKUP reads the label of every diskette before restoring files
from it. This message occurs for two reasons. A). A diskette
within a set does not have the same label as the first diskette
in the set. B). The diskette has the wrong number within its
set.

2.   Diskette is not a backup diskette.

There are three possible causes of this message.   A). The BACKUP
program cannot find either the MAP or the DATA file on the floppy
diskette because one or both were erased.   B). The diskette has
neither MAP nor DATA file because it is not a backup diskette.
Use the system command DIR to check these two possibilities.   C).
The MAP an DATA files on the diskette were created under a
different user number.   This can be corrected by using the -U
option described under "Command Line Options" in this document.

3.   Sector will be skipped.

A data error has occurred while writing on the hard disk, or a
verify error while reading from the hard disk.   The error sector
is skipped and its address of is displayed.   The operator should
insert that sector into the bad sector table.

4.   No more room on hard disk.

The hard disk has been filled by restore files before the end of
the restore operation.   To recover, erase hard disk files that
are not essential and selectively restore only essential files.
By selectively restoring some files and then using the system
operation STAT, it is possible to see how much hard disk capacity
remains.

5.   Bad MAP file (permanent), try another diskette.

A data error occurred when BACKUP read the MAP file.   At this
point you should mount a different diskette from the backup set.
Only ONE diskette from the backup set need have a MAP file that
is completely error free.   After one MAP file has been success-
fully read, the BACKUP program only reads the label from the MAP
files of the other floppy diskettes.   (The label is the first MAP
record.)   If a data error occurs while reading one of these
labels, BACKUP will ask if you wish to override the label test
process.   Therefore, even if an error occurs while reading MAP
files or labels, all files can still be restored.

6.   Floppy disk has permanent error.

A data error occurred when BACKUP read the DATA file.   The cor-
responding sector on the hard disk is filled with E5's and the
sector on the floppy diskette is skipped.

7.   Floppy disk is inconsistent.

The files on the floppy diskette have been tampered with.   This
message occurs during the restoration of a particular hard disk
file; that file is not usable because BACKUP fills part or all of
the file with null sectors (sectors with E5's) in order to re-
solve the discrepancy.

SYSTEM ERROR

The following error may occur under MP/M. It should never occur under CP/M.

    System
    Fatal error -- Aborting

This means the system environment is incorrect. It is not a recoverable error. Possible causes are that the number of locks in the lock list was exceeded, that another user has custody on a disk drive, and so forth.

Command-Line Options (Submit File Facilities)

BACKUP includes provisions for entering answers to questions on the command line at the time BACKUP is invoked. This facility is especially useful when constructing SUBMIT files.

A SUBMIT file is a text file containing commands for the operating system to execute. Entering one command will execute all commands in the file. This is useful for developing a simple approach to handle a complicated procedure which must be done often. See your CP/M or MP/M manuals for information on how to construct and execute a SUBMIT file.

Command-line options are preceded with a "-", as with "-L". Here is a list and explanation of the command-line options, followed by some examples. The options may be in capital or small letters. When a string or value follows an option, there must be a blank between.

    Erase   -E

    This erases prior backup files on the floppy diskette, if present, before writing new backup files. It is the equivalent of "ERA MAP" and "ERA DATA" on the diskette.

    Label   -L "string"

    The string which follows becomes the user label when backing up. Because the string is on the command line, lower-case characters are changed to upper-case. Quotation marks, which are optional, allow placing blanks in the string. Either single or double quotation marks can be used.

    More Suppress   -M

    Suppresses the MORE prompt during listing of MAP file.

Output Suppress   -O

This option is used with MP/M to suppress output during
backup. It allows the console to be detached by using the
MP/M function, Control-D.

Prompt Response   -P "string"

The string which follows is presented to the program as
responses to questions normally requiring operator answers.
It cannot be used to provide a label. See the examples
below. The quotation marks are optional, and either single
or double quote marks can be used.

Query   -Q

Causes the program to ask Y/N, that is, whether or not to
write, for each file being restored. Normally only files
that are already on the hard disk are queried Y/N.

User Number   -U n

Provides a user number n, (0-15), for the MAP and DATA files
written on the floppy diskette. If no number follows -U, 0
is assumed.

Filename   name name name...

One or more names of files to back up. Any number of these
names may appear on a line, separated by a space between
names.

EXAMPLES

Here are some examples. The general form is that command options
follow "BACKUP" and precede any file specifications. When a
string or number follows an option, there is a space between.

0A>BACKUP -P "LB"<CR>

This specifies a prompt response of L and B, that is, List
for drive B. It will display (list) the MAP file of the
diskette on drive B. The quotation marks are optional.
When the list is finished, the user will be within the
BACKUP program. Specifying "LBQ" would list and quit.

0A>BACKUP -P BABYQ *.*[G*]<CR>

The prompt response is B, A, B, Y, and Q. It asks for a
Backup from disk A to disk B, gives a reply of Yes to "Is
this OK?", and at the end says to Quit. The Backup file
specification is for all the files of all users, specified
by "*.*[G*]". These command line options provide all
responses except the label, which will be entered by the
operator during execution.

3-29

0A>BACKUP -P BABYQ -L "MAY PAYABLES" *.PAY<CR>

The prompt response specifies a Backup from disk A to disk
B, a Yes reply, and to Quit at the end. The user label "MAY
PAYABLES" is provided. The backup file specification is for
all files with an extension of .PAY, specified by "*.PAY".

Command options can be grouped. For instance, the last example
could have been:

0A>BACKUP -PL BABYQ "MAY PAYABLES" *.PAY<CR>

When options are grouped, the appropriate information follows in
order, in separate groups, with any file specification informa-
tion at the end. In the example above, "BABYQ" pertains to -P,
and "MAY PAYABLES" pertains to L.

MP/M II DIRECTORY

To display the MP/M II directory, enter the SDIR command as
outlined below:

```
dsdir
00:00:15 A:SDIR    .PRL

Directory For Drive A:   User  0

     Name       Bytes   Recs   Attributes        Name       Bytes   Recs   Attributes
------------- ------- ------- ------------   ------------- ------- ------- ------------
ABORT    PRL     4k       5 Dir RO          ABORT    RSP     4k       5 Dir RW
ASM      PRL    12k      74 Dir RO          BACKUP   COM    24k     169 Dir RW
BNKBDOS  SPR    12k      81 Dir RW          BNKXDOS  SPR     4k       7 Dir RW
BNKXIOS  SPR    12k      88 Dir RW          CONSOLE  PRL     4k       4 Dir RO
DDT      COM     8k      42 Dir RW          DIR      PRL     4k      14 Dir RO
DISKSTAT PRL     4k      14 Dir RO          DSKRESET PRL     4k       5 Dir RO
DUMP     PRL     4k       6 Dir RO          ED       PRL    12k      68 Dir RO
ERA      PRL     4k      15 Dir RO          ERAQ     PRL     4k      29 Dir RO
FTP      COM     4k      20 Dir RW          FTP12    COM     4k      20 Dir RW
FTP24    COM     4k      20 Dir RW          FTP31K   COM     4k      20 Dir RW
FTP41K   COM     4k      20 Dir RW          FTP48    COM     4k      20 Dir RW
GENHEX   COM     4k       6 Dir RW          GENMOD   COM     4k      10 Dir RW
GENSYS   COM    12k      76 Dir RW          INSTMPM  COM    24k     177 Dir RW
LIB      COM     8k      56 Dir RW          LINK     COM    16k     122 Dir RW
LOAD     COM     4k      14 Dir RW          MPM      SYS    36k     258 Dir RW
MPMFLLDR COM     8k      62 Dir RW          MPMHDLDR COM    12k      66 Dir RW
MPMLDR   COM     8k      45 Dir RW          MPMSETUP COM    16k     122 Dir RW
MPMSTAT  BRS     8k      33 Dir RW          MPMSTAT  PRL     8k      33 Dir RO
MPMSTAT  RSP     4k       3 Dir RW          MUTIL    COM    16k     116 Dir RW
PIP      PRL    12k      77 Dir RO          PRINTER  PRL     4k       8 Dir RO
PRLCOM   PRL     4k      21 Dir RO          RDT      PRL     8k      50 Dir RO
REN      PRL     4k      19 Dir RO          RESBDOS  SPR     4k      29 Dir RW
RMAC     COM    16k     106 Dir RW          SCHED    BRS     4k      12 Dir RW
SCHED    PRL     4k      20 Dir RO          SCHED    RSP     4k       3 Dir RW
SDIR     PRL    20k     137 Dir RO          SET      PRL     8k      60 Dir RO
SETUP    FIL     4k       1 Dir RW          SHOW     PRL     8k      60 Dir RO
SPOOL    BRS     4k      20 Dir RW          SPOOL    PRL     4k      17 Dir RO
SPOOL    RSP     4k       5 Dir RW          STAT     PRL    12k      78 Dir RO
STOPSPLR PRL     4k       5 Dir RO          SUBMIT   PRL     8k      42 Dir RO
SYSTEM   DAT     4k       2 Dir RW          TMP      SPR     4k      11 Dir RW
TOD      PRL     4k      20 Dir RO          TYPE     PRL     4k      11 Dir RO
USER     PRL     4k       8 Dir RO          XDOS     SPR    12k      79 Dir RW
XREF     COM    16k     121 Dir RW

Total Bytes      =    520k   Total Records =     2967  Files Found =    45
Total 1k Blocks  =    404    Used/Max Dir Entries For Drive A:    65/ 177
0A>
```

To print a file directory, enter the command outlined below:

     0A>**SDIR [CONTROL] P**

and press the RETURN key. To enter a [CONTROL] P, hold down the
CTRL key and press P, then release both. After the directory is
printed, enter another [CONTROL] P and press the RETURN key.
(Otherwise, whatever shows on the console prints.) For addi-
tional information on [CONTROL] P, see the MP/M II User's Guide.

READER COMMENT FORM

Altos Computer Systems
2641 Orchard Park Way
San Jose, CA 95134

This document has been prepared for use with your Altos Computer
System. Should you find any errors or problems in the manual, or
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section numbers, where applicable.

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System Model Number_____

Serial Number_____

Document Title_____

Revision Number_____Date_____

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