

ACS 8000 COMPUTER SYSTEM
MP/M II OPERATING SYSTEM SUPPLEMENT

NOVEMBER 1982

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NOTE

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SECTION 1.

MP/M II PROGRAM DESCRIPTION

GENERAL INFORMATION

This supplement 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 ACS 8000 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 Section 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 ACS 8000 computer system. One is booting from a floppy diskette and the other from a hard disk. When booting from a floppy diskette on a -10, -12, or -14 model of the ACS 8000 computer, it is necessary to use the left-hand (LH) floppy disk drive. When booting from a -15 model, it is necessary to use the right-hand (RH) floppy disk drive. In both cases, this is also designated as floppy drive 0.

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 sources 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 structure 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 characters, 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 information 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 knowledge 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 discussion of the GENSYS utility are useful to all users of the MP/M II system.

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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:

```
ØA>MPMSETUP<CR>
```

In this example, the ØA> 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:

```
ØA>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 this supplement pertains to MP/M II version 2.12FØ. It does not obsolete previous revisions of this document. In this version:

- 1) It is no longer necessary to rename an XIOSnnn.SPR file to BNKXIOS.SPR in order to install the system.
- 2) Installation is simplified. Calculation of logical disk drive capacities is now done automatically. Procedures for

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backing up the the distribution disk are now automatically executed as part of system installation.

- 3) System parameters are now contained in SETUP.FIL. This makes it easier to setup MP/M using MPMSETUP.COM. In addition, MPMSETUP can now be run from any bank.
- 4) MUTIL.COM allows floppy formatting and copying under MP/M without having to reboot from the ADX system disk.
- 5) Version 2.12F0 supports up to 400 Hex bytes of *.RSP's in system common memory.

SECTION 2.

INSTALLATION OF MP/M II

INTRODUCTION

The installation of MP/M II has been simplified in this release such that there are only three steps to execute if your system is configured with a hard disk and only two steps to execute if your system does not have a hard disk unit. To install MP/M II on your ACS 8000 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 0 (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:

MP/M-II V2.0 Loader
Copyright (C) 1981, Digital Research

Nmb of consoles = 4
Breakpoint RST # = 7
Z80 Alternate register set saved/restored by dispatcher

Memory Segment Table:
SYSTEM DAT FF00H 0100H
TMPD DAT FE00H 0100H
USERSYS STK FD00H 0100H
XIOSJMP TBL FC00H 0100H
RESBDOS SPR F000H 0C00H

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XDOS	SPR	CE00H	2200H
ABORT	RSP	CD00H	0100H
MPMSTAT	RSP	CC00H	0100H
SCHED	RSP	CB00H	01004
Spool	RSP	CA00H	0100H
BNKXIOS	SPR	A200H	2800H
BNKBDOS	SPR	7F00H	2300H
BNKXDOS	SPR	7D00H	0200H
TMP	SPR	7900H	0400H
MPMSTAT	BRS	6B00H	0E00H
SCHED	BRS	6600H	0500H
Spool	BRS	5E00H	0800H
LCKLSTS	DAT	5400H	0A00H
CONSOLE	DAT	5000H	0400H

MP/M II	Sys	5000H	B000H	Bank 0
Memseg	Usr	0000H	C000H	Bank 1
Memseg	Usr	0000H	C000H	Bank 2
Memseg	Usr	0000H	C000H	Bank 3
Memseg	Usr	0000H	5000H	Bank 0

Altos MP/M II V2.12F0
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 automatically.

2. Enter the following after the system prompt:

0A>INSTMPM <CR>

The following message will then appear on the screen:

Altos 8000 series installation program V1.0

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

* Cylinder count will be made equal to the maximum number of cylinders available minus 24 tracks for diagnostic programs. On an ACS 8000-10 or ACS 8000-12, 24 tracks are contained on 6 cylinders while on an ACS 8000-14, 24 tracks are contained on 3 cylinders.

You will then be asked the following:

Do you have a properly installed 2nd Hard Disk (Y/N)

If you answer "N" for no, you will be asked the following:

How many floppy drives does your system have ?

The ACS 8000 series can accommodate from 0 to 3 floppies.

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

Number of floppy drives = (0 to 3)
Primary hard disk capacity = (10, 20 or 40Mb)
Add on hard disk capacity = (10, 20 or 40Mb)

Go to step 2 below to continue the installation.

If you answer "Y" for yes to the question concerning a second hard disk the above procedure for initialization and configuration is executed for the additional disk. After the procedure is complete, you will then be asked the following:

How many floppy drives does your system have ?

The ACS 8000 series can accommodate from 0 to 3 floppies.

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

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Number of floppy drives = (0 to 3)
Primary hard disk capacity = (10, 20 or 40Mb)
Add on hard disk capacity = (10, 20 or 40Mb)

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

If your system has a hard disk the MP/M II files from your master floppy disk will be copied to the hard disk. This step will also set up the default settings for your system (for example the first logical drive on the hard disk after installation will be designated as drive A). The files that are copied to the hard disk are displayed on the screen.

3. 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 "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.

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.

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 you are asked the following:

How many floppy drives does your system have ?

The ACS 8000 series can accommodate from 0 to 3 floppies.

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 "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 that a copy of the MP/M II diskette be made as soon as possible.

If the response is "Y" for Yes, insert a blank diskette into floppy drive 1 (the left-hand drive). The blank disk will be formatted and the MP/M II files on the diskette residing in floppy drive 0 (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 original master disk in a safe place. The newly created diskette will be the working master. Insert this diskette 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.

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 (52 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 advisable 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. Logical drives vary in size depending on whether they are the first, second, etc. drive on the disk. Each logical drive has its own directory of files. 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.

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Logical disk assignments for hard disks for the ACS 8000 under MP/M II are presented below. There are six possible configurations.

<u>Number of Hard Disks</u>	<u>Number of Logical Drives</u>
1) One Hard Disk	
A) 10 Megabyte	2
B) 20 Megabyte	3
C) 40 Megabyte	5
2) Two Hard Disks	
A) two 10 Megabyte	4
B) two 20 Megabyte	6
C) two 40 Megabyte	10

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, an ACS 8000-12 system configured with a single 20 Megabyte hard disk drive and a single floppy disk drive will assign logical drives "A", "B", and "C" to the hard disk and logical drive "D" to the floppy disk.

NOTE

Logical drive assignments can be changed using MPMSSETUP.

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Table 2-1 below summarizes the logical disk assignments for each of the configurations for the ACS 8000 series.

TABLE 2-1 ACS 8000 Series Logical Disk Assignments

<u>Number of Floppies</u>	<u>Floppy Disks</u>	<u>Hard Disks</u>
1	C	10 Megabyte A,B
2	C,D	10 Megabyte A,B
1	D	20 Megabyte A,B,C
2	D,E	20 Megabyte A,B,C
1	F	40 Megabyte A,B,C,D,E
2	F,G	40 Megabyte A,B,C,D,E
1	E	two 10 Megabyte A,B,C,D
2	E,F	two 10 Megabyte A,B,C,D
1	G	two 20 Megabyte A,B,C,D,E,F
2	G,H	two 20 Megabyte A,B,C,D,E,F
1	K	two 40 Megabyte A,B,C,D,E,F,G,H,I,J
2	K,L	two 40 Megabyte A,B,C,D,E,F,G,H,I,J

SECTION 3.

USING ALTOS MP/M II UTILITY PROGRAMS

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.

NOTE

The menu that appears when MUTIL is first invoked is not the same as that used in previous versions of the FLPY utility because a bootcopy routine for system tracks has been included.

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

ØA>MUTIL <CR>

The program will sign on with the following:

WARNING! This program affects * ALL *** other users!
Do you want to continue? (Y/N)...**

Enter "N" to abort the program.

If you enter "Y" for yes, the system will respond with the following:

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**** ALTOS FLOPPY DISK UTILITIES **** Version 3.0

Select one of the following options :

- 0. Format disk only
- 1. Boot Copy of sytem tracks

**** The following options require TWO floppy drives ****

- 2. Copy system tracks
- 3. Copy SINGLE density disk ALTOS mode 0
- 4. Copy SINGLE density disk data only
- 5. Copy DOUBLE density disk ALTOS mode 2
- 6. Copy DOUBLE density disk data only
- 7. Copy BLOCKED DOUBLE density drive ALTOS mode 1
- 8. Copy BLOCKED DOUBLE density drive data only
- 9. End this program

When any of the above menu items is invoked, an easy to use, self-explanatory sub-menu is presented with instructions for its proper use.

MPMSETUP

Introduction

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 -- 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:
```


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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 current 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:

```
0A> MPMSETUP A: C 1200 300 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 1200 baud and console #2 to 300 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.

NOTE

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 77 Cylinders, 1 Heads, 9 * Sectors Per Track  
0 Temporary Errors, 0 Permanent Errors
```

```
Drive(s) B Hard Disk 256 Cylinders, 4 Heads, 17 Sectors Per Track  
0 Temporary Errors, 0 Permanent Errors
```

* Varies with mode that is used.

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 ACS 8000 series 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 "m". This is a memory device of up to 96 kilobytes of storage capacity. If fewer than four 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 four 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 disk can be changed.

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 Processes cannot accommodate more than 400 hex bytes of common system memory.

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```
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 (paren)s.
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 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 (#16) ? <CR>
Total open files/system (#32) ? <CR>
Bank switched memory (Y) ? <CR>
Number of user memory segments (#3) ? #1 <CR> **
Common logging at console (Y) ? <CR>
```

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

BNKXIOS	SPR	AE00H	1F00H
BNKBDOS	SPR	8B00H	2300H
BNKXDOS	SPR	8900H	0200H
TMP	SPR	8500H	0400H
LCKLSTS	DAT	7400H	0300H
CONSOLE	DAT	7300H	0100H

Figure 3-1. Sample GENSYS Run

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Enter memory segment table:

Base, size attrib, bank (87,79,80,00) ? <CR>

MP/M II SYS	8700H	7900H	BANK	00
MEMSEG	USR	0000H	C000H	BANK 01

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

GENSYS DONE

0A>

Figure 3-1. Sample GENSYS Run (continued)

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MP/M II DIRECTORY

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

Directory For Drive D: User 0

Name	Bytes	Recs	Attributes	Name	Bytes	Recs	Attributes
ABORT	PRL	2k	5 Dir RW	ABORT	RSP	2k	5 Dir RW
ASM	PRL	10k	74 Dir RW	BACKUP	COM	22k	169 Dir RW
BNKBDOS	SPR	12k	81 Dir RW	BNKXDOS	SPR	2k	7 Dir RW
BNKXIOS	SPR	6k	48 Dir RW	CONSOLE	PRL	2k	4 Dir RW
DIR	PRL	2k	14 Dir RW	DSKRESET	PRL	2k	5 Dir RW
ED	PRL	10k	68 Dir RW	ERA	PRL	2k	15 Dir RW
ERAQ	PRL	4k	29 Dir RW	FTP	COM	4k	20 Dir RW
FTP24	COM	4k	20 Dir RW	FTP31k	COM	4k	20 Dir RW
FTP41k	COM	4k	20 Dir RW	GENMOD	COM	2k	10 Dir RW
GENSYS	COM	10k	74 Dir RW	LIB	COM	8k	56 Dir RW
LINK	COM	16k	122 Dir RW	LOAD	COM	2k	14 Dir RW
MODE	PRL	2k	8 Dir RW	MPM	SYS	36k	286 Dir RW
MPMSTAT	BRS	6k	33 Dir RW	MPMSTAT	PRL	6k	33 Dir RW
MPMSTAT	RSP	2k	3 Dir RW	MSETUP	DIA	4k	18 Dir RW
MUTIL	COM	22k	173 Dir RW	PIP	PRL	10k	77 Dir RW
PRINTER	PRL	2k	8 Dir RW	PRLCOM	PRL	4k	21 Dir RW
RDT	PRL	8k	50 Dir RW	REN	PRL	4k	19 Dir RW
RESBDOS	SPR	4k	29 Dir RW	RMAC	COM	14k	106 Dir RW
SCHED	BRS	2k	12 Dir RW	SCHED	PRL	4k	20 Dir RW
SCHED	RSP	2k	3 Dir RW	SDIR	PRL	18k	137 Dir RW
SET	PRL	8k	60 Dir RW	SHOW	PRL	8k	60 Dir RW
SPOOL	BRS	4k	20 Dir RW	SPOOL	PRL	4k	17 Dir RW
SPOOL	RSP	2k	5 Dir RW	STAT	PRL	10k	78 Dir RW
STOPSPLR	PRL	2k	5 Dir RW	SUBMIT	PRL	6k	42 Dir RW
SYSTEM	DAT	2k	2 Dir RW	TIP	COM	8k	62 Dir RW
TMP	SPR	2k	11 Dir RW	TOD	PRL	4k	20 Dir RW
TYPE	PRL	2k	11 Dir RW	USER	PRL	2k	8 Dir RW
XDOS	SPR	10k	79 Dir RW	XREF	COM	16k	121 Dir RW

Total Bytes = 372k Total Records = 2517 Files Found = 56
 Total 1k Blocks = 342 Used/Max Dir Entries For Drive D: 61/ 96

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 additional information on <CONTROL-P>, see the MP/M II User's Guide.