PC-MOS®

Installation & Quick Start

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Introduction to PC-MOS

PC-MOS® is an advanced operating system designed to provide Multitasking and Multiuser capability to personal computers. This capability lets you maximize the processing power of your computer by sharing its resources among several tasks and/or users. This is in sharp contrast to standard single-tasking/single-user DOS compatible operating systems.

What to Read

The following list describes some of the PC-MOS advanced features, what they can do for you, and where to look in the documentation for information on how to use them.

Auto-Install Program and Auto Configuration Utility

A easy to use menu-driven automatic installation program is available. It can be used to partition your hard drive, create directories for MOS files, and copy the MOS files onto the hard disk.

A menu-driven automatic configuration utility (ACU) is also available to step you through the creation of a CONFIG.SYS file to set up your system configuration.

See the Installation section of this manual for complete instructions on these programs.

Memory Management

PC-MOS lets you access 16 megabytes of RAM (extended memory) and allocate the usable equivalent of a DOS 640K RAM area to each user or background task for running multiple applications. See the Multitasking/Multiuser chapter and the discussion of the MEMDEV driver in the Configuration chapter in your User Guide.

Disk Caching

Built in, user adjustable, disk caching gives you better disk performance, greatly increasing system throughput. See the CACHE statement in the Configuration chapter of your User Guide.

Familiar Commands

PC-MOS contains many commands that you will use on a routine basis. Many of these will be familiar to you if you have previous experience in a DOS environment. In addition, there are specialized commands which make PC-MOS more powerful that are not normally available in a standard DOS environment. See the General Commands chapter in your User Guide for more complete information.

Multitasking/Multiuser Operation

PC-MOS lets you run multiple DOS applications simultaneously, both at the host computer and at each user terminal or workstation. All users can "hot-key" among full-screen DOS applications quickly and easily. See the Multitasking/Multiuser section in this manual and in your User Guide for complete information on adding and removing tasks.

Resource Control

PC-MOS lets you customize system performance by varying different aspects of a specified task, such as the priority or processing time allocated to each task or user. You can also increase or decrease the "time slicing" interval for smoother system performance and improved multitasking capabilities. See the MOS and MOSADM Utility commands in the Multitasking/Multiuser chapter of your User Guide.

Powerful Batch Language

PC-MOS' powerful batch file language capabilities let you easily design menus, validate keyboard input, nest batch files and manage separate startup batch files to customize the environment for each task. See the Batch Files chapter in your User Guide for complete information.

PC-MOS System MONITOR

The MOS MONITOR is a terminate and stay resident (TSR) program that allows you to view and change your system's multitasking and multiuser environment without having to stop what you are presently doing. You can add and remove tasks, change priority and time slice values for tasks, restart tasks, and control disk caching and task switching -- all from within the MOS MONITOR.

See the Multitasking/MultiUser chapter of your User Guide for information on using the MOS System MONITOR.

PC-MOS Editor

The PC-MOS Editor is a full screen editor with two modes of editing. Both a Command (line editing) mode and a Visual (text editing) mode are provided so you can edit files quickly and easily. See the Editor chapter of your User Guide for information on using the MOS Editor.

DEBUG Utility

PC-MOS provides a DEBUG utility that lets you make changes to existing programs and check for problems during execution. This utility is a powerful tool normally reserved for those with programming experience. See the DEBUG chapter in your User Guide.

Printer Control

If you have multiple users or multiple printers you may want to use the PC-MOS Print Spooler to control printing operations on the system. The print spooler allows the sharing of system printers among all users on the system. The print spooler lets you spool files to a disk and organize them by priority, form type, class and disposition prior to printing.

Users can examine the status of print jobs in progress, route output to multiple printers simultaneously through a single print partition, and "hot-key" between local and spooled printing. See the Print Spooler chapter in your User Guide for information on setting up the print spooler.

Security

PC-MOS lets you selectively secure access to sensitive data at the file, directory, and partition levels. You can secure individual files or entire directories from unauthorized use, and even assign your own passwords and user ID codes. You can even employ data encryption for disk reads and writes. PC-MOS must be installed on your system before security can be implemented. See the Security chapter in your User Guide for instructions on setting up security.

Intertask Communications

PC-MOS includes several levels of intertask communication, including NETBIOS emulation and intertask piping. See NETBIOS emulation and Input/Output redirection in your User Guide for more information.

On-Line HELP Utility

An on-line help utility is always available in PC-MOS. You can use the HELP command to display a list of commands available in PC-MOS. You can then select individual commands to review the command form and an explanation of its use. You can also customize keywords and screen text in the Help Utility to suit your needs.

Command Recall Buffer

PC-MOS lets you recall up to 50 previously entered commands for reuse or editing. This saves the time and effort or having to constantly retype commands. See the Overview chapter in your User Guide.

Warm Reboot at Workstations

PC-MOS lets you warm boot a single workstation, allowing a user to reboot a task without interrupting other users. Pressing the CTRL - ALT - DEL keys at the same time at a workstation will reboot just that task. See the Multitasking/Multiuser chapter of your User Guide for more information.

Training Workshops

The Software Link employs a full-time training staff to educate anyone who markets, installs, supports or uses our products. Both introductory and comprehensive technical workshops are offered.

Introductory Workshops

These are 1-day workshops designed for novice users or resellers who would like a review of the basics. Topics covered include:

- Basic PC Architecture
- Microprocessor Structure
- Memory Addressing
- Time Slicing and Multitasking/Multiuser Theory
- The PC-MOS Operating System
- Basic System Design using The Software Link's products

Comprehensive Technical Workshops

These are advanced hands-on workshops that are held both at The Software Link corporate headquarters in Atlanta (5 days) and at various major cities in the United States and Canada (4 days). Topics covered include:

- Installing PC-MOS on different machines as a MOS only environment or as a dual MOS/DOS operating system environment.
- Configuring and fine tuning the system environment for various multitasking and multiuser systems.
- Invoking the PC-MOS intrinsic and extrinsic commands.

Training Workshops

- Using the PC-MOS batch file language to create user defined menus and specialized processes.
- Creating a hybrid system that combines distributed and shared processing by integrating PC-MOS and LANLink 5X.
- Expanding a Novell network through the PC-MOS GATEWAY to Novell's NetWare.
- Installing and configuring The Software Link's high speed, hardware-based, graphics workstation products.
- Providing remote communication and terminal emulation capabilities with PC-EmuLink.
- Setting up and maintaining security at the file, directory and task level.
- Installing and using the PC-MOS Print Spooler to control multiple users or multiple printers on a system.
- Using the PC-MOS Editor in both command and text modes.

Contact your Software Link sales representative for complete information about the training workshop schedule and pricing.

Getting Started

This manual contains instructions to help you easily install and configure PC-MOS. (Though PC-MOS can be run on floppy disk systems, hard disk systems are recommended.)

Startup Procedures

The required steps for getting started with PC-MOS are:

1. Run the Auto-Install program (or follow the appropriate manual installation instructions) to prepare your hard disk and/or transfer the PC-MOS files to the hard disk.

2. Run the Auto-Configuration Utility program (or manually configure your system following the configuration examples and User Guide Configuration Chapter) to build or modify your CONFIG.SYS file to establish your system configuration.

3. Use the ADDTASK command to set up your multitasking or multiuser environment as required. (Refer to the Multitasking/Multiuser section in this manual and/or your PC-MOS User Guide for instructions.)

NOTE: Check the README file provided on the PC-MOS diskette(s) for any changes or additions not covered in the PC-MOS User Guide.

Several sample configurations, with the necessary CONFIG.SYS and AUTOEXEC.BAT files, are shown in this manual for your reference.

Accessing Drives

The letters A to Z are used by MOS as identifiers for accessing the information stored on disk drives. MOS defaults to using letters A and B for accessing the information on one or two floppy diskette drives, and using drive letters C to Z for accessing information on hard disks, RAM disks, and other direct-access storage devices.

Backup Original MOS Diskette(s)

Your version of MOS may include one or more diskettes. The original diskette(s) you receive contains the operating system and all supporting programs. You should make a backup copy of the original diskette(s) and put the original(s) away for safekeepping. The original MOS diskette labeled SYSTEM contains the boot record.

Have extra diskette(s) ready to use for your backup copy. Attach a label to the diskette(s) and write on the label what the diskette(s) contain. For example, PC-MOS BOOT DISK. If your version has more than one diskette, you may want to identify each backup diskette using its original name. You should also write the PC-MOS version number on the label.

One

Place the original MOS diskette labeled SYSTEM in drive A of your computer. Turn on the computer, or if it is already on, you may reboot from the keyboard by pressing the CTRL, ALT and DEL keys simultaneously. MOS will "boot up" from the diskette, and the system prompt, [A:\], will appear on the video screen.

Two

To copy the entire contents of an original diskette, including the boot sector, you should use the DISKCOPY command. If your version of MOS has more than one diskette, repeat this step for each additional diskette. (You will need an empty diskette for each MOS diskette you make a copy of with the DISKCOPY command.)

Whether you have a single- or dual-diskette drive machine, type the following command and press ENTER.

```
.DISKCOPY A: B:
```

If you have only one diskette drive in your computer, follow the instructions that appear on the video screen regarding swapping the source and target diskettes in drive A.

Three

When your copies are complete, store the original MOS diskette(s) in a safe place. Keep them for back up purposes only, NOT for daily use. Your MOS backup diskette(s) are now complete and ready to use.

Floppy Disk Systems

With computers that have only floppy disk drives, you must have a PC-MOS boot disk in drive A each time you boot your computer. This will load the operating system into the computer's memory and invoke any automated batch files.

If there are specific application programs that you use on a routine basis, you may want to place the MOS boot sector and system files on the application diskettes to make them bootable. You can use the .MSYS command to copy the MOS boot sector to the diskette.

When .MSYS is complete, copy the MOS system file, $$MOS.SYS, and the command processor files, $$SHELL.SYS and COMMAND.COM, to the diskette. You may then use your application diskette to boot your computer, and set up a batch file to automatically load the application.

Hard Disk Systems

With computers that have a physical hard disk drive, you will want to place MOS on the hard disk and set up your own batch files. If your computer is new, you may also need to define logical disks (called partitioning) and then format the logical disks.

A logical disk (partition) is a portion of the physical hard disk that is designated as a separate disk drive for storing information. MOS uses a unique drive letter to access the information on each logical disk.

For example, a physical hard disk drive may contain 120 megabytes of storage. You may define all 120 megabytes as one logical disk that MOS accesses with the drive letter C. Or, you may want to define two or more smaller logical disks, the first accessed by drive letter C, the second by drive letter D, the third by drive letter E, etc.

If you already have applications set up on your computer running with MS-DOS® or PC-DOS™, you may be able to install MOS over the current operating system on the hard disk. In this case, you do not need to redefine or reformat the logical disks. Skip to "Installing MOS to Replace an existing DOS Environment" in this manual.

Automatic Installation

Using the AUTO-INSTALL Program

Use of the Auto-Install program is recommended for easily and quickly installing PC-MOS on your computer. The Auto-Install program will install PC-MOS on your system by preparing your hard disk to receive PC-MOS and/or copying the PC-MOS files onto the disk.

To use the Auto-Install program insert the PC-MOS SYSTEM Disk in drive A, and reboot your computer. Your computer will boot under PC-MOS from the SYSTEM Disk and automatically load the Auto-Install program. Follow the screen instructions and answer the questions as directed to install PC-MOS.

When you are finished, reboot your computer from the hard disk and use the Auto-Configuration Utility next to set up your system configuration.

NOTE: If you prefer not to use the Auto-Install program, you can use the appropriate set of manual installation instructions in the next section. If you are upgrading to a newer version of MOS it is best to use the Auto-Install program, since the program will check for duplicate files from previous versions. This prevents any problems that may result from mixed version files.

Automatic Installation

Using the AUTO-CONFIGURATION UTILITY

The Auto-Configuration Utility program (ACU) will build a CONFIG.SYS file (or modify an existing CONFIG.SYS) to set up your system configuration.

To run the program, first log onto the subdirectory of your hard disk that contains the PC-MOS program files. (This is usually \PCMOS unless you selected a different name during installation.) At the system prompt, type:

```
ACU
```

and press ENTER. Follow the screen instructions and answer the questions as directed to configure PC-MOS.

Next, refer to the Multitasking/Multiuser section in this manual and/or your PC-MOS User Guide for instructions on using the ADDTASK command to set up your multitasking or multiuser environment as required.

Manual Installation

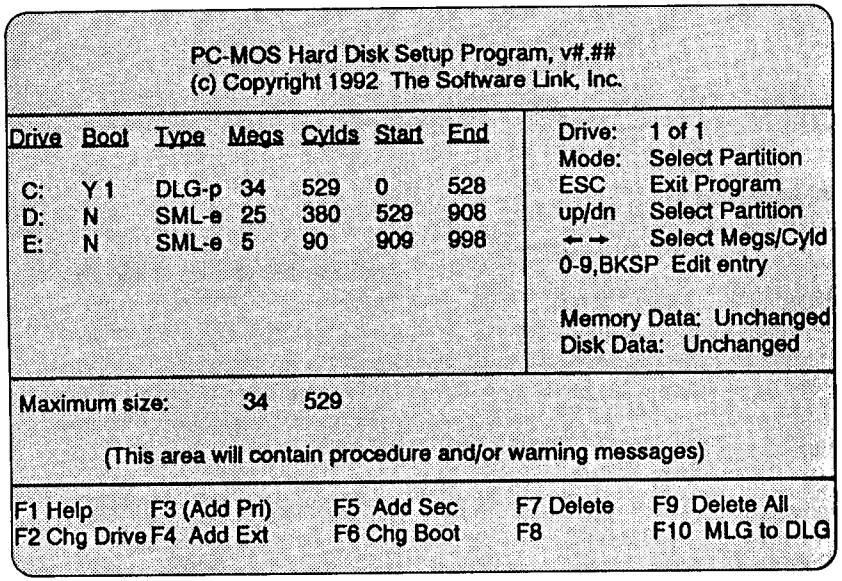
.HDSETUP

If your computer system is new, you must prepare the hard disk for use with PC-MOS. HDSETUP is the program used to assign your available hard disk space to one or more logical disks or "partitions". HDSETUP can partition hard disks with 1024 or less cylinders. Very large hard disks may have more than 1024 cylinders. (HDSETUP can only partition hard drives with greater than 1024 cylinders if sector translation is supported by the drive's BIOS.)

If you have a drive with more than 1024 cylinders, and sector translation is NOT supported by the drive's BIOS, you should use Disk Manager® by OnTrack Computer Systems, Inc. to partition your hard disk. See the section on partitioning your hard disk with Disk Manager for more information.

This section explains the HDSETUP program and menu options. Look over the options now so that you are familiar with them. Later, when following the appropriate instructions to install PC-MOS on your system you may be asked to run this program.

An example of the HDSETUP menu is shown on the following page.



Creating Partitions

HDSETUP is used to assign your available hard disk space to one or more logical disks or "partitions". The F3, F4 and F5 keys are used to create partitions on your hard disk.

The following are the possible entries in the partition "Type" column:

SML-p	a small Primary partition (small means 32MB or less)
SML-e	a small Extended partition
SML-s	a small Secondary partition
MLG-p	a MOS large Primary partition (large means greater
MLG-s	a MOS large Secondary partition than 32MB)
DLG-p	a DOS large Primary partition
DLG-e	a DOS large Extended partition
DLG-s	a DOS large Secondary partition
OTH	a non-DOS/non-MOS partition (e.g. OS/2, UNIX, etc.)

NOTE: All versions of PC-MOS can create and read SML type partitions. However, PC-MOS 5.X will only create and read DLG type partitions, not MLG type partitions. (This was done to gain compatibility with DOS 5.X large partition support.) PC-MOS 4.10 and below will NOT read these new DLG type partitions. Therefore, users with PC-MOS 4.10 and earlier installations with existing MLG type partitions will have to use the HDSETUP conversion utility to convert them to DLG type partitions before they can be used with PC-MOS 5.X.

IMPORTANT:

A Primary partition is required. It must be created before any other type of partition can be added. Extended and Secondary partitions can then be added.

In a PC-MOS only system do NOT use Secondary partitions. Use a Primary partition and (if desired) one or more Extended partitions.

Secondary partitions should ONLY be used on a dual boot system running BOTH PC-MOS AND MS-DOS! A Secondary partition is required in such a system to provide a bootable partition for PC-MOS. The Primary partition (C:) in such a system must be the DOS bootable partition.

You can enter values for the size of the partitions in either Megabytes or Cylinders. Enter the size you want using the 0 through 9 keys. The backspace key deletes one digit at a time to the left so you can make a new entry.

Use the up and down arrows to scroll through the partition list. Use the left and right arrows to select whether you want to make your entry in the Megs or Cylds column.

NOTE: When a value is entered in the Megs column, the largest amount of cylinders is used which still satisfy the megs value. Due to the fact that Megs values must be rounded when the corresponding cylinders value actually produces a fractional portion, the arithmetic applied to the Megs value may seem incorrect at times. For example, if a 40 Megabyte partition is currently selected, and a 42 Megabyte gap follows it, the largest possible size might be reported as 83 Meg. This is unavoidable and a consistent treatment is made in the rounding. The cylinder numbers will always be correct.

Gaps in the cylinder allocation (if any) are displayed along with the actual partition entries. You can't edit the size of a gap.

When a partition has a neighboring gap on at least one side, you can increase its allocation. This will be indicated by the "Largest possible size:" display line. (If there are no neighboring gaps, the line will display the existing size of the selected partition.)

If you increase a partition's size and it is surrounded by gaps on both sides, a prompt will appear to ask if you want to add to the beginning of the partition by pulling cylinders from the preceding gap, or to add to the end by pulling cylinders from the following gap.

If surrounded on both sides and if the increase will use up all of both a preceding and following gap, no prompt appears.

If surrounded on both sides and if the new larger amount would use up one of the gaps and part of the other, the prompt will still appear. You must select which gap you want to be used first. For example, when increasing a partition by 100 cylinders, where it is preceded by an 80 cylinder gap and followed by a 60 cylinder gap, if you answer with "b" to the "add to beginning/end? (b/n)" prompt, all of the 80 cylinders of the preceding gap will be used and then 20 out of the 60 in the following gap will be used.

Deleting (or Resizing) Partitions

To delete a partition, select it and press the F7 key. You can also delete a partition by entering "0" in either the Megs or Cylds column for the partition.

When you DELETE A PARTITION. ALL DATA ON THE PARTITION WILL BE DESTROYED! A verification prompt will appear asking you if you really intend to do that. (The Primary partition can only be deleted when it is the only partition.)

IMPORTANT: Decreasing a partition's size (but not to 0) WILL DELETE ALL THE DATA IN THAT PARTITION, just as if you had deleted the partition entirely! Therefore, first backup any data you want to keep. Resized partitions MUST BE REFORMATTED! You can then restore your data.

If you decrease a partition's size (but not to 0) you must tell HDSETUP what to do with the free cylinders. A prompt will appear asking if you want the subtraction to be done from the beginning or end of the partition. Answering "b" will create a new preceding gap or enlarge a pre-existing one. Answering "e" will do the same with a following gap.

The one exception to this is when the allocation for the Primary partition is reduced. HDSETUP will always make the subtraction from the end, creating or enlarging a following gap. (Having a gap before the Primary partition is not allowed.)

NOTE: The "Memory Data" and "Disk Data" status indicators show whether the disk partition structure data is just changed in memory or actually changed on (written to) the disk. This allows the user to see that no changes are physically made to the disk's partition structure until they exit HDSETUP and answer "Y" to the "SAVE? Y/N" prompt.

Menu Function Keys

Function keys are used to perform various operations with HDSETUP. When HDSETUP is in a mode where a certain function key does not apply, the associated operation is enclosed in parenthesis. For example, "F2 (Chg Drive)" would display on a system with only one hard disk installed.

F1 brings up information on how to use HDSETUP, including what the function keys and other editing keys do.

F2 when two hard drives exist, F2 will toggle between them.

If you have more than one physical hard disk in your computer, this option lets you change to the next hard disk for defining its partition structure. The "Drive 1 of 2" display will change to "Drive 2 of 2" and vice versa.

F3 adds a Primary partition.

Only one Primary partition can exist per physical hard drive. Therefore, F3 will only be active (not shown in parenthesis) when no partitions exist, i.e. one gap entry covering all of the cylinders on the drive will be displayed.

NOTE: The Primary partition takes up one of four available slots in the master boot record partition table.

F4 adds an Extended partition.

This will only be active after there is a Primary partition, when there are still available cylinders to make a new addition, and when the highest drive letter in use has not reached "Z".

NOTE: Since Extended partition are allocated in a chain more can exist than there are free slots for in the master boot record partition table. All Extended partitions combined (up through drive letter "Z") only take up one of four available slots in the master boot record partition table.

Since they are chained, all Extended partitions must be in a group in the partition table, i.e. no other types of partitions can exist in between any Extended partitions.

F5 adds a Secondary partition.

This will only be active after there is a Primary partition, when there are still available cylinders to make a new addition, when the highest drive letter in use has not reached "Z", and when there is still a free slot available within the master boot record partition table.

NOTE: Each Secondary partition takes up one of four available slots in the master boot record partition table.

IMPORTANT: Do NOT use Secondary partitions in a PC-MOS only system. Use a Primary partition and (if desired) one or more Extended partitions. Secondary partitions should ONLY be used as the MOS boot partition on a dual boot system running BOTH PC-MOS AND MS-DOS!

The following chart shows the typical disk partition structures for a PC-MOS only system and dual boot PC-MOS/MS-DOS systems. It also shows the maximum number of Extended partitions that could be created in each case:

Partition Type	PC-MOS only	Dual Boot MOS & DOS
Primary	1	1
Secondary	0	1
Extended	23 (max)	22 (max)

NOTE: All Extended partitions will be assigned drive letters alphabetically BEFORE any Secondary partitions are assigned letters. This is required to maintain compatibility with DOS.

F6 toggles the boot status of the currently selected partition to Y or N. This only applies to the Primary partition and any Secondary partitions.

Only Primary and Secondary partitions can be bootable, not Extended partitions. If there is more than one bootable partition, a number will also appear after the "Y", e.g. "Y 1" or "Y 2". This indicates the boot partition number. (NOTE: Due to the support of Extended partitions AND Secondary partitions, there is not a 1:1 correspondence between the drive letter and the boot partition number. That is why the number is assigned and displayed for you.)

If you designate only one active bootable disk, MOS automatically boots from that disk. If you designate more than one bootable disk, each time you boot your computer a prompt appears asking which partition you want to boot from. You must then make a selection, e.g. press 1, or 2, or 3, etc. as indicated by the HDSETUP display. If an entry is not made, your computer will not boot.

F7 deletes the currently selected partition.

This option is only active when an existing partition is selected. (This option must be used to delete any MOS Large partitions made by PC-MOS 4.10 or earlier, since they can't be edited. Note that MOS Large Primary partitions can be converted using the F10 key conversion utility.)

F8 not used.

F9 deletes ALL partitions on the present hard drive!

F10 converts MOS Large Primary partitions to DOS Large Primary partitions.

This utility will convert existing MOS Large Primary partitions (made by PC-MOS 4.10 or earlier) into DOS Large Primary partitions so that they can be used with PC-MOS 5.X and DOS 5.X.

IMPORTANT: Only MOS Large Primary partitions can be converted to DOS Large Primary partitions!

If any MOS Large Secondary partitions exist, they must be dealt with first. Any data on them should be backed up and the partitions deleted. Then DOS Large Extended partitions should be created to replace them, and the data restored to these new partitions.

Once this is done, any existing MOS Large Primary partitions can be converted to DOS Large Primary partitions with the F10 option.

ESC exits to the operating system. You will be given the opportunity to save your changes to disk. Answering "Y" to the "SAVE? Y/N" prompt will cause HDSETUP to write the new disk partitioning structure to the hard disk(s).

Installing PC-MOS on a New System

Your hard disk should have been prepared for operation (low-level formatted) by the vendor. If not, this must be done before proceeding with the installation. (Also be sure that the system SETUP program has the correct drive type selected for your computer's BIOS.) With the hard disk prepared, the installation process is as follows:

1. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

2. Enter HDSETUP at the [A:\] prompt to display the HDSETUP menu as follows: Type

   HDSETUP

   and press ENTER.

3. HDSETUP will read the existing hard disk structure and display the partition information on screen. If no logical disks exist, go to step 5. If logical disks exist go to step 4.

4. Delete any existing logical disks by pressing F9 - Delete ALL.

   A "Delete ALL Partitions? Y/N" message will display. Press the "Y" key and then ENTER. A second warning message will display indicating that all data on all partitions will be destroyed, and asking if you want to proceed with deleting the partitions. Press the "Y" key and then ENTER to delete all partitions.

   NOTE: If a second physical hard drive exists, press F2 - Change Drive. Then repeat step 4 to delete all partitions on the second hard drive. Then press F2 - Change Drive again to return to the first physical hard drive and go to step 5.

5. Select F3 to create a Primary partition.

   Enter the number of Megs or Cylinders you want to assign to the Primary partition. A Primary partition is required.

PC-MOS supports large volumes, i.e. disk partitions of greater than 32MB. You could therefore make your entire hard drive all one large partition if you desire. If you want to do so, assign all available cylinders to this Primary partition and go to step 7.

If you want to divide your hard disk into multiple partitions, assign only a portion of available disk space to this Primary partition. Then go to step 6.

6. Select F4 to create an Extended Partition.

   Enter the number of Megs or Cylinders you want to assign to the Extended partition.

   Repeat step 6 until you have assigned all available disk space to logical disks.

   IMPORTANT: Do NOT use "F5 - Add Secondary Partition" on PC-MOS only systems. Use a Primary partition and (if desired) one or more Extended partitions. Secondary partitions should ONLY be used on a dual boot system running BOTH PC-MOS and MS-DOS. A Secondary partition is required in such a system to provide a bootable partition for PC-MOS. The Primary partition (C:) in such a system must be the DOS bootable partition.

7. If your system has two physical hard disk drives installed, press F2 to change to hard disk number 2. Repeat steps 5 and 6 to create a Primary partition and any desired Extended partitions on the second hard disk. Then go to step 8.

8. Press ESC to exit HDSETUP. You will be prompted to select whether or not you want to save the new partitioning structure that you just created. Press the "Y" key. This saves the disk partitioning information on the hard disk's track 0. With the PC-MOS SYSTEM Disk in drive A reboot your system by turning the computer off and back on again.

9. Format each logical disk, by entering:

   ```
   FORMAT x:
   ```

   at the [A:\] prompt, where "x" is the logical disk drive letter.

For example, type

```
FORMAT C:
```

then press "Y" and ENTER to format the first logical disk.

Repeat this step for each logical disk you created, i.e. D:, E:, F: etc., if used. Be sure to format any logical disks a second physical hard disk, if installed. FORMAT automatically places a boot sector on the disk.

10. Copy the following files from the PC-MOS SYSTEM Disk in drive A to the root directory of the first logical disk, C:, by entering the following commands:

    ```
    COPY $$MOS.SYS C:\

    COPY $$SHELL.SYS C:\

    COPY COMMAND.COM C:\
    ```

    NOTE: The SYSTEM Disk versions of these three files are the 60-minute timeout versions. After you decide to keep PC-MOS you must open the sealed envelope and follow the initialization instructions to make your installation permanent.

11. Remove the SYSTEM Disk from drive A and reboot your system from the hard disk by turning the computer off and back on again.

    If the system reboots from the hard disk and takes you to the [C:\] system prompt, installation was successful. Go to step 12.

    If you can not reboot from the hard disk, return to step 1 and carefully go through these installation procedures again. If you still don't succeed, the hard disk may not have been properly prepared by the vendor to receive an operating system.

12. Make a subdirectory for PC-MOS and log onto that subdirectory by entering the following commands:

    ```
    MD \PCMOS

    CD \PCMOS
    ```

13. If your PC-MOS files came on ONE or TWO diskettes, place the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY Disk in drive A and perform this step.

    At the [C:\PCMOS] prompt, type:

    A:MOSFILES

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS program files from the diskette into the present subdirectory on your hard drive.

14. If your PC-MOS files came on ONE diskettes, leave the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on TWO diskettes, place the AUXILIARY Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY #2 Disk in drive A and perform this step.

    At the [C:\PCMOS] prompt, type:

    A:AUXFILES

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS auxiliary files from the diskette into the present subdirectory on your hard drive.

15. Make different subdirectories for your various application software and copy all application files into their respective subdirectories.

16. Use the PC-MOS editor, ED, to create CONFIG.SYS and AUTOEXEC.BAT files on the root directory of drive C that are appropriate for your system environment. (See the Configuration section of the User Guide.)

Installing PC-MOS to Replace an Existing DOS Environment

BACKUP YOUR HARD DISK BEFORE PROCEEDING!

When you are installing PC-MOS onto the hard disk of an existing system, IT IS STRONGLY RECOMMENDED THAT YOU MAKE BACKUP COPIES OF ALL THE PROGRAMS AND DATA ON YOUR HARD DISK FIRST! If your system has a tape backup unit, that may be the quickest way to backup your information. If not, use the PC-MOS EXPORT program or a compatible aftermarket backup utility. (Note that the PC-MOS EXPORT and IMPORT programs are NOT compatible with DOS BACKUP and RESTORE programs!)

The following steps illustrate how to backup your information using the PC-MOS EXPORT program:

A. Make sure you have enough formatted floppy diskettes ready before you begin.

B. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

C. Log onto drive C and enter the following command at the [C:\] prompt:

   A:EXPORT C:*.* A: /s (press ENTER)

   This command will export all files in the root directory and all subdirectories of drive C onto your formatted floppy disks in drive A.

   NOTE: The SYSTEM Disk will time out after 60 minutes. If your backup will take longer than 60 minutes, you will have to initialize your PC-MOS files to make them permanent non-time out files before doing your EXPORT.

   NOTE: This procedure leaves your existing hard disk partition structure intact. If you want to change the partition structure (e.g. partition sizes) you must backup all data first and then follow the "Installing PC-MOS on a NEW System" instructions in this manual.

When your backup is complete, continue your installation as follows:

1. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

2. Write the boot record on hard disk drive C, by entering the following command at the [A:\] prompt:

   ```
   MSYS C:
   ```

3. Copy the following files from the SYSTEM Disk in drive A to the root directory of drive C, by entering the following commands:

   ```
   COPY $$MOS.SYS C:\

   COPY $$SHELL.SYS C:\

   COPY COMMAND.COM C:\
   ```

   NOTE: The SYSTEM Disk versions of these three files are the 60-minute timeout versions. After you decide to keep PC-MOS you must open the sealed envelope and follow the initialization instructions to make your installation permanent.

4. Remove the PC-MOS SYSTEM Disk from drive A and reboot your system from the hard disk by turning the computer off and back on again.

5. Make a subdirectory for PC-MOS and log into that subdirectory, by entering the following commands:

   ```
   MD \PCMOS

   CD \PCMOS
   ```

6. If your PC-MOS files came on ONE or TWO diskettes, place the SYSTEM Disk in drive A and perform this step.

   If your PC-MOS files came on THREE diskettes, place the AUXILIARY Disk in drive A and perform this step.

At the [C:\PCMOS] prompt, type:

```
A:MOSFILES
```

and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS program files from the diskette into the present subdirectory on your hard drive.

7. If your PC-MOS files came on ONE diskette, leave the SYSTEM Disk in drive A and perform this step.

   If your PC-MOS files came on TWO diskettes, place the AUXILIARY Disk in drive A and perform this step.

   If your PC-MOS files came on THREE diskettes, place the AUXILIARY #2 Disk in drive A and perform this step.

   At the [C:\PCMOS] prompt, type:

   ```
   A:AUXFILES
   ```

   and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS auxiliary files from the diskette into the present subdirectory on your hard drive.

8. Use a text editor to create a CONFIG.SYS and AUTOEXEC.BAT file on the root directory of drive C that are appropriate for your system environment. These should replace the old DOS files of the same names. (See the Configuration section of the User Guide.)

NOTE: If necessary, you can restore the files backed up with EXPORT onto the hard disk using the PC-MOS IMPORT program as follows:

A. Boot with the PC-MOS SYSTEM DISK in drive A.

B. Change to the root directory of drive C.

C. Execute IMPORT. Enter the following command at the [C:\] prompt:

```
A:IMPORT  A:\*.*  C:
```

This command will restore your entire backup set onto the C drive. You can restore selected files from your backup set using the optional filename operand with the IMPORT command, or by using the PC-MOS EXCEPT or ONLY commands with IMPORT. See your User Guide for more information.

Upgrading to a New Version of PC-MOS - (on an existing MOS System or on a dual DOS/MOS System)

BACKUP YOUR HARD DISK BEFORE PROCEEDING!

When you are installing PC-MOS onto the hard disk of an existing system, YOU MUST MAKE BACKUP COPIES OF ALL THE PROGRAMS AND DATA ON YOUR HARD DISK FIRST! If your system has a tape backup unit, that may be the quickest way to backup your information. If not, use the PC-MOS EXPORT program or a compatible aftermarket backup utility.

The following steps illustrate how to backup your information using the PC-MOS EXPORT program:

A. Make sure you have enough formatted floppy diskettes ready before you begin.

B. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

C. Log onto drive C. Enter the following command at the [C:\] prompt:

```
A:EXPORT  C:*.*  A: /s  (press ENTER)
```

This command will export all files in the root directory and all subdirectories of drive C onto your formatted floppy disks in drive A.

NOTE: The SYSTEM Disk will time out after 60 minutes. If your backup will take longer than 60 minutes, you will have to initialize your PC-MOS files to make them permanent non-time out files before doing your EXPORT.

When your backup is complete, continue your installation as follows:

1. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

2. Enter HDSETUP at the [A:\] prompt to display the HDSETUP menu as follows: Type

HDSETUP

and press ENTER.

3. HDSETUP will read the existing hard disk structure and display the partition information on screen.

   If any MOS Large Secondary partitions exist go to step 4.

   If any MOS Large Primary partitions exist go to step 9.

   If both MOS Large Secondary and MOS Large Primary partitions exist, go to step 4.

   If no MOS Large Primary or MOS Large Secondary partitions exist, go to step 10.

4. Delete any existing MOS Large Secondary partitions.

   NOTE: Make a note of the size (number of cylinders) of these partitions before you delete them.

   IMPORTANT: Any data on the MOS Large Secondary partitions MUST BE BACKED UP FIRST!

   Once your backup is complete, delete any existing MOS Large Secondary partitions by first selecting them and then pressing F7 - Delete.

   A "Delete Partition? Y/N" message will display. Press the "Y" key and then ENTER. A second warning message will display indicating that all data on the partition will be destroyed, and asking if you want to proceed with deleting the partition. Press the "Y" key and then ENTER to delete the partition.

   NOTE: If a second physical hard drive exists, press F2 - Change Drive. Then repeat step 4 to delete any MOS Large Secondary partitions on the second hard drive. Then press F2 - Change Drive again to return to the first physical hard drive and go to step 5.

5. Use F4 - Add Extended to create DOS Large Extended partitions to replace all the MOS Large Secondary partitions that you just deleted. Make them the same size (number of cylinders) as the deleted partitions.

   NOTE: If any Small Secondary partitions exist between an existing MOS Large Secondary partition (that you want to replace with a DOS Large Extended partition) and an existing extended partition, they will have to be deleted before you can create the replacement DOS Large Extended partition. This is because all extended partitions must be in a contiguous group on the disk. Make sure you have a backup of the data on the Small Secondary partition before deleting it so you can restore the data later.

   IMPORTANT: Write down the drive letter assignments of all partitions BEFORE you exit HDSETUP! You will need to know these for one of the next steps. (These may have changed since extended partitions are assigned drive letters before any remaining small secondary partitions.)

6. Press ESC to exit HDSETUP. You will be prompted to select whether or not you want to save the new partitioning structure that you just created. Press the "Y" key. This saves the disk partitioning information on the hard disk's track 0. With the PC-MOS SYSTEM Disk in drive A reboot your system by turning the computer off and back on again.

7. Format the new extended partitions ONLY, by entering:

   FORMAT x:

   at the [A:\] prompt, where "x" is the logical disk drive letter of each new DOS Large Extended partition, for example: Type

   FORMAT D:

   then press "Y" and ENTER to format the logical disk.

   Repeat this step for each new DOS Large Extended partition you created, i.e. E:, F:, G: etc., if used. Be sure to format any new extended partitions on a second physical hard disk, if installed.

IMPORTANT: Do NOT format any other existing drives - only the newly created DOS Large Extended partitions! Particularly make sure that you do NOT format the C: drive!

If any MOS Large Primary partitions exist, go to step 8.

If not, go to step 11.

8. Enter HDSETUP at the [A:\] prompt to display the HDSETUP menu as follows: Type

   HDSETUP

   and press ENTER.

   HDSETUP will read the existing hard disk structure and display the partition information on screen.

9. Convert the existing MOS Large Primary partition on the first hard disk to a DOS Large Primary partition.

   Select the MOS Large Primary partition and then press F10 for "MLG to DLG" conversion. A prompt will display indicating that, though the conversion process is non-destructive, the data on the partition should be backed up first.

   Responding "Y" to the "Continue with Conversion? Y/N" prompt, and pressing ENTER, will run the conversion program. It only takes a few seconds to complete.

   NOTE: If a second physical hard drive exists, press F2 - Change Drive. Then repeat step 9 to convert any MOS Large Primary partition on the second hard drive to a DOS Large Primary partition. Then press F2 - Change Drive again to return to the first physical hard drive and go to step 10.

10. Press ESC to exit HDSETUP. You will be prompted to select whether or not you want to save the new partitioning structure that you just created. Press the "Y" key. This saves the disk partitioning information on the hard disk's track 0. With the PC-MOS SYSTEM Disk in drive A reboot your system by turning the computer off and back on again.

11. Write the boot record on the PC-MOS boot drive on the hard disk by entering the following command at the [A:\] prompt:

    MSYS x:

    where "x" is the logical disk drive letter of the PC-MOS boot drive.

    IMPORTANT: Make sure you use the correct drive letter for the PC-MOS boot drive! Normally, on a PC-MOS only system, this is drive C. However, on dual-boot installations with both DOS and PC-MOS on the same machine, this will be some other drive than C! This can be especially confusing in a system with two physical hard disks installed. This same drive designation applies to the next step!

12. Copy the following files from the PC-MOS SYSTEM Disk in drive A to the root directory of the PC-MOS boot drive, by entering the following commands:

    COPY $$MOS.SYS x:\

    COPY $$SHELL.SYS x:\

    COPY COMMAND.COM x:\

    where "x" is the logical disk drive letter of the PC-MOS boot drive as determined in the previous step.

    NOTE: The SYSTEM Disk versions of these three files are the 60-minute timeout versions. After you decide to keep PC-MOS you must open the sealed envelope and follow the initialization instructions to make your installation permanent.

13. Remove the PC-MOS SYSTEM Disk from drive A and reboot your system from the hard disk by turning the computer off and back on again.

14. Log onto the PC-MOS boot drive and change into the subdirectory that contains your PC-MOS files, for example:

    C:

    CD \PCMOS

Remember: Drive C: will not be the PC-MOS boot drive in dual-boot and/or some other installations.

15. If your PC-MOS files came on ONE or TWO diskettes, place the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY Disk in drive A and perform this step.

    At the [x:\PCMOS] prompt, type:

    A:MOSFILES -O

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS program files from the diskette into the present subdirectory on your hard drive.

    NOTE: the -O in the command is the letter O, not the number 0, and stands for "Overwrite" existing files of the same name. This allows the operation to replace your old PC-MOS files without prompting you for a Y/N entry at each file.

16. If your PC-MOS files came on ONE diskette, leave the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on TWO diskettes, place the AUXILIARY Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY #2 Disk in drive A and perform this step.

    At the [x:\PCMOS] prompt, type:

    A:AUXFILES -O

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS auxiliary files from the diskette into the present subdirectory on your hard drive.

    IMPORTANT: If you are upgrading from PC-MOS version 4.10 or earlier, there may be some old files that will not get overwritten with this method, since the file names have changed.

New files HDSETUP.EXE, EXPORT.EXE and IMPORT.EXE have replaced HDSETUP.COM, EXPORT.COM and IMPORT.COM. You should manually delete the files with the .COM extension! If you don't, the new programs will not run since .COM files are run before .EXE files.

17. Use a text editor to create a CONFIG.SYS and AUTOEXEC.BAT file on the root directory of drive C that are appropriate for your system environment. (See the Configuration section of the User Guide.)

18. If you replaced any MOS Large Secondary partitions with DOS Large Extended partitions, restore your data to each of the new DOS Large Extended partitions from your backup set.

NOTE: If necessary, you can restore any other files backed up with EXPORT onto the hard disk using the PC-MOS IMPORT program.

You can restore selected files from your backup set using the optional filename operand with the IMPORT command, or by using the PC-MOS EXCEPT or ONLY commands with IMPORT. See your User Guide for more information.

Installing a Dual Operating System Environment (MOS & DOS) on a NEW System

PC-MOS has the ability to partition a hard disk so that it has more than one bootable partition. This allows the same computer to boot up under either PC-MOS or DOS, as the user selects.

IMPORTANT: PC-MOS has been revised to support DOS large volumes (disk partitions of greater than 32MB made by DOS 5.X). This feature gives PC-MOS increased compatibility with the latest version of DOS in a dual-boot PC-MOS and DOS installation. It is strongly recommended that you use DOS 5.X in a dual operating system environment with PC-MOS. Doing so will provide the best compatibility in that environment. If you use DOS 4.X or DOS 3.3, some restrictions will apply due to the disk partitioning structures of those releases of DOS, as follows:

DOS 5.X — All hard disk partitions can be accessed when booted under either PC-MOS or DOS 5.X.

MS-DOS 5.X SETUP PROGRAM WARNING: If you ever use the MS-DOS 5.X SETUP program to apply a DOS 5.X upgrade to DOS on a dual-boot DOS/MOS system, you must see the section called "Correcting for the MS-DOS 5.X SETUP Program"!

DOS 4.X — When you boot under PC-MOS, all partitions including the DOS partition can be accessed by MOS.

When you boot under DOS 4.X, only the DOS partition (drive C) can be accessed. DOS 4.X cannot access any of the MOS partitions! (This happens since DOS 4.X checks for a certain partition boot record entry that it makes, and won't access a partition if it is not present. Since that practice caused compatibility problems, it was eliminated in DOS 5.X.)

DOS 3.3 — When you boot under PC-MOS, all partitions including the DOS partition can be accessed by MOS.

When you boot under DOS 3.3, the DOS partition plus any MOS primary or extended partitions (of 32MB or less) can be accessed. This in effect restricts your MOS partitions to 32MB if you want to access them under DOS 3.3. You will NOT be able to access the small secondary MOS boot partition, but that does not matter since you should only have the PC-MOS system files on that partition and no applications. (There is a way around this. If you have the COMPAQ DOS 3.31 ENHDISK.SYS driver, loading it in your CONFIG.SYS file should allow you to access the MOS small secondary boot partition under DOS.)

DOS 3.2 and earlier — These versions of DOS do NOT recognize any extended partition structures. Only the DOS partition (drive C) will be accessible. Therefore, these DOS versions are of little use in a dual operating system environment with PC-MOS.

In a PC-MOS and DOS dual operating system environment, DOS must be installed on the first logical disk (the Primary partition) since DOS only recognizes the C drive as a bootable disk.

When designing this environment we suggest that you make logical disk C a large volume, which will store files and applications that will execute under both PC-MOS and DOS. (NOTE: If you are using DOS 3.3 or earlier, keep volume C less than or equal to 32MB so DOS can recognize it.) This will allow you to use the same directories and files in either environment.

Make your second logical disk a Secondary partition. A Secondary partition must be used as the boot partition for PC-MOS. Make this a very small partition - just big enough to hold the PC-MOS program files plus a little extra space (about 3MB). You should NOT put your applications and other programs on this logical drive!

If you want to further divide your hard disk space into additional partitions, make all the remaining disk space Extended partitions. Use these partitions to store any remaining programs or applications that will not fit on the Primary partition (drive C).

NOTE: All Extended partitions will be assigned drive letters alphabetically BEFORE any Secondary partitions are assigned letters. This is required to maintain compatibility with DOS. The boot partition numbers will be assigned in ascending numeric order regardless of the drive letter designations. For example:

Drive:	Type:	OS:	Boot Partition Number:
C:	Primary partition	DOS	1
D:	Extended partition		
E:	Extended partition		
F:	Secondary partition	MOS	2

NOTE: The dual operating system environment is not available to hard disks partitioned with OnTrack's Disk Manager since it can only make one partition bootable at a time.

The installation process is as follows:

1. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

2. Enter HDSETUP at the [A:\] prompt to display the HDSETUP menu as follows: Type

   HDSETUP

   and press ENTER.

3. HDSETUP will read the existing hard disk structure and display the partition information on screen. If no logical disks exist, go to step 5. If logical disks exist go to step 4.

4. Delete any existing logical disks by pressing F9 - Delete ALL.

   A "Delete ALL Partitions? Y/N" message will display. Press the "Y" key and then ENTER. A second warning message will display indicating that all data on all partitions will be destroyed, and asking if you want to proceed with deleting the partitions. Press the "Y" key and then ENTER to delete all partitions.

NOTE: If a second physical hard drive exists, press F2 - Change Drive. Then repeat step 4 to delete all partitions on the second hard drive. Then press F2 - Change Drive again to return to the first physical hard drive and go to step 5.

5. Select F3 to create a Primary partition.

   This will be the boot partition for DOS.

   Enter the number of Megs or Cylinders you want to assign to the Primary partition. A Primary partition is required.

   Make the Primary partition a large volume, which will store files and applications that will execute under both PC-MOS and DOS. (NOTE: If you are using DOS 3.3 or earlier, keep volume C less than or equal to 32MB so DOS can recognize it.)

   NOTE: Only assign a portion of the available disk space to this Primary partition. Save some space for the required Secondary partition for PC-MOS in step 6, and any desired Extended partitions in step 8.

6. Select F5 to create a Secondary partition.

   A Secondary partition is required to provide a bootable partition for PC-MOS.

   Make this a very small partition - just big enough to hold the PC-MOS program files plus a little extra space (about 2.5 or 3 MB should be sufficient). We suggest that you don't put your applications and other programs on this logical drive!

7. Make the Secondary partition (for MOS) bootable.

   The Primary partition (for DOS) is automatically a bootable partition. However, you must make the Secondary partition (for MOS) bootable by selecting "F6 - Chg Boot" from the HDSETUP menu. You only need one bootable partition for PC-MOS, which will normally be boot partition number 2.

   Highlight the Secondary partition for PC-MOS and press "F6" to change the "Boot" display from "N" to "Y".

NOTE: A number will also appear after the "Y", e.g. "Y 1" for the DOS boot partition, or "Y 2" for the MOS boot partition. This indicates the boot partition number.

8. Select F4 to create an Extended partition.

   Enter the number of Megs or Cylinders you want to assign to the Extended partition.

   Repeat step 7 until you have assigned all remaining disk space to Extended partitions.

   Use these partitions to store any remaining programs or applications that will not fit on the Primary partition (drive C).

9. If your system has two physical hard disk drives installed, press F2 to change to hard disk number 2. Repeat steps 5 and 8 to create a Primary partition and any desired Extended partitions on the second hard disk.

   IMPORTANT: When finished, press F2 again to return to hard disk number 1 and note the drive letter assigned to the PC-MOS boot drive!

   NOTE: On dual-hard disk, dual-boot systems it is likely that adding partitions on hard disk number 2 will change the drive letter designations of partitions previously created on hard disk number 1. This is because the Primary partitions are assigned letters first, followed by any Extended partitions, and finally the secondary partition that PC-MOS boots from. (This is not the same as PC-MOS versions 4.10 and earlier, but is required for DOS 5.X compatibility!)

   Then go to step 10.

10. Press ESC to exit HDSETUP. You will be prompted to select whether or not you want to save the new partitioning structure that you just created. Press the "Y" key. This saves the disk partitioning information on the hard disk's track 0. With the PC-MOS SYSTEM Disk in drive A reboot your system by turning the computer off and back on again.

11. Format each PC-MOS logical disk (NOT drive C:), by entering:

    ```
    FORMAT x:
    ```

    at the [A:\] prompt, where "x" is the logical disk drive letter, for example: Type

    ```
    FORMAT D:
    ```

    then press "Y" and ENTER to format the first logical disk.

    Repeat this step for each logical disk you created, i.e. E:, F:, G: etc., if used. Be sure to format any logical disks on a second physical hard disk, if installed. FORMAT automatically places a boot sector on the disk.

    NOTE: Do NOT format the DOS C: drive with MOS's FORMAT command!

12. Copy the following files from the PC-MOS SYSTEM Disk in drive A to the root directory of the PC-MOS boot drive, by entering the following commands:

    ```
    COPY $$MOS.SYS x:\

    COPY $$SHELL.SYS x:\

    COPY COMMAND.COM x:\
    ```

    where "x" is the logical disk drive letter of the PC-MOS boot drive.

    IMPORTANT: Make sure you use the correct drive letter for the PC-MOS boot drive! This can be especially confusing in a system with two physical hard disks installed. (In our example, at the beginning of this section, this would be drive F:)

    NOTE: The SYSTEM Disk versions of these three files are the 60-minute timeout versions. After you decide to keep PC-MOS you must open the sealed envelope and follow the initialization instructions to make your installation permanent.

13. Remove the PC-MOS SYSTEM Disk from drive A and replace it with a DOS system disk. Then reboot your system by turning the computer off and back on again.

14. Format the DOS logical disk and make it a bootable disk by entering:

    FORMAT C: /S

    at the A prompt.

    NOTE: It is not necessary to provide a "volume label" (disk name) when prompted by DOS. You may press ENTER to skip naming the disk. Then follow the screen instructions to complete the format.

15. Remove the DOS system disk from drive A and reboot your system from the hard disk by turning the computer off and back on again.

    NOTE: When the system is rebooted, PC-MOS will know from the HDSETUP procedure that 2 logical disks are active, and will prompt with:

    "BOOT PARTITION ?"

    You must enter 1 to select the DOS boot partition, or enter 2 to select the PC-MOS boot partition. (Only type the number. It is not necessary to press the ENTER key.)

    Select 2 for PC-MOS. The system should boot under PC-MOS and bring up the system prompt for the MOS boot drive.

16. Make a subdirectory on the PC-MOS boot drive for PC-MOS and log onto that subdirectory by entering the following commands at the PC-MOS boot drive system prompt:

    MD \PCMOS

    CD \PCMOS

17. If your PC-MOS files came on ONE or TWO diskettes, place the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY Disk in drive A and perform this step.

    While still in the PCMOS subdirectory, type:

    A:MOSFILES

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS program files from the diskette into the PCMOS subdirectory of the PC-MOS boot drive.

18. If your PC-MOS files came on ONE diskette, leave the SYSTEM Disk in drive A and perform this step.

    If your PC-MOS files came on TWO diskettes, place the AUXILIARY Disk in drive A and perform this step.

    If your PC-MOS files came on THREE diskettes, place the AUXILIARY #2 Disk in drive A and perform this step.

    While still in the PCMOS subdirectory, type:

    A:AUXFILES

    and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS auxiliary files from the diskette into the PCMOS subdirectory of the PC-MOS boot drive.

19. Make different subdirectories for your various application software and copy all application files into their respective subdirectories.

20. Use the PC-MOS editor, ED, to create CONFIG.SYS and AUTOEXEC.BAT files on the root directory of drive C that are appropriate for your system environment. (See the Configuration section of the User Guide.)

21. Reboot your system from the hard disk by turning the computer off and back on again.

    This time when prompted with:

    "BOOT PARTITION ?"

    select 1 for DOS. The system should boot under DOS and bring up a C prompt.

22. Make a subdirectory for DOS on drive C and log onto that subdirectory by entering the following commands at the C prompt:

    ```
    MD\DOS

    CD\DOS
    ```

23. Place the DOS SYSTEM Disk in drive A and enter:

    ```
    COPY A:*.*
    ```

    at the C prompt to copy the DOS program files into the \DOS subdirectory of drive C. (Note that the default DOS prompt does not display the current directory. You may enter the PROMPT=pg command to display both the current drive and directory in the system prompt.)

    Repeat step 23 for each DOS program disk.

    NOTE: Versions of DOS that are distributed as self-extracting and/or compressed files cannot be installed by using the COPY command in this manner. Follow the instructions in your DOS User Manual to install DOS on drive C.

24. Make different subdirectories for the various application software you intend to install on the DOS logical disk and copy all application files into their respective subdirectories.

25. Use a text editor to create a CONFIG.SYS file on the C drive's root directory that is appropriate for your DOS system environment. (See your DOS User Manual.)

Correcting for the MS-DOS 5.X SETUP Program

The MS-DOS 5.X SETUP program does not fully "understand" the PC-MOS Secondary partition structure.

If you ever use the MS-DOS 5.X SETUP program to apply a DOS 5.X upgrade to DOS on a dual-boot DOS/MOS system, the DOS SETUP program will modify the master boot record partition table type code of a MOS Small Secondary partition to that of a DOS LARGE partition! It will also change the boot status of the partition from bootable to NOT bootable, since DOS only allows one bootable partition!

NOTE: OEM versions of DOS 5.X (those other than Microsoft MS-DOS) may make some or all of these improper changes.

NOTE: As a result of these changes, you will no longer be able to boot your machine under PC-MOS. You won't even be prompted with "Boot partition?" during boot up.

WARNING: These incorrect partition entries made by DOS must be corrected before the affected partition can be used with PC-MOS. Any data written to the partition before making these corrections will probably be corrupted!

To correct the invalid partition entries, follow these steps:

1. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

2. Enter HDSETUP at the [A:\] prompt to display the HDSETUP menu as follows: Type

   ```
   HDSETUP
   ```

   and press ENTER.

   NOTE: When HDSETUP loads it will detect any MOS partitions that have been assigned an incorrect type code by DOS and automatically correct the type code in the master boot record partition table.

A message will display similar to the following:

```
Partition type correction applied to drive x:

Press any key to continue . . .
```

Once you press a key, the partition type will be changed in the HDSETUP display on screen.

3. Change the boot status of the corrected MOS Small Secondary boot partition for PC-MOS back to "Y" by first selecting it and then pressing F6.

   This will make the MOS partition bootable again, allowing your computer to boot under PC-MOS.

   (Note the drive letter designation of the partition. You will need it in a subsequent step.)

   WARNING: Do NOT accidentally delete or change the size of any existing partition(s) when you are using HDSETUP for this procedure! If you do so, and then save the changes to disk, all data in the deleted or resized partitions will be destroyed!

4. Press ESC to exit HDSETUP. You will be prompted to select whether or not you want to save the new partitioning structure that you just created. Press the "Y" key and then press ENTER. This saves the corrected disk partitioning information to the hard disk's track 0. With the PC-MOS SYSTEM Disk in drive A reboot your system by turning the computer off and back on again. (Exit the AutoInstall program.)

5. MSYS the affected partition by entering the following command:

   ```
   MSYS x:
   ```

   where "x" is the drive letter of the affected MOS Small Secondary partition. This will correct the improper entries in the partition boot record.

6. Once these corrections have been made, remove the PC-MOS SYSTEM Disk from drive A. You should now be able to boot your computer from the PC-MOS boot partition on your hard disk by entering the appropriate number when prompted with:

   ```
   Boot Partition?
   ```

   during the boot process.

   NOTE: If you do not receive the "Boot Partition?" prompt when booting from the hard disk, you may not have successfully completed these steps. Make sure that you performed all steps as indicated above.

Installing a Dual Operating System Environment (MOS & DOS) on an EXISTING PC-MOS System

BACKUP YOUR HARD DISK BEFORE PROCEEDING!

When you are installing a dual MOS/DOS operating system environment onto the hard disk of an existing MOS system, YOU MUST MAKE BACKUP COPIES OF ALL THE PROGRAMS AND DATA ON YOUR HARD DISK FIRST! If your system has a tape backup unit, that may be the quickest way to backup your information. If not, use the PC-MOS EXPORT program or a compatible aftermarket backup utility.

The following steps illustrate how to backup your information using the PC-MOS EXPORT program:

A. Make sure you have enough formatted floppy diskettes ready before you begin.

B. Boot your computer with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

C. Log onto drive C. Enter the following command at the [C:\] prompt:

```
A:EXPORT C:*.* A: /s (press ENTER)
```

This command will export all files in the root directory and all subdirectories of drive C onto your formatted floppy disks in drive A.

NOTE: The SYSTEM Disk will time out after 60 minutes. If your backup will take longer than 60 minutes, you will have to initialize your PC-MOS files to make them permanent non-time out files before doing your EXPORT.

When your backup is complete, perform the installation as follows:

1. Follow the instructions in the "Installing a Dual Operating System Environment (MOS & DOS) on a NEW System" section of this manual.

(This procedure will install the new version of PC-MOS onto your system and instruct you in installing DOS on the C drive of your system.)

2. Restore your applications and programs from the backup set you made before starting this installation procedure.

   NOTE: Your old PC-MOS files on the PC-MOS only system were in the C drive. With a dual-boot installation, DOS must boot from the C drive. Therefore, your PC-MOS boot drive will no longer be drive C, but rather a different drive letter. Also, this logical drive should only be large enough to hold the PC-MOS program files. No other applications or programs should be placed on it.

   IMPORTANT: Restore your applications and other programs to the C drive and/or to other extended partitions. Do NOT restore them to the new PC-MOS boot drive! Also, do not restore your old PC-MOS files! Instead, do a selective restore, and restore all files except the old PC-MOS files.

   With the PC-MOS IMPORT program, this can be done by combining the PC-MOS EXCEPT command. For example:

```
EXCEPT (\PCMOS\*.*) DO IMPORT A:\*.* C:
```

   This command will restore your entire backup set, except for all files from the old C:\PCMOS subdirectory, onto the C drive. See your User Guide for more information on using the EXCEPT and ONLY commands with IMPORT.

   Most aftermarket backup utilities have features that allow you to include or exclude specified files from a backup or restore operation.

MS-DOS 5.X SETUP PROGRAM WARNING: If you ever use the MS-DOS 5.X SETUP program to apply a DOS 5.X upgrade to DOS on a dual-boot DOS/MOS system, you must see the section called "Correcting for the MS-DOS 5.X SETUP Program" in this manual!

Installing a Dual Operating System Environment (MOS & DOS) on an EXISTING DOS System

BACKUP YOUR HARD DISK BEFORE PROCEEDING!

When installing a dual MOS/DOS operating system environment onto the hard disk of an existing DOS system, YOU MUST MAKE BACKUP COPIES OF ALL THE PROGRAMS AND DATA ON YOUR HARD DISK FIRST! If your system has a tape backup unit, that may be the quickest way to backup your information. If not, use the DOS BACKUP program or compatible aftermarket backup utility.

When your backup is complete, perform the installation as follows:

1. Follow the instructions in the "Installing a Dual Operating System Environment (MOS & DOS) on a NEW System" section of this manual.

   (This procedure will make new boot partitions for both DOS and PC-MOS on your hard disk, install PC-MOS, and instruct you to install DOS on the C drive.)

   NOTE: Rather than reinstalling DOS on the C drive, you should instead restore it to the C drive from your backup set during the next step.

2. Restore your DOS files, applications, and other programs to drive C from the backup set you made before starting this installation.

   NOTE: The new bootable partition for PC-MOS should only be large enough to hold the PC-MOS program files, about 2.5 to 3MB. No other applications or programs should be placed on it.

   This required disk space for MOS will reduce the disk space remaining for your previous application and program files. Therefore, make sure there is still enough empty space on your hard disk to restore all your files.

MS-DOS 5.X SETUP PROGRAM WARNING: If you ever use the MS-DOS 5.X SETUP program to apply a DOS 5.X upgrade to DOS on a dual-boot DOS/MOS system, you must see the section called "Correcting for the MS-DOS 5.X SETUP Program" in this manual!

Partitioning Hard Disks with OnTrack Disk Manager

The PC-MOS HDSETUP utility can partition hard disks with 1024 or less cylinders. Very large hard disks may have more heads and/or cylinders. HDSETUP can not partition these hard drives. (HDSETUP can only partition hard drives with greater than 1024 cylinders if sector translation is supported by the drive's BIOS.)

If you have a drive with more than 1024 cylinders, and sector translation is NOT supported by the drive's BIOS, you should use Disk Manager by OnTrack Computer Systems, Inc. to partition your hard disk.

Disk Manager by OnTrack Computer Systems, Inc. can partition hard disks that have greater than 1024 cylinders. PC-MOS supports hard disks of greater than 32MB that are set up using Disk Manager v4.02 and above. (Note that you can NOT run the PC-MOS HDSETUP utility on a drive that was partitioned with Disk Manager.)

Note that Disk Manager only allows one active (bootable) partition at a time when you have multiple partitions. This means that you cannot set up a dual bootable DOS and MOS system on one hard disk if it was partitioned with Disk Manager. If you require multiple bootable partitions, you must use HDSETUP to partition the hard disk.

Installing MOS on a hard disk partitioned with Disk Manager

To install PC-MOS on a hard disk that is to be partitioned with Disk Manager:

1. Follow the OnTrack documentation instructions to partition the hard disk and format the logical disk partitions.

   This procedure must be performed when running under DOS since Disk Manager installs DOS on the drive when it prepares the drive. Once the drive is totally functional as a normal DOS system, continue with these instructions:

2. Boot the system with the PC-MOS SYSTEM Disk in drive A. (Exit the AutoInstall program.)

3. Write the PC-MOS boot record on drive C by entering the following command at the [A:\] prompt:

```
MSYS C:
```

4. Copy the following files from the PC-MOS SYSTEM Disk in drive A to the root directory of drive C:, by entering the following commands:

```
COPY $$MOS.SYS C:\

COPY $$SHELL.SYS C:\

COPY COMMAND.COM C:\
```

NOTE: The SYSTEM Disk versions of these three files are the 60-minute timeout versions. After you decide to keep PC-MOS you must open the sealed envelope and follow the initialization instructions to make your installation permanent.

5. Remove the SYSTEM Disk from drive A and reboot your system from the hard disk by turning the computer off and back on again.

6. Make a subdirectory for PC-MOS and log onto that subdirectory by entering the following commands at the [C:\] prompt:

```
MD \PCMOS

CD \PCMOS
```

7. If your PC-MOS files came on ONE or TWO diskettes, place the SYSTEM Disk in drive A and perform this step.

   If your PC-MOS files came on THREE diskettes, place the AUXILIARY Disk in drive A and perform this step.

   At the [C:\PCMOS] prompt, type:

```
A:MOSFILES
```


and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS program files from the diskette into the present subdirectory on your hard drive.

8. If your PC-MOS files came on ONE diskette, leave the SYSTEM Disk in drive A and perform this step.

   If your PC-MOS files came on TWO diskettes, place the AUXILIARY Disk in drive A and perform this step.

   If your PC-MOS files came on THREE diskettes, place the AUXILIARY #2 Disk in drive A and perform this step.

   At the [C:\PCMOS] prompt, type:

```
A:AUXFILES
```

   and press ENTER. This command runs a self-extracting file that decompresses and copies the PC-MOS auxiliary files from the diskette into the present subdirectory on your hard drive.

9. Make different subdirectories for your various application software and copy all application files into their respective subdirectories.

10. Use the PC-MOS editor, ED, to create CONFIG.SYS and AUTOEXEC.BAT files on the root directory of drive C that are appropriate for your system environment. (See the Configuration section of the User Guide.)

NOTE: For compatibility with Disk Manager you MUST use the /BPS operand with the CACHE= statement in your CONFIG.SYS file. (See the next section.)

NOTE: You must also include the Disk Manager DMDRVR.BIN device driver in your CONFIG.SYS file for the system to function correctly.

Manual Installation

The PC-MOS CACHE= command and /BPS operand

The Disk Manager software changes the standard 512 byte/sector setting for large hard disk volumes. Therefore, you must include the /BPS (bytes per sector) operand with the CACHE= statement. Also, the "unit" operand of the CACHE= statement MUST be set to at least the same number of kilobytes as the BPS value for the setup to work correctly.

The following are the BPS values that Disk Manager uses for various hard disk volumes:

Hard Disk Volume	Bytes/Sector	minimum cache "unit" size
over 32MB to 64MB	1024	1K
over 64MB to 128MB	2048	2K
over 128MB to 256MB	4096	4K
over 256MB to 512MB	8192	8K
over 512MB to 632MB	16384	16K

For example, the CACHE statement to include in your CONFIG.SYS file for a 200MB hard disk with a 2MB (2048K) cache size would be:

```
CACHE=2048,4,0,0,C,D /BPS=4096
```

Note that 2048 is the cache size, 4 is the unit size (in kilobytes) and the /BPS=4096 sets the bytes/sector value. Note also that the two zeros are the settings for the firstw and lastw timers, which effectively disables write caching. C and D are the drives to be cached. (See the Configuration chapter of your User Guide for more information on the CACHE= command statement.)

If you have more than one logical disk, say a 32MB, and 168MB on the same physical hard disk you must use the Bytes/Sector value for the largest one, in this case /BPS=4096.

Multitasking/Multiuser Operation

The power of PC-MOS is its ability to support multiple tasks and multiple users concurrently, while maintaining compatibility with most existing DOS applications.

The following pages discuss the use of the ADDTASK command to create multiple tasks and/or multiple users.

How to Add a Background Task

To add a background task of the maximum size possible for your system confiruration, enter the following command at the system prompt:

```
ADDTASK MAX
```

This will add a background task of maximum size with the next sequential task ID number,a blank security class and no startup batch file for customizing the path, prompt, or other variables for that task.

You may add tasks of a specific size by including the memory size, in Kilobytes, with the command -- for example:

```
ADDTASK 512
```

Only the memory size or "MAX" is required with the ADDTASK command for background tasks. If other than the default settings and/or a startup batch file is needed, they can be entered with the command as follows:

Form: ADDTASK *memsize,{task ID},{class},{startup}*

Operands:

memsize Memory size of the partition (task) in Kilobytes.

task ID Task ID number to assign to the task. Enter up to two digits. 0 is reserved for the host partition.

class Task security class. (If security is used you must create the file $$USER.SYS in your root directory to define security parameters for each user. See the Security chapter of your User Guide.)

startup Start-up batch file (list the filename without the .BAT extension). Invoked when task is initialized (similar to host computer AUTOEXEC.BAT file in that it is used to customize the path, prompt, or other variables for the task).

Task ID, security class, and start-up batch file are optional operands. Enter a comma in place of an operand that is not used. PC-MOS automatically numbers the tasks sequentially. For example, entering:

```
ADDTASK 256,,,TASK
```

will add a 256K task with the next sequential task ID number, a blank security class, and the start-up batch file TASK.BAT.

The startup batch file TASK.BAT might contain the following commands to customize the environment for that task:

TASK.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK $I] $P$G
```

NOTE: It's a good idea to use the $I operand in the prompt command. The $I operand causes the task ID number of the task to appear in the prompt. This allows users to easily determine what task they are presently in.

The MOS MAP Display

The MOS MAP command displays a list of statistical information about the tasks you add on your computer.The display is similar to the following:

PC-MOS USER TASK STATISTICS

Task	Start	Size	Video	User	Program	Port	Baud	Pri	Slice	Files	Status
0*	18000	512K	CGA		MOS.COM	N/A	N/A	2	1	3	ACTIVE
1	18000	512K	MONO		COMMAND.COM	1	19200	2	1	2	ACTIVE
2	18000	512K	MONO		COMMAND.COM	N/A	N/A	2	1	2	WAIT

191K of 2048K Memory available

NOTE: An asterisk (*) appears next to the task ID number of the task you are currently in.

"Start" indicates the memory address where this task starts in memory. "Size" is the memory size of the task. "Video" displays the current video mode for each task. If a user has signed on to a task with a user ID, it is displayed under "User". "Program" displays the program currently being executed.

The current port and baud rate appear in the next two columns if they are set up for a specific task; if not, "N/A" is displayed. "Pri" is the priority assigned to each task. "Slice" is the number of time ticks assigned to each task. "Files" displays the number of files currently open in each task. "Status" displays whether the task is active or in a waiting state.

For more information on these parameters see the Multitasking/Multiuser chapter of your User Guide.

How to Switch between Tasks

Partition Access Method (PAM switching) allows a user to switch into any task from the main console or from any workstation. (If partition level security is active, users may only access those tasks that they have the proper security class for.)

Partition Access Keys

The ALT key and the numbers on the numeric key pad are used to switch between tasks. To switch tasks, hold down the ALT key, type the number(s) of the task ID for the partition you want to access, and then release the ALT key. (Task ID numbers are assigned by the ADDTASK command, and can be viewed with the MOS MAP command.)

For example, to access the partition with task ID 1, hold down the ALT key, type a 1 on the numeric key pad, then release the ALT key:

```
ALT 1
```

To return to the host partition (task 0) hold down the ALT key and type 0 on the numeric key pad, then release the ALT key.

SWITCH Command

The SWITCH command allows you to switch to a specific partition with a command line entry rather than with the ALT - key number Partition Access Method. The command form is:

```
SWITCH {task ID}
```

where task ID is the number of the task to which you want to switch. This is helpful for use in batch files. If you do not specify a task number, you will be switched to the next task number in sequence.

Turning Partition Access Method On and Off

If the ALT- numeric key pad sequence conflicts with an application program's use of the keyboard, you may turn off partition access. To turn it off, hold down the ALT key and press 9 on the numeric key pad three times. For example, press ALT 9 9 9 to turn off partition access. To turn partition access back on, press ALT 9 9 9 again.

How to Remove a Task

The REMTASK command lets you remove tasks from the system.

To remove a task you must not presently be in that task when you enter the REMTASK command. Also, though not necessary, it is best to exit any program(s) running in a task before removing that task.

Form: REMTASK *task ID* | {ALL}

Operands:

task ID enter the task number of the partition to remove.

ALL entering ALL instead of a task ID number removes all tasks (except task 0)

Explanation:

You may use REMTASK to remove any task to which you have unrestricted access, except partition 0. Partition 0 is absolute and may never be removed. For example, to remove a partition with a task ID of 1 you would enter:

```
REMTASK 1
```

Entering the following command will remove all tasks on the system (except task 0):

```
REMTASK ALL
```

NOTE: The REMTASK ALL command can only be entered from task 0. If entered from any other task, an error message will remind you to switch to task 0 before entering the command.

How to Add a MultiUser Task

Adding a multiuser task for a terminal or workstation requires the addition of a few more operands to the ADDTASK command line. These operands define the type of terminal or workstation, the port through which the terminal is connected to the host computer, or the workstation number, and (for serial terminals) the speed of communication.

For example, to add a 512Ktask for a PC-type serial terminal connected to COM2, with the next sequential task ID number,a blank security class and no startup batch file, the ADDTASK command might be:

```
ADDTASK 512,,,,PCTERM,2,38400
```

where PCTERM.SYS is the terminal driver, 2 is the logical port number of the serial port the terminal is connected to , and 38400 is the baud rate for communication.

The ADDTASK command to add a 560K task for a VGNA (Video Graphics Network Adapter) workstation with the next sequential task ID number,a blank security class and no startup batch file might be:

```
ADDTASK 560,,,,VGNA,1
```

where VGNA.SYS is the device driver, and 1 represents the first VGNA workstation.

The ADDTASK command to add a 600K task for a MaXtation SH-4/M workstation with the next sequential task ID number,a blank security class and no startup batch file might be:

```
ADDTASK 600,,,,SH,1
```

where SH.SYS is the device driver, and 1 represents the first MaXtation workstation.

NOTE: Notice that in the workstation examples the "workstation number" replaces the "port" and "baud rate" operands normally used for terminals.

If other than the default settings and/or a startup batch file is needed, they can be entered with the command as follows:

Form:

ADDTASK *memsize,{task ID},{class},{startup},{term ID}, {port,baud rate}|{workstation number}*

Operands:

memsize Memory size of the partition (user task) in Kilobytes.

task ID Task ID number to assign to the task. Enter up to two digits. 0 is reserved for the host partition.

class Task security class. (If security is used you must create the file $$USER.SYS in your root directory to define security parameters for each user. See the Security chapter of your User Guide.)

startup Start-up batch file (filename without the .BAT extension). Invoked when user's work station is initialized. (Similar to host computer's AUTOEXEC.BAT file in that it is used to customize the path, prompt, or other variables for the task.)

term ID Device driver for terminal or workstation type. This driver must be entered in the CONFIG.SYS file with a DEVICE= statement. Enter without the .SYS extension.

Some common drivers are:

PCTERM.SYS	for PC-type terminals like the Wyse 60.
VGNA.SYS	for VGNA (Video Graphics Network Adapter) workstations.
SH.SYS	for MaXtation SH-4/M workstations.

(Other terminals or workstations require different drivers, see the Multitasking/Multiuser chapter of your User Guide for a complete list of drivers).

port The logical port number of the serial port through which a terminal is connected to the host computer. This port number is based on the order it is listed in the $SERIAL.SYS statement in your CONFIG.SYS file. For example, 2 represents the second serial port address listed in the DEVICE=$SERIAL.SYS statement.

NOTE: Other add-in serial port devices may also be used to connect terminals, such as a Maxpeed intelligent serial port board. If so, the port addresses are assigned sequentially as the various drivers are listed in the CONFIG.SYS file. You can use the MOS INFO command to display a list of the serial drivers loaded on the system and what logical port numbers have been assigned to each device.

baud rate The baud rate at which the terminal and the host computer communicate. (Usually 9600, 19200, or 38400.)

workstation number Enter the number of the workstation, e.g. 1 for the first workstation, 2 for the second, etc. (This operand is used for hardware-based workstations like VGNA and MaXtation workstations, and replaces the "port" and "baud rate" operands.)

Task ID, security class, and start-up batch file are optional operands and must be replaced by a comma if not used. PC-MOS automatically numbers the tasks sequentially and defaults to a blank security class.

For example, entering:

```
ADDTASK 512,,,USER1,SH,1
```

will add a 512K task for the first MaXtation workstation, with the next sequential task ID number, a blank security class, and the start-up batch file USER1.BAT.

Configuration Examples

Once you have placed PC-MOS on your system, it must be configured. This is accomplished with a CONFIG.SYS file that defines the operating environment, and for which PC-MOS looks at boot time.

This process can be done automatically by using the Auto Configuration Utility (ACU) or manually by adding the appropriate configuration options to the CONFIG.SYS file yourself. If you are not familiar with all the PC-MOS configuration options you may want to use the ACU. If you are more experienced, you may want the option of fine tuning the system configuration yourself manually.

NOTE: The system administrator should determine which options are best suited for your system.

The following is a list of items that may be placed in the CONFIG.SYS file. See the Configuration chapter of your User Guide for a detailed explanation of each.

Configuration Options:		Device Drivers:
8087	MEMDEV	$EMS.SYS
CACHE	SHELL	$MOUSE.SYS
COUNTRY	SLICE	$NETBIOS.SYS
DESNOW	SMPSIZE	$PIPE.SYS
DEVICE	USERFILE	$RAMDISK.SYS
FREEMEM	VTYPE	$SERIAL.SYS

Configuration Examples

Sample Configurations

The following pages show sample configuration options for various types of machines to aid you in the configuration of your system.

IMPORTANT NOTES:

THESE SAMPLES ARE TO BE USED ONLY AS GUIDELINES!

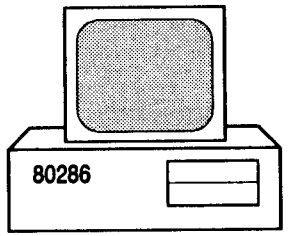
YOUR SYSTEM MAY BE CONFIGURED DIFFERENTLY, AND MAY REQUIRE DIFFERENT CONFIGURATION OPTIONS BASED ON YOUR SPECIFIC HARDWARE AND OTHER PERIPHERAL EQUIPMENT INSTALLED.

NOTE: VTYPE and FREEMEM statements, in particular, will vary for different video cards and installations. If your system does not boot properly, remove both of these statements from your CONFIG.SYS file and reboot. This allows MOS itself to try to determine where it can relocate its system components, rather than you having to specifically tell it. If your system will still not boot properly, add the statement FREEMEM=N to your CONFIG.SYS file and reboot. This tells MOS not to relocate any of its system components into high memory, thus avoiding any possible memory conflicts with other system hardware.

If one of these two changes results in a successful bootup, you probably had assigned a FREEMEM area for MOS that was already in use by another system component, such as a video card or a network interface card. Consult the card manufacturer's documentation for information on what memory addresses the cards actually use.

NOTE: The MEMDEV= memory management driver statement requires the use of optional operands for hard disks that use DMA (Direct Memory Access) buffering. If your hard disk uses DMA buffering and you did NOT include the necessary MEMDEV operand, your system may lock when trying to load the MEMDEV driver. (You might also receive a "cannot open $$MOS.SYS file" or "file error 03" message during boot-up.) See the discussion of MEMDEV in your PC-MOS User Guide for more information.

SINGLE USER SYSTEM without Memory Management



HARDWARE ENVIRONMENT

CPU:	80286
Memory:	640K standard
Disk Drives:	A, B, C (C=HARD DRIVE)

CONFIG.SYS

```
MEMDEV=C:\PCMOS\$286N.SYS
CACHE=64,2,0,0,C
SMPSIZE=60K
```

AUTOEXEC.BAT

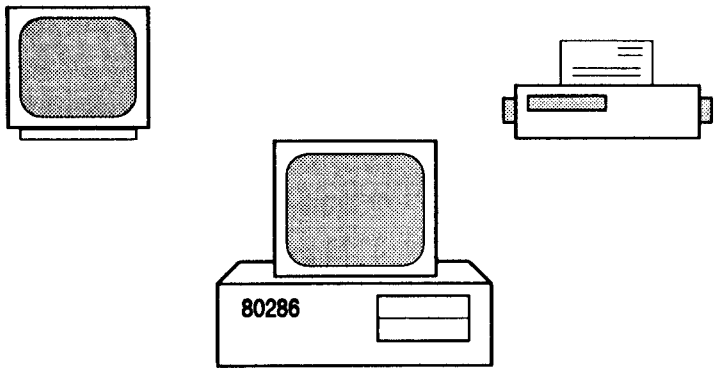
```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
```

The $286N.SYS driver loaded with the MEMDEV statement is only for use on 80286-based machines without memory management. (The $286N.SYS driver can NOT be used on 8088 or 8086-based PC or XT machines.) See MEMDEV in your User Guide for more information.

NOTE: For this example, the PC-MOS program files should be in the C:\PCMOS subdirectory.

Configuration Examples

TWO USER SYSTEM with Print Spooler



HOST HARDWARE ENVIRONMENT

CPU:	80286-Based
Memory:	2 MB Extended Memory, accessed with an All Computers, Inc. CHARGECARD
Serial Ports:	COM1, COM2
Disk Drives:	A, B, C (C=HARD DRIVE)
Video Card:	VGA
Terminal:	WYSE 60, connected to COM1
Printer:	Dot Matrix printer on LPT1

CONFIG.SYS

```
MEMDEV=C:\PCMOS\$CHARGE.SYS
FREEMEM=C8000,F0000
VTYPE=1
DEVICE=C:\PCMOS\$SERIAL.SYS /AD=03F8,HS=P,IN=4
DEVICE=C:\PCMOS\PCTERM.SYS
CACHE=256,2,0,0,C
SMPSIZE=70K
```

MEMDEV sets the memory management driver for the system. FREEMEM tells MOS what memory between 640K and 1MB is available for MOS and not being used by other hardware or devices.

VTYPE & FREEMEM statements may vary for different VGA cards.

The $SERIAL.SYS driver sets up the serial port interface. The PCTERM.SYS driver is required for the Wyse 60 and other PC type terminals. A 256K disk cache is set up for drive C. A 70K system memory pool (SMP) is set to manage the multiuser environment.

AUTOEXEC.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
ADDTASK 512,,,TASK1,PCTERM,1,38400
ADDTASK 32,,,PRINTER
SPOOL C:\SPOOLER
```

The first ADDTASK command adds a 512K multiuser task for the Wyse 60 terminal. The next ADDTASK adds a 32K background task for the MOS print spooler's print processor. The SPOOL command causes all print requests from the task to be written to the specified directory on disk for subsequent printing by the print processor.

TASK1.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
SPOOL C:\SPOOLER
```

PRINTER.BAT

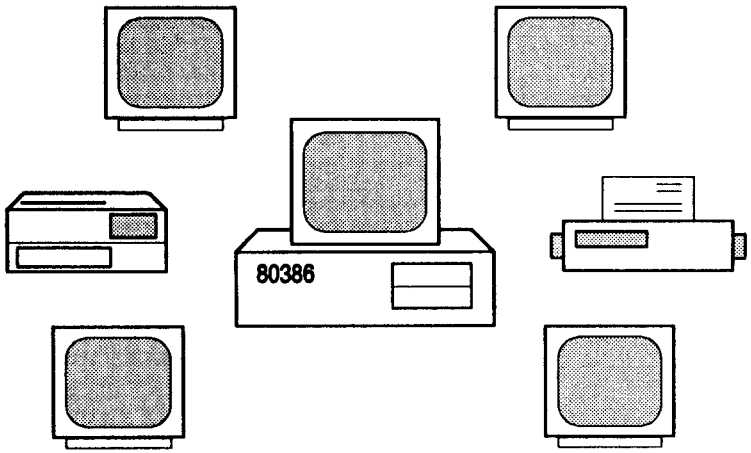
```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
PRINT C:\SPOOLER
```

The PRINT command invokes the print processor in the task. This program polls the specified subdirectory for files, and prints them according to the disposition, priority, and class assigned. Don't forget to make a subdirectory with this name on the specified drive.

NOTE: For these examples, the PC-MOS program files should be in the C:\PCMOS subdirectory.

Configuration Examples

FIVE USER SYSTEM with Remote Terminals & Print Spooler



HOST HARDWARE ENVIRONMENT

CPU:	80386-Based
Memory:	4 MB Extended Memory
Serial Ports:	COM 1, plus eight more ports provided by a MAXPEED SS-8/M intelligent serial port board.
Disk Drives:	A, B, C (C=HARD DRIVE)
Video Card:	VGA
Terminals:	WYSE 60
Modems:	Hayes or Hayes-compatible, 2400 baud
Printers:	Dot matrix on LPT1, laser printer on LPT2

CONFIG.SYS

```
MEMDEV=C:\PCMOS\$386.SYS
FREEMEM=CA000,F0000
VTYPE=1
DEVICE=C:\PCMOS\$SERIAL.SYS /AD=03F8,HS=P,IN=4
DEVICE=C:\PCMOS\MAX.SYS /0C8000 /CN=TLLLLLLL
DEVICE=C:\PCMOS\PCTERM.SYS
CACHE=512,4,0,0,C
SMPSIZE=80K
```


MEMDEV sets the memory management driver for the system. FREEMEM tells MOS what memory between 640K and 1MB is available for MOS and not being used by other hardware or devices. (In this case the starting address was moved up from C8000 to CA000 to avoid conflict with the MAXPEED board's address space.)

VTYPE & FREEMEM statements may vary for different VGA cards.

The $SERIAL.SYS driver sets up the serial port interface for COM1. The MAX.SYS driver sets up the interface for the MAXPEED intelligent serial port board. (It must be loaded after all other serial drivers.) /0C8000 indicates the starting address for the board. /CN=TLLLLLLL indicates that the first workstation on the MAXPEED board will be for a remote terminal and the rest will all be local (direct connected) terminals. See your MAXPEED User Guide for more information. Note that in this case COM1 will be logical port 1, and the MAXPEED ports will be logical ports 2 through 9.

The PCTERM.SYS driver is required for the Wyse 60 and other PC type terminals. A 512K disk cache is set up for drive C. An 80K system memory pool (SMP) is set to manage the multiuser environment.

AUTOEXEC.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
MODEM 1 2
ADDTASK 512,,,TASK1,PCTERM,1,2400
MODEM 2 2
ADDTASK 512,,,TASK2,PCTERM,2,2400
ADDTASK 512,,,TASK3,PCTERM,3,38400
ADDTASK 512,,,TASK4,PCTERM,4,38400
ADDTASK 32,,,PRINTER
SPOOL C:\SPOOLER D2A /LPT1 D2B /LPT2
```

The first two ADDTASK commands add 512K multiuser tasks for the two remote terminals. The MODEM commands that precede them initialize the modems that connect the remote terminals. MODEM 1 2 initializes the modem connected to logical port 1 (COM1) at 2400 baud. MODEM 2 2 initializes the modem connected to logical port 2 (the first port on the MAXPEED board)at 2400 baud.

Configuration Examples

The next two ADDTASK commands add 512K multiuser tasks for the two local terminals. These are connected to the second and third physical ports on the MAXPEED board (logical ports 3 and 4) and are communicating at 38400 baud. You can use the MOS INFO command to display a list of all serial drivers loaded and what logical port numbers have been assigned to their physical ports. You must always use these logical port numbers with the ADDTASK command.

The last ADDTASK command adds a 32K background task for the MOS print spooler's print processor. The SPOOL command causes all print requests from the task to be written to the specified directory on disk for subsequent printing by the print processor. Print output with a Disposition, Priority and Class of D2A will go to the dot matrix printer on LPT1, while output designated D2B will go to the laser printer on LPT2.

TASK1.BAT through TASK4.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
SPOOL C:\SPOOLER D2A /LPT1 D2B /LPT2
```

All print output from the terminals with a Disposition, Priority and Class of D2A will go to the dot matrix printer on LPT1, while output designated D2B will go to the laser printer on LPT2.

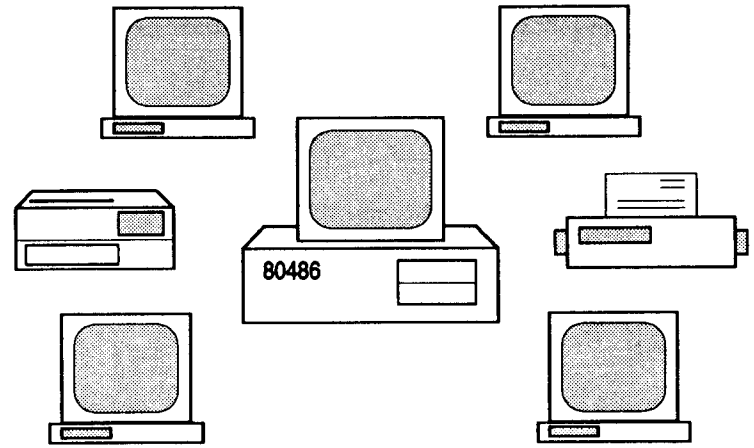
PRINTER.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
PRINT C:\SPOOLER /A1 /B2
```

The PRINT command tells the print processor to poll the C:\SPOOLER directory for spooled files and send class A files to the dot matrix printer on LPT1 and class B files to the laser printer on LPT2.

NOTE: For these examples, the PC-MOS program files should be in the C:\PCMOS subdirectory.

FIVE USER MAXTATION SYSTEM with Print Spooler & Mice



HOST HARDWARE ENVIRONMENT

CPU:	80486-Based
Memory:	4 MB Extended Memory
Serial Ports:	COM 1
Disk Drives:	A, B, C (C=HARD DRIVE)
Video Card:	VGA
Mice:	Microsoft serial mice
Worstations:	MaXtation with MaXtation SH-4/M controller. (Hercules Mono-Graphics compatible)
Printers:	Dot matrix on LPT1, laser printer on LPT2

MAXTATION SETUP

The MaXtation SH-4/M is a video graphics display adapter for use in multiuser systems running PC-MOS. It allows you to connect standard monochrome monitors and PC keyboards to the host computer as Hercules graphics workstations instead of expensive terminals. Each SH-4/M controller can support up to four workstations. Simple RJ-45 phone cabling is used between the controller and workstations. Up to four of these controllers can be installed in one host computer for a total of sixteen workstations. The MaXtation controller can operate the host's display or co-reside with existing VGA or EGA video cards only. In our example, the host computer's display will be run by the existing VGA video card.

Configuration Examples

Install the MaXtation controller in your computer and connect the workstations by following the instructions in the MaXtation User's Guide for installing in a co-resident VGA environment.

CONFIG.SYS

```
MEMDEV=C:\PCMOS\$386.SYS
FREEMEM=C8000,EE000
VTYPE=5
DEVICE=C:\PCMOS\$SERIAL.SYS /AD=03F8,IN=4
DEVICE=C:\PCMOS\SH.SYS  /0EE000
DEVICE=C:\PCMOS\$MOUSE.SYS
CACHE=512,4,0,0,C
SMPSIZE=80K
```

MEMDEV sets the memory management driver for the system. Note that an 80486-based machine still uses the $386.SYS driver. FREEMEM tells MOS what memory between 640K and 1MB is available for MOS and not being used by other hardware or devices. The FREEMEM area starts at C8000, but this may vary for different VGA cards. (In this case the ending FREEMEM address was moved down from F0000 to EE000 to avoid conflict with the MaXtation board's address space which was set to EE000 to F0000.)

VTYPE is set to 5 to provide the proper video save area for Hercules Mono-graphics workstations.

The $SERIAL.SYS driver establishes the PC-MOS serial port interface. AD= specifies the physical port address. IN= specifies the interrupt associated with the port. In this example, a mouse will be connected to the host computer through COM1. See your MOS User Guide for more detailed information.

The SH.SYS driver sets up the interface for the MaXtation controller ports. /0EE000 indicates that the default memory address range for the board was changed to EE000 to F0000. This allows a larger contiguous block of FREEMEM for MOS. See your MaXtation User Guide for more information.

The $MOUSE.SYS driver is required to install a mouse on the host computer and on the VGNA workstations. You MUST use this driver instead of the driver supplied with your mouse. (You still use the MOUSE.COM program that was supplied with your mouse.)

A 512K disk cache is set up for drive C. An 80K system memory pool (SMP) is set to manage the multiuser environment. The more device drivers and tasks that will be added - the larger the SMPSIZE will have to be. The MOS MAP utility command display shows how much of the available SMP is being used.

AUTOEXEC.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
ADDTASK 512,,,TASK1,SH,1
ADDTASK 512,,,TASK2,SH,2
ADDTASK 512,,,TASK3,SH,3
ADDTASK 512,,,TASK4,SH,4
ADDTASK 32,,,PRINTER
MOS MOUSE 1,1200
SPOOL C:\SPOOLER D2A /LPT1 D2B /LPT2
```

The first four ADDTASK commands establish multiuser tasks of 512K each for the MaXtation workstations. "SH" is used as the terminal ID operand, which corresponds to the SH.SYS driver set up in your CONFIG.SYS file. The last numbers in the ADDTASK commands (1,2,3,4) are the user or "workstation numbers" that correspond to the ports on the MaXtation controller board. (Notice that with workstations the "workstation number" replaces the "port" and "baud rate" operands normally used for terminals.)

The last ADDTASK command adds a 32K background task for the MOS print spooler's print processor. The SPOOL command causes all print requests from the task to be written to the specified directory on disk for subsequent printing by the print processor. Print output with a Disposition, Priority and Class of D2A will go to the dot matrix printer on LPT1, while output designated D2B will go to the laser printer on LPT2.

The MOS MOUSE command installs a mouse on logical port 1 at a baud rate of 1200. This is COM1 since it is the first port defined by the $SERIAL.SYS statement, and $SERIAL.SYS was listed before the SH.SYS statement in the CONFIG.SYS file. The serial ports on the four MaXtation workstations are therefore logical ports 2 to 5.

Note that if the MaXtation SH.SYS driver was listed before the $SERIAL.SYS driver then the four serial ports defined by SH.SYS for the MaXtation workstations would be logical ports 1 through 4, and the port defined by $SERIAL.SYS would be logical port 5. Don't confuse these serial port numbers with the workstation numbers used in the ADDTASK commands. (See Note 2 in the VGNA example for information on using the MOS INFO command for checking the logical port numbers assigned by MOS.)

"TASK1" through "TASK4", in the ADDTASK commands, indicate starup batch files named TASK1.BAT through TASK4.BAT (which you must place in the root directory of the boot drive) that will automatically execute in the respective task. They do not have to be the same, as they are in this example.

TASK1.BAT through TASK4.BAT

```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
MOS VMODE HG2
MOS MOUSE %,1200
SPOOL C:\SPOOLER D2A /LPT1 D2B /LPT2
```

To support Hercules graphics at the workstations you must invoke a VMODE of HG2 (for 2-page) or HG1 (for single-page) Hercules applications. If you don't know what your application requires, try them to see which one works.

Replace the % in the MOUSE command with the logical port number of the serial port for each task. In our example this would be 2 through 5. For example, in TASK1.BAT, % would be replaced with a 2, in START2.BAT with a 3, etc.

All print output from the workstations with a Disposition, Priority and Class of D2A will go to the dot matrix printer on LPT1, while output designated D2B will go to the laser printer on LPT2.

"PRINTER" in the ADDTASK command for the print processor, indicates a starup batch file named PRINTER.BAT (which you must place in the root directory of the boot drive) that will automatically execute in that task and invoke the PRINT command to start the print processor.

PRINTER.BAT

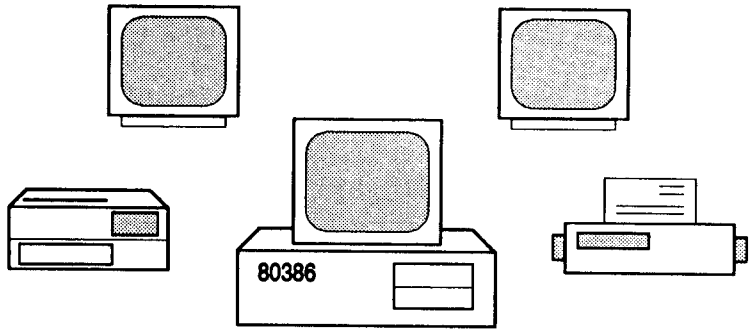
```
BATECHO OFF
PATH=C:\;C:\PCMOS
PROMPT=[TASK-$I] $P$G
PRINT C:\SPOOLER /A1 /B2
```

The PRINT command tells the print processor to poll the C:\SPOOLER directory for spooled files and send class A files to the dot matrix printer on LPT1 and class B files to the laser printer on LPT2.

NOTE: For these examples, the PC-MOS program files should be in the C:\PCMOS subdirectory.

Configuration Examples

THREE USER VGNA SYSTEM with Print Spooler and Mice



HOST HARDWARE ENVIRONMENT

CPU:	80386-Based
Memory:	4 MB Extended Memory
Serial Ports:	COM1
Disk Drives:	A, B, C (C = HARD DRIVE)
Video Card:	Paradise VGA Plus 8-bit card
Workstations:	Video Graphics Network Adapter
Mice:	Microsoft serial mice
Printers:	Dot Matrix on LPT1, laser printer on LPT2

VGNA SETUP

The Video Graphics Network Adapter (VGNA) is a video graphics display adapter for use in multiuser systems running PC-MOS on 386-based machines. VGNA allows you to connect standard VGA monitors and PC keyboards to the host computer as workstations instead of expensive graphics terminals. Each VGNA motherboard can support up to two workstations. A total of four VGNA boards can be installed in one host computer. The VGNA motherboard can operate the host's display or co-reside with a Paradise VGA video card only.

VGNA MOTHERBOARD

BASE ADDRESS: 0310
INTERRUPT: 5

CONFIG.SYS

```
MEMDEV=C:\PCMOS\$386.SYS
FREEMEM=C8000,F0000
DEVICE=C:\PCMOS\$SERIAL.SYS /AD=03F8,IN=4
DEVICE=C:\PCMOS\VGNA.SYS /0310,5 /AD=0200 /AD=0208
DEVICE=C:\PCMOS\$MOUSE.SYS
CACHE=512,4,0,0,C
SMPSIZE=70K
```

MEMDEV sets the memory management driver for the system. FREEMEM tells MOS what memory between 640K and 1MB is available for MOS and not being used by other hardware or devices. The FREEMEM area starts at C8000 to avoid the area used by the VGA card, but this may vary for different VGA cards.

The $SERIAL.SYS driver establishes the PC-MOS serial port interface. This allows the computer to communicate with the serial ports with greater efficiency. AD= specifies the physical port address. IN= specifies the interrupt associated with the port. In this example, a mouse will be connected to the host computer through this port. See your MOS User Guide for more detailed information.

The $VGNA.SYS statement loads the device driver required for the VGNA hardware and must include the base address, interrupt and serial port addresses (for the workstation mice) that you selected for the VGNA motherboards. See your VGNA Installation Guide for more detailed information.

The $MOUSE.SYS driver is required to install a mouse on the host computer and on the VGNA workstations. You MUST use this driver instead of the driver supplied with your mouse. (You still use the MOUSE.COM program that was supplied with your mouse.)

Configuration Examples

A 512K disk cache is set up for drive C. A 70K system memory pool (SMP) is set to manage the multiuser environment. The more device drivers and tasks that will be added - the larger the SMPSIZE will have to be. The MOS MAP utility command display shows how much of the available SMP is being used.

AUTOEXEC.BAT

```
BATECHO OFF
PATH C:\PCMOS
PROMPT $I$P$G
ADDTASK 512,,,START1,VGNA,1
ADDTASK 512,,,START2,VGNA,2
ADDTASK 32,,,PRINTER
MOS MOUSE 1,1200
SPOOL C:\SPOOLER  D2A  /LPT1  D2B  /LPT2
```

The first two ADDTASK commands establish multiuser tasks of 512K each for the VGNA workstations. "VGNA" is used as the terminal ID operand, which corresponds to the VGNA.SYS driver set up in your CONFIG.SYS file. . The last numbers (1 and 2) are the user or "workstation numbers" that correspond to the workstation connections on the VGNA motherboard.

START1 and START2 will cause batch files named START1.BAT and START2.BAT (located in the root directory of the boot drive) to automatically execute in their respective tasks. PATH, PROMPT, and other commands as well as a menu batch file can be loaded when the workstation is initialized using these startup batch files.

The last ADDTASK command adds a 32K background task for the MOS print spooler's print processor. The SPOOL command causes all print requests from the task to be written to the specified directory on disk for subsequent printing by the print processor. Print output with a Disposition, Priority and Class of D2A will go to the dot matrix printer on LPT1, while output designated D2B will go to the laser printer on LPT2.

The MOS MOUSE command installs a mouse on port 1 at a baud rate of 1200. This is the first port defined by the $SERIAL.SYS statement, since it was listed before the VGNA.SYS statement in the CONFIG.SYS file.

Note that if the VGNA.SYS driver was listed before the $SERIAL.SYS driver then the two serial ports defined by VGNA.SYS would be logical ports 1 and 2, and the port defined by $SERIAL.SYS would be logical port 3. Don't confuse these serial port numbers with the workstation numbers. (See NOTE 2 for additional information on determining logical port numbers.)

STARTUP BATCH FILES

START1.BAT and START2.BAT

```
BATECHO OFF
PATH C:\PCMOS
PROMPT $I$P$G
MOS VMODE VGA
MOS MOUSE %,1200
SPOOL C:\SPOOLER  D2A  /LPT1  D2B  /LPT2
```

If a particular workstation must support VGA graphics include the MOS VMODE VGA command. For workstations that do not need VGA graphics support use MOS VMODE CGA instead.

Replace the % in the MOUSE command with the logical port number of the serial port for each task. In our example this would be 2 and 3. For example, in START1.BAT, % would be replaced with a 2, and in START2.BAT with a 3. (See NOTE 2 for more information.)

All output from the workstations with a Disposition, Priority, and Class of D2A will go to the dot matrixprinter on LPT1 on the server, while output designated D2B will go to the laser printer on LPT2.

PRINTER.BAT

```
BATECHO OFF
PATH C:\PCMOS
PRINT C:\SPOOLER /A1 /FF /B266
```

The PRINT statement tells the print processor to print Class A files to LPT1 and Class B files to LPT2. All form feeds will be sent to the printer associated with Class B and the printer on LPT2 will be set at 66 lines per page.

Configuration Examples

NOTE 1: For these examples, the PC-MOS program files should be in the C:\PCMOS subdirectory.

NOTE 2: The MOS INFO command can be used to see what ports, in what order, were defined in the CONFIG.SYS file. The example MOS INFO display below shows the information for this example where $SERIAL.SYS was loaded before the VGNA.SYS driver.

```
PC-MOS System Information          Start   End

FREEMEM =                          C8000   F0000

MOS Kernel Segment #1              D9830   E5730
MOS Kernel Segment #2              101000  10D5A0
System Memory Pool (SMP)           C8030   D9830
Disk Cache Descriptors             E5960   E7960
Disk Cache                         9000    A000
Command Processor                  A000    12090
Master Video Context Area          E8000   F0000

Communications Driver Description  | First  | Last
-----------------------------------|--------|------
$Serial.sys V4.00 (890804)         | COM 1  | COM 1
VGNA.SYS V1.00 (891213)            | COM 2  | COM 3
```

In this case, the mouse on the host computer is installed on logical port 1 (MOS MOUSE 1,1200), and the mice on the two VGNA workstations are installed on logical ports 2 and 3 (MOS MOUSE 2,1200 and MOS MOUSE 3,1200).

If the VGNA.SYS driver had been loaded before the $SERIAL.SYS driver, the MOS MOUSE commands for the VGNA workstations would use logical ports 1 and 2 (MOS MOUSE 1,1200 and MOS MOUSE 2,1200) and the mouse on the host computer would use logical port 3 (MOS MOUSE 3,1200).

PC-MOS to DOS Cross Reference

(* = Internal Commands)

COMMANDS		
DOS	**PC-MOS**	**Purpose**
	ADDDEV	Dynamically add a device driver.
	ADDTASK	Dynamically add an active partition.
ASSIGN		Change drive designation.
ATTRIB	FILEMODE	Change file attributes.
BACKUP	EXPORT	Backup files to disk.
BREAK*	BREAK*	Set system Control-Break.
CHDIR*	CD*	Change directory.
CHKDSK	VERIFY	Verify condition of disk.
	CLASS	Assign or change security class.
CLS*	CLS*	Clear screen.
COMMAND	COMMAND*	Invoke command processor.
COMP	COMPFILE	Compare two files.
COPY	COPY*	Copy files. (also MOS file Security control)
CTTY		Change output to aux console. (n/a in MOS)
DATE*	DATE*	Set system date.
DEBUG	DEBUG	Debugger utility.
DEL*	ERASE*	Delete files.
DIR*	DIR*	Display directory contents. (MOS can sort)
DISKCOMP		Compare disks.
DISKCOPY	DISKCOPY	Copy one diskette to another.
	DOT*	Disable/Enable need for preceding "." with MOS Commands.
EDLIN	ED	Text editor. (MOS has full screen capability)
	ENVSIZE*	Set environment size in bytes.
	EXCEPT*	Exclude files from an operation.
FDISK	HDSETUP	Partition hard disks. (No 32MB limit with MOS)
FIND	SEARCH	Search files.
FORMAT	FORMAT	Format disks.
GRAFTABL		Load a graphics table.
GRAPHICS		Graphics screen print command.

PC-MOS to DOS Cross Reference

COMMANDS		
DOS	**PC-MOS**	**Purpose**
	HELP	MOS on-line help.
JOIN		Join multiple drives to a single drive.
KEYBxx		Set keyboard characteristics.
	KEYMAP	Keyboard Macro utility.
LABEL	DISKID	Label a disk.
MKDIR*	MD*	Create a directory.
MODE	MOS	Select specific system functions, as follows:
	MOS ANSI	Turn on/off ANSI.SYS support.
	MOS DIS	Disable keyboard looping in task.
	MOS DOSVER	Set DOS version level.
	MOS DSPORT	Diasable port from $SERIAL.SYS control.
	MOS FILES	Limit number of open files.
	MOS FREEIRQ	Free IRQ reserved by application.
	MOS HOLD	Set printer reservation time.
	MOS INFO	Display system memory allocations.
	MOS IRQ	List reserved IRQ's.
	MOS KEYB	Define keyboard type and buffer size.
	MOS MAP	Display partition map.
	MOS MOUSE	Initialize mouse for a task.
	MOS NODIS	Restore keyboard to normal state in task.
	MOS RESIZE	Adjust partition size.
	MOS ROUTE	Control printer output.
	MOS SERINIT	Initialize a serial port.
	MOS TSR	Turn TSR support on/off.
	MOS USEIRQ	Reserve IRQ for application.
	MOS VMODE	Set video mode.
	MOS WAIT	Wait for an event before continuing.
	MOSADM	System administrator functions, as follows:
	MOSADM CACHE	Turn disk cache on/off.
	MOSADM EMSLIMIT	Set task EMS memory size and handles.
	MOSADM HOLD	Set printer reservation time for other task.
	MOSADM PRI	Set partition priority.
	MOSADM RESET	Control task reset logic.
	MOSADM SLICE	Set partition time slice.

COMMANDS		
DOS	**PC-MOS**	**Purpose**
	MOSADM SWITCH	Turn on/off ability to switch between tasks.
	MOSADM TIME	Control timer chip I/O protection.
	MOSADM TMFACTOR	Set system time-slice factor.
	MOSADM VIRQ	Set IRQ task switching method.
MORE	MORE	Filter text display.
	NETNAME	Network signon command.
	ONLY*	Limit action of a command to specific files.
PATH*	PATH*	Specify directory path.
PRINT	PRINT	Print Processor. (MOS has multi-tasking print spooler)
PROMPT*	PROMPT*	Set prompt style.
RECOVER		Recover damaged files.
	REMDEV	Dynamically remove a device driver.
	REMTASK	Dynamically remove a task partition.
RENAME*	RENAME*	Rename files. (MOS can also rename directories)
RESTORE	IMPORT	Restore files from disk.
RMDIR*	RD*	Remove a directory.
SELECT		Select keyboard layout and format.
SET*	SET*	Set environment variables.
SHARE		Activate DOS file sharing. (Inherent in MOS)
	SIGNON/OFF*	Invoke system password routine.
	SWITCH	Switch to another task.
SORT	MSORT	Sort file records. (MOS has new sort options)
	SPOOL	Print spooler.
SUBST	ALIAS	Substitute drive letter for directory.
SYS	MSYS	Write boot record on a disk.
TIME*	TIME*	Set system time.
TREE	DIRMAP	Display directory structure.
TYPE*	TYPE*	Display a text file. (MOS also supports hex format)
VER	VER* or REL*	Display version of operating system.
VERIFY	WVER*	Verify disk writes.
VOL	DISKID	Set the name of a disk.

BATCH FILE PROCESSING COMMANDS

DOS	PC-MOS	Purpose
	ABORT*	Stop batch file processing.
	AUTOCD*	Recover saved drive and directory.
	BATECHO*	Control ECHO state for all batch files.
CALL	CALL/RETURN*	Jump to a specified batch label. (MOS also returns)
ECHO	ECHO*	Control batch command echo.
	FLUSH*	Clear the command recall buffer.
FOR	FOR IN DO*	Interactive command execution.
GOTO	GOTO*	Jump to specified label.
IF	IF/NOT*	Conditional control of batch file processing.
	INSERT*	Set insert mode for editing.
	KEY*	Wait for specified keystroke.
PAUSE	PAUSE*	Temporary halt to batch processing.
REM	REM*	Insert remark in a batch file.
SHIFT*	NEXT*	Set additional batch operands.
	STOP*	Immediate exit from current batch file.
	TEXT/ENDTEXT*	Enter text for display with special attributes.

CONFIG.SYS & AUTOEXEC/STARTUP BATCH FILE STATEMENTS

DOS	PC-MOS	Purpose
	$286N.SYS	System driver for Non-memory managed 80286-based computers.
	$386.SYS	Memory management driver for 80386 and 80486-based computers.
	$ALL.SYS	Memory management driver for the ALL CARD™.
	$CHARGE.SYS	Memory management driver for the ALL CHARGECARD™.
	$GIZMO.SYS	Memory management driver for the AT GIZMO™ card.
	$MOUSE.SYS	Mouse driver.
	$NETBIOS.SYS	Set IBM standard protocol for network procedures.
	$PIPE.SYS	Set pipe information for system.
	$SERIAL.SYS	Set up standard buffered serial ports.
BUFFERS		Set the size of system buffers.
	CACHE	Set a cache for disk I/O.
COUNTRY	COUNTRY*	Set country formats.
	DESNOW*	Remove "snow" from color display.
DEVICE	DEVICE*	Install a device driver.
	$EMS.SYS	Set device driver for LIM specification expanded memory.
FCBS		File control block commands. (Not necessary in MOS)
FILES		Set number of file handles. (Not necessary in MOS)
	FREEMEM*	Specify MOS memory configuration.
LASTDRIVE		Set maximum number of drives. (Not necessary in MOS)
	MEMDEV*	Specify Memory Management Device.
SHELL	SHELL*	Set user interface.
	SLICE*	Set processing time for partitions.
	SMPSIZE*	Set size of system memory pool.
	USERFILE*	Designate directory for $$USER.SYS user security file.
VDISK.SYS	$RAMDISK.SYS	Create a RAMdisk.
	VTYPE*	Specify video adapter type. (Controls certain aspects of memory allocation)

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