

MS-DOS

VICTOR

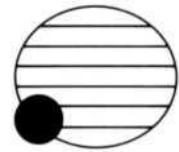
MS-DOS™ is a general-purpose disk operating system for the Intel 8086/8088 family of microprocessors. It is rapidly becoming the most popular operating system in the 16-bit desktop computer world.

MS-DOS provides a comprehensive environment for the development and execution of a wide variety of application programs by an I/O device and disk file management system.

Dynamically allocated, named files are available for both random and sequential access. I/O devices (such as the console and printer) are assigned reserved file names and may be treated as files by applications programs. Disk files are stamped with the time and date of their creation or last update. This information, in addition to size in bytes, is displayed by the DIR, command.



**Operating
Systems**



MS-DOS Structure

The MS-DOS operating system consists of three separate files: IO.SYS, MSDOS.SYS, and COMMAND.COM.

- ▶ I/O — This module contains the primitive disk and character routines. These functions include reading and writing a physical sector; console input, output and status check; and getting and setting both time and date. This area also contains tables which describe the disk format to MS-DOS.
- ▶ MS-DOS - MS-DOS consists of the program interface, disk file manager, and character I/O handler. The program interface processes program system calls. The disk file manager updates the directory and file allocation table whenever read, write, erase, open, close, or rename occurs. The character I/O handler retrieves or sends the requested number of characters.
- ▶ Command - COMMAND is the interface between the user and the MS-DOS module. It has a set of built-in internal commands for file manipulation. In addition, COMMAND will load and run any external executable file or batch file when the file name is entered. COMMAND itself is an executable file which may be replaced by, for example, a menu-driven command processor to give any desired appearance to the user. The following commands are built in:
 - DIR List directory contents.
 - REN Rename files.
 - DEL Delete files.
 - COPY Copy or concatenate files.
 - TYPE Display file on console.
 - DATE Get/Set current date.
 - TIME Get/Set current time.

MS-DOS Features

- ▶ Written entirely in 8086 Assembly Language — This provides significant speed improvements over operating systems that are largely translated from their 8-bit counterparts or written in a high-level language.
- ▶ Powerful, Flexible File Systems — MS-DOS has no practical limit on file or disk size. It uses 4-byte XENIX™ operating system compatible logical pointers for files, and disk capacity up to one gigabyte. Hard disks can easily be accommodated in this environment.

Within a single diskette, the user of MS-DOS can have files with different logical record lengths. MS-DOS is also

designed to block and deblock its own physical sectors: 128 is not a sacred number in MS-DOS.

MS-DOS remembers the exact end of file marker. If the user opens a file with a logical record length other than the physical record length, MS-DOS remembers exactly where the file ends to the byte, rather than rounded to 128 bytes. This alleviates the need for forcing Control-Z's or other characters at the end of a file.

The directory format eliminates the need for "extents", minimizes access to the directory and provides for duplicate allocation information.

- ▶ No Need To Log in Diskettes - As long as no file is currently open, there is no need to log in a new diskette by typing Control-C. This greatly improves usability for single-disk system users, and people who like to store their data on separate diskettes.
- ▶ Device Independent I/O - MS-DOS simplifies I/O to different devices by assigning a reserved file name to each device. These names are built in and detected by the MS-DOS file system. Even programs designed only for disk file I/O can, for example, have their input come from the console or their output sent to the printer.
- ▶ Advanced Error Recovery Procedures — MS-DOS doesn't simply fade away when errors occur. If a disk I/O operation cannot be completed successfully, MS-DOS will return an error message, then wait for the user to enter a response. The user can attempt recovery rather than being forced to return to the operating system.
- ▶ Editing Template - MS-DOS operates through a "template" in the input buffer. The template is simply the last input line entered and is used for editing purposes. The advantage of this template method is that a new line can be edited right away, and a command can be edited before retrying it in case an erroneous command was entered.
- ▶ Easy Conversion from 8080 to 8086 - MS-DOS allows as much transportability of 8-bit machine language software as is possible. MS-DOS emulates system calls to CP/M-86™. The RDCPM utility allows for easy conversion of CP/M™ and CP/M-86 files into the MS-DOS file format.
- ▶ Complete Program Relocatability - The architecture of the 8088 CPU limits each segment to 64K and

requires intersegment references to be fixed for a given load address. MS-DOS works around this limitation through its special executable object module format.

During the program development phase, the MicroSoft linker can combine object modules from the BASIC, FORTRAN and Pascal compilers and MACRO 86, the macro assembler, into an executable module of up to six segments.

CP/M-86 Emulator

The CP/M Emulator provides the means of running a program developed for CP/M-86 on the MS-DOS System. It enables a user to benefit from the MS-DOS environment without recompiling or reassembling the CP/M program.

Utilities

In addition to COMMAND, the following utilities are provided with MS-DOS:

- ▶ CHKDSK - The CHKDSK utility checks and corrects the integrity of the disk directory and reports the amount of storage allocated and available.
- ▶ DCOPY - The DCOPY utility formats and copies diskettes.
- ▶ EDLIN - EDLIN is a line-oriented text editor. It includes commands to insert, delete, and list lines, and to make corrections within a line. Its global search and replace commands allow the user to confirm that the correct text string has been found before proceeding. By "paging" parts of the file in and out of memory, EDLIN can edit files of any size.
- ▶ FORMAT - The FORMAT utility formats diskettes and optionally transfers the system tracks and COMMAND.
- ▶ RDCPM - The RDCPM utility copies files from a CP/M format diskette.
- ▶ SETIO - The SETIO utility sets and displays the logical to physical device assignments. This allows, for example, output to the printer to be sent to the screen instead.
- ▶ UDCCALC - The UDCCALC utility allows the "Ten-Key" keypad to function as a calculator.

MS-DOS, XENIX, MS-BASIC are registered trademarks of Microsoft. CP/M-86 and CP/M are registered trademarks of Digital Research.

For further information, contact:

Victor Technologies, Inc.
380 El Pueblo Road
Scotts Valley, California 95066
408-438-6680 Telex 176110

or your local Victor Computer Representative.