
**Digital Research Incorporated, Massachusetts, USA**

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in Europe (where it has offices in the UK, Germany and France). At about the same time, Digital Research was one of the front runners in securing the contract to develop an operating system for IBM's newly-designed Personal Computer. Although Microsoft eventually won the IBM-PC contract, Digital Research was far from beaten. It has since updated CP/M for the Intel 8088/8086 processors in such a way as to make it look very similar to MS-DOS, and it has also gone a step beyond with Concurrent CP/M.

Concurrent CP/M is the converse of MP/M, allowing several different programs to run simultaneously. With this program, a user may work on three different jobs at one time—say, spreadsheet, report generation and electronic mail—switching between them at will. Existing versions of Concurrent CP/M can display each screen—or a portion of it—simultaneously, using the 'windows' feature. New versions of Concurrent CP/M promise to run directly most of the programs written for the IBM PC-DOS.

Among the strategic decisions that Digital Research and many other systems and language houses have taken, is that of moving all its development work into the C language, which is especially notable for its portability. Code written in C need only be recompiled for use on another processor, though this feature has led to accusations of cumbersome coding. It is better, its detractors argue, to do a proper job in assembler for each individual processor. However, it has become increasingly popular, and since the widely used UNIX operating system is itself written in C, the trend towards this language seems irreversible.

Digital Research has certainly been consistent in its view that true portability is only possible through high-level languages. It now provides a variety of languages for a wide range of micros. At the lowest end of the market, however, Digital Research has set up a Consumer Products Division that will sell Personal BASIC, Personal CP/M and its own version of LOGO. Personal CP/M, like CP/M-86, is designed to be stored in ROM, and will soon be available on a Z80 chip by agreement with Zilog. Digital Research describes this as 'microware', and it is sure to prolong the active life of the vast number of ageing 'standard' CP/M programs by making them cheap enough for the home computer user.

Further developments of considerable promise are VIP and GSX. VIP is a cheap visual 'shell' that allows program developers to present a uniform interface to the user, independent of the applications package being executed. Several applications may use the same data, and data can be transferred from one to another. In this respect, VIP is similar to Apple's Lisa and Macintosh technology, but far less demanding of memory. VIP will run in any computer with more than 50 Kbytes of RAM and equipped with 150 Kbytes or more of disk space.

GSX is supposed to do for graphics what CP/M did for disks. It uses a standard set of graphics functions that can be used on a variety of different pieces of hardware. A GSX program will run on a colour screen, a black-and-white screen, a dot matrix printer and a plotter, without any changes. However, Digital Research is experiencing difficulty in creating a new graphics standard, because the system does not produce the same quality as programs that are written specially for one machine. Its popularity has also suffered because of a lack of software.

Digital Research has established itself as one of the major software houses in the microcomputer business. It is not, however, resting on its laurels. After its venture into products such as GSX, VIP and LOGO, there is potential to follow companies like Microsoft into the applications software field. With the unchallengeable background of CP/M's success, the company looks set for a long future.