

One of your next computers will probably have a microflop-disk drive that uses a 3½-inch hard-shell cartridge with an automatic shutter. It will also be compatible with the standard interface for 5¼-inch disk drives. More than 30 companies are now supporting this emerging standard in the sub-5¼-inch disk, or "microflop," market as a result of an agreement on disk media between the Microflop Industry Committee (MIC) and Sony Corporation earlier this year. While the disk drive and media specifications have been presented to the American National Standards Institute (ANSI) X3B8 committee on microflops, they will probably become a de facto standard in the marketplace before they gain official acceptance.

Already, many portable computer manufacturers have adopted the 3½-inch disk drive as a standard. The sales of 5¼-inch disk drives are still increasing, particularly now that half-height drives are appearing in products, but experts predict that 3½-inch disk drives will soon outsell any other size.

### Microflop Applications

Microflop-disk drives are small, light, inexpensive, and powerful, representing the newest wave of miniaturization in computer mass-storage peripherals. Their range of applications includes memory typewriters, new office equipment, scientific and engineering instruments, the next generation of smaller portable computers, and other uses still on the drawing boards.

Because of strong market demand for smaller, more powerful components and systems, the greatest potential for microflops is in portable computers. They offer better performance and the same capacity as 5¼-inch floppy disks in a smaller and less expensive package. While today's "portable computers" are more easily transportable than desktop models, drives and media will contribute to the development of truly portable computers. Microflops are also suitable for any application in which 5¼-inch disks are used.

Reductions in the size and/or cost of silicon chips, displays, and disk drives lead to many new applications for small computer systems. The new semiconductor chips, cheaper memory, flat-panel displays, and sub-5¼-inch floppy-disk drives can help make for a system small enough to be carried in a briefcase. As a result, microflops may usher in a new era of freedom from the workplace.

### The Advantages of Microflops

One of the most crucial factors that determines the cost and size of microcomputers is peripheral storage. In some cases, disk drives account for 60 percent of the cost of a microcomputer system. Today's most popular and powerful microcomputers have two floppy-disk drives, which increase a system's volume and weight considerably. Microflop-disk drives, which are one-quarter the size and one-half the weight of conventional 5¼-inch disk drives, consume 50 percent less power.

The microflop drives now on the market store from 358K bytes to 1 megabyte per disk; 500K bytes is typical. This is raw, unformatted storage capacity that is typically reduced to a 320K- or 360K-byte format compatible with the IBM Personal Computer disk format. This capacity is less than some of the new high-capacity 5¼-inch disks now appearing on the market, but it is equivalent to most standard 5¼-inch disks.

As microflop drives are integrated into consumer products, systems designers and OEMs (original equipment manufacturers) will take advantage of the 3½-inch disk's size, price, and performance to create new uses beyond those of 5¼-inch drives.

Another advantage microflops offer is carrying convenience. Early market research revealed that people want disks that can be carried in a pocket or purse. But because microflop disks are easy to transport—and therefore easy for inexperienced users to damage—the disk and drive manufacturing companies are supporting a hard-shell cartridge. Further, most disks have an auto-

matic shutter that closes over the media surface when the disk is removed from the drive. Thus the "flop" in microflop is no longer accurate. Such protective measures help ensure that beginners who don't know the meaning of computer messages such as "BDOS Error—bad sector" will not have to learn about them the hard way.

### Industry Standards

Standards are essential to the efficiency and growth of every segment of the computer and electronics industry, and microflop drives and media are no exception. Standardization lowers costs to manufacturers, OEMs, and consumers alike by allowing the mass production of interchangeable parts. Standards also eliminate the need for expensive redesigns.

Disk and drive manufacturers can compete within the framework of an established standard. That way, OEMs and systems houses won't fail to support a customer if their main source does not have parts available. They can fall back on second sources of standard parts.

When microflops were first announced, the market was flooded with incompatible products. Hitachi, Matsushita, and Maxell introduced a 3-inch disk drive and media; Tabor and Dysan presented a 3¼-inch drive with soft-jacketed disks that Seagate Technology later supported; Sony introduced a 3½-inch drive that both transferred information and rotated twice as fast as the standard 5¼-inch drive; Canon had a 3.8-inch drive; and more recently, IBM introduced a 4-inch drive. Disk-media manufacturers were endorsing several disk sizes, but most of the support was behind the 3½-inch format.

### The Microflop Industry Committee

The Microflop Industry Committee (formerly called the Microflop Standards Committee) was formed in May of 1982 to establish a microflop media standard. The committee announced its activities at the National Computer Conference in June 1982 and opened its member-