

INSIDE

Schrage

■ GOP demonstrates ignorance of the history of technology.

Smallest disk drives turn into big flops

BY SIMSON GARFINKEL
Special to the Mercury News

MINISTOR Peripherals closed shop last month, bringing to an end the company's hopes of becoming a big player in the hard disk industry by selling some of the world's smallest disk drives.

Scared off by the higher costs that computer manufacturers would have had to pass on to consumers, the tiny 1.8-inch drives Ministor made didn't catch on. The San Jose company's idea was to offer as much storage capacity as larger disks in less space. It's the Holy Grail of the storage industry. From 5¼-inch drives to today's standard of 3½ inches, disk companies keep looking for ways to put more into less — without raising costs.

Ministor's effort failed, however, raising fears about other disk-drive companies that have weathered the ups and downs of market demand. Other companies in the disk-drive industry have suffered similarly mixed results in the effort to get small. Hewlett-Packard Co., for example, abandoned last September its efforts to market a 1.3-inch hard disk drive, scared off by the costs.

Consumers

still want

more in less

"H-P keeps its individual business units tightly focused on key market segments with good to excellent prospects," Bruce F. Spenner, the company's general manager for Information Storage, said at the time.

"When those markets don't yield as expected, H-P minimizes its exposure to additional risk and makes difficult decisions such as this one."

But consumers today are buying computers in record numbers, leading most analysts to believe that Ministor's unceremonious end probably doesn't spell trouble for other hard disk manufacturers such as Seagate Technology Inc., Conner Peripherals Inc. or Quantum Corp., some of this area's major employers.

"The drives that were made by Ministor are not made by any of the other companies," says Jim Porter, an analyst at Disk Trend, which follows the industry.

Unlike other hard disk manufacturers, which have a range of different products with different sizes and storage capacities, Ministor had bet the farm on 1.8-inch disk drives. Unfortunately for Ministor, the market for the tiny drives has been slow to develop.

Hard disks are the electronic "filing cabinets" inside computers that are used to store programs and data. Early desktop computers offered disk drives that were 5¼ inches in diameter and could store 10 or 20 megabytes of information, or 1,500 to 3,000 pages of typed information.

Most desktop computers sold

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space. But

the disk drive

industry

changes

because tiny

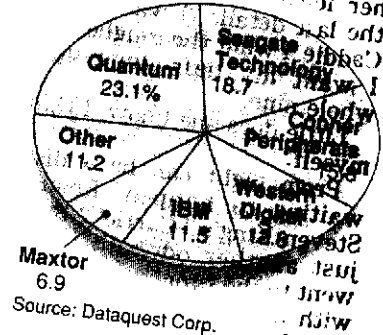
disks are

deemed too

expensive.

Disk-drive market

The market for hard disk drives continues to grow, with more than 69 million units shipped last year. Quantum Corp. in Milpitas led the market, controlling a 23 percent share, followed by Seagate Technology and Conner Peripherals.



MERCURY NEWS

Gamble on small drives kills Ministor but not industry

■ DISK DRIVES

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today use disks that are 3½ inches in diameter and can store 500 to 1,500 megabytes, or tens of thousands of pages. Ministor had targeted its disk drives for a particular niche market: subnotebook portable computers and handheld computers called personal digital assistants.

The company's 1.8-inch drives are physically smaller and use less power than the competing 2½-inch drives but also cost nearly twice as much money to store the equivalent amount of information. That scared off computer makers, which feared that the higher price would drive up the costs of their laptops in what has become a cutthroat marketplace.

As a result, makers of subnotebook computers "have discovered that they can get along with 2½-inch drives," says a disheartened Gary P. Martin, Ministor's vice president and chief financial officer.

Meanwhile, makers of handheld computers have not moved to hard disks. Instead, PDAs such as Apple's Newton and Sharp's Wizard store their information on semiconductor chips, which use still less power.

Now, instead of trying to make their drives physically smaller, hard disk makers are concentrating on making their wares faster and increasing the storage capacity. The reason for this new direction has been the rising popularity of multimedia: whereas a 500-megabyte hard disk can store 250,000 pages of information, it can store less than a thousand photographs or only about an hour of video footage.

Despite the problems at Ministor, other disk-drive manufacturers have been doing quite well. Last month, Seagate reported revenue of \$1.2 billion and profits of \$70.3 million for the first quarter of 1995. Quantum reported record sales of \$983.8 million with an income of \$23.1 million for the same quarter. Conner, meanwhile, reported earnings of \$4.6 million on net revenues of \$610.4 million.

Disk drives are one of the most energetic of all computer-related fields, says Phil Devin, vice president of storage technology at Dataquest, a San Jose market research firm. Unit volumes are growing 35 percent per year, while the

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storage capacity of drives is increasing a whopping 60 percent per year.

"On top of that, you have a 12 percent per quarter price erosion," he says. As a result, manufacturers and resellers are highly motivated to sell disk drives as quickly as possible, lest they become obsolete on store shelves.

But the frenzied pace of product development is one of the factors keeping the United States dominant in the field.

Companies also are extending into related fields. "Seagate is going into software — they are buying software companies every three months," Devin says. "Western Digital is strengthening its position in IO (input/output) chips and IO controller cards. Conner has diversified into tape and subsystems and disk arrays."

Indeed, the only major drive company that is sticking just to hard disks seems to be Quantum, which recently completed its acquisition of Digital Equipment Corp.'s storage group.

Ministor's departure leaves just one company, Integra Peripherals of Boulder, Colo., producing disk drives smaller than 2 inches.

It is difficult to guess if things would have been different for Ministor if the 1.8-inch market had materialized. Although Ministor would have had a market for its drives, it almost surely would have faced competition from the industry's larger players — many of whom were ready to jump in at a moment's notice.

"We have had 1.8-inch drives. We were probably working on them a couple years ago," says Catherine Hartsog Toor, vice president of corporate communications at Quantum. "The issue is that the market never really materialized to make any money from them."

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