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Forward spin



Hardcard may be disk drive firm's ace in the hole

IMAGINE A child paying back his parents for college a mere three months after getting a diploma.

That's the phenomenal kind of pay-back Quantum Corp. could get from subsidiary Plus Development Corp. when its clever product for personal computers hits the market this fall.

It's called the Hardcard, a miniature of a 10-megabyte hard-disk drive.

In its usual form, such a device for storing 5,000 typed pages of information can take up as much space as a box of sugar cubes if fitted inside a personal computer. If it's hooked up externally, it's about as big as an outsized shoe box.

Retrofitting a computer with a hard-disk drive and getting it working again is something like a car owner overhauling his own transmission. It can take from two hours to two days and cost \$1,100 and up at retail.

Plus Development's hard-disk drive isn't a box at all. Nor does its installation require a major technical foray into the innards of the personal computer.

It's a \$1,095 add-on card — that is, a board with components plugged onto it — that slides into the expansion slot of an IBM PC or PC-compatible computer. Inserting the card, transferring a user's files to the hard disk, organizing them and making them easy to find takes less than 10 minutes, Plus says.

Aimed at medium-size to large businesses where millions of IBM PCs and compatibles are in offices, the Hardcard is exciting industry both for its technical achievement and the corporate strategy behind it.

The device was conceived more than two years ago. It was the union of an off-the-cuff remark by Nolan Bushnell and the gut feeling of Quantum President James Patterson that the time was ripe to diversify.

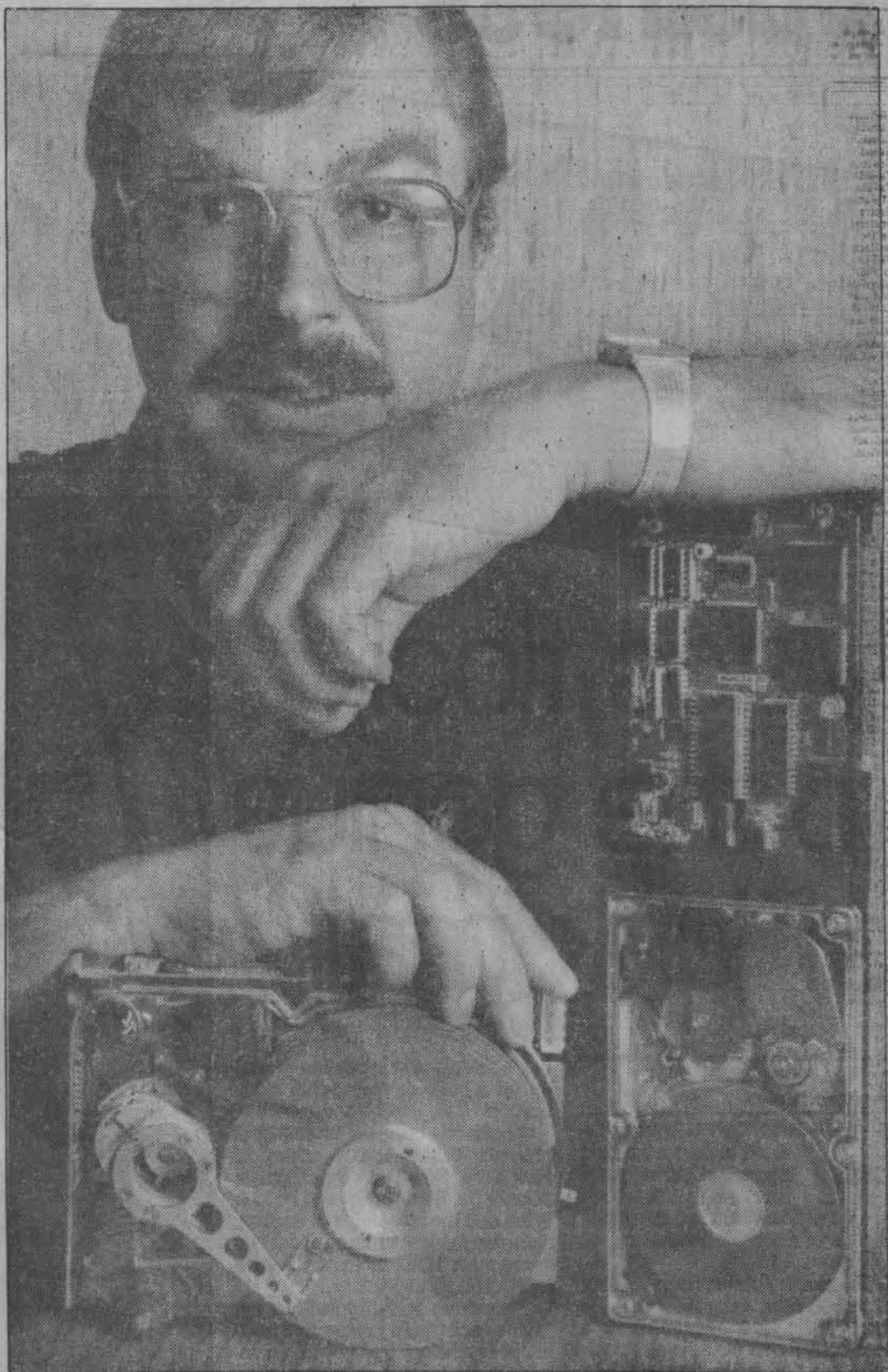
It was a boom time for the personal-computer industry. As a supplier of disk drives to computer manufacturers, Milpitas-based Quantum had plenty of money to invest and was thinking of broadening its base with products for end users.

One June night at a dinner in San Francisco, Bushnell "mentioned that if he had low-cost disk-drives on a board he could use thousands," Patterson said. "That got me thinking. We (at Quantum) spent months talking about it."

"But with the day-to-day pressures, there was no way to get the project going. It became clear, if we were ever to do anything about it, we would have to set a group of people aside."

In October 1983, Quantum created a majority-owned subsidiary, rented a separate office and gave a handful of people three months to map out a business plan. The setup had the advantage of providing a start-up-style challenge for employees eager for change, plus more than a dozen promotions for those who remained at the parent company.

"We had grown pretty fast, and there were a number of people who had become dissatisfied with our size and all the things that go along with a larger company," Patterson said. "Some people really wanted to go on their own, and they were recharged by this idea."



Examiner/Paul Glines

Joel Harrison of Plus Development with a conventional hard disk and, at right, the Hardcard, which he helped invent, and (attached) its disk drive controller

After Quantum funded the subsidiary in January 1984 — a \$4 million equity investment plus an \$11 million loan — the first order of business was to go to Japan.

With a low-cost, high-volume device on the drawing board, Plus Development needed to figure out how to compete with the acknowledged leaders in that area. After three months, it decided that partnership, not competition, was the key and signed up Matsushita Kotobuki Electronics as manufacturer.

More than a year later — twice the usual development and testing period for a Quantum product — the device was unveiled, according to Plus Development President Stephen Berkley.

The technical challenge of getting a hard-disk drive onto a plug-in board contributed to the long gestation period. Equally time-consuming was the challenge of producing something for ordinary people instead of computer-makers. The Hardcard "had to be like a toaster, an appliance. . . . It had to be essentially perfect," Berkley said. Also time-consuming were finding out what

most displeased PC users who had upgraded to hard-disk drives and crafting the Hardcard to please in those respects. So while the typical warranty for hard disks is 90 days, the Hardcard's is a year. While typical computer "down time" can range from a few days to a few weeks when a drive goes on the blink, Plus Development offers a same-day exchange program.

"People said it was difficult to transfer floppy (disk) files to a hard disk and complained that it was difficult to keep track of them once on the hard disk," Berkley said. "So we put installation software (in the device) . . . and went to Software Publishing Corp. to develop a file management system that we provide with the product."

Plus Development thinks it can be profitable at least six months after Hardcard shipments begin, maybe sooner. The revenue couldn't come at a better time for Quantum, which has seen its business slow dramatically this year.

"We didn't plan it this way," Berkley said. "But it could turn out to be like a child paying its parents back for college in the first three months after leaving school."