



Kaypro Faces Uphill Battle To Continue as PC Player

It was four years ago, almost to the month, that we last wrote about Kaypro, and so much has changed that it seems almost silly to revisit any of it. But there are lessons to be learned.

Perhaps the most astute comment we made back then was that in turning his company from the making and selling of digital voltmeters and small, portable oscilloscopes to the making and selling of transportable and desktop personal computers, Andrew Kay, the firm's founder, had launched it on a journey from which it can never return.

And so it seems. According to *Business Week* (September 26), Kaypro's bankers are about to pull the plug on a \$12 million loan for which the company has neither the cash to pay off on its October 1 due date nor the clout to roll over or rearrange.

But even if the company can renegotiate the line, its problems are severe.

As we said four years ago, Kaypro is not a top-tier supplier with a glamorous name. Alas, all it did was doom Kaypro to an ever-decreasing market share in the clone market and a stable share in the 8-bit CP/M market that few of us can even remember. Some product success or recapitalization might help, but the process will take time — and meanwhile the market marches on.

Kaypro's story is one of timing. When it became a public company in August 1983, selling stock at \$10 a share on opening day, the initial public offering market had already begun to close and personal computer stocks had begun to slide on rumors of IBM's upcoming PCjr. Kaypro's \$10 a share worked its way below \$4 within a year and by 1987 was spending most of its time between \$1 and \$2. So Kaypro's debut in the financial market took place at one of the roughest times the industry has ever faced. The fact that it survived at all while more glamorous companies such as Osborne, Eagle, and Victor Technologies disappeared is to its credit — but not to its glory.

Product timing is worth noting too. The Kaypro 2, announced in 1982,

when the company was still called Non-Linear Systems, sold like hotcakes, and the company's revenues jumped from \$5.5 million one year to \$75.2 million the next. And for the first time in the decade of the 1980s the company made money — almost \$13 million.

But Kaypro's revenues peaked in 1984 and didn't crack \$100 million again until the Kaypro PC's two-year anniversary in 1987. But by then all the money the company had made in fiscal 1983 had been more than lost, along with much of the \$28 million raised in the IPO. As of the nine-month period ending in May, Kaypro's revenues were only \$59 million, and losses were more than \$4 million.

Hindsight examination of the Kaypro roller coaster tells us some things about the market:

- Technology comes in waves, as do the vendors that serve it. Kaypro caught the 8-bit transportable wave and, once Osborne had self-destructed, was in a position to gather market share. But the MS-DOS wave washed over it. By the time the next wave (32-bit machines) came by, Kaypro was back in the game but with insufficient resources. It's had to delay, for instance, its PS/2 clone.

- \$100 million companies require different managers from \$10 million companies. Kaypro is a family-run company. Half of the executive officers and all of the directors listed in the 1987 annual report sport the Kay surname. The skill and talent it took to build the \$5 million Non-Linear Systems is not the skill and talent it takes to run a publicly owned, \$100 million company. The Kays may have that talent and skill, but Non-Linear's track record is not a priori proof of that.

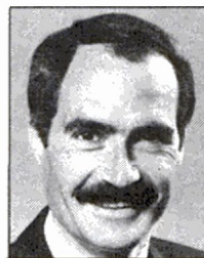
- Growth must be planned — in both directions. Kaypro's incredible 1983 growth looked wonderful for a year but exacted a heavy toll in administration and management. Inventory overruns and mismanagement — at one point inventory was housed under rented tents — helped generate a 1985 inventory write-down of \$14 million.

Whether Non-Linear Systems should have, or even could have, resisted the temptation to switch from being a tiny instrument company to a briefly luminous PC company 10 times the size is impossible to say. Certainly Kaypro has played a role in the development of the industry, but just as certainly it's a minor player today facing challenges that may surmount it. Some of those challenges come from within, some from without.

John Gantz is editor of the Tech Street Journal, a newsletter on the high-tech stock market and business performance. The views expressed are his own.

Kaypro's Financial Roller Coaster

(in millions)		
FY Ending	Revenues	Net Earnings
8/80	\$3.2	\$(.1)
8/81	3.9	(.1)
8/82	5.5	(.5)
8/83	75.3	12.9
8/84	119.6	(.3)
8/85	75.4	(15.5)
8/86	77.9	.0
8/87	105.6	(9.6)
5/88 (9 Mo)	58.9	(4.4)



Multisynchronous Display Withstands Obsolescence

During the past few weeks we've taken a detailed look at the evolution of IBM-compatible display systems, focusing almost exclusively upon the multitude of standards that first have been set, then soon superseded by IBM. We've seen that the various display adapters have always been "tightly coupled" to their display monitors and have frequently employed fancy "kludge" solutions (like conditional inverting of synchronization signal polarities) when necessary to maintain backward compatibility with the multitude of prior standards.

Amid the wilderness created by the resulting incredible array of vertical and horizontal scan rates, a solid alternative to the eternal IBM lock-step frenzy has arisen. Originally conceived by Nippon Electric Co. Ltd. (NEC) as an answer to just this problem, the so-called "multisynchronous" display monitors are now selling in the hundreds of thousands for a very good reason.

In what can only be called a truly astounding leap of insight, the designers at NEC integrated the past and predicted the future when they invented their original NEC Multisync, a single unified display monitor solution for all adapter technologies past, present, and future. Rather than following IBM with yet another tightly coupled clone display monitor, NEC invented a single monitor that quietly displayed anything it might be handed by the system's display adapter. By accepting an unheard of range of vertical and horizontal synchronization frequencies, as well as both digital and analog RGB intensity signals, the NEC Multisync became virtually obsolescence-proof.

While IBM was busily requiring all of its EGA owners to completely scrap their "yesterday's solution" EGA monitors, which would no longer be compatible with the VGA of today (and tomorrow?), and purchase the all-new VGA displays, proud Multisync owners only needed to change their monitor's cable and flip a couple of switches at the rear of their displays. That's what I call truly brilliant engineering!

Of course, it wasn't long until everyone else recognized NEC's brilliance and began cloning multisynchronous monitors like mad.

However, there's something else that makes multisyncing the right solution, and after extensive experimentation and comparison, it has become an infinitely critical component of Steve's Dream Machine: support of the wonderful 800-by-600-pixel super high-resolution modes that are now available from all state-of-the-art EGA and VGA display adapters.

Many of you will remember that Steve's Dream Machine and I have been holding onto monochrome display technology for dear life ...

looking to monitors such as the Wyse-700/Amdek-1280 and MDS Genius to provide the truly useful bit-mapped graphics resolution that is, and will be, required by today's and tomorrow's desktop publishing, MS Windows, and OS/2 Presentation Manager applications. Until many months of searching yielded the incredible, ultimate adapter/monitor combination, I didn't believe that a color system could really deliver "truly useful" (and in fact wonderful) high-resolution bit-mapped displays. It can. Next week I'll tell you about the results of my quest, but first we need a bit more foundation.

It turns out that truly useful bit-

NEC invented a single monitor that quietly displayed anything.

mapped resolution requires stepping above even the VGA's new 640-by-480 resolution up to 800 by 600. By cranking the horizontal sync up to 35,100 hertz and sneaking the vertical refresh just a tad below 60 hertz to about 56, any solid multisynchronous monitor can readily display 600 lines of 800 full-color pixels per line.

There's something magical about the difference between 640 by 350, 640 by 480, and 800 by 600. It's a staggering difference. The prior two resolutions simply pale by comparison to 800 by 600. Trying to understand why things get so incredibly better as the resolutions are increased, I've decided that it's because the total pixel count increases with the product of the horizontal and vertical resolutions. This is a powerful relationship. For example, on a screen with square resolution, the total pixel count would increase with the square of the screen's edge resolution, so a doubling of edge resolution produces a quadrupling of the total pixel count. Consequently, the standard EGA resolution of 640 by 350 contains only 46 percent of the pixel count of 800 by 600, and even the VGA offers only 64 percent. An 800-by-600 resolution delivers 156 percent of the VGA's pixel count.

So at this juncture we must leave IBM in the dust. Only enhanced EGA and VGA adapters are able to generate 800 by 600 pixels, and only multisynchronous displays can lock onto the extreme synchronization frequencies required for the delivery of this stunning and readily available resolution.

Steve Gibson is the developer and publisher of Spin Rite and president of Gibson Research Corp. of Irvine, California. The views expressed are his own.