

Memories

New Money Rescues The "Third Level"

Computer users are blindly committing themselves to the use of disc files and tape libraries and overlooking a third level of storage, says Raymond E. Wakeman, new president and chief operating officer of Precision Instrument Co., Palo Alto, Calif. He's speaking, of course, of the company's scaled down but modularly expandable laser mass memory, the system 190.

A sibling rival of the company's earlier trillion-bit memory, which no longer is being made, the 190 uses the same 5 x 31-inch data strip as its recording medium. But the 190 is available with storage capacities ranging from 2.75 billion bytes to 132 billion bytes. The maximum, then, is still a trillion bits, but unlike the old model 690 it's also available in smaller configurations.

"I want to forget about the old 690," Wakeman says of the huge storage box that chewed up so much of the company's revenues derived from sales of its tape drives.

Some 12 years in development, the 690 was the offspring of an investigation of the laser technology by Dr. Carl Becker, now PI's vp for research. As currently developed, the system records permanently on a plastic sheet coated with metal. A laser beam burns tiny holes in the metal surface without disturbing the plastic substrate, recording at a density of more than 20 million bpi. Each data strip, which sells for some \$25, has a capacity of 275 million bytes or 366 million 6-bit characters of user data. Ten of the data strips fit into a pack, and a model 192-60 read/write unit holds six packs on-line. Under program control, it will remove and load one strip around a read/write drum and find the proper track (from among 13,500 on a strip) in a maximum of 10 seconds. Once a strip is mounted on the drum, the average access time is 220 msec.

The market is there

Wakeman and his board chairman, Donald E. Chelew, ex-president of Image Systems Inc., are the new management team at PI. They're part of the deal that brought a lifesaving infusion of \$3.5 million from Heizer Corp., the Chicago venture capital firm. And one of the things they have to do is overcome the image of a laser memory as being only for archival storage. While

this will continue to be the major application, Wakeman stresses the economics of the 190 as temporary storage for data bases and files that are less frequently accessed or updated but reside on disc. "The market is there. The need in this industry is there," he says.

Indeed, PI has four firm orders with deliveries scheduled to begin during the fourth quarter of this year. According to Allen Sanders, marketing vp, three or four more big systems orders are expected in the next two months. And Wakeman projects shipments of some 30 systems in calendar 1975.

Wakeman, ex-senior vp at Tymshare Inc., where he headed the R&D effort, was also with the old Scientific Data Systems. When he left SDS he was product marketing manager for the 940 mainframes that still compose the vast bulk of Tymshare's processing power. It is now his job to decide the fate of PI's analog and digital tape drive products, which are used in military applications but are not profitable, and get into production with the 190.

Although Dr. Becker remains with the company, which now employs 150, its former chairman and president Konrad Schoebel is now designated as a consultant to the firm.

Retailing

Grocery Scanning Race or Stampede?

A year ago this month the grocery industry selected a standard Universal Product Code (UPC) for source marking of supermarket products.

This sent vendors, interested in a share of what they saw as potentially a \$7 billion market for supermarket point-of-sale systems over 10 years, scurrying to develop systems which could scan the UPC. Some had been working with scanning using symbols of their own. Others had been waiting for the UPC before tying scanning to their point-of-sale systems.

Now the race is on in earnest among nine contenders making, or saying they're going to make, POS systems which can scan the UPC. It's difficult to say who's out in front right now. So far Univac is the only vendor to have had its system run in an actual store environment.

The Univac Accuscan scanning system was used for a day and a half at one checkstand in a Finast store in Framingham, Mass. "Real live customers" went through the checkstand, according to William Bonner, who is

in charge of the test for the Finast chain. He said some 30-40 items which had been source marked with the UPC were scanned, plus three produce items they selected at random for in-store marking.

Finast will put Accuscan systems into daily operation in the Framingham store in September for an indefinite test period. Sperry Univac is offering special short-term lease contracts to permit evaluation without a large capital investment. A typical five-checkstand system, leasing for \$3,700/month, will include twin minicomputers; twin data storage units, each with a capacity of 18,000 item records; an office console; five complete checkstands, each consisting of a scanner, register, conveyor system and bag storage modules; a tape cassette unit for exchange of system information; and two variable measure label makers. Sixty percent of the monthly payments can be applied as credit if the user elects to purchase the system.

Question on throughput

Bonner said the short February trial wasn't enough to give him an idea of how much the system increased throughput time. Sperry Univac says tests show its system is 45% faster than conventional manual systems. Finast has Bunker Ramo's ESIS (Electronic Store Information System) and NCR's 255 systems in two other stores. Both are keyboard based POS systems. Bonner says they have increased throughput at the checkstands by 10-15%.

Bonner said Finast probably will test



Checker at Finast store in Framingham, Mass., passes products across a horizontal X-shaped slot, instead of entering prices into the cash register, in the first in-store use of a point-of-sale system capable of reading the grocery industry's Universal Product Code. The Sperry Univac system uses a fixed laser beam optical reader to scan the code.

scanning with another vendor in January but he doesn't know yet which one. "Only IBM and Univac have them now (scanning systems) but there are seven others talking about it and we're going to look at them all." They may end up with multiple vendors, he said.

The seven others are Bunker-Ramo, NCR, Singer, MSI Data Corp., National Semiconductor Corp., Litton/Sweda, and Data General/Dymo. Bonner and others in the grocery industry will have an opportunity to look at some of their offerings at the Supermarket Institute (SMI) meeting in Dallas early in May.

MSI Data will demonstrate its Astros system linked to a scanner produced by Scope Inc., Reston, Va. Scope also is supplying scanners to NCR which, at this writing, had not firmed up its plans for the SMI but indicated it would have a demonstration of a UPC scanning system in the near future. National Semiconductor will be at the SMI demonstrating its Datachecker with a scanner it makes in-house.

For Litton/Sweda, its demonstration of a UPC-scanning POS system at this year's SMI will be a second. It demonstrated a prototype system at last year's Institute just one month after adoption of the UPC had been announced. "We had been working with a semi-circular code before the announcement," said Litton's J. Roger Moody. Within 30 days they converted the system to read a bar code, which the UPC is. Litton's scanners are made by the Zellweger Group of Uster, Switzerland.

Moody said Litton's scanning systems will be ready for delivery in the fourth quarter of this year. IBM has a similar schedule for its 3660 grocery store system (which uses scanners produced by Spectra Physics, Inc., Mountain View, Calif.) announced last October and demonstrated at a National Assn. of Food Chains show in November. And Univac, of course, is taking orders now.

Others are moving more slowly, not sure the need is there right now. A spokesman for National Semiconductor said his company has no firm plans for the scanning system beyond the demonstration at the SMI. "I don't know... there aren't many items source marked right now."

Janet Norman, vp communications for Singer Co., said Singer is "heavily and deeply involved" in development of a UPC scanning system. The company is working on its own scanner and is investigating outside sources of supply. "We will be prepared to provide scanning equipment when our customers need it," said Ms. Norman. But she's not so sure that time is now. "There are limiting factors the marketplace imposes. One is the degree to which goods are marked and another

is the availability of in-store marking capability."

MSI Data's president, Bill Bowers, said his company will go to a store test after the SMI for six to nine months, during which "we will figure out the paybacks." He sees availability at the end of this year or early in 1975. "We believe scanning is going to take its own sweet time, maybe two to three years, to get into widespread use."

Some won't scan

Bowers said MSI, in testing its system in its lab, has found some source marked labels are coming through not fully up to specs and they won't scan. Leo Beinhorn of Distribution Code Inc., Washington, D.C., which is implementing and administering the UPC, concedes that this has been a problem and that some manufacturers using the UPC have been making "peculiar types of mistakes"—such as one who chose to drop out linear bars, effectively reversing the numbers read by the scanner. The symbols can be checked out by a comparator but the ultimate test is scanning. Beinhorn said. "It

either will scan or it won't. There's no such thing as a little bit pregnant here. The specifications are very exacting." He added that most faulty symbols are caught in the trial and error stage before long runs have gone out.

Beinhorn said source marking by manufacturers is "stampeding at the present time. We're right on target with our estimate that 50% of supermarket items will be source marked with the UPC by the end of this year and better than 75% will be marked by the end of 1975."

A manufacturer who wishes to source mark applies for membership in the Universal Product Code Organization through Distribution Code Inc. DCI then issues a manufacturer's code which is the first five digits of the UPC. The manufacturer uses the last five to identify the various products in his line. Beinhorn says they now have 1,100 members signed up, representing better than \$60 billion in annual sales out of total annual grocery store sales of \$108 billion. That's a lot of groceries.

—Edith Myers

Modeling

Courts, Pudding and Bill Walton

How do you weight a variable like UCLA's Bill Walton, when the 6'11" redhead plays basketball the way he did against the Univ. of Southern California March 9?

After the fact, anyone who had seen the game would have had to answer: pretty heavily. Four days before the game, Bill Walton was just one of many variables (others included bench strength, disqualification potential, rebounds, and assists) considered by Bud Goode when he picked the UCLA Bruins over USC by 15 points. He came closer than the professional odds makers who made it UCLA by 7. The Bruins won by 30, leading one observer to quip, "He (Goode) forgot there'd be a second half."

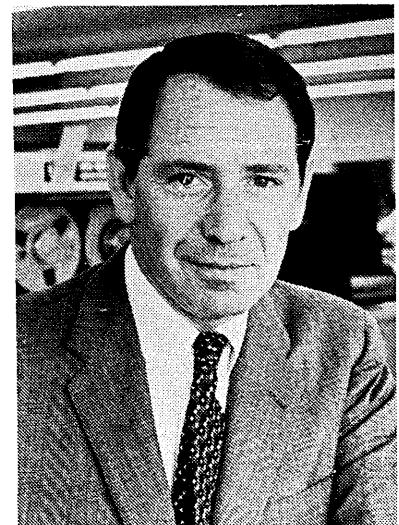
Goode made his prediction before a meeting of the Los Angeles chapter of the Assn. for Computing Machinery (ACM). Predicting the outcome of basketball games was not what he was there for, although he and his "Cal the Computer" have been predicting the outcome of sports events via Los Angeles' KNXT tv station for several years.

He was there to make a case for the use of computers and modeling in journalism, something he feels will put the "why," which he considers the most important of the five w's, back into journalism.

Goode called most of what appears in newspapers today "white noise." He said all the objective news in most papers today would fill one quarter of one page.

"Why do Supreme Court justices vote the way they do? Why do football teams win or lose? There is a need for greater objectivity in journalism and one way is with a computer and a mathematical model."

Goode believes his methods are ap-



BUD GOODE
Getting the big "W" back into journalism

plicable to all pages of a newspaper where there's an available data base. He uses principally matrix methods and multiple regression equations to predict outcomes and explain why. So far he has had newspaper columns pub-