
GLOBAL ELECTRONICS

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watchdogging "High Tech"

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PRIVACY ISSUES

Both houses of the U.S. Congress have now passed legislation designed to bring Federal anti-wiretapping law up to date. The bill covers new forms of electronic communications such as electronic mail and cellular phone systems. President Reagan is expected to sign the measure soon.

Business Week (September 29, 1986) summarized the provisions of the legislation: "It will become a felony to intercept electronic communications and a misdemeanor to break into electronic-mail storage facilities. The law will require law enforcement agencies to get a warrant before tapping electronic communications. And it will give any person or corporation whose communication is intercepted or disclosed the right to sue for damages."

The high-tech business community joined the American Civil Liberties Union in supporting the bill. Corporations see it as an important tool in firming up corporate security. And companies that market electronic communications hardware and services have considered the lack of privacy protections an obstacle to the growth of their business.

2. When designing or acquiring data base systems containing personal records, most institutions pay little attention to privacy. Boston's Beth Israel hospital, however, operates a medical information system that illustrates that it is possible to build protection into an efficient system.

Like many other multi-user systems, the Beth Israel computer assigns each user a password, or key. The Beth Israel system goes further, however. It rejects passwords that are typed in at the wrong location, or for the wrong purpose. "Thus, a key assigned to an admitting officer permits access only to programs used by the admitting department, and then only from terminals in that department."

In addition, the Beth Israel system automatically records who (password and location) enters information into the computer, and when. In fact, it logs everyone who views a file: "Whenever any provider [doctor, etc.] looks up any patient's clinical data, that information is recorded and is, upon request, made available to the patient or to the patient's physician." ("Clinical Computing in a Teaching Hospital," *The New England Journal of Medicine*, March 21, 1985.)

3. Sears' new Discover card may be more than a tool to increase the huge retailer's income from financial services. By directly operating an international credit card system, Sears potentially has direct access to data on the buying habits of millions of Americans.

Bank-backed Visa, the nation's largest credit card operation, is trying to discourage the acceptance of Discover. **Business Week** (September 15, 1986) reports that Visa is sending a brochure "fanning merchant fears that Sears will use Discover billing data to gain information on their customers. 'As long as Sears sells the same kind of products you sell, Sears will compete for the same kind of customers—your customers,' the brochure warns."

Sears denies that it will share Discover records with its merchandising group.

EUROPE'S COMPUTER INDUSTRY

Datamation (August 1, 1986) has followed up its report on the top data processing companies in the U.S. and the world (see *Global Electronics* No. 66) with a survey of the European computer industry. Two of the top three companies (measured by European data processing revenue) are U.S.-based. None of the top 25 are Japanese-owned.

Europe's Data Processing Leaders (1985)
(US\$ millions)

	<u>Eur. DP Rev.</u>	<u>World DP Rev.</u>	<u>Total Revenue</u>
IBM (U.S.)	13,440.2	48,554.0	50,056.0
Siemens (W. Germany)	2,775.2	3,265.0	18,574.9
DEC (U.S.)	2,179.1	7,029.4	7,029.4
Olivetti (Italy)	1,862.8	2,637.7	3,215.9
Groupe Bull (France)	1,668.8	1,794.5	1,794.5

ASSEMBLY AUTOMATION

National Semiconductor plans to bring its fully automated, flexible chip assembly line, called Odyssey, into operation by July 1987. If it works around the clock, the line will be capable of attaching dice to 3.5 million dual in-line packages per month. The Odyssey line is being designed to carry out all steps in the assembly process, from wafer mounting and sawing to testing. It will be capable of using a variety of lead configurations, package styles, and assembly techniques. National hopes that Odyssey will hold down parts inventories and eliminate the down times associated with the assembly of small lots of chips. (*Electronics*, August 21, 1986)

INDUSTRIAL VACANCY

The sharp boom-and-bust cycle of the electronics industry makes industrial real estate development in high-tech areas a particularly risky venture. Real Estate firm Grubb & Ellis reports that Silicon Valley leads the nation with an industrial vacancy rate of 37.6 percent for tenant-occupied buildings. The runners-up are also high-tech centers, but it must be noted that Grubb & Ellis does not count "unusable" buildings such as abandoned, antiquated steel mills.

Vacant Industrial Space by Area

Area	Square Feet	Percent
Santa Clara Co./Fremont, CA	32,000,000	37.6
Tucson, AZ	1,700,000	28.5
Houston, TX	4,200,000	27.7
Phoenix, AZ	8,700,000	23.3
Boston, MA	14,900,000	21.1

During the high-tech boom of 1984, companies leased 12.5 million square feet in Silicon Valley, and developers responded by building new factories, labs, and offices, particularly in the "Golden Triangle" at the northern end of San Jose. Even after the electronics firms began their massive lay-offs, work continued on projects committed or underway. Building has slowed now, but Grubb & Ellis reports that 2 million square feet of industrial space is still under construction in the San Jose area. (San Jose Mercury News, September 18, 1986)

MICROCODE COPYRIGHT

On September 22, William Ingram, a Federal District Court judge in San Jose, ruled that the designers and manufacturers of microprocessors could copyright the built-in microcode that makes them run. Specifically, Ingram supported Intel's contention that NEC had illegally copied Intel's devices. Ingram accepted Intel's argument that the code was a software program subject to the copyright protections already afforded other software.

If Ingram's decision stands, NEC may eventually have to pay damages to Intel. More important, if Ingram's ruling becomes a precedent, it could influence the structure of the chip and computer industries for years to come.

For example, IBM—with the aid of its partially owned affiliate, Intel—could design a new family of personal computers based upon a proprietary microprocessor with a copyrighted code. It would be illegal to sell "clones" of those machines without IBM's licensed permission. While it is possible to design code to fulfill other functions of a computer—such as IBM's BIOS chip—one cannot promise software compatibility on a machine using a microprocessor with a different design.

I.B.M. CUTBACKS

In our last issue (Global Electronics, August, 1986) we described how companies like Hewlett-Packard and IBM avoid laying off surplus permanent employees. IBM uses transfers and retraining. H-P just completed a voluntary early retirement and severance program,

In September, however, IBM reversed an earlier policy statement and announced an early retirement program of its own. For the first time since 1975, IBM is asking that a total of 4,000 employees over age fifty retire voluntarily by next June. In exchange, the company will add five years of service when calculating their accumulated pension benefits.

IBM hopes to shrink its U.S. workforce by 8,000 to 230,000 in 1988. (Business Week, September 29, 1986)

JAPAN UPDATE

1. Thus far, Japanese chip makers appear to be earning higher profits due to the higher prices required by the U.S.-Japan semiconductor trade agreement reached at the end of July. (See Global Electronics, July, 1986. U.S.) Chip buyers, on the other hand, are upset, and they have begun lobbying for changes. It was expected that small and medium-sized system houses, with no in-house chip production, would object to the agreement. However, the world's two largest computer companies, IBM and DEC—both of which have substantial captive semiconductor production—have

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reportedly complained about the pact's pricing mechanisms. (San Jose Mercury News, September 12, 1986)

Some system-makers are talking about shifting more board-level production abroad, since boards containing chips are not subject to price restrictions. However, the agreement is supposed to govern the prices of Japanese-made chips in third countries. While those provisions are hard to enforce, they are a major reason why the U.S. government sought the agreement. Unilateral U.S. import penalties would have kept chip prices in the U.S. above those in Europe and Asia.

2. In July General Electric, the new parent of RCA, shelved RCA's plans to build a \$200 million semiconductor plant in Camas, Washington (near Portland, Oregon) in a joint venture with Sharp Corp. of Japan. GE, which owns Intersil as well, has its own new chipmaking facilities in North Carolina.

The joint venture had hired 91 of an anticipated 650 workers, and the state of Washington had begun building roads and other infrastructure for the project. GE is reimbursing the state and relocating some of the employees. (San Jose Mercury News, July 12, 1986)

3. Mitsubishi Metal Corp. has agreed to buy Silicon Valley-based Siltec for \$29.5 million. Siltec produces Silicon Wafers and semiconductor production equipment. Since Siltec is one of five companies being held responsible for groundwater contamination in a Mountain View industrial park (see **Global Electronics**, June, 1986), the two firms have set up, as part of the acquisition deal, a special fund to cover any claims that might arise. (San Jose Mercury News, September 9, 1986)

4. The State of California has finally enacted state legislation allowing foreign companies operating within the state to choose another method of calculating their state corporate income taxes. Major Japanese high-tech firms, among others, have lobbied long and hard to eliminate the unitary method. Under the unitary method, companies pay taxes on their worldwide earnings based upon the proportion of their operations that are located within the state. (The purpose of the unitary method is to keep companies from lowering their tax burdens by artificially altering intra-company transactions.)

Though Japanese firms have claimed that California's tax policies have kept them from investing within the state, it is unlikely that the changes will stimulate much new investment. Few high-tech companies, Japanese or U.S.-based, are expanding these days.

The unitary tax policy change had been held up in the state Assembly by its Speaker, Willie Brown, a black Democrat from San Francisco. Brown had linked tax changes to restrictions on state investments in companies doing business in South Africa. When Republican Governor George Deukmajian agreed recently to a state divestment policy, Brown lifted the tax logjam.

CASH RESERVES

Despite lay-offs and slowdowns, many Silicon Valley companies has accumulated substantial hoards of cash and marketable securities that equal or exceed their quarterly revenues. While these reserves indicate that the stockholders of some "struggling" high-tech firms are doing better than their employees, they also illustrate that companies are reluctant to invest their capital in new plants and labs during a depressed market.

Large cash holdings in other industries often invite hostile takeover bids, but high-tech firms don't face that threat because so much of their value is linked to key employees who wouldn't hesitate to leave following a buy-out. (San Jose Business Journal, September 15, 1986)

Silicon Valley's Cash-Rich Firms
(figures represent US\$ millions)

<u>Company</u>	<u>Cash</u>	<u>Quarterly Rev.</u>
Hewlett-Packard	1,300.0	1,301.0
Apple Computer	568.0	448.3
Syntex	481.0	254.3
Intel	365.1	305.2
Tandem	175.2	200.1
Convergent Technology	99.5	58.1
Measurex	73.7	47.4
Daisy Systems	72.2	23.1
Altos Computer Systems	65.0	28.8
Quantum	59.4	25.3

MEXICO INVESTMENT

Mexico is gradually easing its restrictions on foreign investments, allowing wholly owned foreign ventures to operate in high-tech and other sectors of the economy. Last year the government stirred up a great deal of controversy by approving an 100 percent IBM-owned personal computer plant, but this June it approved Hewlett-Packard's request to purchase the interests of Mexican partners, who until now held a 51 percent share of H-P's Mexican operations. (San Jose Mercury News, September 28, 1986)

It is anticipated that other U.S. firms, such as Apple Computer, will follow suit, but it is likely that each venture will be subject to conditions and red tape.

ROSZAK'S "CULT OF INFORMATION"

If you are concerned about the hype over "computer literacy," Theodore Roszak's latest book, *The Cult of Information: The Folklore of Computers and the True Art of Thinking* (Pantheon, 1986), is well worth reading. Roszak—author of *Where the Wasteland Ends* and *The Making of a Counter Culture*—debunks myths created by data merchants and educationists, arguing that the promotion of data processing and procedural methods of thinking have led to a confusion of information for knowledge. Roszak chides futurologists Toffler and Naisbitt for predicting that the personal computer will make society more democratic and for suggesting that computers, with their superior data-collecting capabilities, will solve our social problems.

Roszak is strongest when he focuses on Information Age myths. He sees High Tech as an outgrowth of the industrial process, "embedded in the texture of industrial history" and pushed forward by the military, a conscious rather than an inevitable process. He spars with the proponents of artificial intelligence and latter-day Darwinists who think the brain can be replaced with a superior thinking machine.

The Cult of Information falters, however, in the next-to-last chapter, "In the Wrong Hands," in which Roszak veers off course to explore political issues. Those issues may be important, but they are out of place in an otherwise eloquent testimony to "true art of thinking" and the creative potential of the human mind. (Reviewed by Marilyn Kjellen-Rogers)

NORTH KOREA

North Korea, in one of its permanent industrial expositions, claims to manufacture integrated circuits as well as a range of other high-tech devices. It now appears that the supposedly self-reliant country not only does not produce chips, but it cannot. A proposed small-scale pilot wafer fabrication facility, to be backed with funds from the United Nations Development Program, has apparently fallen through, for the country reportedly is unable to engineer dust-free environments or provide enough skilled personnel. North Korea will test and assemble chips from imported wafers, instead. (Far Eastern Economic Review, August 14, 1986)

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