
GLOBAL ELECTRONICS

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WAR

The chip, says the *New York Times*, may be the hero of the Persian Gulf War. Some of the Pentagon's high-tech weapons actually work!

It will take some time to evaluate the technical success and military effectiveness of the electronics-based systems being tried for the first time against Iraq. However, the war has already heightened American consciousness of the military significance of advanced electronics.

The Pentagon and its contractors are using the initial euphoria over the apparent success of the F-117 attack aircraft, smart bombs, and the Patriot missile to fund new generations of weapons systems, from a revised ballistic missile defense program to advanced conventional weapons. Such programs could help aerospace contractors cope with what still appears to be a decided long-term decline in money for strategic weapons programs.

While it is always possible to technically "improve" weapons, it may not prove practical for the U.S. military industrial complex to run a marathon arms race against itself. Against what threat do we need a longer-range Patriot or a larger stealth bomber?

It is possible, of course, that the U.S. and its allies will sell advanced weapons to Israel, Saudi Arabia, and even Syria. Then, when one of those countries challenges American power, we will need even more sophisticated weapons to counter their threat. This, in fact, is what happened with Iraq.

But it is also possible, despite Washington's war hysteria, that the U.S., Soviet Union, France, and other major arms exporters will learn from recent Middle Eastern conflicts. Arms sales, no matter how profitable they seem at first, are too costly in the long run.

We believe—maybe "we hope" is more appropriate—that the Persian Gulf war will not lead to a long-term increase in the development and production of high-tech weapons systems. But the resurgent recognition of the national security implications of technology may reshape the debate over American civilian industrial policy.

In particular, electronics and computer industry leaders seeking Federal hand-outs now argue, with new persuasiveness, that we must retain or redevelop our capability to design and build the

electronic building-blocks for the video-game war. Politicians may accept the importation of foreign-made Nintendo games, but they don't want even our closest allies to control the technology and components for the real thing.

The electronics industry found that the White House could barely spare a dime to fund high-definition display systems to build televisions, but we can expect new requests to come wrapped in the flag, cloaked in the "need" for real-time, portable command and control systems for the armed services.

This is not the right way to set technology policy. We must assess, as a nation, what technologies we need. Where markets are too distant or too competitive to encourage private investment, where new infrastructure is needed, or where new academic projects are required, then the Federal government should participate.

The scenes of Patriot missiles symbolically intercepting—but not necessarily defeating militarily—incoming Iraqi Scud missiles appears to have inspired a faith in our new technologies. But that faith will not directly translate into long-term economic success.

MOTOROLA PLANS TO EXPORT 4M DRAM'S—FROM JAPAN

Despite all the political focus on advanced DRAM (dynamic random access memory) chips, U.S. companies aren't doing much to produce them in the U.S. Foreign-owned firms, such as NEC and Fujitsu, make DRAM's in the U.S., but those U.S. firms in the DRAM market appear to be doing their most advanced production in Japan. For example, Texas Instruments and IBM have historically produced most of their DRAM's in Japan.

In December Motorola announced that it would produce its new, 4-megabit DRAM's in Sendai, Japan (*San Jose Mercury News*, December 14, 1990), at its joint venture with Toshiba. Motorola currently builds 1-megabit DRAM's in Japan and Europe, but the firm had been expected to begin manufacturing DRAM's at its new plant in Austin, Texas last year.

NCUBE MOVES HQ TO SILICON VALLEY

Ncube Inc. is a relatively small manufacturer of very powerful computers. The eight-year old employer of one hundred people amassed sales of only \$10 million last year. Ncube's parallel processing computers, in which thousands of processors work simultaneously, serve the extremely specialized scientific market. The company hopes to move into the general commercial marketplaces as more software designed for its machines becomes available.

In January, Ncube moved its headquarters from its birthplace in Beaverton, Oregon to Belmont, on the northern outskirts of Silicon Valley. In itself, Ncube's move is not significant. *But it tells a lot about the global magnetism of the Valley.*

A company spokeswoman told the *San Jose Mercury News* (January 25, 1991) that it set up shop in Belmont to be closer to software developers. She said, "There's a much larger pool of potential employees to draw from."

More specifically, the move put Ncube executives in closer touch with Oracle Corp. of Redwood City, a leading developer of database management software. For several years, Oracle and Ncube have been working together, and in 1989 Oracle lent Ncube \$3 million.

Oracle had an option to buy a majority of Ncube, but that would have undermined Oracle's ability to work with other hardware producers. So instead, last year two top Oracle executives bought control of Ncube "on their own." They raised more money for the firm and strengthened its marketing staff, and now they've brought it into their own neighborhood.

APPLE JANITORS ORGANIZE

Like many other high-tech companies, Apple Computer has avoided industrial relations friction by using subcontractors and temporary personnel agencies to supply not only office workers, but software quality assurance personnel ("testers") and maintenance workers. Apple has a reputation for treating its largely professional workforce well, but it lets others handle the dirty work. Apple's janitorial subcontractor, Shine Business Maintenance, does half of its business with Apple. Shine sends 100 workers, predominantly Latino men, to clean the firm's Cupertino offices each night.

The janitors, working as part of SEIU (Service Employees International Union) Local 1877 are organizing. They want a pay raise above their \$5

per hour starting wage, health benefits, and protection against arbitrary or punitive firing.

The janitors are taking their case beyond their immediate employer to Apple, actually demonstrating outside Apple's Cupertino "campus." Local 1877 President Mike Garcia, whose union represents contract janitors at other Silicon Valley firms, told *El Observador* (San Jose, November 28), "Apple Computer stands alone among the electronic giants of the Silicon Valley in that they utilize a non-union company that takes advantage of their Latino workers."

Of course, nearly all workers directly employed by Silicon Valley electronics firms remain unorganized.

NEW LAW ENCOURAGES PROFESSIONALS TO IMMIGRATE

Last November, President Bush signed a new immigration law including numerous provisions that allow for the increased immigration of scientists and engineers. Backed by electronics industry employers, those provisions increase the ceiling on highly skilled immigrants (and family members) from 54,000 per year to about 140,000. Immigrants who already have lined up jobs in the U.S. will no longer have to wait for as long as 18 months for immigration approval. Up to 10,000 slots are reserved for foreign individuals who plan to invest \$1 million and employ ten U.S. workers. Immigrants from Hong Kong, which is scheduled to revert to Chinese control in 1997, receive preferential treatment under the new law. (*San Jose Business Journal*, November 12, 1990)

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Industry representatives argue that the U.S. needs immigrant technologists because, they say, there is a severe shortage of engineers. The American Electronics Association's Pat Hill Hubbard says, "There's going to be a worldwide fight for skilled engineers, especially in the electronics industry.... The Japanese have been over here recruiting like crazy, looking for engineering talent." She warns that not enough American students are enrolling in engineering and computer science programs. (EDN, January 24, 1991)

Spokespersons for working engineers, on the other hand, see increased immigration as a threat to their livelihood. The Manpower Committee of the Institute for Electrical and Electronic Engineers (IEEE) reports that 37,000 of 1.9 million engineers in the U.S. are already unemployed. Continuing cutbacks in military spending are likely to throw thousands more out of work. Furthermore, they argue, immigrant engineers from the Soviet Union and the Third World accept lower pay than their American-born counterparts, holding down salaries throughout U.S. industry. The IEEE committee says that engineers' salaries have not risen faster than the consumer price index, indicating that there is no overall shortage.

Doris Meissner, an immigration analyst at the Carnegie Endowment for International Peace, supports the new law, but she told EDN that improved math/science education, not immigration, must be the cornerstone of U.S. technical manpower policy: "We have more fundamental problems in terms of international competitiveness; letting in a few thousand immigrants can't solve them. It's dangerous if you start looking at immigrants as a cheap way out of solving these more serious problems."

In fact, throughout American history, the U.S. has drawn heavily upon the brainpower of immigrant scientists, engineers, and inventors. Employers have used immigrants to drive down the bargaining power of engineers, just as with lower paid members of the labor force, but the solution lies in strengthening the bargaining power of workers at all levels, not tightening up on immigration.

OVERTIME PAY IS OVER

Last fall Congress also enacted legislation eliminating the requirement that highly-paid hourly computer workers receive time-and-a-half for overtime. The exemption applies to computer workers earning more than \$27.63 per hour.

About 1.23 million workers fit the law's definition of computer worker, but only about 200,000 are paid by the hour. Most of those hourly computer professionals work at temporary tech-

nical services firms, or "job shops," that do contract jobs for computer companies. Most computer firms pay salaries to their software engineers, systems analysts, and other computer professionals.

The computer industry is known for its long hours, and temporary professionals often work much more than the standard 40 hours as project deadlines near.

It's too soon to know what the law's impact is likely to have. Since the skills of computer professionals are generally in great demand, many may opt to work as independent contractors, negotiating their own rates, rather than accept a position without overtime pay. On the other hand, employers no longer required to pay time-and-a-half may still offer such rates, for fear of losing employees.

The new law has its roots in 1986 legislation, backed by the temporary technical service industry (National Technical Services Association), which threatened to penalize corporate employers who treated regular employees as independent contractors. This forced brokers, essentially agents and accountants for independent consultants, to take on their clients as employees. The shift meant that these new "employees" qualified for overtime, raising the cost of a typical job. The brokers, represented by the National Association of Computer Consultant Businesses, lobbied to eliminate the overtime provision as a way to bring their method of determining charges back to the pre-1986 approach. (San Jose Mercury News, December 27, 1990 and February 11, 1991)

In those areas where computer professionals are in great demand, the revision of the overtime standard probably won't have much impact on their income. Depending upon the regulations enacted by the Labor Department, the new law may trigger yet another change in the way they do business.

More important, Congress has set a dangerous precedent by eliminating a long-treasured worker-protection standard based upon the selective needs and lobbying efforts of a specific employer group.

COUNTRY REPORTS

Mexico. Nellcor Inc., a Hayward, California (north of Silicon Valley in the East Bay area) manufacturer of medical instruments, has "run away" to Mexico. Though the company plans to retain its research and administrative operations in Hayward, it is laying off 160 workers and closing its Bay Area production facilities. The work is being transferred to the Mexican border, when Nellcor operates twin plants in Tijuana and Chula Vista. The hourly wage at the Mexican plant is one fourth the U.S. minimum wage. (San Jose Mercury News, December 7, 1990)

South Korea. The former employees of Pico Products' Korean subsidiary, who were laid off in February, 1989 without warning or compensation, will have their day in a U.S. court. A U.S. District Court in New York will hear their case this Spring. It will be the first time that a U.S. court has reviewed unfair labor practices by a U.S.-owned company abroad. Pico, based in Liverpool, New York, makes and markets cable television system components. (For background, see **Global Electronics No. 102**)

Thailand. The Thai electronics industry now employs more than 60,000 workers at 300 plants. In 1989 the industry exported 58.2 billion *baht* worth of products. (25 baht = US\$1). In 1989, the export of computers and parts exceeded the export of locally assembled integrated circuits for the first time. (A major source of those computer component exports is Seagate Technology, a U.S.-based producer of hard disk drives. See **Global Electronics No. 104**)

Thai Electronics Exports
(Million Baht)

	1986	1987	1988	1989
Integrated Circuits	12,818	15,179	18,854	18,402
Computers and Parts	1,481	3,884	12,515	26,753

(Bangkok Bank Monthly Review, October, 1990)

Malaysia. Malaysia, which assembles integrated circuits from wafers fabricated in the U.S., calls itself the world's largest exporter of semiconductors. Nearly 200 electronics companies

employ about 100,000 workers in Malaysia. Fifteen U.S. companies, primarily chip assemblers, employ 40,000 of those workers at 18 plants. Ten Japanese firms employ another 10,000 workers.

The World Bank and others warn that the future of the Malaysian electronics industry is uncertain, threatened by rising wages and inadequate infrastructure. Wages in the Malaysian chip industry are rising about eight percent a year, and they're already substantially above pay in other Malaysian blue-collar industries. **The Far Eastern Economic Review** (November 1, 1990) reports, "This pay surge is tied to a growing shortage of skilled manpower and pressure from labour organisations who are trying to unionise the electronics sector."

Though the American companies have criticized the World Bank's findings, they are worried that the growth of foreign investment in Malaysia is straining the country's infrastructure, particularly its electrical supply.

Indonesia. Indonesia, after a false start years ago in semiconductor assembly, may finally be entering the East Asian electronics competition. It exported an estimated US\$287 million in electronics and electrical equipment in 1990, up from \$191 million in 1989 and \$102 million in 1988. About two dozen Japanese, Singaporean, and American-owned electronics or electrical firms have announced plans to set up shop on Batam Island, near Singapore. (**Indonesia Development News**, November-December, 1990)



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