GLOBAL ELECTRONICS INFORMATION NEWSLETTER

Number 36 US ISSN 0739-0416 October, 1983

SPYING

Silicon Valley has had plenty of industrial espionage and illegal export cases, but it was rocked this October by its biggest spy scandal ever, the alleged theft of Minuteman missile secrets for sale to Poland and the Soviet Union. The FBI obtained an indictment against James D. Harper, Jr., who reportedly admits selling copies of classified military documents to a Polish intellligence agent. The agent doubled as a trade official.

In addition, the FBI included in its complaint against Harper allegations by Harper that Bill Hugle not only introduced him to the Polish official, but Hugle took money for helping to transmit Harper's secrets. Since Hugle is one of Silicon Valley's pioneers – a founder of Siliconix and several other companies – the charges shook the Valley. However, the FBI has not filed any charges against Hugle. It appears, at this point, that the FBI included Hugle in the affidavit for another reason.

Hugle has, for many years, been an advocate of expanded high-tech trade with the Eastern Bloc. The Federal government reportedly investigated Hugle and one of his companies, Hugle Intrernational, when a shipment of semiconductor manufacturing equipment was intercepted in Malaysia en route to Poland. The equipment was not licensed for export to Communist countries.

Hugle was not charged with criminal behavior in this case, either, and the investigation did little to harm his reputation in an industry that generally ridicules U.S. export control policy. However, the suggestion that Hugle may have supplied military secrets, not industrial knowhow, to the Soviet Bloc could bring his wheeling and dealing to an end. This, in fact, may have been the FBI's goal in naming Hugle. Not only is he being punished for his business relations with the Soviet Bloc, but other U.S. business executives may now be reluctant to deal with Polish or Soviet trade officials. Those officials may later turn out to be spies, and the entrepid businessmen or women may find their names smeared across the front page, accused of high-tech military espionage.

POLLUTION

The U.S. Environmental Protection Agency is launching a special 15-month study of pollution in Silicon Valley. The study, one of three to be conducted nationwide under the Integrated Environmental Management Project, will review air, land, and water contamination and the interplay among those different types of pollution.

BARE CHIPS

Manufacturers are beginning to replace the caterpillar-like dual in-line packages (DIPs) with bare chips, which are silicon dice that are glued directly to printed circuit boards. Though this obviously eliminates the packaging step in semiconductor assembly, bonding is still necessary, and it is still carried out in the Far East.

Electronics (October 6, 1983) reports that bare chips are being used in boards for video game cartridges and home computers. "An unusual manufacturing flow developed to support this technique. The Photocircuits' Riverhead division of Kollmorgen Corp., Aquebogue, New York, starts the flow by producing small, additively plated [printed circuit] boards, shipped to IC producers like Motorola, TI, American Microsystems Inc., National Semiconductor, and General Instrument. These firms in turn send the boards to offshore facilities – typically located in Korea, the Philippines, Hong Kong, or Singapore – where custom read-only-memory [ROM] chips are epoxy-die-bonded and then ultrasonically wire-bonded to the boards."

"The boards are then tested and shipped to video-game and home computer manufacturers, which have found that the chip-on-board cycle costs less than their original method: wave-soldering the same chips, packaged in plastic DIPs, to boards of the same size and then testing them." The bare-chips method saves money only when other components are not attached to the boards.

Though conventional wisdom suggests that the automation of electronics assembly will move production (and jobs) from offshore sites o the U.S., in this case the trend is reversed. 'rinted circuit assembly, usually carried out in ıe U.S., has been replaced by attachment, with poxy, of die to circuit boards. And this is ɒeing done in Asia!

INDIA

The Indian government is continuing its program of promoting the production of integrated circuits. It is requiring that the foreign collaborator selected to manufacture electronic private automatic branch telephone exchanges provide knowhow to the public-sector Semiconductor Complex, Ltd. for the manufacture of large scale integrated (LSI) circuits. In addition, the government proposes to spend US$213 million by 1992 on microelectronics research and development.

Over half (54%) of India's electronics exports come from the Santa Cruz Electronics Export Processing Zone, near Bombay. And 40% of the Zone's total revenues are earned by operations owned by the Tandon family. Tandon-India, headed by Manny Tandon, supplies recording heads and motors to Tandon companies in Singapore and California, run by Manny's brother, Sirjang Lal "Jugi" Tandon. The **Far Eastern Economic Review** reports, "Tandon still is the world's leading independent producer of disc drives for microcomputers . . ." (See also **Electronics News**, September 19, 1983.)

CHINA INVESTS

The Chinese government's Nanjing Telecommunications Works has purchased nearly twenty percent of Santec Corp., a small New Hampshire producer of computer printers. China is investing $2 million, and has agreed to produce parts and eventually inexpensive printers in cooperation with Santec.

The deal was arranged by Santec's chairman, Jeffrey Chuan Chu, who is a naturalized Chinese-American. Chu took over the company in 1980, and has led it back from bankruptcy. The firm, which lost $1 million in the first half of 1983, hopes to be back in the black next year. (**New York Times**, reprinted in **San Jose Mercury News**, October 23, 1983)

HONEYWELL-NEC

Honeywell, one of America's biggest and oldest computer companies, is teaming up with Japan's NEC (Nippon Electric) in its attempt to hold market share against IBM. Honeywell, which first supplied technology to NEC twenty years ago (NEC broke off the relationship in 1979), will market NEC's top-end mainframe in the U.S. In addition, Honeywell will have the option to build the mainframe, and the two companies will undertake joint development and otherwise share technology. (**Business Week**, November 7, 1984; and **Electronics News**, October 24, 1983)

Honeywell is not the first U.S. high-tech firm to market Japanese mainframes in the U.S. National Semiconductor's National Advanced Systems sells Hitachi computers. Despite all the rhetoric about growing competition between the U.S. and Japan, the real fight is setting industry leader IBM against a series of international multi-company teams.

INMOS

Inmos, the money-losing chipmaker originally sponsored by the British government's now defunct National Economic Board, has hopes for leadership in the market for VLSI (very large scale integrated) circuits, but it needs more money. With its US$23 million final installment, which the company received in January, Inmos absorbed a total of $182 million in government funds. It plans to sell shares, either privately or on the public markets of the U.S. and U.K.

Inmos reportedly needs $30 million to complete its Newport, South Wales, plant, and another $100 million to prepare for the production of new products. Though British-controlled, Inmos is headquartered at its American labs, in Colorado Springs, Colorado. It also runs a Technology Center in Bristol, U.K. (**Electronics**, September 22, 1983)

PUERTO RICO

Singapore is not the only offshore site attracting disk-drive production. Silicon Valley-based Quantum is building a facility to produce eight-inch Winchester disk drives. The company is investing $1.3 million in machinery and equipment, and it is leasing a 21,500 square foot plant from the Puerto Rican Economic Development Administration.

Quantum will lay off no Silicon Valley production workers as as result of the move. A company spokesman told **Electronics News** (July 18, 1983), "Our strategy is to maintain a steady workforce here in the (Santa Clara) Valley, and as products reach high volume and mature, move production offshore." Eventually, Quantum will move its 5 1/4–inch Winchester disk drive production offshore, too, when "the product line matures and reaches full production."

PHILIPPINES

Semiconductor manufacturers with assembly operations in the Philippines are apparently not phased by the political unrest there, which has erupted since the murder of opposition leader Benigno Aquino. The **San Jose Mercury News** (November 2, 1983) cites C. Scott Kulicke, president of Kulicke & Soffa, the leading supplier of semiconductor assembly equipment. Though Kulicke is convinced that Marcos will be forced to step down, he said, "[Chip makers] think whoever takes over the government are going to need those jobs."

SURVEY CITATION

In the last issue (No. 35) we described a survey by the Santa Clara County Manufacturing Group, but left out the title. The 50–page document, entitled "Job Creation in Silicon Valley: 1983–1987," is available from the SCCMG, 12 South Fifth St., Suite 1220, San Jose, CA, 95113, for US$35.

pacific Studies Center
222B View Street, Mountain View
California 94041 USA
415/969-1545

INSTA PRINT

BULK RATE
NON-PROFIT ORGANIZATION
U. S. POSTAGE
PAID
PERMIT NO. 155
MOUNTAIN VIEW, CA.

Address Correction Requested

MILITARY IC'S

Electronics is the fastest-growing segment of the rapidly expanding Department of Defense budget, and military consumption of integrated circuits and discrete semiconductors is also growing. The military IC market, valued at $531 million in 1981, rose to $685 million in 1982. The Technology Analysis Group projects that it will skyrocket to $1,446 million in 1986. The discrete market, at $217 million in 1981, climbed to $280 million last year. TAG expects the consumption of transistors and diodes to double to $590 million in 1986.

Nevertheless, the military share of the total IC market, now at 7.4% will decline in the face of an even more robust commercial sector. (**Defense Electronics**, September, 1983)

One major military contractor, McDonnell Douglas, is launching a $30 million semiconductor production facility of its own. The company, reports **Electronics News** (October 17, 1983), is dissatisfied with its current relationship with merchant chip houses: "Most commercial semiconductor houses do not like the low-volume Mil-Spec testing and sometimes tough military security implications of the military market . . ." It quotes a McDonnell Douglas executive who says, "When we have to supply a chip for a product 7 years later on, we've hardly ever been able to go back to a vendor and get the same circuit built."

SUBSCRIPTIONS

To continue to publish the **Global Electronics Information Newsletter,** PSC needs more paid subscriptions. If your copy is stamped, "Please Renew," that means our records show that you have not paid for current issues. Please do renew, by sending a check or money order to PSC. Our rates remain:

US$5.00 in U.S.
US$6.25 in Canada & Mexico
US$10.00 overseas airmail