carbon copy of the multimillion-dollar computer center at the Satellite Control Facility in Sunnyvale.

The duplication of out-of-date computer centers might not have occurred except that the military in fiscal year 1982 received a broad exemption to Public Law 89-306, known as the Brooks Bill after its author, Representative Jack Brooks (D–Tex.). The law forces federal agencies to acquire computers through full and open competition and to justify the purchases. In essence, the military received an exemption because it said red tape was threatening the national security.

Troubles with hardware are perhaps the least of the facility's problems. The space command post, though a high security area, is considered impossible to protect against attack by accurate Soviet missiles. Thus when the space command is completed on the plain outside Colorado Springs, the military facilities at Johnson and Sunnyvale will remain operational as backups. The control of space is so important, Orr told a reporter for the Houston *Post*, that the nation should not "risk putting all of our eggs in one ground basket."

Despite the potential for cost reduction through the unification of certain tasks, the satellite and shuttle missions at Colorado will be kept separate. According to the GAO, this is something of a waste. A single set of computers, for instance, could perform the complex computations needed to track satellites as well as the shuttle. The Air Force itself in one report estimated that such a consolidation would produce savings of 10 to 30 percent. At the moment, however, the missions will be totally separate. One reason the Air Force gives is that it urgently needs a backup for the vulnerable facility in Sunnyvale. A consolidation of operations for the various missions would have taken time and better planning.

Fragmentation within the futuristic space command is only part of the bureaucratic headache. Turf wars within the military as a whole have limited the scope of CSOC's mission, with a resulting duplication of facilities and the potential for chaos in the chain of command if space war ever broke out. Twenty-seven miles away from the CSOC site, for example, is the Cheyenne complex, the hollowed out mountain that holds the North American Aerospace Defense Command. The Space Defense Operations Center (SPADOC) at Cheyenne, which tracks Soviet missiles and satellites and ensures the safety of North American airspace, is a logical candidate

Chip Makers Turn to Academe with Offer of Research Support

Manufacturers and users of computer chips in the United States have launched a cooperative research venture that could ultimately become the largest single conduit for industrial support of university research. Called the Semiconductor Research Cooperative (SRC), its mandate is to fund long-term basic research of interest to the microelectronics industry; its underlying purpose is to help shore up the United States' technological lead in integrated circuitry, which is fast being eroded by Japanese companies.

The venture has several unusual features, not the least of which is its size. If all goes according to plan, the SRC will channel about $6 million into university laboratories this year, between $12 and $15 million next year, and perhaps as much as $40 million a year by 1986. Members of the cooperative, which one participant predicts will be like a *Who's Who* of the electronics industry, will contribute amounts based on their total semiconductor sales or on the value of the semiconductors they incorporate into their products. This arrangement will mean that not only semiconductor manufacturers but also companies that rely on other firms for integrated circuits will be making a contribution to basic semiconductor research.

The SRC will be a nonprofit foundation linked to the Semiconductor Industry Association (SIA), the industry's trade group. It will get under way in earnest in May, when an executive director will assume full-time responsibilities. Last week, the SIA announced that Larry Sumney, who has for the past few years headed the Department of Defense program to develop very high speed integrated circuits (the so-called VHSIC program), has been chosen for the job.

The aim is for the SRC to fund research that is either too basic or too long-term to fall within the R & D programs of most companies, but which could play a key role in future microelectronics technology. It will, for example, support work on new techniques for imprinting circuits on silicon wafers, alternative semiconductor materials, and computer-aided circuit design.

The idea came largely from officials of International Business Machines (IBM). In June last year, IBM president Robert Evans raised the possibility at an SIA board meeting, and Erich Bloch, IBM's vice president for research, was subsequently asked to draw up a firm proposal. Bloch has been named chairman of the SRC's board.

Bloch said in a recent interview that a major stimulus for launching the cooperative was that Japanese companies have recently been making substantial inroads into world markets for computer chips. They have captured about 40 percent of the market for the current generation of memory chips, the 16K RAM, and according to some projections, they may end up with 70 percent of the market for the next generation, the 64K RAM. United States companies are generally believed to hold a technological edge in some areas, such as the design of microprocessors, however, and it is this lead that the SRC could help maintain.

Members of the cooperative would benefit directly in two ways. First, although the work funded by the SRC would be published in the usual way, SRC members would get an early look at the results, perhaps by being briefed on work in progress. And second, they would get at least royalty-free rights to any inventions resulting from the work. Actual ownership of patents has not yet been decided, but Bloch says, "we are not going to pay royalty for something we are funding."

Cooperative ventures of this type run the risk of falling afoul of the antitrust laws, but Bloch maintains that provided the SRC is open to anybody who wants to join and restricts itself to basic research, there will be no problem. Open membership implies, however, that U.S. subsidiaries of Japanese companies would be eligible to join. To get around that possibility, the SRC may insist on reciprocal membership in cooperative research in other countries—such as the $250 million program, supported in part by the Japanese government, to develop very large scale integrated circuits in Japan.—COLIN NORMAN

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