the US semiconductor market, with progressively greater shares of the market falling to integrated equipment manufacturers that have “captive” semiconductor production facilities. “This transformation is natural,” EIAJ asserts. It “will help the merchant producers and allow the US industry to preserve its technological leadership.” The results, EIAJ predicts, will include reduction in capital costs, the benefit of learning-curve economies from captive production and consumption, and tighter control over quality and supply. EIAJ points to 30 acquisitions of US merchant semiconductor manufacturers by electronics equipment manufacturers between 1974 and 1982 as examples of this trend. It concludes from this data that “the problems confronting the US semiconductor industry are technology-driven,” and are also the result of the US federal budget deficit, rather than Japanese barriers to US export trade. It counsels creation of a more predictable economic environment for US firms and tax policies more favorable to formulating long-term high-technology growth strategies. 3

For the last two years, Congress has debated how to amend the Export Administration Act, which was due to expire shortly. The Act has now been extended to September 1989, with several changes. DoD efforts to expand veto power over exports were rebuffed. Instead, three new types of export licenses were approved for US firms:

- A comprehensive operations license, which authorizes a US manufacturer for a one-time transfer of technology and equipment to approved overseas subsidiaries, affiliates, licensees, and joint-venture partners;
- A service supply license, which permits export of spare and replacement parts for goods already approved for shipment abroad; and
- A project license for multiple exports of goods and technology destined for a specific overseas project that already has government approval.

The existing distribution license system, under which multiple exports may be sent to previously approved overseas customers, remains in place. DoD sought expanded authority to review requests for such distribution licenses, and the Senate approved DoD’s position, but the compromise bill eliminates this power. The Secretary of Commerce retains his authority to decontrol products that he finds are already in ample, uncontrolled supply abroad and for which US control efforts would be futile.

Second-sourcing

As more firms register their chip layouts under the new Semiconductor Chip Protection Act, more questions are likely to arise over whether a case of second-sourcing constitutes legitimate reverse engineering, expressly authorized by Section 906(a) of the SCPA, or illegal chip piracy, which the SCPA prohibits and penalizes. It would be helpful and informative to make some actual chip comparisons in future columns; therefore, I invite readers to send in interesting examples of second-sourcing that raise this kind of question. Please furnish photographs of the dies, schematic drawings, “floor plan” descriptions relating dies to schematics, and an explanation of the functions of the various blocks in the floor plan—a meaningful comparison requires all of these things. Material appropriate for publication in IEEE Micro will appear in future MicroLaw columns. Where necessary to avoid liability for libel or where otherwise dictated by prudence, we will maintain the anonymity of all concerned (including masking out chip numbers). Reader comment will be invited on whether the diagnosis of reverse engineering or piracy is sound.

References


2. Letter of Charles F. Rule, Acting Assistant Attorney General, Antitrust Division, US Dept. of Justice, to Senator Pete Wilson, August 2, 1985. After this column was set in type, Micron Technology Inc. of Boise, Idaho, announced that on September 6 it filed an antitrust suit against six major Japanese semiconductor manufacturers. Micron charged them with conspiring to monopolize the dynamic RAM (DRAM) business through, among other things, construction of advanced facilities and the financing of significant capital investment. Micron seeks $300 million in treble damages.


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