References

1. This raises interesting questions about the validity of registrations of different personalized versions of the same gate array. It may be questioned whether the personalization layers of a gate array are original and not staple, familiar, or commonplace under SCPA § 902(a), when all the interconnections are the product of the gate array vendor’s software. (See Microlaw, IEEE Micro, June 1985, p. 77.)

2. Section 902(b) of the SCPA imposes the requirement that a layout must be original and also not be staple, familiar, or commonplace.

3. The customer has a schematic or functional block diagram for the circuit. The customer may already have implemented the circuit as a combination of discrete elements on a printed circuit board, or it may even have implemented it as a group of semiconductor chip products and want to reduce the number of chips involved. Dramatic chip count reductions can be achieved by use of gate arrays or standard cells.

The terms “vendor,” “supplier,” and “licensor” will be used somewhat interchangeably in the following discussion.

4. If a gate array contract is involved, there will be a similar user manual, a library of “macros” (combinations of simple NAND/NOR gates to accomplish more complex functions, such as adders or flip-flops), and a gate array simulation system. A computer simulation system predicts the response to particular signals, or other performance characteristics, of a selected combination of circuitry elements (cells or gates connected in a specified way). It does so by creating a mathematical model of the circuit and solving pertinent equations.

5. As indicated below in text, there is a spectrum of arrangements between vendors and customers, which allocate design responsibility between them. The more responsibility the customer assumes, the lower the price paid for the resulting chips. With the advent in 1985 of advanced capability engineering workstations, customers have frequently become able to take a license for the use of the necessary design software, thereby avoiding payments for the use of the licensor’s computer time. Even before 1985, some large customers had their own superminicomputers, which they were able to use for this purpose.

6. The customer will probably pay a higher service charge for the development of the new cell if it becomes proprietary to the customer.

7. These are sometimes referred to as a block list and a net list, respectively. Sometimes, the two are collectively referred to as a net list.

8. A typical order will be for one-two years’ requirements to be delivered over that period. Alternatively, the customer may commit to purchase a specified number of units, and the price will be calculated so that the supplier recovers its nonrecurring engineering costs. If the customer then fails to purchase the specified number of units, the customer is obliged to pay the supplier an amount that will cover the nonrecurring engineering costs.

9. The customer may instead disapprove the prototypes, because they do not perform properly. If the reason for failure of the prototypes to perform is the customer’s design error or its inadequate simulation testing beforehand, the customer may at its expense correct the defects. If the reason is improper processing by the licensor, it will probably bear the cost of remedying the errors, and deliver new prototypes at its expense.

10. There may be a time limit on this warranty, such as 12 to 24 months.

11. For example: “Licensor warrants that said Prototypes and Products test to within 10% of all Test Specifications as predicted by Simulation System and set forth in Exhibit B hereto.” It may be difficult to persuade a licensor to agree to this, since it amounts to his promising that the simulation system will correctly predict reality for a chip as yet not even fabricated.

12. The electronic circuit chosen and implemented by the customer may be patented by a third party. (If the licensor owned the patent, the customer would probably get a license by implication or estoppel. If the customer owned the patent, it would need no license.) Also, a ROM that the customer uses in its chip may contain a third-party’s copyrighted computer program. Since the customer is the one who selects the electronic circuit (or ROM) for its application, the licensor is unwilling to assume liability for that choice.

13. That is, should the customer infringe someone’s combination patent on a device by using the chip as a material part of the device [see 35 U.S.C. sec. 271(c)] or infringe someone’s method patent by operating the chip in a particular way, the licensor/chip supplier is held harmless.

14. For example, in case of shortages; government shutdowns of the plant; or strikes, fires, or other force majeure. Moreover, the supplier might go out of business or change its process technology.

15. Usually, vendors will agree to transfer masks and tapes to another vendor with whom the first vendor has a second-source agreement, but vendors ordinarily will refuse to transfer such material to any other vendors or to the customer directly.

16. There may also be patent-infringement problems or other proprietary-rights controversies.


18. For an example of this problem in another field, see Durham Industries, Inc. v. Tomy Corp., 630 F.2d 905 (2d Cir. 1980). This case involved a copyright infringement suit by one Disney copyright licensee against another for distributing the former’s plastic toy versions of Donald Duck, Mickey Mouse, etc. The court held that the plastic Donald Duck of the plaintiff added so little to the preexisting cartoon duck of Disney that the plaintiff’s new “creation” was unprotected by any derivative work copyright. Thus, the second Disney licensee was not liable to the first for copyright infringement.

In the case of semicustom chips, the problem is made worse by the fact that system house licensees of cell library licensors design chips for their customers, and the cell library licensor has no knowledge of their internal business conduct. Moreover, the cell library licensor itself uses its cell library to design chips for customers. Finally, cell library proprietors sometimes pool their libraries under cross-licenses.