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Intel v. ULSI System Technology

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INTEL V. ULSI SYSTEM TECHNOLOGY, INC.

I. INTRODUCTION

In the past two decades, the world has witnessed great advancements in the power and availability of electronics and computer technology. Computers have become exponentially more powerful, and the size of these computers has steadily decreased from room-sized mainframe computers to laptop personal computers. This progress is due in no small part to the semiconductor industry, which has pioneered vast advances in the size and computing capacity of semiconductor chips, including microprocessors, the brains of any computer.[1]

The semiconductor industry itself has undergone many changes during the past several decades. Since the 1960's, upstart companies, which pioneered the first generation of microprocessors, have evolved into industry giants.[2] These companies developed as vertically integrated businesses that both designed and manufactured their semiconductor chips.[3] In the past decade, however, a new breed of semiconductor businesses, called "fabless" semiconductor companies,[4] has appeared throughout the industry.[5] These companies design semiconductor chips, but go to an outside source for manufacture of the chips. These outside manufacturing sources are commonly known as "foundry" manufacturers,[6] and the alliance between the designer and the manufacturer is called a

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[1] *See, e.g.*, FRANCO MALERBA, THE SEMICONDUCTOR BUSINESS 11 (1985) (discussing technology behind semiconductor chips); Brian E. Whitley, *Joint Ventures in the Semiconductor Industry*, 10 COMPUTER/L.J. 581, 582-83 (discussing size of semiconductor industry and American companies' market share of industry).

[2] *See generally* Nancy Rutter, *The Great Patent Plague*, FORBES ASAP, Mar. 29, 1993, at 59, 66 (listing founders of semiconductor companies and their prior affiliations).

[3] *See* Andrew S. Rappaport & Shmuel Halevi, *The Computerless Computer Company*, HARV. BUS. REV., July-Aug. 1991, at 72-73.

[4] These companies are termed "fabless" because they are strictly design operations and do not have any fabrication facilities.

[5] *See* Rappaport & Halevi, *supra* note 3, at 72-73.

[6] *See, e.g.*, Richard H. Abramson, *When the Chickens Come Home To Roost: The Licensed Foundry Defense in Patent Cases*, COMPUTER LAW., Mar. 1993, at 1.

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foundry relationship.[7]

In addition, licensing practices in the semiconductor industry have changed. In the initial stages of the semiconductor boom during the late 1960's and early 1970's, the large corporations designing and manufacturing microprocessors readily cross-licensed their patent portfolios.[8] These agreements allowed the contracting companies to build on the inventions of others, which rapidly advanced the computing capacity of microprocessors. In the 1980's, however, the larger industry members replaced this atmosphere of cooperation with a more isolationist approach.[9]

Despite this trend, many industry members are still bound by broad cross-license agreements entered into in the early days of the industry.[10] Additionally, many members are involved in other license agreements and second-source agreements.[11] During the past decade, these agreements have led to a good deal of litigation.[12] An example is *Intel v. ULSI System Technology, Inc.*, a recently litigated patent suit resulting from a cross-license agreement. This Comment will examine *Intel* and the suit's

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[7] A semiconductor industry foundry relationship involves two parties, a chip manufacturer and a chip designer. The foundry agreement generally requires the chip designer to provide the manufacturer with the design and specifications for the chip to be manufactured. The manufacturer then takes this information and fabricates the semiconductor chips with its raw materials and equipment. The relationship between the manufacturer and designer is mutually beneficial. The manufacturer will likely have the capacity to perform the task without any further expenditures of capital, and the designer will realize his chip fabrication needs without having to purchase the capital-intensive equipment necessary for the manufacture of semiconductor components. *See, e.g.*, Rappaport & Halevi, *supra* note 3, at 74-75. Examples of foundry arrangements are found in several recent district court cases. *See* Cyrix Corp. v. Intel, 803 F. Supp. 1200 (E.D. Tex. 1992); Intel v. ULSI Sys. Technology, Inc., 782 F. Supp. 1467 (D. Or. 1991).

[8] *See* Rutter, *supra* note 2, at 59, 62 (describing early willingness to cross-license).

[9] *Id.* (discussing evolution of semiconductor industry in 1970's and 1980's).

[10] *See, e.g., Cyrix Corp.*, 803 F. Supp. at 1200 (E.D. Tex. 1992).

[11] A second-source relationship requires a primary manufacturer to have a second company capable of producing the primary's devices, which assures a purchaser of a continuous supply of the devices in case of problems with the primary manufacturer. These problems may be production related or business related. Motorola v. Hitachi, 750 F. Supp. 1319, 1335 (W.D. Tex.), *vacated*, 923 F.2d 868 (Fed. Cir. 1990).

[12] *E.g.*, Texas Instruments v. United States Int'l Trade Comm'n (*Atmel*), 988 F.2d 1165 (Fed. Cir. 1993) (involving license agreements); *Cyrix Corp.*, 803 F. Supp. at 1200 (involving cross-license agreement); Intel v. United States Int'l Trade Comm'n, 946 F.2d 821 (Fed. Cir. 1991) (involving cross-license agreement); *Motorola*, 750 F. Supp. at 1319 (involving second-source agreement).

implications for the semiconductor industry.

II. THE FACTS OF *INTEL*

In *Intel*,[13] the Court of Appeals for the Federal Circuit[14] (Federal Circuit) held that a license agreement between two semiconductor industry corporations provided a valid patent exhaustion, or "first sale," defense to a patent infringement claim for a third party using the licensee as a foundry for fabrication of semiconductor devices.[15] The implications of allowing this defense to patent infringement claims are substantial, as many semiconductor industry members are involved in factual situations similar to that in *Intel*.[16]

The events leading to the *Intel* litigation began in 1983. In that year, Hewlett-Packard (HP) and Intel entered into a licensing agreement that granted royalty-free, nonexclusive cross-licenses on all patents and patent applications held by each company until the year 2000.[17] The purpose of the agreement was to allow each company to proceed in the research and development of new products free from fear of litigation.[18]

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[13] Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994).

[14] The United States Court of Appeals for the Federal Circuit was created in 1982 to provide exclusive appellate jurisdiction for certain cases, including patent law cases. *See* Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982) (codified as amended in sections of 28 U.S.C.). One of the primary objectives behind the creation of the Federal Circuit was to eliminate forum shopping in patent cases, which resulted from nonuniform patent doctrine in the circuits. Chemical Eng'g Corp. v. Marlo, Inc., 222 U.S.P.Q. (BNA) 738, 740 (Fed. Cir. 1984).

[15] *See, e.g.*, Daniel Holden, *Intel Suffers Setback*, ELECTRONIC NEWS, June 21, 1993, at 1. Prior to this decision, district courts have come out on both sides of the issue. *E.g.*, *Cyrix Corp.*, 803 F. Supp. at 1214 (holding patent exhaustion doctrine applicable); Intel v. ULSI Sys. Technology, Inc., 782 F. Supp. 1467, 1475 (D. Or. 1991) (holding patent exhaustion doctrine inapplicable). Moreover, the Federal Circuit, in contrast to the present case, previously held that the patent exhaustion defense did not apply to a similar arrangement. Intel v. United States Int'l Trade Comm'n, 946 F.2d 821 (Fed. Cir. 1991).

[16] *E.g.*, *Cyrix Corp.*, 803 F. Supp. at 1200; *Motorola*, 750 F. Supp. at 1319; Abramson, *supra* note 6, at 1-2.

[17] Brief for Appellant at 8, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116) (granting to each party "an irrevocable, retroactive, nonexclusive, worldwide, royalty-free license under all patents and patent applications owned and controlled by Intel").

[18] *Intel*, 782 F. Supp. at 1474.

In 1988, HP and ULSI System Technology (ULSI) entered into a relationship, generally known in the semiconductor industry as a foundry arrangement.[19] The arrangement called for HP to manufacture a math coprocessor, designated the US83C87 ('C87) coprocessor,[20] based on ULSI's design and specifications.[21] The ULSI coprocessor performs a function similar to and competes with Intel's 80387 ('387) coprocessor. In fact, ULSI introduced the 'C87 as a plug-compatible replacement for the '387.

In 1991, Intel[22] learned of the existence of ULSI's 'C87 coprocessor and brought suit in the U.S. District Court for Oregon alleging patent infringement under 35 U.S.C. § 271.[23] Specifically, Intel sought a preliminary injunction enjoining ULSI from infringing or inducing infringement of its patent. After examining the elements required under 35 U.S.C. § 283[24] for issuing a preliminary injunction, the district court judge granted the injunction, holding that Intel had demonstrated a likelihood of success on the mer-

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[19] *See generally* Brief for Amicus Curiae Chips and Technologies, Inc. at 3, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116) (detailing operation of foundry relationship).

[20] Use of a coprocessor enables a microprocessor to perform calculations at a considerably higher rate of speed.

[21] The origin of the design for ULSI's coprocessor is a highly litigated issue. In June 1993, a California superior court jury determined that ULSI founder George Hwang and a former employee were not guilty of criminal appropriation of trade secrets. Certain Intel documents (four boxes full) had been found in the garage of the employee, who had previously worked on Intel's '387 coprocessor design team. Other documents had been discovered at the company itself. In finding the defendants not guilty, the jury decided that the documents, including the draft of an Intel data book, were not trade secrets. *See* Daniel Holden, *Intel Suffers Setback*, ELECTRONIC NEWS, June 21, 1993, at 17; Rutter, *supra* note 2, at 59-60.

[22] Intel is the assignee of U.S. Patent Reissue 33,629 ('629 patent), entitled "Numerical Data Processor," which was incorporated into the design of the Intel line of coprocessors, including the '387. The patent is a reissue of U.S. Patent 4,338,675, originally granted to John F. Palmer et al., July 6, 1982.

[23] Section 271(a) reads in part ". . . whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent." 35 U.S.C. § 271(a) (1988).

[24] "The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable." 35 U.S.C. § 283 (1988). A court considers four factors in determining whether to grant a preliminary injunction: (1) the movant's likelihood of success on the merits; (2) the threat of irreparable harm to the movant; (3) the balance of hardship between the parties; and (4) the public interest. *See* We Care, Inc. v. Ultra-Mark Int'l Corp., 930 F.2d 1567, 1570 (Fed. Cir. 1991).

its.[25]

ULSI, however, successfully moved for a stay of the injunction order pending appeal in the Federal Circuit.[26] On appeal, a three-judge panel (with one judge dissenting) of the Federal Circuit reversed the district court's grant of a preliminary injunction and held that ULSI, not Intel, showed a likelihood of success on the merits.[27] Intel then unsuccessfully filed a combined petition for rehearing and suggestion for rehearing en banc.[28] Subsequently, Intel appealed the decision to the U.S. Supreme Court, but was denied certiorari.[29]

III. THE FEDERAL CIRCUIT'S ANALYSIS

In *Intel*, the Federal Circuit held that the patent exhaustion doctrine is a valid defense for a third party using a licensed manufacturer to fabricate its infringing design. According to the court, the sale of the 'C87 coprocessors from HP to ULSI was a valid "first sale" by a manufacturer licensed by Intel. As such, it exhausted Intel's right to enforce its patent.[30]

Specifically, the majority considered the contract between HP and ULSI as a sales agreement resulting in the sale of 'C87 coprocessors from HP to ULSI.[31] The majority focused on the title of the HP-ULSI agreement—"Terms and Conditions of Sale"—and held that the nature of the transaction clearly contemplated a sale of coprocessor chips.[32] In reaching this decision, however, the majority disregarded the unique and complex relationship involved in a foundry arrangement. This relationship occurs in part because the lines between the buyer and seller and the products sold are

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[25] Intel v. ULSI Sys. Technology, Inc., 782 F. Supp. 1467, 1476 (D. Or. 1991).

[26] Intel v. ULSI Sys. Technology, Inc., No. 92-1116 (Fed. Cir. January 14, 1992).

[27] Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1571 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994).

[28] Intel v. ULSI Sys. Technology, Inc., 1993 U.S. App. LEXIS 21733 (Fed. Cir. Aug. 26, 1993).

[29] Intel Corp. v. ULSI Sys. Technology, Inc., 114 S. Ct. 923 (1994).

[30] *Intel*, 955 F.2d at 1569.

[31] *Id.* ULSI urged this finding. Brief for Appellant at 9, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116).

[32] *Intel*, 995 F.2d at 1569.

blurred.[33]

Although HP was not a party to the suit, the license agreement between Intel and HP was the majority's primary reason for finding that ULSI had a valid "first sale" defense. The majority broadly interpreted the agreement to hold that ". . . HP's conceded right to sell the chips deprives Intel of any claim of infringement, as long as HP sold the chips."[34] Yet, in reaching this conclusion, the majority ignored the prevailing purpose of the license agreement and the intention of the parties in granting the cross-licenses—to free the parties from fear of needless litigation.[35]

In addition, the majority rejected the several arguments proposed by Intel to counter application of the patent exhaustion doctrine. Intel first claimed that there was no sale of goods by HP to ULSI; rather, HP only supplied a service—fabrication of the semiconductor wafers. The majority, however, held that the HP-ULSI agreement contemplated a *sale* of goods.[36] The court similarly rejected Intel's claim that HP could not have sold the coprocessors to ULSI because HP never owned the intellectual property rights to the chip design.[37] Finally, the court refused to accept Intel's argument that transfer of the chips was a sublicense from HP to ULSI (which the Intel-HP agreement prohibited).[38]

In contrast, Judge Plager, who wrote the dissent, disagreed with the majority's application of the patent exhaustion doctrine to the HP-ULSI foundry arrangement. First, he viewed the Intel-HP license agreement as not authorizing HP to allow third parties to use the agreement to infringe Intel's patent with impunity.[39] Second, Judge Plager argued that the doctrine did not apply because ULSI's alleged infringing product was not the product that

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[33] *See* Brief for Appellee at 6-9, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116). HP does not sell a final coprocessor to ULSI; rather, it sells the product of the photolithography process, in which silicon wafers are imprinted with ULSI's coprocessor design. *Id.*

[34] *Intel*, 995 F.2d at 1569.

[35] *Id.* at 1573.

[36] *Id.* at 1569.

[37] *Id.*

[38] *Id.*

[39] Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1573 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994).

was licensed to HP.[40] Finally, he differed from the majority by characterizing the HP-ULSI transaction as service oriented.[41] Thus, Judge Plager held that HP's sale of coprocessors to ULSI was not a sale that cut off Intel's patent rights.[42]

IV. EXISTING LAW

The primary issue in *Intel* is the applicability of the patent exhaustion doctrine to a licensed foundry arrangement. The patent exhaustion doctrine, also known as the first sale doctrine, provides that once a patent holder places a patented invention into the marketplace, he has exhausted any infringement claim.[43] Thus, under the doctrine, once the patent holder sells the patented invention, he is estopped from making an infringement claim against anyone obtaining the invention from the original purchaser.[44]

This judicially created doctrine first appeared in patent cases in the mid-1800's. In *Bloomer v. McQuewan*,[45] the first case to apply the doctrine, the Supreme Court held: "And when the machine passes to the hands of the purchaser, it is no longer within the limits of the manufacturer. It passes out of it, and is no longer under the protection of the Act of Congress."[46] The Supreme

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[40] *Id.* at 1575. Note that Intel's '387 coprocessor was the patented product and thus part of the HP-Intel license agreement; ULSI's 'C87 coprocessor was designed by ULSI and thus not involved in the license agreement.

[41] *Id.*

[42] *Id.*

[43] United States v. Univis Lens Co., 316 U.S. 241, 252 (1942).

[44] *Id.* at 250.

[45] 55 U.S. 539 (1852).

[46] *Id.* at 549. In *Bloomer*, the patent owner conveyed the right for a second party to make, use, and sell the invention in Pennsylvania. The second party later transferred to a third party, the plaintiff Bloomer, the exclusive right to make, use, and sell a limit of fifty inventions in Pittsburg County. Earlier, however, the patent owner had granted to the defendants the exclusive right to make, use, and sell in Pittsburg County, forcing Bloomer to bring suit against the defendants. *Id.* at 547-48; *see also* JOHN W. SCHLICHER, PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES 88.05(1)(a) (1992) (giving facts and background of *Bloomer v. McQuewan*).

Court refined the doctrine in the 1873 case of *Adams v. Burke*.[47] In finding no infringement by a purchaser from an authorized licensee of the patent holder, the Court stated:

> In the essential nature of things, when the patentee, or the person having his rights, sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use. The article, in the language of the court, passes without the limit of the monopoly.[48]

The Supreme Court further detailed the doctrine with respect to license agreements in *United States v. Univis Lens Co.*[49] There, the Court held that the first sale of an article manufactured under a patent places the article beyond the reach of the patent holder's protected rights. Specifically, the Court noted:

> The full extent of the monopoly is the patentee's "exclusive right to make, use and vend the invention or discovery." The patentee may surrender his monopoly in whole by the sale of his patent or in part by the sale of an article embodying the invention. His monopoly remains so long as he retains the ownership of the patented article. But sale of it exhausts the monopoly in that article and the patentee may not thereafter, by virtue of his patent, control the use or disposition of the article.[50]

More recently, the Federal Circuit has held that the patent exhaustion doctrine applies to certain license agreements similar,

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[47] 84 U.S. 453 (1873). In *Adams*, the patent owner assigned the invention to different companies, each for an exclusive area. A purchaser from a company whose exclusive area was a ten-mile radius from Boston then took the invention and used it outside the designated area. *Id.* at 453-55; *see also* SCHLICHER, *supra* note 46, at 8805(1)(c) (giving facts and background of *Adams v. Burke*).

[48] *Adams*, 84 U.S. at 456.

[49] 316 U.S. 241 (1942).

[50] *Id.* at 249-50.

but not identical, to a foundry agreement such as that at issue in *Intel*. In *Unidisco, Inc. v. Schattner*,[51] the court held that sales of a patented product by a distributor, who purchased the products from a licensee acting within the scope of his license, were protected from patent infringement claims.[52] Although the court did not expressly invoke the patent exhaustion doctrine, it used similar language.[53]

Notably, the *Unidisco* facts are distinguishable from the facts of *Intel*. First, the licensee in *Unidisco* was manufacturing products that were identical to those authorized by the inventor. Thus, these products were not the design of a third party as occurred in *Intel*, in which ULSI designed the 'C87 coprocessor. Second, the third party in *Unidisco* purchased a final manufactured product. In contrast, in *Intel*, ULSI did not purchase finished coprocessors from HP, but rather purchased the result of intermediate processing steps. Finally, the patent holder in *Unidisco* received a royalty for every product the licensee sold to the third party, whereas the patent holder in *Intel* received no royalty for any sales by ULSI. Therefore, because the facts surrounding the license agreements in *Unidisco* and *Intel* materially differ, the cases are distinguishable.

In *Lisle Corp. v. Edwards*,[54] the Federal Circuit again used language resembling the patent exhaustion doctrine to extricate a defendant from an infringement claim.[55] There, the court held that a licensed manufacturer's sale of a patented tool to a third party retailer did not constitute patent infringement. Like

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[51] 824 F.2d 965 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1042 (1988). In *Unidisco*, Schattner, the patent holder, entered into an exclusive license, with an express agreement not to sub-license, with Girard to manufacture and sell the patented liquid sterilant. Girard then arranged for an exclusive distributorship with Unidisco, who sold the sterilant to the public. When Unidisco sued for a declaratory judgment of patent invalidity, Schattner counterclaimed against Unidisco for patent infringement. *Id.* at 966-67.

[52] *Id.* at 968.

[53] *Id.* ("Resale of the product by Unidisco could not infringe the patent if Unidisco purchased the product from an authorized seller.").

[54] 777 F.2d 693 (Fed. Cir. 1985). In *Lisle*, the patent holder, Edwards, granted a nonexclusive license to Lisle to manufacture and sell the patented tools. Lisle then sold the tools to Snap-On retailers for resale to the general public. Edwards brought a patent infringement suit against Snap-On. *Id.* at 694.

[55] *Id.* at 695 ("The sales by Lisle were authorized by the nonexclusive license agreement. Resale did not create a sublicense. Edwards is not entitled to a royalty payment each time a tool is resold.").

Unidisco, *Lisle* is distinguishable from *Intel* because it involves a final manufactured product, which is identical to the one authorized by the patent holder, and royalty payments to the patent holder for every product the licensee sells to the third party.

In a recent decision, *Intel v. United States International Trade Commission (Atmel)*,[56] the Federal Circuit refused to apply the patent exhaustion doctrine to a license agreement. In *Atmel*, the plaintiff, Intel, brought suit against a group of companies, alleging infringement of patents incorporated into the design of Erasable Programmable Read-Only Memories (EPROMs).[57] One defendant offered the patent exhaustion doctrine as a defense to the infringement claim. The court held that the decision whether to apply the doctrine would depend on the court's construction of the license agreement. Specifically, the court found:

> If the Intel/Sanyo agreement permits Sanyo to act as a foundry for another company for products covered by the Intel patents, the purchaser of those licensed products from Sanyo would be free to use and/or resell the products. Such further use and sale is beyond the reach of the patent statutes.[58]

By conditioning the applicability of the patent exhaustion doctrine on construction of a license, the *Atmel* court seems to have potentially expanded the doctrine beyond its traditional boundaries. This expansion would occur by extending the defense to encompass products different from those expressly included in a cross-license agreement, such as that between Intel and HP.

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[56] 946 F.2d 821 (Fed. Cir. 1991).

[57] EPROM's are semiconductor chips used as memory devices in computers. *Id.* at 824 n.4.

[58] *Id.* at 826. In *Intel v. ULSI*, Intel argued that this passage was mere dicta rather than binding precedent. Brief for Appellee at 20, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (No. 92-1116). However, the majority followed the statement in finding for ULSI. Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1570 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994).

V. ANALYSIS OF *INTEL*

In *Intel*, the majority held that the patent exhaustion doctrine is a valid defense to an infringement claim for a third party using a licensed foundry to manufacture allegedly infringing products.[59] This holding stretches the patent exhaustion doctrine beyond its previous limits and threatens to withhold from a patentee the rights conferred it by the patent grant.[60] In contrast, the dissent's approach provides a more reasonable and equitable result by considering both the intentions of parties who initiate a cross-license agreement and the technical aspects of a foundry relationship when deciding whether to apply the patent exhaustion doctrine.

The majority's analysis is flawed in several respects.[61] First, the majority interpreted the HP-Intel license agreement to be broader than either party contemplated at the time of the contract.[62] As a result, the doctrinal element that there be an authorized sale of the patented product was unsatisfied.[63] Second, the patent exhaustion doctrine requires that the accused product be the patented invention.[64] Here, however, Intel accused ULSI of producing an infringing copy of its patented article, not the

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[59] *Intel*, 995 F.2d at 1571.

[60] A patent grants to the patentee ". . . for the term of seventeen years . . . the right to exclude others from making, using, or selling the invention throughout the United States . . . ." 35 U.S.C. § 154 (1988).

[61] Appellate review of a district court's grant of a preliminary injunction is limited because "the grant or denial of a preliminary injunction is within the discretionary authority of the trial court." H.H. Robertson Co. v. United Steel Deck, Inc., 820 F.2d 384, 387 (Fed. Cir. 1987). Further, "[t]he grant of a preliminary injunction, if not based on legal error or a serious misjudgment of the evidence, is reviewable only to ascertain whether the grant was within a reasonable range of discretion." *Id.* ULSI argued that the district court committed such an error by not allowing ULSI to use the patent exhaustion doctrine as a defense. *See* Brief for Appellant at 6-7, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116) (summarizing ULSI's arguments on appeal, including district court's denial of patent exhaustion defense). This legal question is thus clearly within the scope of Federal Circuit review.

[62] *Intel*, 995 F.2d at 1573 (discussing intentions of parties in entering into license agreement).

[63] Mallinkrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 703 (Fed. Cir. 1992) (discussing requirement of authorization).

[64] United States v. Univis Lens Co., 316 U.S. 241, 250 (1942) (discussing doctrine's requirement that infringing device be patented article itself).

patented article itself. Finally, the court incorrectly found that the HP-ULSI transaction was a simple sale of goods,[65] allowing the "first sale" defense to be used. These errors will be discussed in turn.

For the patent exhaustion doctrine to apply, the patentee must *authorize* the sale of the patented product.[66] After considering testimony and affidavits offered by Intel and HP,[67] the trial court found that both parties intended the license agreement to limit subsequent transfers of patented products.[68] The dissent provided additional information evidencing lack of authorization. It stated that "[t]he cross-license notes that both parties are 'engaged in continuing programs of research and development,' and that both parties 'want to increase their freedom of design by obtaining a license.' "[69] Thus, it is clear from the agreement that the parties intended to use each other's patents to further their research and the development of new products, and not to manufacture the other parties' patented products for unlicensed third parties.

Moreover, in finding the required authorization, the Federal Circuit majority attempted to distinguish the Intel-HP license agreement from a nearly identical agreement between Intel and Sanyo in the *Atmel* decision,[70] in which the court held that the patent exhaustion doctrine was not a valid defense for a third party

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[65] *Intel*, 995 F.2d at 1569.

[66] *Mallinkrodt*, 976 F.2d at 703.

[67] *See supra* note 17 and accompanying text (discussing details of Intel-HP cross-license).

[68] Intel v. ULSI Sys. Technology, Inc., 782 F. Supp. 1467, 1474 (D. Or. 1991) ("[I]t is clear that neither Intel nor Hewlett-Packard intended their agreement to be so broad as to grant the other party the power to sublicense any patent granted under the Intel/Hewlett-Packard agreement."). This finding is corroborated by the practices prevalent in the semiconductor industry at the time of the license agreement. *See generally* Cyrix Corp. v. Intel, 803 F. Supp. 1200, 1205 (E.D. Tex. 1992) (giving facts and findings about licensing practices in semiconductor industry); Richard H. Abramson, *When the Chickens Come Home To Roost: The Licensed Foundry Defense in Patent Cases*, COMPUTER LAW., Mar. 1993, at 1-3 (presenting overview of semiconductor industry from early 1970's to late 1980's and conditions that led to many cross-licenses like the Intel-HP agreement).

[69] *Intel*, 995 F.2d at 1573.

[70] Intel v. United States Int'l Trade Comm'n (*Atmel*), 946 F.2d 821, 826 (Fed. Cir. 1991) ("Intel hereby grants and will grant to Sanyo an [sic] non-exclusive, world-wide royalty-free license *without the right to sublicense* except to its Subsidiaries, under Intel Patents which read on any *Sanyo* Semiconductor Material") (emphasis added). Note that, except for the emphasized words, the license is nearly identical to the Intel-HP agreement. *See supra* note 17 (providing text of Intel-HP agreement).

using a licensed manufacturer as a foundry.[71] Due to the similar structure and purpose of the license agreements, the majority should have more carefully and more narrowly interpreted the Intel-HP license agreement.

In addition, the primary element of the patent exhaustion doctrine—that the product in dispute be the *patented product* itself—is not satisfied in *Intel*.[72] In the cases in which the Supreme Court developed the doctrine, the accused infringing products were the patented products themselves.[73] Here, however, the accused infringing device was not the patented product itself.[74] ULSI designed its 'C87 coprocessor, which infringed on the Intel '387, and created its own mask works and magnetic design tape for use in manufacturing the chips.[75] Despite its similarities of design, name,[76] and function, however, the ULSI coprocessor was not identical to Intel's patented product and therefore the doctrine should not have been applied.

Furthermore, the nature of the HP-ULSI transaction should

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[71] *Atmel*, 946 F.2d at 828. In declaring the defense inapplicable, the court adopted the reasoning of the administrative law judge who presided over the initial proceedings. *Id.* "Noting that there was no evidence indicating that Intel knew Sanyo might act as foundry for other unlicensed companies, that Sanyo's license in paragraph 3.5 was world-wide and royalty-free, and that Intel would not receive any further consideration no matter how many companies went to Sanyo for parts that infringed Intel patents, the ALJ posed the hypothetical question: *Could Intel have intended that any company in the world could get Sanyo to make its parts without having to get its own license from Intel on Intel's patents?*" *Id.*

[72] *See* United States v. Univis Lens Co., 316 U.S. 241, 250 (1942) ("The patentee may surrender his monopoly in whole by the sale of his patent or in part by the sale of an article embodying the invention. His monopoly remains so long as he retains the ownership of *the patented article*. But sale of it exhausts the monopoly in *that article* and the patentee may not thereafter, by virtue of his patent, control the use or disposition of *the article*.") (emphasis added).

[73] *E.g.*, *id.* (patented invention was lens blanks; subject of prosecution same); Adams v. Burke, 84 U.S. 453 (1873) (patented invention was coffin lid; infringing product same); Bloomer v. McQuewan, 55 U.S. 539 (1852) (patented invention was planing machine; infringing product same).

[74] The patented invention was a numeric data processor, U.S. Patent 4,338,675, while the infringing device was a math coprocessor, designated (by ULSI) as the US83C87.

[75] *See* Intel v. ULSI Sys. Technology, Inc., 782 F. Supp. 1467, 1472 (D. Or. 1991) ("Intel has shown that the US83C87 coprocessor infringes on every element of claims 5, 7, and 8. Accordingly, Intel has made a clear showing of infringement by ULSI.").

[76] ULSI's coprocessor name, US83C87, was clearly similar to Intel's name, 80387. In the district court action, Intel also alleged violations of sections 32 and 43(a) of the Lanham Act, the federal trademark act. *Id.* *See* 15 U.S.C. §§ 1114 and 1125(a) (1988).

prevent application of the patent exhaustion doctrine. For the doctrine to apply, there must be a valid *sale* of the patented product.[77] But as noted by the dissent, "the overall context of the contract demonstrate[d] that the sale was of *services*, measured per chip, rather than sale of technology."[78] As a foundry source for the 'C87 coprocessor, HP provided fabrication services to ULSI. These services included the engineering expertise and performance of processes required to produce the chips. Moreover, the HP-Intel contract itself indicates that the transaction involved the provision of services and not a sale of goods. For example, in the contract, ULSI purported to "warrant[ ] that it *owns all the rights* to the information and processes including specifications, designs, instructions and Confidential Information provided to HP."[79] This retention of the intellectual property rights asserted by ULSI signifies a services agreement because it contemplates HP's role as a middleman between ULSI and the consumer market. Further, it is important that HP did not perform all of the fabrication services; ULSI performed the final processing steps, such as testing, cutting, and packaging the wafers into individual integrated circuit packages.[80] Thus, HP's actions seem more like the rendering of manufacturing services than the sale of a finished patented product. HP simply performed intermediate steps in the manufacturing process.

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[77] *See Bloomer*, 55 U.S. at 539. In fact, the term "patent exhaustion" is synonymous with "first sale," implying that a valid sale is required for application of the doctrine.

[78] Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1575 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994).

[79] *Id.* at 1574. The dissent argued that ULSI's warranty and indemnification clauses are further proof that HP and ULSI did not consider the HP-Intel cross-license to grant authority for the manufacture of infringing chips. *Id.* at 1575. But note that indemnification clauses are standard contract clauses, and according to the general rule, not proof of liability for the indemnitor's inducement of infringement by the indemnitee. Charles E. Miller, *Some Views on the Law of Patent Infringement by Inducement*, 53 J. PAT. OFF. SOC'Y 86, 150-51 (1971).

[80] *See* Brief for Appellee at 6-9, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116) ("Pursuant to the foundry services agreement, HP bought blank silicon wafers and imprinted circuits onto them according to ULSI's schematic designs. HP's foundry services comprise only limited intermediate steps of the following ten-step process needed to make the patented math coprocessor . . . ."); Cyrix Corp. v. Intel, 803 F. Supp. 1200, 1205-06 (E.D. Tex. 1992) (discussing typical steps taken in design and fabrication of semiconductor devices).

In addition, the HP-Intel relationship suggests a final argument against application of the patent exhaustion doctrine. As two significant entrants in the semiconductor industry market, Intel and HP entered the cross-license agreement for a specific purpose—each sought to research and develop new products free from litigation.[81] Arguably, this agreement placed the parties in a fiduciary relationship with respect to the patents involved in the cross-license.

A district court has attached such a fiduciary relationship to parties to a second-source agreement.[82] As there are many similarities between a cross-license agreement and a second-source agreement,[83] this fiduciary relationship concept could be analogized to the present case. A fiduciary relationship would create a duty for each company to protect the other's patents by refraining from entering foundry agreements such as the one in *Intel*, in which infringing products are involved. A violation of this duty would then open the foundry manufacturer to a claim for breach of fiduciary duty.

The preceding arguments highlight the weaknesses in the majority's application of the patent exhaustion doctrine and raise questions about whether the doctrine should apply to a licensed foundry relationship. There are, however, arguments supporting the decision reached by the majority. This Comment will address three such arguments.

First, ULSI argued that the patent exhaustion doctrine applies not only to a patented article, but also to a partially manufactured article. There is support for this proposition in *United States v.*

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[81] *See supra* note 17 and accompanying text (discussing cross-license agreement and parties' intentions).

[82] *See* Motorola v. Hitachi, 750 F. Supp. 1319, 1335 (W.D. Tex.), *vacated*, 923 F.2d 868 (Fed. Cir. 1990) ("[T]he Court is of the opinion a fiduciary relationship in fact exists between Motorola and Hitachi, both parties acting as fiduciaries to the other. The reason for this is the unique circumstances in which the parties find themselves. The microprocessor industry is highly technical, in a constant state of flux and worth millions, if not billions, of dollars in profit to the entity which can invent the fastest, most efficient and productive device. The constant stress and competition of those in the microprocessor race is staggering . . . . Each company is intimately aware of and responsible for the life blood of the other . . . .").

[83] In particular, both types of agreements contemplate two competitors sharing technological information. A cross-license grants each party uses of the other's patents. A second-source allows the second party to learn the primary's proprietary designs.

Univis Lens Co., in which the Supreme Court stated that:

> [W]here one has sold an uncompleted article, which because it embodies essential features of his patented invention, is within the protection of his patent, and has destined the article to be finished in conformity to the patent, he has sold his invention so far as it may be embodied in that particular article.[84]

Here, Intel granted HP a license to its patent, the numeric data processor. Then HP, through its foundry agreement with ULSI, performed the intermediate processing steps necessary to place ULSI's infringing design on silicon wafers. HP subsequently sent the wafers to ULSI for further processing. ULSI argued that these wafers were an embodiment of the patent, and as such, were immune from infringement by the patent exhaustion doctrine. The language in *Univis* upon which ULSI relied discusses a situation in which the patentee sold an uncompleted article. In *Intel*, however, the *licensee* sold the uncompleted articles; thus, arguably, the language in *Univis* does not apply to *Intel*.

ULSI also argued that the Federal Circuit decision in *Atmel*, which involves a foundry agreement nearly identical to that in *Intel*,[85] provides precedent for applying the patent exhaustion doctrine. In *Atmel*, the court stated[86] hypothetically that if a licensee were authorized to operate as a foundry, the patent exhaustion doctrine would apply.[87] This statement, however, is arguably dictum to the court's opinion because the *Atmel* court found that no such authorization took place.[88]

The passage from *Atmel* leads to the third possible argument in support of the majority opinion. Applying *Atmel* to *Intel*, one must examine the Intel-HP agreement to determine if it provided authorization for HP to act as a foundry. Because the cross-license

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[84] 316 U.S. 241, 250-51 (1942).

[85] *See supra* note 55 and accompanying text (discussing background of *Atmel* decision).

[86] *See supra* note 58 and accompanying text (quoting passage from *Atmel* decision).

[87] Intel v. United States Int'l Trade Comm'n (*Atmel*), 946 F.2d 821, 826 (Fed. Cir. 1991).

[88] Intel unsuccessfully argued that this part of the decision was mere dicta and not precedent. Brief for Appellee at 20, Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566 (Fed. Cir. 1993) (No. 92-1116).

agreement neither specifically authorizes nor forbids foundry agreements,[89] ULSI's claim of a valid defense depends on contract interpretation.[90] The majority interpreted the contract as a broad agreement that would allow such a foundry relationship. This interpretation, however, did not consider the parties' intentions in entering into the agreement.[91] The dissent, in contrast, examined the parties' intentions and held that because no intent to authorize a foundry relationship existed, the defense was inapplicable. This approach is more equitable because it conforms to the intentions of the parties to the agreement. Therefore, the arguments supporting application of the patent exhaustion doctrine are not convincing.

Moreover, the likely effect of *Intel* on the semiconductor industry casts further doubt upon the propriety of applying this doctrine to a licensed foundry situation. An analysis of *Intel* and its implications for the semiconductor industry will turn on the following considerations. First, technological advancement is increasing at an astronomical rate, and the patent laws must be continually adapted to keep abreast with these advancements.[92] Second, since the creation of the Federal Circuit in 1982, patents have developed as an increasingly valuable economic asset for holders of these rights.[93] Third, applying an economic analysis to the facts of the case results in a decision contrary to the majority opinion.

Intel involves complex technological products and complex industrial relationships. The patent exhaustion doctrine developed

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[89] *See supra* note 17 (providing text of Intel-HP agreement).

[90] In its appellate jurisdiction, the Federal Circuit performs a *de novo* review of contract interpretation. *See, e.g.*, Interstate Gen. Gov't Contractors, Inc. v. Stone, 980 F.2d 1433, 1434 (Fed. Cir. 1992) (stating appellate standard for contract interpretation).

[91] Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1570 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994) (comparing Intel-HP cross-license with nearly identical Intel-Sanyo cross-license from *Atmel* decision).

[92] Examples are numerous. For instance, a recent decision by the U.S. Patent and Trademark Office extended patent protection to certain genetic engineering creations, such as the Harvard Mouse. U.S. Patent No. 4,736,866, granted on April 12, 1988. The Board of Patent Appeals and Interferences also recognized computer screen displays as design patents in *Ex parte* Strijland, 26 U.S.P.Q.2d (BNA) 1259 (Bd. Pat. App. & Int. 1992).

[93] *See, e.g.*, Tamni Harbert, *Patent Portfolios Emerge As Corporate Money Makers*, ELECTRONIC BUS., Apr. 16, 1990, at 53 ("The increasing value of intellectual property has made semiconductor patent portfolios both a prime corporate asset and strategic competitive weapon, respectively capable of generating hundreds of millions of dollars in revenue and shutting a competitor out of a market.").

in cases involving both simple products and license agreements.[94] Consequently, to keep patent law current, the Federal Circuit must refine the doctrine to account for such changes. Additionally, patent law must change as the policies and theories underlying the patent system evolve. Notably, commentators are suggesting a closer link between economic analysis and the theories underlying patent laws.[95] This link should lead to changes in the patent laws, including the patent exhaustion doctrine.[96] Such changes would give patent owners the ability to preserve their patent rights while they license or otherwise authorize another party to use the patent.

Furthermore, the creation of the Federal Circuit in 1982 heralded a new era in the protection of patent rights.[97] The court has increased the strength of patents, holding in a far greater proportion of cases that patents are valid and infringed than in pre-Federal Circuit times.[98] Accordingly, since 1982, industry leaders have taken patent prosecution and litigation more seriously and considered patents as valuable corporate assets.[99] Thus, given the generally pro-patent position of the Federal Circuit, the *Intel*

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[94] *See supra* notes 46-47 and accompanying text.

[95] *See, e.g.*, WARD S. BOWMAN, JR., PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL 15-32 (1973) (discussing patent rights in terms of incentives to invest in innovation); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, at 275-80 (1977) (explaining how patent system along with trade secrets law enhance public welfare).

[96] *See* John W. Schlicher, *If Economic Welfare is the Goal, Will Economic Analysis Redefine Patent Law?*, J. PROPRIETARY RIGHTS, June 1992, at 12 (describing four economic theories that underlie most of current patent laws). Schlicher suggests applying an economic analysis to infringement rules, such as the patent exhaustion doctrine. "Economic analyis [sic] is likely to lead to changes in these doctrines to provide patent owners greater freedom to preserve the rights even though products obtained from an authorized source are involved in the accused transaction at some level."

[97] *See, e.g.*, Pauline Newman, *Introduction: The Federal Circuit: Judicial Stability or Judicial Activism?*, 42 AM. U. L. REV. 683, 686 (1993) (describing background on reasons for creation of Federal Circuit and effect on patent law in first ten years of existence).

[98] *See, e.g.*, ROBERT L. HARMON, PATENTS AND THE FEDERAL CIRCUIT 639-40 (2d ed. 1991) ("The [Federal Circuit] had 120 opportunities to reverse holdings of validity, and did it only 14 times. It had 112 chances to reverse holdings of infringement and did it but 10 times. By any measure, *the accused infringer who loses below has less than 1 chance in 10 of turning things around on appeal.*") (emphasis added).

[99] *See* Abramson, *supra* note 6, at 1-3 (discussing reasons why value of patents has soared); Harbert, *supra* note 93, at 53 (providing examples of companies reaping windfall profits from patent portfolios).

decision is particularly perplexing because it seems to limit the patent owner's ability to protect its patent rights.

Finally, from an economic standpoint, *Intel* may have dramatic repercussions throughout the semiconductor industry. By allowing this defense, the court is sending a message to companies that infringing a competitor's patents is perfectly acceptable if one finds the right foundry to fabricate the chips. In particular, this decision threatens future technological advances in the semiconductor industry because companies will refrain from entering cross-license agreements and restrict research and development budgets out of a fear of inadequate product protection.

The exponential growth and technological advancement in the semiconductor industry from the early 1970's to the present are directly related to the willingness of large corporations such as Intel and HP to cross-license patents.[100] The *Intel* holding will discourage such industry leaders from working together or entering into cross license agreements. As a result, companies will inefficiently and needlessly recreate advances that would otherwise have been available through cross-licensing. Moreover, the availability of new products in the marketplace may be delayed by the disappearance of cross-license agreements.[101]

Not only may new products be delayed, but they may never appear. The patent system rewards inventors for their labors by granting "for the term of seventeen years . . . the right to exclude others from making, using, or selling the invention throughout the United States."[102] This grant of exclusivity provides an incentive for an inventor to invest the money and time required to create a

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[100] *See, e.g.*, Abramson, *supra* note 6, at 1-3 (discussing early days of semiconductor industry and effects of cross-license agreements on industry growth); Rutter, *supra* note 2, at 59, 62 ("These new technology companies further thrived in the 1970's by embracing a policy of broad, long-term technology cross-licensing, an industry custom that prevailed for more than 20 years. Cross-licensing allowed companies not only to share their technical innovations but to use each other's technologies. It was a good deal. It kept everyone out of court and gave everyone access to technological advances.").

[101] In addition to the disappearance of cross-licensing, future agreements between competitors will be discouraged. *See* Intel v. ULSI Sys. Technology, Inc., 995 F.2d 1566, 1576 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 923 (1994) ("The type of cross-license involved here apparently is not that uncommon, and likely presages a variety of new contractual arrangements among and between industry partners and competitors.").

[102] 35 U.S.C. § 154 (1988).

new and useful product. Companies such as Intel, which spend a great deal of money on research and development, will be less willing to do so if they fear that any new product can be copied with impunity by invocation of the patent exhaustion doctrine. Declining research and development budgets would then limit the availability of new products in the marketplace.[103] Accordingly, by expanding the patent exhaustion doctrine, *Intel* may reduce the availability of new products in the marketplace.

Nevertheless, some would argue that an economic analysis favors ULSI because consumers benefit most from a wide variety of choices on the market. This argument is unpersuasive for several reasons. First, freeing ULSI from an infringement claim encourages other companies to similarly infringe patents and discourages them from spending money on research and development.[104] Second, consumers will be hurt in the long run, as more companies like ULSI appear and revenues of pro-research companies drop. This drop in revenue will further necessitate a cut in research and development budgets and cause fewer innovative products to be placed on the market.

Finally, alternatives existed to ULSI's search[105] for a licensed foundry to fabricate its coprocessors. ULSI could simply have negotiated with Intel for a license on the patent and thus been free of any infringement claim.[106] Alternatively, ULSI could have

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[103] *See* Rutter, *supra* note 2, at 65 (quoting Intel general counsel on R&D: "But R&D is a bigger investment risk than ever. Our first fab [fabrication facility] cost $1 million. Now a fab costs $1 billion, so we can't give our innovations away. We have to protect our shareholder's investment, which is allowed by the U.S. Constitution.").

[104] *See* Rutter, *supra* note 2, at 63-64 (quoting Texas Instrument chief patent counsel on companies like ULSI: "We had companies coming into the industry who were not innovating. They were not investing in R&D. They were just copying technology.").

[105] *See Intel*, 995 F.2d at 1571. The dissent creates an interesting layout of the case's basic factual premise. But the dissent may be pleading its case too much: the selection of HP as a foundry may have been entirely fortuitous. Yet, as fortuitous a choice of foundry source as ULSI may have made, it should not allow ULSI to escape Intel's infringement claim. The agreement between ULSI and HP was a separate and distinct business relationship from the agreement between Intel and HP. The Intel-HP agreement, *supra* note 17, was not formulated to authorize HP to transfer Intel's patented products to third parties.

[106] *But see* Harbert, *supra* note 93, at 56 ("Where licensing is an option, companies may be raising their rates. Royalty rates have changed to reflect the increased value of patents .... Five years ago, royalty rates fell within a narrow range, 2% to 5% of sales. Now the range is much broader, from 2% to as high as 40% in the semiconductor industry ...."); Rutter, *supra* note 2, at 65 (quoting Intel general counsel on cross-licensing: "We won't cross-

used Intel's patent specifications and Intel's '387 coprocessor to reverse engineer and design around the patent.[107] Either choice would have legally placed ULSI coprocessors on the market.

VI. CONCLUSION

In holding that the patent exhaustion doctrine applies to licensed foundry arrangements, the Federal Circuit has endangered the patent holder's fundamental right to enforce the exclusivity conferred it under the patent laws. The decision also bestows upon undeserving companies the ability to free themselves from infringement claims simply by aligning with a licensed foundry. Consequently, to allow this use of the patent exhaustion doctrine would encourage the seeking out of foundries with existing license agreements and lead to widespread abuse of the doctrine.

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license copycat companies . . . that make an imitation of our product, who don't spend anything on R&D . . . . We do not sue companies that contribute to the industry through R&D. If we both innovate, then we both add value.").

[107] *See* Harbert, *supra* note 93, at 58 (noting that other companies have thrived by reverse engineering and designing around, such as Integrated Information Technology (IIT): "On release, the IIT chips ran an average of . . . nearly three times as fast as the '387 without even the hint of infringement . . . . By 1993, IIT commanded between 10 and 15 percent of the math coprocessor market.").