

UNITED STATES DISTRICT COURT  
DISTRICT OF NEW MEXICO

STC.UNM,

Plaintiff,

v.

INTEL CORPORATION,

Defendant.

Civil No. 1:10-cv-01077-RB-WDS

INTEL'S OPPOSITION TO STC'S MOTION TO COMPEL

**Introduction**

Rule 26(c) empowers the Court to curtail unnecessary discovery of valuable trade secrets. STC's motion to compel demands discovery into some of the most valuable and sensitive trade secrets in the world: Intel's top-secret research into future-generation 14 nm and 10 nm manufacturing processes. Intel's massive investments in manufacturing process research have given it a critical lead over its competitors, and any leaks about Intel's future processes could cost it literally *billions* of dollars.

STC's ostensible basis for demanding discovery about these processes is tenuous. At the initial case management conference, STC indicated that it was not seeking an injunction or lost profits, but instead a per-unit royalty on Intel's sales of products made by allegedly infringing processes. But there will be *no* sales of Intel 14 nm or 10 nm products before the patent-in-suit expires in September 2012: the 14 nm and 10 nm processes will not be used to manufacture commercial products until at least late 2013 and 2015, respectively. At most STC could allege entitlement to some marginal additional royalty premised on Intel's research and development

activity over the next 15 months. That is an inadequate justification to put Intel's most closely guarded trade secrets at risk of disclosure. Moreover, Intel's 14 nm and 10 nm manufacturing processes are still in nascent stages. The technologies are in flux, and a snapshot of the current state of development may not reflect the methods Intel will ultimately use for 14 nm or 10 nm commercial products. In any event, even the process of discovery would be highly disruptive to Intel's sensitive research.

To justify discovery into Intel's 14 nm and 10 nm processes, STC must show a great need that cannot be satisfied by some less intrusive means. STC's motion has shown neither and should be denied.

## **Background**

### **A. Intel's Development of the World's Most Advanced Process Technology**

Intel is the world's most advanced manufacturer of semiconductor devices. Although Intel takes great pride in its highly advanced chip designs, an equally important driving force behind its success has been its ability to continue shrinking the size and enhancing the performance of transistors and other components that make up its chips.

Historically, the number of transistors that can be formed on a silicon chip of a given size has doubled every 18 months to two years. This phenomenon is known as "Moore's Law," and is named for Intel co-founder Gordon Moore, who first observed it in the 1960s. But advances in manufacturing technology do not come easily or automatically. Each new generation of processing technology requires many innovations in techniques and raw materials to overcome the hurdles presented by packing more processing power in less space. Following Moore's law further requires painstaking process flow and "recipe" adjustments and new equipment.

Through persistent and ever-increasing investment in research and development, Intel has succeeded in maintaining an 18-month lead over its nearest competitors in the size or geometry

of its process technology. For example, Intel currently manufactures its most advanced microprocessors using 32 nanometer (“nm”) technology, meaning that features on the chips are spaced 32 billionths of a meter (1/3,000 the width of a human hair) apart. Intel began manufacturing 32 nm products in 2009. Intel’s rivals have announced plans to introduce products using 32 nm processing technology, but not until mid to late 2011. Similarly, Intel has announced plans to start production of 22 nm products in the second half of 2011. No other semiconductor company has announced plans to make products with 22 nm process technology. [Declaration of Mark Bohr (“Bohr Decl.”) ¶¶ 3-4]

Intel continues to research and develop potential future generations of process technology. The process flow and recipes for 14 nm and 10 nm are far from settled. They remain in extremely early stages of development, and deployment for manufacturing commercial products is years away. Commercial production likely will not start on the 14 nm process until late 2013 or early 2014 (the year after STC’s patent expires), and not until years later on the 10 nm process. [*Id.* ¶¶ 9-10]

#### **B. Intel Rigorously Protects the Secrecy of Its Process Technology**

Intel invests billions of dollars to develop each new generation of process technology. Intel makes such massive investments because process technology improvements can both increase the performance (and hence the value) of its products and reduce per-unit manufacturing costs. Historically, Intel has led, and competitors have followed, usually considerably later and often with inferior results. Both Intel’s lead time and its technological superiority are immensely valuable (worth many billions of dollars), and the detailed recipes, process flows, and data for new manufacturing processes thus are among Intel’s most valuable trade secrets. [*Id.* ¶ 5]<sup>1</sup>

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<sup>1</sup> Intel’s secrets are also national security secrets: the federal government has deemed Intel’s most advanced high-performance-computing technology so sensitive that it is subject to

Although competitors tear open and examine Intel's microprocessors as soon as they become available on the market, they can glean only limited information about Intel's process technology through reverse engineering. Such reverse engineering can disclose the *results* of Intel's process technologies (the size, shape and profile of transistors), but it reveals little about *how* Intel's process technologies *produce* those results (the process steps, recipes, and manufacturing equipment or techniques). [*Id.* ¶ 6]

Intel's ongoing research on its future manufacturing process technologies is literally designated "Top Secret," Intel's highest level of sensitivity company-wide, and subject to rigorous restrictions, even within the company. Information about the particular directions or innovations that Intel is or is not exploring would be immensely valuable to a competitor seeking to close the gap on Intel's process technology lead. Although Intel certainly strives to avoid disclosures about the manufacturing processes it currently uses commercially, the potential competitive harm from disclosure of information about future technologies is even greater. Accordingly, few employees within Intel have access to information about the cutting edge of Intel's development process. [*Id.* ¶ 11; Declaration of Malcolm Harkins ("Harkins Decl.") ¶ 9]

Intel goes to great length and expense to protect the secrecy of its process technology. It limits the number of people with access to such information and further restricts the technology that any one person may access. For example, an Intel engineer tasked with developing an optical mask used to expose a pattern in one of the dozens of layers on the chip typically would not have access to information about the process for coating the chip with the film (known as "photoresist") before the exposure step or the process for developing the photoresist after it has

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export control requirements. [Declaration of Steven Lund ("Lund Decl.") ¶ 3] The federal government embargoes access to it to Burma, Cuba, Iran, Libya, North Korea, Sudan, and Syria, and tightly controls its access to many other countries. 15 C.F.R. §§ 730.1-774.1 (2010).

been exposed. Likewise, the engineer would not have access to detailed processing details about forming the other layers on the chip. As a result, even though Intel may have hundreds of engineers working on a given process technology, each engineer has access to only a small portion of the entire process and would be unable to reveal more to a competitor. [Bohr Decl. ¶ 7; Harkins Decl. ¶ 9]

In addition, Intel tightly restricts physical access to data that would reveal details about the process technology. Data and documentation are maintained on fully encrypted servers inside Intel facilities with state-of-the-art security. The critical data and documentation may not be transported on laptops or on paper out of the building. Such tight security and control measures are essential because even an accidental disclosure of process technology information would have disastrous consequences. [Bohr Decl. ¶ 8; Lund Decl. ¶¶ 23-30; Harkins Decl. ¶¶ 8-10]

### **C. Intel's Attempts to Resolve This Discovery Dispute**

STC contends that Intel has refused to produce requested information about 22, 14, and 10 nm processes. That is not true. Intel has proposed that at this early stage of discovery, the parties should focus on the 45 nm and 32 nm processes, which account for all sales thus far of the accused products. But Intel has also agreed to provide the requested information concerning its 22 nm process even though that process is not yet in commercial use. [See Exhibit 1]

Nor has Intel absolutely refused to provide any discovery regarding 14 nm and 10 nm processes. Instead, Intel explained that its counsel were investigating the status of those processes and committed to meet and confer further once they determined what, if any, responsive material might exist. [*Id.*] Intel remains willing to confer about disclosing potentially relevant information at a later point in this case, should it be necessary for the presentation of either side's case. But ordering wholesale production now of any method Intel has ever

experimented with for those process generations poses grave dangers to Intel while contributing virtually nothing to the advancement of STC's case.

STC has never explained why it needs information about Intel's inchoate 14 and 10 nm processes immediately, or why Intel's compromise proposal was unacceptable. Given the tenuous relation of this discovery to the overall merits of the case, Intel is concerned that STC is pushing for the discovery for an improper purpose, such as to induce Intel to settle solely to avoid the risk of disclosure of some of its most valuable trade secrets, without regard to the merits of the case.

### **Argument**

STC has no genuine, present need for the discovery it demands. Intel has agreed to produce documentation for the accused steps of its manufacturing technology used to make all accused microprocessors it will sell through 2012, when the asserted patent expires. STC contends that even laboratory research can infringe. But even if that is so, it misses the point.

STC is a licensing entity, not a company that practices its patent. As such, STC does not and cannot seek an injunction or lost profits. All STC can seek and does seek is a "reasonable royalty" on any infringement through the patent's expiration. Under settled case law, reasonable royalties are set based on a hypothetical negotiation between the patent-holder and the alleged infringer when the first infringement occurred. *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 869-70 (Fed. Cir. 1993). Under STC's contentions in this case, that hypothetical negotiation would have occurred no later than January 2007, when Intel first began selling 45nm products. The driving force in such a negotiation would have been the over \$100 billion in sales of products Intel would make using the three generations of processes (45 nm, 32 nm, and 22 nm) that Intel would commercially deploy before the patent expired. STC has not demonstrated, and

could not reasonably contend, that Intel's research into and development of future generation processes that would *not* be commercially used during the term of the patent would have been material to such a negotiation. In any event, STC does not need the Top Secret information it is demanding to make its damage claim: the hypothetical negotiation could simply assume that Intel would use the technology licensed for its 45 nm, 32 nm, and 22 nm processes in research and development of later processes.

Because STC has no legitimate need for immediate discovery about Intel's 14 nm and 10 nm processes and Intel has strong grounds to oppose such discovery, the Court should deny STC's motion. At a minimum, the Court should postpone any order compelling discovery regarding these future processes until a later date when (1) their development has progressed; (2) the scope of the patent has been clarified through claim construction (to avoid any unnecessary disclosure of technology that would not be relevant); and (3) STC demonstrates a genuine need for this incremental discovery that will not be met by Intel's other discovery responses and document production.

**A. Intel Should Not Be Ordered to Disclose Information About Its Highly Sensitive 14 nm and 10 nm Research and Development at This Time**

Under Rule 26(c)(1), this Court has discretion to protect Intel from undue burden, to limit or specify terms for discovery, and to issue orders "requiring that a trade secret or other confidential research, development, or commercial information not be revealed or be revealed only in a specified way." Once a party establishes that requested information is a trade secret and that disclosure would be harmful, the burden shifts to the requesting party to show that the information is both "relevant and necessary." *In re Indep. Serv. Orgs. Antitrust Litig.*, 162 F.R.D. 355, 356 (D. Kan. 1995) ("*ISO*") (citing *Centurion Indus., Inc. v. Warren Steurer & Assocs.*, 665 F.2d 323, 325 (10th Cir. 1981)). If the requesting party satisfies that burden,

discovery *still* is not permitted if the requests are “unreasonable, oppressive, annoying, or embarrassing.” *Id.* Courts often decline to require parties to reveal confidential information notwithstanding protective orders limiting access to opposing counsel and experts. *See, e.g., ISO*, 162 F.R.D. at 358; *Viacom Int’l Inc. v. YouTube Inc.*, 253 F.R.D. 256 (S.D.N.Y. 2008); *Grand River Enters. Six Nations, Ltd. v. King*, No. 02 Civ 5068 (JFK), 2009 WL 330213, at \*1 (S.D.N.Y. Feb. 9, 2009).

**1. Disclosure of Intel’s Trade Secrets about Its Future 14 nm and 10 nm Processes Would Cause Grave Harm**

STC’s motion does not and cannot deny that the discovery it seeks about Intel’s ongoing development of 14 nm and 10 nm process technologies involves extraordinarily valuable trade secrets. Intel spends billions of dollars on the research and development of its process technologies and zealously guards their secrecy. [Bohr Decl. ¶¶ 5-8, 11, 13; Harkins Decl. ¶¶ 5-11; Lund Decl. ¶¶ 3-36] If a competitor succeeded in gaining access to Intel’s secret process technology information, it would gain a huge competitive advantage and could cause billions of dollars of losses to Intel. [Bohr Decl. ¶ 8] The secrets at issue are worth far more than the crown jewels of England themselves. STC could never compensate Intel for the damage caused by any such disclosure.

The risk of harm to Intel remains great even though access to the information would be limited to STC’s outside counsel and experts. *See Viacom*, 253 F.R.D. at 260 (“the protections set forth in the stipulated confidentiality order are careful and extensive, but nevertheless not as safe as nondisclosure”). First, even with all best efforts to maintain the confidentiality of the information, mistakes and accidents happen, and inadvertent disclosure of Intel’s trade secrets about its 14 nm and 10 nm processes would be ruinous. [Bohr Decl. ¶ 8] *See ISO*, 162 F.R.D. at 358 (potential harm from inadvertent disclosure supported denial of discovery of certain



confidential information notwithstanding the entry of a protective order). Moreover, “[t]here is a constant danger inherent in disclosure of confidential information pursuant to a protective order.”

*Litton Indus., Inc. v. Chesapeake & Ohio Ry. Co.*, 129 F.R.D. 528, 531 (E.D. Wis. 1990). The risk is particularly acute given that STC has retained an expert who claims to have “trained more than 2,000 lithographers from over 200 different companies around the world.”

[<http://www.lithoguru.com/scientist/bio.html>] As one court aptly observed:

Once an expert has digested this confidential information, it is unlikely that the expert will forget. The expert’s *raison d’être* is to assimilate information in his or her chosen field and formulate that material into various theories. The information obtained ... will be added to the expert’s repository of other information for possible future use. Even with stern sanctions for unauthorized disclosure, how does one practically police a protective order? If the expert is called upon two years after this litigation to assist a potential competitor in structuring its business, will he really be able to compartmentalize all he or she has learned and not use any of the information obtained from [the disclosing party]?

*Litton*, 129 F.R.D. at 531; accord *Greater Rockford Energy & Tech. Corp. v. Shell Oil Co.*, 138 F.R.D. 530, 537 (C.D. Ill. 1991) (“[I]t is understandable that ADM does not even want to risk disclosure of this information, despite the existence of a protective order. Even if the information was classified as ‘Highly Confidential,’ it would still be disclosed to Defendants’ experts.”); *Stanley Works v. Newell Co.*, No. 92 C 20157, 1992 WL 229652, at \*5 (N.D. Ill. Aug. 27, 1992) (denying motion to compel production of confidential sales information).

**2. The Ongoing Development of Intel’s 14 nm and 10 nm Processes Has Minimal, if Any, Relevance, and STC Has Not Established that the Discovery Is Necessary at This Point**

STC moved to compel on the premise (at 7) that discovery about Intel’s research into 14 nm and 10 nm processes will bear on “the scope of Intel’s infringement, which will be necessary when assessing damages.” But even assuming Intel has used STC’s alleged invention in

research and development, such use would represent only an infinitesimal expansion of the scope of Intel's alleged infringement. Intel has sold tens of billions of dollars of microprocessors manufactured on its accused 45 nm and 32 nm processes. And Intel will likely sell billions of dollars of products that will be manufactured on its forthcoming 22 nm process before the patent-in-suit expires. In contrast, Intel's alleged use of the patented methods during research and development of 14 nm and 10 nm processes will not result in *any* revenue before the patent expires.

Because STC does not actually make or sell any products, it does not and cannot seek an injunction or "lost profits" it would have made by selling its own products but for Intel's alleged infringement. Instead, STC is entitled only to a "reasonable royalty" for Intel's alleged practice of the patent. Under the relevant case law, a reasonable royalty is the hypothetical amount that the parties would have agreed on had they negotiated a license when the alleged infringement started. *See, e.g., ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 868 (Fed. Cir. 2010). Here, STC claims that Intel began infringing the patent in 2007. The dominant factor in any hypothetical negotiation would have been Intel's substantial sales of products made by allegedly infringing processes during the term of the patent. Laboratory research and development into future process generations that would not be commercialized until later would have paled in comparison.

In any event, even if STC wished to argue that the royalty agreed to in the hypothetical negotiation would have been adjusted upward to reflect Intel's use of the patented methods in research and development of later-generation processes, STC does not need the requested discovery to make that argument. It can simply assume that Intel would have bargained for the right to experiment with the claimed methods when developing or investigating future processes.

STC has no need to learn the technical details of Intel's *actual* research and development into processes to be used in 2013 and beyond when those details would not have been pertinent to or known during the hypothetical 2007 negotiation.

STC's contention (at 7) that it is entitled to "damages for products developed during the '98 patent term" and sold afterward is incorrect. If STC manufactured competing products, then perhaps it could claim that Intel's pre-expiration infringement caused it to lose profits it otherwise would have made after expiration of the patent. The cases STC cites involve that scenario. See *Merck & Co., Inc. v. Mediplan Health Consulting, Inc.*, 434 F. Supp. 2d 257, 265-66 (S.D.N.Y. 2006); *BIC Leisure Prods., Inc. v. Windsurfing Int'l, Inc.*, 687 F. Supp. 134, 138 (S.D.N.Y. 1988); *THK Am., Inc. v. NSK, Ltd.*, 917 F. Supp. 563, 575 (N.D. Ill. 1996); *Amsted Indus. Inc. v. Nat'l Castings, Inc.*, 1990 U.S. Dist. LEXIS 8553, at \*56-68 (N.D. Ill. 1990). But STC is a licensing entity. As such, it can claim only a reasonable royalty on the minimal number of sample chips that Intel may produce during research and development while the patent remains in force. Those chips will earn no revenue for Intel. And even if there were some nominal royalty STC could claim attached to those chips, it would be *de minimis* compared to the recovery STC seeks based on Intel's revenue-generating products.

**3. Requiring Intel to Produce Discovery On Its Ongoing 14nm and 10nm Research and Development Would Be Unreasonable and Unduly Burdensome**

Even if STC could establish that it is presently entitled to the discovery it seeks, the Court should still deny the motion because STC's demand is unreasonable and unduly burdensome.

Intel's 14 nm and 10 nm processes are not static, completed projects: they are in preliminary development stages and are continually evolving. [Bohr Decl. ¶¶ 9-10]. Compelling discovery into Intel's ongoing research and development on 14 nm and 10 nm technology would

inevitably disrupt those activities. Investigating what Intel's leading-edge process engineers are doing at the very moment that they are attempting to decide what to do, including which new ideas to investigate, would be a costly distraction and an impediment to their progress. [*Id.* ¶ 12]

Moreover, because such technologies are literally being investigated, created, revised, and redone on a daily basis, there is no easily identified set of documents and data to provide in discovery. Nor would there be any guarantee that any set of documents and data provided represented anything more than a brief evolutionary dead-end, discarded as the research and development process continued. As a result, Intel would be faced with repeated, unnecessary disclosures of its most closely guarded trade secrets for no substantive purpose.

STC has not provided any reason why it needs this information immediately. STC will be receiving substantial, detailed process information regarding Intel's commercial products: those manufactured by the already commercialized 45 nm and 32 nm processes and the soon-to-be-commercialized 22 nm process. That information, in conjunction with prior art, the Court's construction of the patent claims, and other discovery will establish whether STC has a claim on billions of dollars of revenue. Should there later be a need to delve into Intel's Top Secret research into future 14 nm and 10 nm processes, there should be ample time left in the schedule for those issues to be addressed then. At present, STC's demands are unduly burdensome, and the Court should deny STC's motion to compel.

**B. If Intel Is Required to Provide Discovery about Its Research and Development of Future 14 nm and 10 nm Processes, Additional Protections Should Be Imposed**

If the Court grants STC's motion to compel, it should at least impose additional safeguards to protect Intel's extraordinarily valuable trade secrets regarding 14 nm and 10 nm process technologies. Without knowing the contours of any order the Court may issue, Intel

cannot be sure what additional protections it will need. At a minimum, however, the Court will need to extend the term of the “prosecution bar” in the parties’ Interim Stipulated Protective Order to ensure that information about Intel’s future manufacturing processes is not used to draft patent applications designed to cover those processes. Intel’s contemporaneous motion to amend the interim protective order addresses the prosecution bar issue at length. Rather than rehash that discussion here, Intel incorporates it by reference.

### **Conclusion**

STC’s motion to compel should be denied or tabled until progress is made on the real issues in this case: the accused 45 nm, 32 nm, and 22 nm processes. To the extent litigation over those processes makes clear that Intel’s research and development of future 14 nm and 10 nm processes are truly material, discovery at that time will be more probative because those processes will have been more fully developed. To the extent the Court grants any relief requested by STC at the present time, however, the Court should implement additional protections for this most sensitive and secret information, including but not limited to the patent prosecution bar extension sought in Intel’s motion to amend the interim protective order.

Respectfully submitted,

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**Certificate of Service**

The undersigned hereby certifies that on April 5, 2011, the foregoing document and the cited declarations were electronically filed with the Clerk of Court using the CM/ECF system, which will automatically send notification of such filing to all counsel who have entered an appearance in this action.

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