IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

SYNOPSYS, INC.,

Plaintiff,

v.

MENTOR GRAPHICS CORPORATION,

Defendant.

_____/

No. C 12-6467 MMC

ORDER ON MOTIONS FOR SUMMARY JUDGMENT

Before the Court are cross-motions for summary judgment, filed October 3, 2014, by plaintiff Synopsys Inc. ("Synopsys") and defendant Mentor Graphics Corporation ("Mentor"), by which the parties set forth their respective positions as to the patent eligibility of eight claims as recited in three patents held by Synopsys,[1] specifically, claims 1, 2, 8, and 9 of U.S. Patent No. 5,748,488 ("'488 patent"), claim 1 of U.S. Patent No. 5,530,841 ("'841 patent"), and claims 32, 35, and 36 of U.S. Patent No. 5,680,318 ("'318 patent").[2]

[1] Synopsys' motion addresses other issues as well. This order concerns only the issue of patent eligibility.

[2] The patents are attached to the Complaint as Exhibits A, B, and C, respectively.

BACKGROUND[3]

The three patents at issue (hereinafter "the Gregory patents") relate generally to the field of integrated circuit ("IC" or "chip") design. ICs are composed of logic circuits and memory circuits, which themselves are composed of "tens, hundreds, or even potentially thousands, of transistors, resistors, capacitors, or other hardware components." (See Decl. of Ronald D. Blanton, Ph.D. ("Blanton Decl."), filed October 3, 2014, ¶ 8.) In the 1950s, when ICs were first developed, engineers would hand draw the chip designs with symbols or schematics representing the hardware components to be used. In the mid-1980s, a method of automating chip design, EDA, was developed to help solve the problem of the ever-increasing number of hardware components capable of being integrated on a chip. EDA "involves the use of computers to, among other things, create integrated circuit designs, simulate the designs using only software, and emulate the designs using a combination of hardware and software." (Id. ¶ 14.)

The Gregory patents are directed to a form of EDA known as "logic synthesis." In the subject field, logic synthesis is generally understood to mean the process of "using a computer tool to interpret or 'synthesize' a human designer's descriptions of the operations of the integrated circuit" and then "generat[ing]," typically as a "netlist," the "electronic circuit components (e.g., logic circuits) . . . that perform those operations." (See id. ¶ 15.) The human-generated descriptions are written by an engineer, or "user," in a hardware description language (HDL), one of several languages developed specifically for EDA. (Id. at ¶ 16.)

The Gregory patents claim a way of performing synthesis, described therein as "[a] method and system . . . for generating a logic network using a hardware independent description means." See '841 patent, Abstract. Prior to the issuance of the Gregory patents, chip design required "detailed logic knowledge for most practical circuits." Id., col.

[3] The facts set forth below are derived from the patents and the declarations submitted by the parties, and are undisputed.

2:9-10. In particular, for more complex circuit elements, such as "high impedance drivers, level sensitive latches and edge sensitive flip-flops," the designer, using HDL, was required to specify the circuit element and the desired connections. Id., col. 2:5-7. The Gregory patents describe a method for synthesizing a complex logic circuit from a "user description specifying only signals and the circumstances under which the signals are produced, i.e., without requiring the designer to specify the hardware components or connections needed to implement them. As set forth below, the patents claim a method for taking two types of HDL statements, "flow control statements" and "directive statements," see id., col. 62:62-64, and converting them into "assignment conditions," id. col. 63:2,[4] which, in turn, are used to determine the appropriate hardware and connections.

Claim 1 of the '841 patent, which is representative of the asserted claims, states:

> 1. A method for converting a hardware independent user description of a logic circuit, that includes flow control statements including an IF statement and a GOTO statement, and directive statements that define levels of logic signals, into logic circuit hardware components comprising:
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> converting the flow control statements and directive statements in the user description for a logic signal Q into an assignment condition AL(Q) for an asynchronous load function AL( ) and an assignment condition AD(Q) for an asynchronous data function AD( ); and
>
> generating a level sensitive latch when both said assignment condition AL(Q) and said assignment condition AD(Q) are non-constant;
>
> wherein said assignment condition AD(Q) is a signal on a data input line of said flow through latch;
>
> said assignment condition AL(Q) is a signal on a latch gate line of said flow through latch; and
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> an output signal of said flow through latch is said logic signal Q.

Id., col. 62:60-col. 63:12.

Each of the steps in the claimed methods can be performed by a skilled designer

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[4] An "assignment condition" is "the condition under which the hardware description function is true for a particular variable in the user description." (See Order Construing Claims, Doc. No. 100, at 5:3-4); see also '841 Patent, col.15:66-16:1 (stating hardware description functions "represent specific operations that are implemented with specific hardware").

either mentally or with pencil and paper, and the examples in the patents were created by the inventors without use of a computer. Although the claims themselves do not expressly call for a computer or other piece of equipment, the method is primarily intended for use with a computer, and the patents append source code for a computer program implementing the claimed inventions. (See Decl. of Maria Beier, filed October 3, 2014, Ex. F (Deposition of Russ Segal) at 26:13-27 (stating "we emulated what a computer would do in order to generate these tables"); see also '841 Patent, col. 9:42-45 (stating "[t]he system and method of this invention are operable in a computer system that includes a data input device, such as a keyboard, a processing unit, and an output display device").

LEGAL STANDARD

Pursuant to Rule 56 of the Federal Rules of Civil Procedure, a "court shall grant summary judgment if the movant shows that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." See Fed. R. Civ. P. 56(a).

The Supreme Court's 1986 "trilogy" of Celotex Corp. v. Catrett, 477 U.S. 317 (1986), Anderson v. Liberty Lobby, Inc., 477 U.S. 242 (1986), and Matsushita Electric Industrial Co. v. Zenith Radio Corp., 475 U.S. 574 (1986), requires that a party seeking summary judgment show the absence of a genuine issue of material fact. Once the moving party has done so, the nonmoving party must "go beyond the pleadings and by [its] own affidavits, or by the depositions, answers to interrogatories, and admissions on file, designate specific facts showing that there is a genuine issue for trial." See Celotex, 477 U.S. at 324 (citation and quotation omitted). "When the moving party has carried its burden under Rule 56(c), its opponent must do more than simply show that there is some metaphysical doubt as to the material facts." Matsushita, 475 U.S. at 586. "If the [opposing party's] evidence is merely colorable, or is not significantly probative, summary judgment may be granted." Liberty Lobby, 477 U.S. at 249-50 (citations omitted). "[I]nferences to be drawn from the underlying facts," however, "must be viewed in the light most favorable to the party opposing the motion." See Matsushita, 475 U.S. at 587

(citation and quotation omitted).[5]

Additionally, as patents are presumed to be valid, see 35 U.S.C. § 282, an alleged infringer asserting an invalidity defense pursuant to § 101 bears the burden of proving invalidity by clear and convincing evidence. Microsoft Corp. v. i4i L.P., 131 S.Ct. 2238, 2242 (2011).

DISCUSSION

As set forth in § 101, "whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor." See 35 U.S.C. § 101. The Supreme Court, however, has carved out "three specific exceptions to § 101's broad patent-eligibility principles," Bilski v. Kappos, 561 U.S. 593, 601 (2010), namely, "laws of nature, physical phenomena, and abstract ideas." See id. (internal quotation and citation omitted); see also Gottschalk v. Benson, 409 U.S. 63, 67 (1972) (holding "[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work").

Most recently, in Alice Corp. Pty. Ltd. v. CLS Bank Int'l, ––– U.S. ––––, ––––, 134 S.Ct. 2347 (2014), the Supreme Court provided the following "framework" for distinguishing patents that claim laws of nature, natural phenomena, abstract ideas and mental processes from those that claim patent-eligible applications of those concepts:

> First, [a court] determine[s] whether the claims at issue are directed to one of those patent-ineligible concepts. If so, [the court] then ask[s], "[w]hat else is there in the claims before [it]?" To answer that question, [the court] consider[s] the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application. . . . [S]tep two of this analysis [has been described] as a search for an "inventive concept"—i.e., an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.

Id. at 2355 (internal quotations and citations omitted).

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[5] Here, as noted, the parties have filed cross-motions. Consequently, as to each said motion, the Court, in deciding whether to enter judgment as requested therein, has viewed the evidence in the light most favorable to the opposing party.

Mentor contends the claims at issue cover patent-ineligible abstract ideas and that there are no additional elements transforming the abstract ideas into patent-eligible applications of such ideas. Synopsys argues to the contrary.

A. Abstract Idea

"The 'abstract ideas' category embodies the longstanding rationale that an idea of itself is not patentable." Alice, 134 S.Ct. at 2355. Indeed, more than 150 years ago, the Supreme Court made clear that "[a] principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right." Le Roy v. Tatham, 55 U.S. 156, 175 (1852). Since that time, "the unpatentable nature of abstract ideas has repeatedly been confirmed." In re Comiskey, 554 F.3d 967, 977–78 (Fed. Cir. 2009).

The claimed methods here at issue do not entail anything physical. Rather, as discussed above, the asserted claims are directed to the process of inference, which is fundamental to IC design and can be performed mentally. The claims describe, in essence, various algorithms for determining the hardware components and layout of an IC from a user's description of what the user needs the chip to do, i.e., the "specified signals and circumstances under which the signals are produced." (See '841 patent, Abstract.) In other words, the claims are directed to a mental process. A "mental process [is] a subcategory of unpatentable abstract ideas." Cybersource Corporation v. Retail Decisions, Inc., 654 F.3d 1366, 1371 (Fed. Cir. 2011).

Synopsys' contention that the asserted claims are not directed to an abstract idea because they describe "concrete steps in a computerized process for creating a netlist of hardware elements" (Synopsys Mot. at 9:16-17) is unpersuasive. As Mentor points out, however, there is an abundance of Supreme Court and Federal Circuit authority invalidating on § 101 grounds patents that likewise could be described as including "concrete steps." See, e.g., Alice, 134 S.Ct. 2357-58 (discussing cases wherein claimed methods were held to constitute unpatentable abstract ideas); (see also Mentor Opp'n at 4:22-27) (listing cases)). Further, even if the claims are read to require implementation with

a computer, although none is specifically mentioned therein, the Supreme Court has made clear that "merely requir[ing] generic computer implementation" will not serve to transform the nature of the instant claims from an abstract idea into something else. See Alice, 134 S. Ct. at 2357; see e.g., DietGoal Innovations LLC v. Bravo Media LLC, 2014 WL 3582914, at *10 (S.D.N.Y. July 8, 2014) (holding plaintiff's "attempts to dress up the claims as a computerized process" unavailing).

The Court also finds unpersuasive Synopsys' argument that any distinction as to the "subject matter" of the claimed abstract idea (see Synopsys Mot. at 10:7-9) is significant at step one of the analysis. Although, as Synopsys points out, a number of cases characterizing patents as directed to abstract ideas have considered "claims for processes for organizing human activities" (see id. (internal quotation and citation omitted)); see, e.g., Alice, 134 S.Ct. at 2352 (considering method for mitigating settlement risk in financial transactions); Bilski, 561 U.S. at 597-98 (considering method for hedging risk in field of commodities trading), others concern claims directed to a field of technology, see, e.g., Benson, 409 U.S. at 65 (considering method for converting signals from binary-coded decimal form into pure binary form); Parker v. Flook, 437 U.S. 584 (1978) (considering method for updating alarm limits in catalytic conversion).

Similarly unpersuasive is Synopsys' argument that the claimed methods somehow lose their quality as abstract ideas because they are not as "simple" (Synopsys Mot. at 11:1) as the methods held to be abstract in some of the cases cited to this Court. First, the claimed methods do not require complex calculations; as noted, the claimed steps were performed mentally by the inventors and can be performed by a skilled designer either mentally or with the aid of a pencil and paper. Moreover, and more importantly, Synopsys points to nothing in the authority it endeavors to distinguish that would suggest that at this stage of the analysis, any such decision hinged in any manner on the complexity of the abstract idea at issue therein.

Accordingly, the Court finds the asserted claims in the Gregory patents are directed to an abstract idea. The Court next turns to the second step of the analysis.

B. Inventive Concept

An invention is not necessarily ineligible for patent protection because it involves an abstract idea. As set forth above, once a court determines a claim is directed to a patent-ineligible concept, it must "consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application." Alice, 134 S.Ct. at 2355 (internal quotation and citation omitted). "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" Id. at 2357 (quoting Mayo, 132 S.Ct. at 1294, 1298) (alterations in original). Neither adding the words "apply it" nor limiting its use to a specified technological environment will suffice to transform an abstract idea into a patent-eligible invention. See id. at 2358. Rather, as noted, the added element or combination of elements must be such that "'the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" Id. at 2355 (quoting Mayo, 132 S.Ct. at 1294) (alteration in original).

Here, in an effort to demonstrate the requisite "inventive concept," Synopsys first points to the lack of any reference to the claimed methods in the prior art. Synopsys' reliance on a lack of prior art is misplaced, however. As one district court has noted, "[i]t is important to distinguish novelty and obviousness from the 'inventive feature' inquiry required by the Supreme Court in Alice." See Cogent Med., Inc. v. Elsevier Inc., 2014 WL 4966326, at *4, n.3 (N.D. Cal. Sept. 30, 2014) (distinguishing § 101 inquiry from § 102 inquiry; finding method patent-ineligible "even if [plaintiff] is right that no previous software system implemented a similar feature").

Similarly unavailing is Synopsys' argument that the asserted claims do not "pose a risk of preemption," as logic synthesis can be performed "without using assignment conditions." (See Synopsys Mot. at 12:10-21.) Certainly, Alice cautioned courts to "distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more." Alice, 132 S. Ct. At 2354 (internal

quotation, alterations, and citation omitted). Here, however, the asserted claims do preempt a building block of human ingenuity, a mental process, albeit a specific one. As was observed in Mayo, the Supreme Court has "not distinguished among differing laws of nature according to whether or not the principles they embody are sufficiently narrow." See Mayo, 132 S.Ct. at 1303 (citing Flook, 437 U.S. 584); Flook, 437 U.S. at 586 (finding claims incorporating narrow mathematical formula patent-ineligible). Further, and consistent therewith, "[t]he prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [a] formula to a particular technological environment." See Bilski, 561 U.S. at 610-11 (internal quotation and citation omitted). As the Supreme Court in Mayo explained, "[c]ourts and judges are not institutionally well suited to making the kinds of judgments needed to distinguish among different laws of nature[;] [a]nd so the cases have endorsed a bright-line prohibition against patenting laws of nature, mathematic formulas and the like, which serves as a somewhat more easily administered proxy for the underlying building-block' concern." Mayo, 132 S.Ct. At 1303.

Synopsys also argues the claims here at issue recite more than the "conventional steps" found ineligible in Alice and Mayo. (See Synopsys Mot. at 11:19-23 (citing Alice, 134 S.Ct. at 2357).)[6] The claims here, however, as in Alice and Mayo, concern "well-understood, routine, conventional activity, previously engaged in by those in the field." See Mayo, 132 S.Ct. at 1299. As acknowledged in the specification, skilled designers had been inferring the necessary parts and connections for ICs long before the Gregory patents issued. See '841 patent, col. 1:41-44.

The asserted claims, like those in Alice and Mayo, add nothing other than a way to

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[6] Synopsys also notes that the Gregory patents' "disclosure includes 64 columns of drawings, explanation, and examples, and approximately 200 pages of computer code for a program implementing the claimed inventions." (See Synopsys Mot. at 11:24-25.) "The complexity of the implementing software or the level of detail in the specification does not transform a claim reciting only an abstract concept into a patent-eligible system or method," however. See Accenture Global Servs., GmbH v. Guidewire Software, Inc., 728 F.3d 1336, 1345 (Fed. Cir. 2013).

implement that mental process on a computer. As one of the two named inventors explained:

> [T]he methods that humans were using to convert HDLs to circuits weren't methods that were – that you could run on a computer and do automatically.
>
> So the thing that Russ and I were charged with was figuring out how to take this manual process that human beings were doing . . . and figure out how we could come up with a method so a computer could do it.
>
> And that's sort of the essence of, I think, what we were asked to do and what we did.

(Gregory Dep. at 239:2-12; see also id. at 238:23-239:1 ("All of [the claims'] concepts and ideas are what Russ and I came up with in order to automate what the humans were doing to convert it into such a method that a computer could run.").)

The fact that previously a designer would not have followed the exact same thought process does not change the analysis. A method primarily designed for use by a computer is, almost by definition, going to differ from the manner in which a natural person thinks through a problem. (See Gregory Dep. at 237:15-19 (describing claimed method as "really tuned for a computer[,] which operates differently from a human being").) In Benson, for example, the Supreme Court found the claims asserted therein patent ineligible although the method claimed "varie[d] the ordinary arithmetic steps a human would use by changing the order of the steps, changing the symbolism for writing the multiplier used in some steps, and by taking subtotals after each successive operation." See Benson, 409 U.S. at 67. Similarly, in Flook, the Supreme Court held ineligible a "new and presumably better method" that added a novel algorithm to otherwise conventional methods. See Flook, 437 U.S. at 586.

Lastly, Synopsys contends the claimed methods qualify as transformative under the "machine-or-transformation test," see Bilski, 561 U.S. at 602, 604 (explaining, under machine-or-transformation test, process is patent-eligible if it is "tied to a particular machine or apparatus" or "transforms a particular article into a different state or thing"). In that regard, the Court first acknowledges that the machine-or-transformation test is not the exclusive test for patent eligibility, see id. at 604 (holding, although machine-or-

transformation test may provide "a useful and important clue, an investigative tool," it is "not the sole test"), but, rather, an alternative to the test set forth in Alice. Next, turning to Synopsys' argument, the Court again notes that the addition of a generic computer, even if the methods are deemed to require such a machine, is not sufficient. See Alice, 134 S. Ct. at 2357-58. Further, Synopsys' effort to analogize the claimed methods to methods found transformative in the field of encryption is unavailing. "In the field of encryption, . . . the entire object of the invention is to transform data from one form into another." TQP Dev., LLC, v. Intuit Inc., 2014 WL 651935, at *5-*7 (E.D. Tex. Feb. 19, 2014) (finding claim patent-eligible where method "involve[d] a way of making computer communication itself more effective by making that communication more secure"). Here, by contrast, the claimed methods do not transform the user description into another form. Rather, the description is used as a starting point in a logical progression by which the necessary parts and layout of a chip are inferred from that description. The initial description remains unchanged. Under such circumstances, Synopsys' reliance on the machine-or-transformation test is unavailing.

Accordingly, for all of the reasons set forth above, the Court finds the asserted claims in the Gregory patents lack the inventive concept necessary to transform a patent-ineligible abstract idea into a patent-eligible invention.

CONCLUSION

For the reasons stated, the Court concludes the asserted claims are invalid under § 101, and, accordingly:

1. Mentor Graphics' motion for summary judgment is hereby GRANTED.

2. Synopsys' motion for summary judgment is hereby DENIED.

IT IS SO ORDERED.

Dated: January 20, 2015

MAXINE M. CHESNEY
United States District Judge