United States District Court,
N.D. California.

SYNOPSYS, INC,
Plaintiff.
v.
NASSDA CORP,
Defendant.

No. C 03-02664 SI

July 8, 2004.

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ORDER

SUSAN ILLSTON**, District Judge.**

On June 14, 2004, this Court heard argument from the parties regarding claim construction for U.S. Patent No. 6,249,898. Having considered the arguments of counsel and the papers submitted, the Court hereby construes the disputed patent terms as set forth below.

BACKGROUND

Plaintiff Synopsys, Inc. ("Synopsys") alleges infringement of U .S. Patent No. 6,249,898 ("the '898 patent") by defendant Nassda Corporation ("Nassda"). The '898 Patent issued on June 19, 2001; Synopsys filed the instant complaint against Nassda on June 6, 2003. The '898 Patent teaches a "unique, efficient method and system for reliability simulation of a semiconductor chip design comprising millions of transistors." '898 Patent Abstract. The ' 898 Patent has 39 claims, with three independent claims (Claims 1, 14, and 27). At issue here is the meaning of Claims 1, 14, and 27 and their asserted, dependent claims. Also at issue is the meaning of Claims 2, 15, and 28 and their asserted, dependent claims.

LEGAL STANDARD

Claim construction is a matter of law. Markman v. Westview Instr., Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The claims must be construed as understood by one skilled in the art. In determining the proper construction of a claim, a court begins with the intrinsic evidence of record, consisting of the

claim language, the patent specification, and, if in evidence, the prosecution history. *See id*. "The appropriate starting point ... is always with the language of the asserted claim itself." Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed.Cir.1998). "[T]he language of the claim frames and ultimately resolves all issues of claim interpretation." Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed.Cir.1997). In the absence of an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning. However, claims are always read in view of the written description. *See* Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996).

The written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format. SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1344 (Fed.Cir.2001). In other words, the specification may define claim terms "by implication" such that the meaning may be "found in or ascertained by a reading of the patent documents." Vitronics, 90 F.3d at 1584 n. 6. Although claims are interpreted in light of the specification, this "does not mean that everything expressed in the specification must be read into all the claims." Raytheon Co. v. Roper Corp., 724 F.2d 951, 957 (Fed.Cir.1983). For instance, limitations from a preferred embodiment described in the specification generally should not be read into the claim language. *See* Comark, 156 F.3d at 1186.

DISCUSSION

A. The '898 Patent's Claims

Claim 1 of the '898 patent provides:

1. A method for performing reliability analysis of a semiconductor chip design, said method comprising the computer implemented steps of:

a) storing device information and node activity data of a circuit within said chip design, wherein said circuit comprises a power network, a plurality of power network transistors and a plurality of signal nodes;

b) partitioning said circuit into a plurality of stages; wherein each of said stages comprises a subset of said power network transistors and a subset of said signal nodes, and wherein a flow of direct current across said stages is absent;

c) estimating a current for each of said power network transistors within each of said stages using said node activity data and said device information;

d) computing node voltages and branch currents of said power network using said currents of said power network transistors; and

e) reporting potential problems of said chip design based on said node voltages and said branch currents of said power network.

Claim 14 provides:

14. A computer system comprising a processor, an address/data bus coupled to said processor, and a computer-readable memory unit coupled to communicate with said processor, said memory unit containing instructions that when executed implement a method for reliability analysis of a semiconductor chip design,

said methods comprising the computer implemented stapes of:

a) storing device information and node activity data of a circuit within said chip design, wherein said circuit comprises a power network, a plurality of power network transistors and a plurality of signal nodes;

b) partitioning said circuit into a plurality of stages; wherein each of said stages comprises a subset of said power network transistors and a subset of said signal nodes, and wherein a flow of direct current across said stages is absent;

c) estimating a current for each of said power network transistors within each of said stages using said node activity data and said device information;

d) computing node voltages and branch currents of said power network using said currents of said power network transistors; and

e) reporting potential problems of said chip design based on said node voltages and said branch currents of said power network.

Claim 27 provides:

27. In a device for reliability analysis of a semiconductor chip design, a computer-usable medium having computer-readable program code embodied therein for causing a computer to perform the steps of:

a) storing device information and node activity data of a circuit within said chip design, wherein said circuit comprises a power network, a plurality of power network transistors and a plurality of signal nodes;

b) partitioning said circuit into a plurality of stages; wherein each of said stages comprises a subset of said power network transistors and a subset of said signal nodes, and wherein a flow of direct current across said stages is absent;

c) estimating a current for each of said power network transistors within each of said stages using said node activity data and said device information;

d) computing node voltages and branch currents of said power network using said currents of said power network transistors; and

e) reporting potential problems of said chip design based on said node voltages and said branch currents of said power network.

Claim 2 provides:

2. The method as recited in claim 1 wherein said stage partitioning is achieved by performing a plurality of depth-first searches (DFS) on said power network transistors, wherein a boundary between two of said stages is established whenever one of VDD, GND, a gate node of a transistor of said circuit and a pad of said circuit is encountered during one of said DFS.

Claim 15 provides:

15. The computer system as recited in Claim 14 wherein said stage partitioning is achieved by performing a plurality of depth-first searches (DFS) on said power network transistors, wherein a boundary between two of said stages is established whenever one of VDD, GND, a gate node of a transistor of said circuit and a pad of said circuit is encountered during one of said DFS.

Claim 28 provides:

28. The computer-usable medium as recited in claim 27 wherein said stage partitioning is achieved by performing a plurality of depth-first searches (DFS) on said power network transistors, wherein a boundary between two of said stages is established whenever one of VDD, GND, a gate node of a transistor of said circuit and a pad of said circuit is encountered during one of said DFS.

1. "Node activity data"

The construction of the term "node activity data" lies at the heart of the parties' dispute concerning the terms of the '898 patent. Synopsys proposes that the Court construe "node activity data" to mean "data representing node activities or toggle counts at the signal nodes of the circuit during a simulation period." Nassda, on the other hand, proposes that the Court construe the term to mean "toggle count data for nodes." Joint Claim Construction and Prehearing Statement ("Joint Statement") at 4; Joint Statement, Ex. A, at 4.

As recited above, the patent's independent claims make no reference to "toggle counts." Instead, the patent uses the term "toggle counts" in the description of an embodiment of the invention and the term later appears in dependent claims of the patent. The patent made clear that "[w]hile the invention will be described in conjunction with the preferred embodiments, it will be understood that they are not intended to limit the invention to these embodiments." ' 898 patent at 4:5-8. After following the detailed description of the preferred embodiment, the specification cautioned again that "[w]hile the present invention has been described in particular embodiments, it should be appreciated that the present invention should not be construed as limited by such embodiments, but rather construed according to the below claims." Id. at 15: 9-13.

In any event, the dispute between the parties concerning "node activity data" essentially boils down to this Court's construction of the patent's use of the word "or." For example, the patent's specification contains the following language:

On the other hand, node activity data represents *node activities or toggle counts* at the signal nodes of the circuit during a simulation period. A 'toggle' at a node refers to a change in logic state at that node. A transition from logic '0' to logic '1' and a transition from logic '1' to logic '0' each represents a distinct 'toggle.' Thus, the toggle count at a node represents the frequency at which the logic state at that node changes. The *toggle count or node activity* is therefore a good measure of capacitive current at the corresponding node. '898 patent at 6:58-67 (internal quotation marks in the original; emphasis added).

Synopsys essentially argues that its use of the word "or" in the patent specification means "including, but not limited to" while Nassda argues that "or" should be interpreted to mean "in other words." The Court must determine whether, as Synopsys argues, the patent merely included "toggle counts" in the specification as a type of "node activity data" or whether, as Nassda argues, the patent equates "node activity data" with "toggle counts."

a. Expert opinions

On behalf of Synopsys, Martin G. Walker, Ph.D., opines that "[t]he plain meaning of the term 'node activity data' would be readily understood by anyone of ordinary skill in the relevant art ... [as] 'information representing activities at the nodes of a circuit.' " Walker Decl. para. 30 (internal quotation marks in the original; brackets and ellipsis added). Walker uses standard dictionary definitions to support his conclusion and explains that "there is no 'special' meaning in the EDA [Electronic Design and Automation] industry to the term 'node activity' that would not be apparent from utilizing standard dictionary definitions." Id. at 31-32 (internal quotation marks in the original; brackets added). Walker further opines that "one with ordinary skill in the art would never assume that the term 'node activity data' only refers to a certain type of activity at the node, such as 'toggle counts.' " Id. at 34 (internal quotation marks in the original). To support his conclusions, he explains the use of the term "node activity' in Patent No. 6,229,376 and in a scholarly article by Simon Folling. Walker Decl. Exs. F and J.

Walker goes on to explain that the specification of the '898 patent is consistent with the plain and ordinary meaning of "node activity data" as he understands it. Walker Decl. para. 38. As recited above, the specification explains that "node activity data represents node activities or toggle counts at the signal nodes of the circuit during a simulation period." '898 patent at 6:58-60. Walker explains that "toggle counts are one of many types of node activities," so one of ordinary skill in the art would "understand that toggle counts at the signal nodes during a simulation period may be considered one type of node activity data." Walker Decl. para. 38. Significantly, Walker explains that the '898 patent "describes that node activity data can be derived from transistor level simulators as well as logic level simulators." Id. at para. 39, *citing* '898 patent at 7:5-9. According to the patent, "it is appreciated that node activity data can be derived either from transistor level simulation or logic level simulation using simulation tools from various vendors in accordance with the present invention." Id. Walker explains that "node activity data can be information representing node activities that transistor-level simulators might create, such as data representing voltages as a function of time. Node activity data might also include the various logic level representations provided by logic level simulators." Walker Decl. para. 39.

Synopsys' other expert, William M. vanCleemput, Ph.D., similarly relies on dictionary meanings of the words "node," "activity," and "data" to opine that " 'node activity data' refers to data representing activity at a node." vanCleemput Decl. para. 9 (internal quotation marks in the original). VanCleemput discusses the patent's specification, "node activities or toggle counts," ' 898 patent at 6:58-59, to explain that the specification used toggle information as "one example of data representing activity at a node ." vanCleemput Decl. para. 13. A " 'toggle,' which refers to a change in logic state at a node, is one example of 'node activity data.' " Id. (internal quotation marks in the original). According to vanCleemput, " 'toggle count' is just one parameter that can be derived from (or subsumed within) the larger subset of information constituting 'node activity data.' " vanCleemput Decl. para. 15 (internal quotation marks in the original).

Nassda's expert, Stephen W. Director, opines that the "phrase 'node activity data' is amorphous and does not have a plain and ordinary meaning in the EDA field. As used in the '898 Patent, a person of ordinary skill would understand the phrase 'node activity data' to mean 'toggle count data for nodes.' " Director Decl. para. 22 (internal quotation marks in the original). Director bases his opinion on the '898 patent specification, which, according to him, equates "node activity data" with "toggle counts." Id. at para. 24. According to Director, "[t]he '898 patent also expressly states that 'the present invention ***requires*** toggle counts for all signal nodes ..." Director Decl. para. 27, *citing* '898 patent at 10:24-25 (brackets added; emphasis added by

Director). Thus Director concludes that "[t]hroughout the entire '898 Patent specification, the claimed invention is explained in terms of toggle counts." Id. at para. 28. In his declaration, Director also cites other patents and references in the professional literature to show that "[i]n the context of estimating power consumption based on gate-level simulation, persons of ordinary skill use the phrase 'node activity' to refer to toggle counts." Director Decl. para.para. 32, 33-37. Director also relies upon the testimony of the named inventors of the '898 patent, at least one of whom works at Nassda, to support his opinion. Id. at para.para. 38-40.

In reply, Synopsys' expert Walker explains that the language Director cites from column 10 of the patent concerns a "very detailed preferred embodiment of the invention." Walker Reply Decl. at para. 20. *See also* vanCleemput Decl. para. 19. Walker also explains that the articles Director cites show that "node activity data can encompass information representing node activities such as switching current, transitions in logic states, leakage current, switching activity, and signal transitions." Walker Reply Decl. para. 12. Similarly, vanCleemput explains in his Reply Declaration that "[i]n all the publications cited by Dr. Director, 'node activity' refers broadly to various activities occurring at a node of a circuit, which is completely consistent with Synopsys' proposed construction of the term." vanCleemput Reply Decl. at para. 5 (brackets added; internal quotation marks in the original).

"When someone in the EDA industry intends to refer to toggle counts, the term 'toggle counts' is used, not the terms 'node activities' or 'node activity data.' The latter terms would be used to describe a concept that is significantly broader than toggle counts." Walker Reply Decl. at para. 17 (internal quotation marks in the original). Similarly, vanCleemput concluded that "[w]hile a person of ordinary skill would understand that 'node activity data' could *include* 'toggle count data for nodes,' such a person would never understand 'node activity data' to be *limited* to 'toggle counts for nodes.' " vanCleemput Reply Decl. para. 9 (brackets added; internal quotation marks and emphasis in the original). Significantly, Walker explains that "[i]f 'node activities' meant precisely the same thing as 'toggle counts,' much of the specification would make no sense." Id. at para. 19 (brackets added; internal quotation marks in the original). Walker cites two specific references in the patent to "deriving or looking up toggle counts form [from] node activity data." Id., *citing* '898 patent at 10:31-35, 16:21-22 (corrective brackets added), supporting his conclusion that node activity data means something broader in the patent than toggle counts. As vanCleemput explained, "[i]f it is possible to derive 'toggle counts' from 'node activity data,' or to look in the 'node activity data' to see whether or not toggle counts are reported, it is obvious that 'toggle counts' cannot mean the same thing as 'node activity data.' " vanCleemput Reply Dec. para. 17 (brackets added, internal quotation marks in the original).

Finally, Walker explains that Director miscomprehends the meaning of "node activity data" because he mistakenly assumes that "the '898 invention can only operate in the context of gate-level or logic-level simulation." Walker Reply Decl. para. 25-29. VanCleemput similarly explains Director's error by explaining that "Dr. Director's analysis focuses on node activity data in the context of logic level simulation" without recognizing that "the specification explicitly states that 'node activity data can be derived *either* from transistor level simulation *or* logic level simulation." vanCleemput Reply Decl. para. 12, *citing* ' 898 patent at 7:5-9 (internal quotation marks in the original; emphasis added by vanCleemput). Thus "Dr. Director entirely overlooks the node activity data that would more typically be generated by transistor-level simulators (or other simulators), which would certainly not be limited to toggle counts." Id. Finally, vanCleemput explains in detail why, even if Director had properly focused on logic-level simulation, he "improperly concludes that toggles are the only node activities generated by a logic-level simulator." Id. at para. 13.

Walker also explains that "Nassda's construction completely deviates from the patentee's description." Walker Reply Decl. para. 6. The patent reads, "[n]ode activity data represents node activities or toggle counts at the signal nodes of the circuit during a simulation period." '898 patent at 6:58-60. Synopsys' proposed claim Construction echoes the patent's language, since Synopsys asks that the Court construe "node activity data" to mean "data representing node activities or toggle counts at the signal nodes of the circuit during a simulation period." Nassda, on the other hand, proposes that the Court construe the term to mean "toggle count data for nodes." Joint Statement at 4; Joint Statement, Ex. A, at 4. Walker explains that Nassda's proposed construction fails to mention "simulation period" and "signal nodes"; furthermore, Walker explains that Nassda's Construction "improperly changes that phrase 'node activities or toggle counts' to toggle counts for nodes.' " Walker Reply Decl. para. 7 (internal quotation marks in the original).

b. The Court's construction of "node activity data"

When construing a patent, "[t]he appropriate starting point ... is always with the language of the asserted claim itself." Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1186 (Fed.Cir.1998) (brackets added). "[T]he language of the claim frames and ultimately resolves all issues of claim interpretation." Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed.Cir.1997). However, claims are always read in view of the written description. *See* Vitronics Corp. v. Conceptronic, Inc. ., 90 F.3d 1576, 1582 (Fed.Cir.1996). A district court may look to the specification to aid its interpretation of a term already in the claim. *See* Wang Laboratories v. America Online, Inc., 197 F.3d 1377, 1382 (Fed.Cir.1999).

In the absence of an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed.Cir.2002). There is a "heavy presumption" that a claim term carries its ordinary and customary meaning. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). "[A] court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of the claim terms." Johnson Worldwide Assoc., Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed.Cir.1999).

Furthermore, the limitations of an embodiment appearing in the specification should not be incorporated as limitations on broader claim language. "Generally, particular limitations or embodiments appearing in the specification will not be read into the claims." Enercon v. ITC, 151 F.3d 1376, 1384 (Fed.Cir.1998) (citation omitted). This remains true, even if the specification describes only one embodiment. "[M]erely because 'a specification describes only one embodiment does not require that each claim be limited to that one embodiment." Enercon, 151 F.3d at 1384 (internal quotation marks in the original; citation omitted).

The Court agrees with Synopsys that the law and facts require this Court to construe "node activity data" to mean "data representing node activities or toggle counts at the signal nodes of the circuit during a simulation period." As Walker and vanCleemput testified, this construction comports with the term's plain and ordinary meaning to one skilled in the art. This construction is also exactly the same as the description of the term by the patentee. '898 patent at 6:58-60. Nassda's proposed construction, however, does not appear in the ' 898 patent.

If this Court were to adopt the construction proposed by Nassda, namely that "node activity data" means "toggle counts for nodes," the Court would violate fundamental rules of claim construction. First, Walker and vanCleemput both testified that the plain and ordinary meaning of the term "node activity data" is not

limited to "toggle counts" and that the former term is broader than the latter. Although Federal Circuit precedent requires this Court to focus first and primarily on the patent claim's plain and ordinary meaning, Nassda jumps almost immediately to a discussion of the patent's specification. *See, e.g.,* Nassda's Claim Construction Brief at 6 (one paragraph discussing the claim language, citing Director's poorly supported conclusion that the term "node activity data" is "amorphous" and lacking an ordinary and customary meaning). Second, the patentee's explicit language did not limit "node activity data" to "toggle counts," since the patent explains that "node activity data represents node activities or toggle counts at the signal nodes of the circuit during a simulation period." '898 patent at 6:58-60. The patentee failed to indicate explicitly that toggle counts and node activity data were always equivalents. Third, the patent does not mention "toggle counts" until the patent describes an embodiment of the invention. A particular limitation or feature of a preferred embodiment should not be inserted as a limitation on the claim language; this is true, even when the patent describes only one preferred embodiment, as in the case at hand. Enercon, 151 F.3d at 1384. The '898 patent repeatedly warned that the details in the embodiment should not be interpreted as limiting the scope of the claim: "[w]hile the present invention has been described in particular embodiments, it should be appreciated that the present invention should not be construed as limited by such embodiments, but rather construed according to the below claims." Id. at 15: 9-13.

Nassda's proposed construction would also require this Court to ignore statements in the patent, which clearly indicate that "node activity data" and "toggle counts" are not synonymous. Synopsys' Opening Claim Construction Brief at 13 (chart with eight references in the '898 patent showing that "node activity data" and "toggle counts" are not synonymous). *See, e.g.,* '898 patent at 10:31-35 ("[i]f it is determined that the corresponding toggle count is not reported in the node activity data, the present reliability simulation system performs steps 550 through 570, described in detail below, to derive an appropriate value for the toggle count of node G") (brackets added); '898 patent at 10:45-51 ("[m]oreover, the toggle counts of all such principal inputs are readily available from the node activity data stored by the system in step 210 of process 200 because, by definition, all principal inputs are external nodes of a library cell and their toggle counts are reported in the node activity data generated by a logic simulator.") (brackets added).

In addition, Nassda's proposed construction would not be consistent with the main purpose of the first claim element. The specification makes clear that the main purpose of storing node activity data is to store information that provides "a good measure of capacitive current at the corresponding node." ' 898 patent at 6:65-67. There exists, however, node activity data that can provide more accurate measure of capacitive current than toggle counts. Walker Decl. para. 50 ("voltage information as a function of time provides a much better estimate for capacitive current that [than] does [do] toggle counts.") (corrective brackets added).

Nassda's proposed construction also violates the doctrine of claim differentiation, which "normally means that limitations stated in dependent claims are not to be read into the independent claim from which they depend." Karlin Technology, Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 972 (Fed.Cir.1999). In the '898 patent, the patentee used the term "node activity data," while using the narrower term "toggle counts" in certain dependent claims. *See, e. g.,* dependent claim 5 ("determining a toggle count for said gate node of said power network transistor of said step cla"); dependent claim 6 ("looking up a first value for said toggle count for said gate node from said node activity data"); and dependent claim 7 (discloses "computing a sum by adding up said toggle counts of said principal inputs of said stage"). The patentee used the term "node activity data" in the independent claims and used the term "toggle counts' only in certain dependent claims, thus further indicating the correctness of Synopsys' proposed construction. The patentee used the term "node activity data" in the independent claims, while using the term "toggle count" in certain dependent claims, thus indicating that the patentee used the terms to mean different things and did not use the two terms

synonymously.

In addition, Synopsys argues that Nassda represented in its own patent applications that node activity data is not limited to toggle counts. *See* Walker Decl para.para. 51-57 regarding patent application 9,957,092 ("the '092 application," Ex. G to the Walker Decl.). Finally, "[i]t is axiomatic that claims are construed the same way for both invalidity and infringement." Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1330 (Fed.Cir.2003) (brackets added). However, "the purported prior art that Nassda has identified [in its Invalidity Contentions] does not in any way equate toggle counts with node activity data, but rather affirmatively indicates that node activity data is not limited to toggle counts." Synopsys' Opening Claim Construction Brief at 15, *citing* Walker Decl. para.para. 58-61 (brackets added). In opposition, Nassda argues that it "set forth references that would invalidate the '898 patent in the event that the Court adopts Synopsys' proposed construction." Nassda's Claim Construction Brief at 17, n. 1.

The specification includes language about "node activities or toggle counts." Nassda argues that this language equates the two terms; however, the Court does not agree that the quoted language indicates that the terms are used synonymously. Instead, the Court finds that the quoted language indicates that toggle counts are a type of node activity data. Synopsys explains that when "or" appears without a preceding comma, "or" indicates "alternative rather than synonymous terms." Synopsys Reply Brief at 5. In contrast, when a comma precedes the word "or," the word "or" is being used "to indicate that multiple terms are synonymous." Id ., *citing* Edelman Decl., Exs. B and C.

Ultimately, the Court relies on the expert testimony presented by Synopsys. The term "node activity data" has a plain and ordinary meaning to those skilled in the art and that meaning is broader than "toggle counts." Nassda asks this Court to adopt a construction based on a preferred embodiment. However, the preferred embodiment cannot be used to limit the language of the claim, even if the patent only described one embodiment. *See, e.g.,* Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed.Cir.2004) ("this court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.").

Therefore, the Court rejects the construction proposed by Nassda and construes "node activity data" as follows:

"Node activity data" means "data representing node activities or toggle counts at the signal nodes of the circuit during a simulation period."

2. "Estimating a current"

Synopsys argues that " '[e]stimating a current' is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Joint Statement at 5; Joint Statement, Ex. A, at 12 (brackets added; internal quotation marks in the original). Synopsys proposes that the Court construe "estimating" to mean "calculating approximately, or approximating." *Id*. Nassda, on the other hand, proposes that the Court construe the term to mean "approximating a current without employing transistor-level simulation." *Id*.

a. Expert opinions

Synopsys' expert, Walker, explains that "estimating a current" has a plain and ordinary meaning to one skilled in the art as " 'calculating approximately, or approximating, a current.' " Walker Decl. para. 63

(internal quotation marks in the original). Walker relies on dictionary meanings of the terms, including the IEEE Dictionary. Walker Decl. para.para. 64, 66; Exs. E and D. Thus "estimating" means " '[t]o calculate approximately," and a "current" is a "flow of electricity"; the IEEE dictionary defines "current" as " 'the flow of electrons within a wire or circuit.' " *Id*. (brackets and internal quotation marks in the original). Walker further explains that the '898 patent uses the term in a consistent manner throughout the patent; furthermore, the patent uses the term in a manner consistent with its plain and ordinary meaning and does not attempt to redefine the term. Walker Decl. para.para. 65, 67, *citing* '898 patent at 2:61-67, 2:29-31, 2:40-43.

According to Walker, "[o]ne with ordinary skill in the art would never understand the term 'estimating a current' to address whether a transistor-level simulation is used or not." Walker Decl. para. 71 (brackets added; internal quotation marks in the original). Walker explains that Nassda derives its proposed construction of the term from a description of a preferred embodiment of the invention, which discussed transistor-level simulation. Walker Decl. para. 72, *citing* '898 patent at 8:1-8.

Synopsys' expert, vanCleemput, agrees with Walker regarding the plain and ordinary meaning of the term "estimating a current," and also concurs that the '898 patent specification uses the term in a manner consistent with its plain and ordinary meaning. vanCleemput Decl. para.para. 20-22. VanCleemput also elaborated upon Nassda's proposed construction of the term. "[A] person of ordinary skill in the art would understand that " 'estimating a current' could encompass approximating a current either by employing transistor-level simulation, logic level simulation, register level simulation, or any other method in which current may be approximated ." vanCleemput Decl. para. 24 (brackets added; internal quotation marks in the original). Thus vanCleemput finds no basis for Nassda's "overly narrow interpretation," namely, " 'approximating a current without employing transistor-level simulation.' " vanCleemput Decl. para. 23 (internal quotation marks in the original; citation omitted).

Significantly, vanCleemput also explained that Nassda's proposed construction is "directly inconsistent with the '898 specification." vanCleemput Decl. para. 25. Claim 1 of the '898 patent recites "estimating a current ... using said node activity data." '898 patent at 15:27-29. The '898 patent specification "explains clearly that 'node activity data can be derived either from transistor level simulation or logic level simulation." vanCleemput Decl. para. 25, *citing* '898 patent at 7:5-9 (internal quotation marks in the original; vanCleemput's emphasis omitted). VanCleemput concludes that "it must follow that transistor level simulation or logic level simulation may be used for 'estimating a current.' " vanCleemput Decl. para. 25 (internal quotation marks in the original).

In contrast, Nassda's expert, Director, testifies that "[a] person of ordinary skill would understand 'estimating a current' as used in this step to mean 'approximating a current without employing transistor-level simulation.' " Director Decl. para. 49 (brackets added; internal quotation marks in the original). Next, Director opines "that the claims use the phrase 'estimating' a current to distinguish the determination of a current in step (c) from the determination of a current by computing it based on transistor-level simulation." Director Decl. para. 50.

To support his conclusion, Director cites to the Background section of the ' 898 patent. Director Decl. para. 50, *citing* '898 patent at 2:13-14, 15-28, 45-48. Next, he cites language from the '898 patent describing the claimed method:

Importantly, it is appreciated that while the circuit is partitioned into stages at the transistor level in order to

fully exploit all potential reliability problems as well as to handle different design styles (e.g., full-custom macros), stage partitioning is performed not for the purpose of simulating the circuit but rather for assigning each transistor into a stage such that the current contribution of a transistor is confined within a stage. In other words, transistor level simulation is not performed at all, so that the speed and capacity of the present reliability simulation system is dramatically enhanced when compared to prior art reliability simulation tools which employ dynamic transistor level simulation. Director Decl. para. 51, *citing* ' 898 patent at 7:45-57 (Director's emphasis omitted).

Director cites additional language from the '898 patent to support his interpretation:

Thus, by partitioning the complex circuit of the chip design into numerous stages, as described above with respect to step 220, and then accurately estimating the individual drain-to-source currents of each power network transistor on a stage-by-stage basis, as described above with respect to step 230, *a preferred embodiment of the present invention* is capable of efficiently and accurately analyzing a multi-million transistor VLSI circuit without simulating the entire circuit at transistor level. Director Decl. para. 52, *citing* '898 patent at 8: 1-9 (Director's emphasis omitted; emphasis added by the Court).

Director also cites deposition testimony from two of the named inventors. Director Decl. para.para. 53, 54.

In reply, Synopsys' expert, Walker, explains that Director's discussion relied on "aspects of the specification that describe a very detailed embodiment of the invention" in an effort to deviate from the plain and ordinary meaning of the claim term. Walker Reply Decl. para.para. 35-39. Furthermore, Walker clarifies Director's mistaken reliance on the '898 patent's background section, explaining that "the background section cannot support [Director's] conclusion because it does not make any mention of the claim term 'estimating a current,' and does not even discuss the manner in which the invention performs a current estimation." (brackets added; internal quotation marks in the original). Walker Reply Decl. para. 36, *citing* Director Decl. para. 50, *citing* '898 patent at 2:13-14, 15-28. According to Walker, "[o]ne of ordinary skill in the art would simply understand the background section as discussing certain problems of the prior art, but would not understand such discussion to introduce any limitations into the claims." Walker Reply Decl. para. 36 (brackets added). Finally, Walker discusses the portions of the '898 patent cited by Director concerning partitioning a circuit and explains that Director failed to clarify how "comments relating to partitioning a circuit have any relevance to 'estimating a current.' " Walker Reply Decl. para. 37, *citing* Director Decl. para. 51, *citing* ' 898 patent at 8:1-8 (internal quotation marks in the original). Moreover, even if the cited portions of the patent were relevant to "estimating a current," Walker testified that Director failed to show that the patent evinces any intent by the patentees to deviate from the plain and ordinary meaning of the term. Walker Reply Decl. para. 37. Finally, Walker discusses scientific inaccuracies he perceives in Director's testimony. Walker Reply Decl. para.para. 38-40.

Also in reply to the Director testimony, vanCleemput echoes Walker in explaining that " 'estimating a current' does have a plain and ordinary meaning. Dr. Director does not point to any passage in the specification evincing a clear intent to deviate from this meaning.' " vanCleemput's Reply Decl. para. 22 (internal quotation marks in the original). Like Walker, vanCleemput explains that the portions of the '898 patent Director relies upon, namely the Background section and the quoted sections concerning partitioning, do not support a construction contrary to the term's plain and ordinary meaning. vanCleemput's Reply Decl. para.para. 24-27. Also like Walker, vanCleemput discusses scientific inaccuracies in Director's testimony: "[e]ven setting aside the fact that this passage ['898 patent at 8:1-8 regarding partitioning] is expressly only referring to a preferred embodiment, it is my opinion that Dr. Director's interpretation is completely

inaccurate." Id at para. 28 (brackets added). Finally, vanCleemput's concludes that "Dr. Director's proposed construction would introduce uncertainty regarding the scope of a claim term that is clear and unambiguous on its own." Id. at para. 30.

b. The Court's construction of "estimating a current"

The term "estimating a current" has a plain and ordinary meaning. For this Court to construe the term differently, Nassda has the heavy burden to demonstrate that the patentee clearly and expressly disavowed the full scope of the term in the patent specification. Teleflex, 299 F.3d at 1327. Typically, the prosecution history would demonstrate claim disavowal; in the instant case, no prosecution history relevant to the instant claim construction exists. Synopsys Opening Claim Construction Brief at 16. Thus Nassda must demonstrate that the patent specification reflects the patentee's clear intent to imbue the term "estimating a current" with a meaning other than its plain and ordinary meaning to someone skilled in the art.

The Court can easily discern a plain and ordinary meaning of this term to one skilled in the art. Nassda relies on a preferred embodiment in an effort to place a limitation on the claim, but as discussed above with regard to "node activity data," this is inappropriate in the case at hand. The '898 patent repeatedly warned that the details in the embodiment should not be interpreted as limiting the scope of the claim: "[w]hile the present invention has been described in particular embodiments, it should be appreciated that the present invention should not be construed as limited by such embodiments, but rather construed according to the below claims." Id. at 15: 9-13. Nassda has failed to show that the patentee sought to demonstrate that the patentee clearly and expressly disavowed the full scope of the term in the patent specification.

To support its proposed construction, Nassda relies on the '898 patent's discussion of preferred embodiment. Nassda Claim Construction brief at 17, *citing* '898 patent at 7:45-57; *see also* Director Decl. para.para. 51-52. The cited portions of the '898 patent do not address the term "estimating a current," let alone evince an unambiguous intent to disclaim the use of a transistor-level simulation to perform the "estimating" step. Nassda would need to show the Court a place in the intrinsic record where the particular claim at issue has been redefined or limited through words of manifest exclusion. *See Teleflex,* 299 F.3d at1324-25. Nassda has failed to meet this burden.

Therefore, the Court rejects the construction proposed by Nassda and construes "estimating a current" as follows:

"Estimating a current" means "calculating approximately, or approximating a current."

3. Order of performance of the elements of claim 1

With regard to claim 1 of the '898 patent, the parties dispute whether the patent requires that the steps be performed in a certain order. Claim 1 is a "method comprising the computer implemented steps of" storing, partitioning, estimating, computing, and reporting. '898 patent at 15: 15-35. Synopsys argues that "[t]he elements of this claim need to be initiated in the order listed, but performance of the elements can overlap in part." Joint Statement at 4; Joint Statement, Ex. A, at 2 (brackets added). Nassda, on the other hand, argues that "the method must include steps (a)-(e) performed by a computer in sequential order." Id.

a. Expert opinions

Claim 1 of the '898 patent contains five elements. Synopsys' Walker testified that "[c]ertain of these

elements can logically be performed in any order or simultaneously, while other elements must at least be initiated before others can be initiated." Walker Decl. para. 78 (brackets added). Walker agrees with Nassda "that the third, fourth, and fifth elements must be initiated in the order listed in the claim." Id. at para. 79. Walker does not agree with Nassda, though, "that the first and second elements (the 'storing' and 'partitioning' elements) must be performed in the order listed. It would make absolutely no difference for the purpose of the operation whether the order of those two steps were reversed, because neither element depends upon the output of the other." Id. (internal quotation marks in the original). An illustrative example supporting Walker's position follows. Id. at para.para. 80-82.

Walker explains that the plain and ordinary meaning of the first two elements of Claim 1 do not dictate, recite or imply an order; furthermore, their logical implementation does not dictate an order. Walker Decl. para. 83. Since "the storing element can be fully implemented separately from the partitioning element ... [these two elements] can be performed simultaneously or substantially simultaneously within a computer." Id. at para. 84. Thus Walker opines that these two elements can be performed in any order. Id. at para. 85. With regard to the estimating, computing and reporting elements, Walker opines that the elements "must at least be *initiated* in the order recited. However, due to the computerized nature of the invention, *implementation* of these elements may proceed simultaneously or substantially simultaneously." Id. at para. 86 (emphasis in the original). Walker believes that the Court should reject Nassda' proposed construction, which requires all five elements of the claim to be performed in sequential order, because it fails to "account for common computing 'pipelining' techniques that are within the scope of the claims." Id. at para. 92 (internal quotation marks in the original). In his reply declaration, Walker further opines that "[s]ince no order is explicitly required for the storing and partitioning elements, the estimating element can follow after they both have been initiated. This does not mean, however, that the first steps must be complete before current estimation begins. Indeed, this makes sense as computer programs can be implemented to continuously pass information from one algorithm to another." Walker Reply Decl. para. 50 (brackets added).

On the other hand, Director testified for Nassda and concluded that "[a] person of ordinary skill would understand that steps (a)-(e) of the claims of the '898 Patent must be performed in the sequence listed. This is plain from the steps of the claims themselves, each of which builds on the results of the previous step, as well as the specification of the '898 Patent, which expressly describes the claimed method as a sequence of steps." Director Decl. para. 57 (brackets added). Director relies on the fact that "the steps of the claimed method are listed in alphabetical order, (a), (b), (c), (d), and (e), [which] would lead a person of ordinary skill to understand that the steps are to be performed in sequential order." Director Decl. para. 59. Director believes that the "logic and grammar of the claimed method would also lead a person of ordinary skill to understand that the steps must be performed in order." Director Decl. para. 60. Next, Director elaborates that the '898 patent's Abstract, Summary of Invention, and Figure 2 support Nassda's position. Director Decl. para.para. 61-63. Director concluded that "[i]n my view there is nothing about the fact that a claimed method is performed by a computer that means that the steps of the claimed method cannot be performed in sequential order." Director Decl. para. 65 (brackets added).

Director's conclusion, however, misses the point. The issue is not whether the steps of the claimed method can (or cannot) be performed in sequential order; the issue, instead, is whether the five steps must be performed in sequential order.

b. The Court's construction of the order of performance of the claim 1 elements

As a result of the experts' testimony, the Court focuses on the language of the first two elements of Claim 1, which provide:

a) storing device information and node activity data of a circuit within said chip design, wherein said circuit comprises a power network, a plurality of power network transistors and a plurality of signal nodes;

b) partitioning said circuit into a plurality of stages; wherein each of said stages comprises a subset of said power network transistors and a subset of said signal nodes, and wherein a flow of direct current across said stages is absent. '898 patent 15: 18-26.

In Altiris, Inc. v. Symantec Corp., 318 F.3d 1363,1369-70 (Fed.Cir.2003), the Federal Circuit relied on Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323 (Fed.Cir.2001) to articulate a "two-part test for determining if the steps of a method claim that do not otherwise recite an order, must nonetheless be performed in the order in which they are written." First, the Federal Circuit "look[s] to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written ... If not, we next look to the rest of the specification to determine whether *it* 'directly or implicitly requires such a narrow construction.' " *Id*. (emphasis and internal quotation marks in the original). "If not, the sequence in which such steps are written is not a requirement." *Id*.

Synopsys argues that "there is nothing in the language of the first two claim elements to indicate that one of them must come before another." Synopsys' Opening Claim Construction Brief at 21. Synopsys also argues that no logical reason exists for the first and second elements to be performed in any particular order, thus causing Synopsys to conclude that "the Court should hold that these two elements can be performed in any order or simultaneously." *Id*.

Nassda, however, argues that the partitioning of step (b) "is based on the device information that is stored in step (a)." Nassda's Claim Construction Brief at 19. However, Synopsys' expert, Walker, testified that the claim language does not recite or imply an order, and the invention would work precisely the same, regardless of the order of performance of the first two elements. Synopsys' expert testimony has convinced the Court that Synopsys' proposed claim construction remains correct, because it provides for the initiation of the steps in the order listed, but the computer can perform the steps in an overlapping manner. *See* Altiris, 318 F.3d at 1370-71 (Federal Circuit finds that the patent at issue did not require steps to be performed sequentially; "[b]oth experts indeed testified that it was technologically possible to achieve the invention's purpose by performing the 'setting' step before, during, or afer the 'booting normally' step. In this regard, the expert testimony serves the permissible purposes of aiding our understanding of the technology and in helping us view the patent through the eyes of the skilled artisan.") (brackets added; internal quotation marks in the original; citation omitted). Therefore, the Court rejects the construction proposed by Nassda and holds that the elements of this claim need to be initiated in the order listed, but performance of the elements can overlap in part.

4. "Power network"

Synopsys argues that " '[p]ower network' means an interconnected set of wires for distributing power.' " Joint Statement at 4; Joint Statement, Ex. A, at 6 (brackets added; internal quotation marks in the original). Nassda proposes that the Court construe the term to mean "an interconnected set of wires that connect a power supply to the [power network transistors]." *Id*.

a. Expert opinions

On behalf of Synopsys, Walker explains that the term "power network" is "very clear in its meaning, and this term would be readily understood by one of ordinary skill in the relevant art ... as meaning an interconnected set of wires for distributing power." Walker Decl. para. 94. According to Walker, "[t]he specification of the '898 Patent uses the term 'power network' in a manner consistent with its plain and ordinary meaning." Id, at para. 95 (brackets added; internal quotation marks in the original). Walker also relies on standard and professional dictionary meanings of the individual terms. Id, at para. 96; Exs. D and E.

On behalf of Nassda, Director opines that "a person of ordinary skill would understand the term 'power network' to mean 'an interconnected set of wires that connect a power supply to the power network transistors.' " Director Decl. para. 66 (internal quotation marks in the original). According to Director, "Synopsys' proposed construction does not make it explicitly clear that the power network and the transistor network are distinct portions of the circuit." Id. at para. 67. Director believes that the "claims of the '898 make clear that this distinction is required." Id. Director also relies on the specification of the '898 patent and concludes that "it is clear that when the '898 Patent refers to a power network, it is referring to the separate portion of the circuit that delivers power from the power supply to the rest of the circuit." Id. at para.para. 68-69.

In reply, Walker explains that Director's ignores the plain and ordinary meaning of the disputed term and, instead, improperly reads in limitations from the specification. Walker reply Decl. para. 51. "The fact that, in one embodiment, the patentee discusses a power network with 'power network transistors' does not add a limitation to an otherwise well known term." Walker reply Decl. para. 52 (internal quotation marks in the original).

b. The Court's construction of "power network"

Synopsys argues that its construction of "power network" is consistent with the term's plain and ordinary meaning and that nothing in the '898 patent's claim language supports Nassda's "arguably more narrow construction." Synopsys' Opening Claim Construction Brief at 23. Synopsys argues Nassda has not cited to any portion of the specification which redefines "power network" in the manner Nassda seeks to define the term. "There is nothing inappropriate about setting forth a general term ('power network'), and then providing more specificity about what the power network may contain ('power network transistors' and 'signal nodes')." Reply Claim Construction Brief at 12 (internal quotation marks in the original).

The Court rejects the construction proposed by Nassda and construes "power network"as follows:

"Power network" means an interconnected set of wires for distributing power.

5. "[Power network] transistors"

Synopsys argues that " '[p]ower network transistors' means transistors connected to a power network." Joint Statement at 4; Joint Statement, Ex. A, at 7 (brackets added; internal quotation marks in the original). Nassda, on the other hand, proposes that the Court construe the term to mean "transistors whose sources or drains are connected directly to the [power network.]" Id. (brackets in the original).

a. Expert opinions

Walker testified that the plain and ordinary meaning of the term "power network transistors" is very clear to one skilled in the art. The use of the term "transistors" does not change the meaning of "power networks." One of ordinary skill in the art would understand a transistor to be "a common semiconductor device" and "the term 'power network transistors' is readily understood according to its plain and ordinary meaning as a transistor connected to a power network." Walker Decl. para. 99 (internal quotation marks in the original). According to Walker, the '898 patent specification uses the term in a manner consistent with its plain and ordinary meaning. Id. at para. 100.

Walker explains that Nassda's proposed construction "improperly assumes that only one kind of transistor can satisfy the term 'power network transistors,' that is, a MOSFET device that has a source and drain." Id. at para. 104 (internal quotation marks in the original). Second, Nassda improperly requires a direct connection between the network transistors and a power network, when one skilled in the art would not understand the term to require a direct connection. Id. Finally, Walker clarifies that Nassda seemed to derive its construction from "the detailed description of a specific embodiment of the '898 patent," *citing* '898 patent at 7:61-64 ('[i]n this embodiment, a power network transistor is a transistor which is represented in the transistor netlist and whose source or drain is connected directly to the power network.) (brackets added; Walker's emphasis omitted).

On behalf of Nassda, Director explains that Nassda's proposed construction is similar to Synopsys', but that Nassda's proposed construction requires a direct connection between the transistors and the power network. Director Decl. para. 70. Director explains that Synopsys' proposed construction would allow for "the possibility that transistors that are connected to the power network indirectly, through other transistors, can also be considered 'power network transistors.' " Id. (internal quotation marks in the original).

In reply, Walker explains that Nassda's proposed construction "improperly attempts to read in limitations from the specification." Walker Reply Decl. para. 54. "Nassda's construction would limit the invention only to operation with certain types of transistors, and there is no indication anywhere in the ' 898 Patent that the patentee intended for the invention to be limited in this manner." Id. at para. 55.

b. The Court's construction of "power network transistors"

Nassda improperly seeks a claim construction different from the plain and ordinary meaning of the term and bases its argument on one embodiment of the invention. Nassda points to no evidence that the patentee clearly and expressly redefined a claim term, so the Court construes "power network transistors"as follows:

"Power network transistors" means transistors connected to a power network.

6. "Wherein each of said stages ..."

The parties ask the Court to construe the following term: "wherein each of said [stages] comprises a subset of said [power network transistors] and a subset of said [signal nodes]." Joint Statement at 4; Joint Statement, Ex. A, at 10 (brackets in the original). Synopsys argues that this language "is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Id. Nassda, on the other hand, argues that the Court should adopt the following construction: "each [stage] must contain at least one [power network transistor] and at least one [signal node]." Id. (brackets in the original).

a. Expert opinions

Walker testified on behalf of Synopsys that the disputed language is clear on its face to one of skill in the art and that any further construction would create "potential ambiguities where none are presently found in the claims." Walker Decl. para. 106. Director merely testified on Nassda's behalf that "this claim limitation clearly requires 'each' stage to contain a subset of the power network transistors." Director Decl. para. 74 (internal quotation marks in the original). Walker maintains that Nassda's proposed construction would rewrite otherwise clear claim language. Walker Reply Decl. para. 56.

b. The Court's construction of "wherein each of said stages ..."

The Court agrees with Synopsys that this language is clear on its face and declines Nassda's invitation to modify the patent's clear language.

7. "Wherein a flow of direct current ..."

The parties ask the Court to construe the following term: "wherein a flow of direct current across said [stages] is absent." Joint Statement at 4; Joint Statement, Ex. A, at 11 (brackets in the original). Synopsys argues that this language "is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Id. Nassda, on the other hand, argues that the Court should adopt the following construction: "no direct current flows from any [stage] to any other [stage]." Id. (brackets in the original).

a. Expert opinions

For Synopsys, Walker testified that each of the proposed terms is clear on its face and requires no further construction. Walker Decl. para. 107. If the Court were to inclined to construe the term, Walker testified that Synopsys would propose a construction of " 'across said stages' " as " 'across stage boundaries.' " Walker Decl. para. 108 (internal quotation marks in the original). Walker testified that Nassda's proposed construction simply rewrites an otherwise straightforward claim term and does so incorrectly. "[T]he claim language and specification do not describe an absence of direct current 'from' a stage boundary to another, but rather an absence of current ***across*** stage boundaries." Walker Decl. para.para. 109-10, *citing* '898 patent at 7:43-45 (emphasis added by Walker).

For Nassda, Director explains that "[a] person of ordinary skill would understand the phrase 'wherein a flow of direct current across said stages is absent' as used in the '898 Patent, to mean that 'no direct current flows from any stage to any other stage." Director Decl. para. 75 (brackets added; internal quotation marks in the original). Director finds support for his construction in the '898 patent's specification. Id., *citing* '898 patent at 7:43-45.

In reply, Walker explains that Director "again improperly attempts to read in limitations from the specification." Walker reply Decl. para. 57. According to Walker, Director "fails to acknowledge that the plain and ordinary meaning of this term is understood by one of skill in the art and is exactly as Synopsys has proposed. The extraneous limitations as proposed by Dr. Director are simply inappropriate and unnecessary." Id.

b. The Court's construction of "wherein a flow of direct current ..."

The Court agrees with Synopsys that this language is clear on its face and declines Nassda's invitation to modify the patent's clear language.

8. "Reporting [potential problems of said chip design]"

The parties ask the Court to construe "reporting [potential problems of said chip design]." Joint Statement at 5; Joint Statement, Ex. A, at 16 (brackets in the original). Synopsys argues that this language "is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Id. Nassda, on the other hand, argues that the Court should adopt the following construction: "generating output that identifies [potential problems of the chip design]." Id. (Brackets in the original).

a. Expert opinions

On Synopsys' behalf, Walker testified that the term "reporting" is "very clear on its face and needs no further construction." Walker Decl. para. 111. Furthermore, "[t]here is nothing unusual in the EDA industry about the use of this word, and one with ordinary skill in the art would understand this term precisely as would a layperson." Id. (brackets added). Nassda's proposed construction of "reporting" as " 'generating output that identifies' ... does not encompass the full scope of the very well-understood term 'reporting.' " Id. at 112 (internal quotation marks in the original).

Director testified on behalf of Nassda that "[a] person of ordinary skill would understand the phrase "reporting potential problems of said chip design' as used in the '898 Patent, to mean 'generating output that identifies potential problems of said chip design.' " Director Decl. para. 77 (brackets added). Furthermore, "[t]he '898 Patent expressly instructs that the word 'reporting' is to be understood to refer to the action of a computer system." Id. at para. 78 (brackets added; internal quotation marks in the original), *citing* '898 patent at 4:44-50. "Because a computer 'reports' by generating output, a person of ordinary skill would understand the word 'reporting' to refer to generating output that identifies the problems." Id. at para. 78 (internal quotation marks in the original).

In reply, Walker explains that Director "attempts to improperly read in limitations from the specification by pointing to descriptions of the preferred embodiment which do not redefine an otherwise very well understood word." Walker Reply Decl. para. 58.

b. The Court's construction of "reporting [potential problems of said chip design]"

Regardless of context, the word "reporting" has a simple meaning, namely "[t]o relate or tell about; present." Edelman Decl., Ex. J (brackets added). The Court need not construe this clear term and declines Nassda's invitation to modify the patent's clear language.

9. "In a device ..."

The parties ask the Court to construe the following term: "in a device [for reliability analysis of a semiconductor chip design], [a computer-usable medium]." Joint Statement at 5; Joint Statement, Ex. A, at 25 (brackets in the original; brackets positioned as they are in the exhibit). Synopsys argues that this language "is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Id. Nassda, on the other hand, argues that the Court should adopt the following construction: "a computer system or similar electronic computing device [for reliability analysis of a semiconductor chip design] in which a [computer usable medium] is housed or loaded." Id.

(brackets in the original).

a. Expert opinions

Walker opined on behalf of Synopsys that Nassda's proposed construction essentially, and to him, inexplicably, "derived the further limitation of 'housed or loaded' simply from the word 'in.' " Walker Decl. para. 114 (internal quotation marks in the original). Director did not testify on this disputed claim on behalf of Nassda. In reply to Nassda's Brief, Walker testified that he "do[es] not agree that the entirety of the preamble of Claim 27 should be construed as a limitation." Walker Reply Decl. para. 59 (brackets added). Walker "agree[s] that the term " 'computer-usable medium' limits the structure of the claimed invention." Id. (brackets added; internal quotation marks in the original). According to Walker, though, the other portions of the Preamble "do nothing to limit the structure of the claim, and there is nothing else within the preamble is [sic] necessary to give life, meaning, and vitality to the claim." Id. Thus Walker concludes that Nassda's proposed construction of "device" as a "computer system or similar electronic computing device" is "absurd and unnecessary." Id. at para. 60.

b. The Court's construction of "in a device ..."

Synopsys argues that the Preamble of Claim 27 is plain on its face and requires no construction by the Court. Synopsys' Opening Claim Construction Brief at 24. The Court declines Nassda's invitation to change the phrase "computer-usable medium" to "in which a computer-usable medium is housed or loaded." The '898 patent does not contain language indicating that the preamble's plain and ordinary language should not be applied. Thus the Court does not construe the preamble language as a limitation and the preamble of Claim 27 requires no construction by the Court.

10. "Depth-first searches"

Synopsys argues that " '[d]epth-first searches' means an algorithm which considers outgoing branches of a tree-like hierarchy before any neighbors of those branches." Joint Statement at 5; Joint Statement, Ex. A, at 27 (brackets added; internal quotation marks in the original). Nassda, on the other hand, proposes that the Court construe the term to mean "searches in which each path of a tree-like hierarchy is explored as far as possible before any backtracking to explore other paths." Id.

a. Expert opinions

On behalf of Synopsys, Walker explains that "[t]he term 'depth-first search' derives from an area of mathematics called graph theory" and provides an illustration to explain how such a search works. Walker Decl. para. 116 (brackets added; internal quotation marks in the original). He further opines that Synopsys' proposed construction is "consistent with how one of ordinary skill in the art would understand the term," *citing* the IEEE Dictionary. Walker Decl. para. 119, Ex. D. Furthermore, Walker explains that Nassda's proposed construction, which requires "that each path be 'explored as far as possible before any backtracking,' ... contradicts the plain and ordinary meaning of the claim term ." Id.

Director testified on behalf of Nassda that Nassda's proposed construction of "depth-first searches," requiring "searches in which each path of a tree-like hierarchy is explored as far as possible before any backtracking to explore other paths," comports with the understanding of the plain and ordinary meaning of the term to one skilled in the art. Director Decl. para. 79. Like Walker, Director provided an illustrative explanation of the term. Director Decl. para.para. 80-83. "The key point is that in a depth-first search, no

backtracking occurs until there is no other choice but to backtrack." Id. at para. 82. Director also relies on the IEEE Dictionary and concludes that "Synopsys' description of a depth-first search is generally consistent with Nassda's proposed construction." Id. at para.para. 84-85. However, Director explains that the meanings of the terms " 'outgoing branches' " and " 'neighbors' " in Synopsys' proposed construction remain unclear; he also expresses doubt that Synopsys' definition would exclude a search that should properly be excluded. Id. at para. 85 (internal quotation marks in the original), *citing* para. 83.

In reply, Walker explained that Director largely agreed with Synopsys' proposed construction, but that he sought to "insert further limitations which cause a deviation from the plain and ordinary meaning of the claim term." Walker reply Decl. para. 61. Walker elaborated that "Dr. Director fails to acknowledge that depth-first search algorithms can be specified to search only to predetermined levels before proceeding to a neighbor searches [sic] or can stop when a particular type of node is reached, i.e., without searching 'as far as possible.' " Id. at para. 62 (internal quotation marks in the original). Walker adds that "the concept of 'backtracking' is not part of the plain and ordinary meaning of the claim." Id.

b. The Court's construction of "depth-first searches"

Both parties' experts largely agree on the construction of this term. Nassda seeks to add terms that do not appear in the standard IEEE dictionary. Nassda fails to present any convincing argument for the adoption of its construction, and Synopsys surmises that Nassda's construction would help it avoid a finding of infringement. *See* Nassda Claim Construction Brief at 24; Synopsys' Opening Claim Construction Brief at 25. The standard IEEE definition does not require the addition of the language Nassda proposes and Nassda points to no language in the '898 patent reflecting any intent by the patentees to restrict the term in the manner Nassda proposes.

Therefore, the Court rejects the construction proposed by Nassda and construes "depth-first searches" as follows:

"Depth-first searches" means an algorithm which considers outgoing branches of a tree-like hierarchy before any neighbors of those branches.

11. "Wherein a boundary between two of said stages ..."

The parties ask the Court to construe the following term: "wherein a boundary between two of said [stages] is established whenever one of [VDD], [GND], [a gate node of a transistor of said circuit] and [a pad of said circuit] is encountered during one of said [DFS]." Joint Statement at 5-6; Joint Statement, Ex. A, at 32-33 (brackets in the original). Synopsys argues that " '[w]herein a boundary ...' is clear on its face and is further clear upon an understanding of other terms already construed such that it needs no further construction." Id. (brackets added; ellipsis in the original). Synopsys also argues that " '[d]epth-first searches' means an algorithm which considers outgoing branches of a tree-like hierarchy before any neighbors of those branches." (brackets added; internal quotation marks in the original). Nassda, on the other hand, argues that the Court should adopt the following construction: "each of the [depth first searches] stops exploring a given path of the tree-like hierarchy whenever [VDD], [GND], [a gate node of a transistor of said circuit], or [a pad of said circuit] is reached." Id. (brackets in the original).

a. Expert opinions

Walker opines on Synopsys' behalf that, "[t]o one with ordinary skill in the art, each of these phrases is very

clear on its face and needs no further construction." Walker Decl. para. 120 (brackets added). According to Walker, Nassda's proposed construction would "be simply a rewriting of an otherwise straightforward phrase." Id. at para. 121.

Director explained that, to one of ordinary skill in the art, the disputed phrase would "mean that 'each of the depth first searches stops exploring a given path of the tree-like hierarchy whenever VDD, GND, a gate node of a transistor of said circuit and [sic-or] a pad of said circuit is reached.' " Director Decl. para. 87 (internal quotation marks in the original). Director relies on the language of Claim 2 and a preferred embodiment to support his conclusion. Id. at para.para. 88-89, *citing* '898 patent at 9:7-15. Walker replies that Director failed to "explain why a construction of this otherwise very clear term is necessary." Walker Reply Decl. para. 63.

b. The Court's construction of "wherein a boundary between two of said stages ..."

The expert testimony made clear that this term is not an ambiguous term in need of construction by this Court. Nassda again relies on a preferred embodiment to argue that this Court should rewrite claim terms that are clear and not in need of construction. The Court, therefore, finds the term clear on its face and does not construe the term.

B. Nassda's motion to strike expert declarations

In a May 26, 2004 letter brief, Nassda argued that the Court should strike the expert declarations of Walker and vanCleemput, since "Synopsys did not allow Nassda to test their opinions through deposition." Nassda's May 26 letter brief at 1. In accord with Patent Local Rule 4-3, Synopsys disclosed its expected expert testimony on March 24, 2004, in the Joint Claim Construction Statement as follows:

Synopsys does not intend to call any witnesses during the claim construction hearing. All expert and/or percipient witness testimony, including that of Martin G. Walker, Ph.D. and William vanCleemput, Ph.D., will be by declaration. Dr. Walker and/or Dr. vanCleemput are expected to testify concerning how a person of ordinary skill in the art would understand the plain and ordinary meaning of the terms in the claims of the '898 patent, and that the limitations Nassda seeks to impose on the claims drastically deviate from their plain and ordinary meaning. Nassda letter brief at 2, *citing* Antonelli Decl., Ex. B.

On May 7, 2004, Synopsys filed its Opening Claim Construction Brief with supporting declarations from Walker and vanCleemput. Nassda letter brief at 2. On May 10, Nassda requested depositions of Walker and vanCleemput. Id. Synopsys did not make either expert available for deposition, explaining that the claim construction discovery cutoff had passed on April 22, 2004, and that the disclosure in the Joint Claim Construction Statement had provided Nassda sufficient information to depose Walker and vanCleemput. Nassda letter brief at 3.

Synopsys argues that Patent Local Rule 4-3 does not apply to this situation because neither party intended to call a live witness at the Markman hearing. Synopsys' June 2, 2004 letter brief at 1. Even if the rule applied, the Court would find that Synopsys complied with it by providing sufficient disclosure to permit Nassda meaningfully, and timely, to depose Synopsys' experts. *See* Joint Statement and Ex. A. In fact, Nassda's disclosure of its expert testimony was almost identical to Synopsys'. Synopsys' letter brief at 1; Joint Claim Construction Statement at 6. Nassda simply chose not to depose Synopsys' experts in a timely manner and cannot now expect the Court to order that the depositions occur after the close of claim construction discovery. Furthermore, Nassda has suffered no prejudice, as it submitted a lengthy and detailed expert

declaration refuting Synopsys' arguments and expert testimony. Thus the Court DENIES Nassda's motion to strike the expert declarations of Walker and vanCleemput.

CONCLUSION

For the reasons discussed, the terms are hereby construed as stated above. The Court DENIES Nassda's motion to strike Synopsys' expert declarations. [docket # 133, 152].

IT IS SO ORDERED.

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