UNITED STATES DISTRICT COURT

DISTRICT OF NEW HAMPSHIRE

Mangosoft, Inc. and
Mangosoft Corporation,
Plaintiffs

v.

Civil No. 02-cv-545-SM
Opinion No. 2006 DNH 030

Oracle Corporation,
Defendant

O R D E R

Mangosoft, Inc. and Mangosoft Corporation (collectively, "Mangosoft"), bring this patent infringement action against Oracle Corporation ("Oracle"), asserting that Oracle's products infringe its patent, United States Patent No. 6,148,377 ("the '377 patent").[1] In response, Oracle filed a counterclaim, seeking a declaratory judgment that the patent is invalid, unenforceable, or not infringed.

Before the court are summary judgment motions from both parties. Oracle moves for summary judgment, asserting that it does not infringe the '377 patent, the '377 patent is invalid, and the '377 patent is unenforceable. Mangosoft moves for

[1] Although Mangosoft originally alleged that Oracle also infringed U.S. Patent No. 5,918,229, it subsequently withdrew all claims relating to that patent.

summary judgment asserting that, as a matter of law, Oracle is infringing claims 1, 5, and 9 of the '377 patent, and for partial summary judgment holding the '377 patent valid. For the reasons set forth below, Oracle's motion is granted in part and denied in part and Mangosoft's motion is granted in part and denied in part.

Standard of Review

Summary judgment is appropriate when the record reveals "no genuine issue as to any material fact and . . . the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). In this context, "a fact is 'material' if it potentially affects the outcome of the suit and a dispute over it is 'genuine' if the parties' positions on the issue are supported by conflicting evidence." Intern'l Ass'n of Machinists & Aerospace Workers v. Winship Green Nursing Ctr., 103 F.3d 196, 199-200 (1st Cir. 1996) (citations omitted). Notwithstanding this deferential standard, the non-moving party cannot defeat a motion for summary judgment by simply relying on improbable inferences, conclusory allegations, or rank speculations. Ingram v. Brink's, 414 F.3d 222, 228 (1st Cir. 2005) (citing Mesnick v. Gen. Elec. Co., 950 F.2d 816, 822 (1st Cir. 1991)).

Background

Mangosoft and Oracle are software companies, specializing in database software. Mangosoft owns the '377 patent. Oracle produces the allegedly infringing Real Application Clusters ("RAC") software, sold in conjunction with its 9i and 10g Database software.

On November 22, 1996, Mangosoft filed with the United States Patent and Trademark Office ("PTO") the patent application that issued on November 14, 2000, as the '377 patent. Generally speaking, the '377 patent teaches a "distributed shared memory system." It describes computer systems consisting of groups of computers linked by a network connection, also known as a "cluster" or "computer cluster." Each computer, or "node," in the cluster manages its own memory (both volatile and non-volatile) and, employing the invention, makes that memory available to other nodes in the cluster. Furthermore, says Mangosoft, unlike earlier systems, which only provided a means for sharing data stored in non-volatile memory (e.g., hard disks), the invention taught by the '377 patent allows nodes to also share volatile memory (e.g., random access memory or "RAM") with other nodes in the cluster. Thus, the invention teaches a means by which nodes may share both non-volatile and volatile

memory space, by creating a “pool” of shared memory space which is accessible by all nodes participating in the system.

Specifically, claim 1 of the ’377 patent teaches:

> 1. A computer system having a shared addressable memory space, comprising
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> a data network for carrying data signals representative of computer readable information, and
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> a plurality of computers, each of said plurality of computers sharing the shared addressable memory space and including
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> an interface, coupled to said data network, for accessing said data network to exchange data signals therewith,
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> a local volatile memory device coupled to said computer and having volatile storage for data signals,
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> a local persistent memory device coupled to said computer and having persistent storage for data signals, and
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> a shared memory subsystem for mapping a portion of said shared addressable memory space to a portion or the whole of said persistent storage and said volatile storage to provide thereby addressable persistent and volatile storage for data signals accessible by each of the plural computers, said shared memory subsystem including
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> a distributor for mapping portions of said addressable memory space across said plurality of local persistent memory devices, to distribute said addressable memory

space across said plurality of local persistent memory devices, and

a disk directory manager for tracking said mapped portions of said addressable memory space to provide information representative of which of said local persistent memory devices has which of said portions of said addressable memory space mapped thereon.

The '377 patent, 15:56-16:23 (emphasis supplied). Claims 5 and 9 depend on claim 1.

Following a Markman hearing, the court construed the disputed terms in the '377 patent. See generally Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). Subsequently, both parties moved for summary judgment.

Discussion

I. Infringement of the '377 Patent

Both Mangosoft and Oracle move for summary judgment on the issue of infringement. Mangosoft argues that a computer cluster running Oracle's 9i and/or 10g Database software ("RAC cluster") infringes, either literally or by equivalents, claims 1, 5, and 9 of the '377 patent. Oracle, on the other hand, says that an RAC cluster does not infringe because it does not use local

persistent memory devices or provide a shared addressable memory space, as required by claim 1. Oracle is correct.

Determining patent infringement is a two step process: "the court first construes the scope of the asserted claims and then compares the accused device to the properly construed claims to determine whether each and every limitation of the claim is present, either literally or equivalently, in the accused device." Tate Access Floors, Inc. v. Interface Architectural Res., Inc., 279 F.3d 1357, 1365 (Fed. Cir. 2002) (citing Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1351 (Fed. Cir. 2001)). Claim interpretation is a matter of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 977 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996). But, whether the accused product infringes the claims as interpreted is a factual question. Syntex (U.S.A.) LLC v. Apotex, Inc., 407 F.3d 1371, 1377 (citing Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353 (Fed. Cir. 1998)). Because infringement is based on a question of fact, summary judgment on infringement is proper for the patent owner only when, drawing all inferences in favor of the alleged infringer, there exists no genuine issue of material fact that every limitation recited in the properly construed claim is found in the accused product. P.C. Connector Solutions LLC v.

SmartDisk Corp., 406 F.3d 1359, 1364 (Fed. Cir. 2005)(citing Bai, 160 F.3d at 1353-54)). On the other hand, summary judgment for the accused infringer is proper only when, drawing all inferences in favor of the patent holder, there exists no genuine issue of material fact that one or more limitations recited in the properly construed claims is not found in the accused product. Id.

In this case, the claim limitation in question is the requirement in claim 1 for a "shared addressable memory space." The court interpreted "shared addressable memory space" to mean:

> a memory space distributed across the volatile and non-volatile memory of all the nodes participating in the patents' shared memory system (though not necessarily all nodes on the network), which shared addressable memory space can be accessed by the various participating nodes using one or more addresses. The participating nodes need not, however, utilize a common or global addressing scheme.

Order at 28, September 21, 2004 (document no. 60) (the "Markman Order"). In particular, the shared addressable memory space must be distributed across both the non-volatile and volatile memory of the participating nodes. Non-volatile memory, also referred to as persistent memory, is memory capable of retaining data after power is removed.

Claim 1 restricts persistent memory devices to "local persistent memory devices." The '377 patent, 16:3. The court interpreted "local," when used to modify a computer device, to mean:

> a computer device (e.g., a hard drive) that is directly attached to a single computer's processor by, for example, the computer's bus. Such a "local" device may, however, be shared with and accessible by other nodes on the network (and, of course, other nodes participating in the shared memory system).

Markman Order at 29. Therefore, to read on claim 1, a shared addressable memory space must be distributed across the persistent memory of all the participating nodes. And, the persistent memory of a given participating node must be provided by a persistent memory device that is directly attached to that one, and only that one, participating node (though it may be shared by other nodes).

A. Literal Infringement

Oracle argues that the memory space shared in RAC clusters does not span local persistent memory devices. Mangosoft disagrees, arguing that three different RAC cluster configurations use local persistent memory devices: the Dell

configuration, the VeriSign configuration, and the Storage Area Network ("SAN") configuration.

i. The Dell Configuration and the VeriSign Configuration

The Dell and the VeriSign configurations are similar. In the Dell configuration, two servers are connected to a common persistent memory array via Fibre Channel cables. In the VeriSign configuration, two servers are connected to a common pair of persistent memory arrays via cables. Therefore, the persistent memory device is connected to more than one node in each configuration.

Mangosoft contends that the Fibre Channels and the cables create a direct attachment between the servers and the persistent memory arrays, making the persistent memory arrays "local" to the servers. According to the court's construction, however, a local device is a device that is "directly attached to a single computer's processor." Markman Order at 29 (emphasis supplied). The "single" requirement emphasizes that a local device is somehow unique to one node (although it may also have non-unique associations with other nodes).

The specification describes local persistent memory devices as "each couple[d] to a respective one of the plural computers." The '377 patent, 3:11-14, 59-62. Additionally, claim 1 teaches "a local persistent memory device coupled to said computer." The '377 patent, 16:3-5. Plainly, then, the '377 patent emphasizes that each local device is uniquely associated with one of the participating nodes.

Moreover, unlike its current position, Mangosoft once contended that "local" refers to the "memory devices that a given computer or node contributes to the shared memory system." Pl.'s Markman Br. at 9, 10 (document no. 35). Mangosoft contrasted the term "local" with the term "remote," "which is used in reference to how a given computer or node distinguishes the memory that other computers or nodes contribute to the shared memory system and services." Id. As the '377 patent itself does, Mangosoft emphasized that each local device must have an association unique to one of the participating nodes.

Regardless of whether the Fibre Channels and the cables create a sufficiently direct attachment, the persistent memory arrays in both configurations are connected to and shared by more than one node. The persistent memory arrays in both

configurations are not unique to a single node, placing them outside the scope of "local" as contemplated by the '377 patent.

Mangosoft does not contend that either configuration shares any persistent memory other than that provided by the persistent memory arrays. Therefore, the Dell configuration and the VeriSign configuration do not infringe claim 1 (the sole independent claim at issue) of the '377 patent because they lack a shared addressable memory space that spans a local persistent memory device. It necessarily follows that those configurations do not infringe claims 5 and 9 of the '377 patent because those claims depend on claim 1.

ii. The SAN Configuration

In the SAN configuration, three nodes are connected to a switch that is connected to three persistent storage disks. Mangosoft argues that at a given point in time, the switch allows one node direct access to one persistent storage disk, making that storage disk "local" to that node and shared with the other nodes. Mangosoft focuses on the ability of a node to issue local block level commands to the persistent storage disks via the switch. Consistent with its position, Mangosoft contends that configurations using servers to coordinate the communication

between persistent storage devices and nodes, such as a Network Attached Storage ("NAS") configuration, are not local because the nodes do not issue local block level commands directly to the persistent memory devices. The court, however, did not construe "local" in terms of access but in terms of attachment.

At the Markman hearing, the parties disputed "whether a local memory device must be 'attached' to only one computer (Oracle's view), or whether it need only be 'accessible' by a computer without having to go through another node or computer controlling access to that device (Mangosoft's view)." Markman Order at 18. After considering both views, the court construed a "local" device to be one that is directly attached to a single node. This construction is supported by the '377 patent's consistent description of local memory devices as being "coupled" to a computer, implying that whether a memory device is local to a node depends on some physical relationship, rather than a particular mode of communication. The '377 patent, 3:11-14, 59-62, 16:1-5.

Direct command level access and direct physical attachment are not synonymous; direct attachment is a narrower requirement than direct access. As Mangosoft's expert, David Klausner,

stated, "a device does not need to be directly attached to a node in order for it to be directly accessed by the node." Klausner Decl. at para. 14, submitted with Pl.'s Opp'n Br. on Claim Construction (document no. 43). Therefore, even if the nodes treat the persistent storage disks as local by issuing local block level commands, the persistent storage disks are not necessarily local, as that term is used in the '377 patent, unless they are directly attached to the nodes.

Memory devices attached to a node by a switch are not directly attached to the node. As the court has construed the '377 patent, a local device is "directly attached" to a node if it does not require "an intervening communication channel." Markman Order at 18. The court's construction of the '377 patent draws a distinction between a local device, which is directly attached to a single node, and a non-local device, which, "by some intervening communication channel, might be accessed by more than one computer." Id. A switch falls squarely within the scope of "intervening communication channel" as contemplated by the Markman Order, because it provides a means for memory devices to be accessed by more than one computer. Additionally, Mangosoft's own expert conceded that storage devices connected to a computer node via a switch are not directly attached. Klausner

Decl. at para. 16.[2] By virtue of the switch, the persistent storage disks in the SAN configuration are not local to the nodes.

Mangosoft does not argue that any other persistent memory is shared by the nodes in the SAN configuration. Thus, the SAN configuration does not infringe claim 1, and by extension claims 5 and 9, because it lacks a shared memory space that spans local persistent memory devices.

In summary, then, none of the three configurations identified by Mangosoft literally infringes the '377 patent because none of those configurations has the required element of a shared addressable memory space that is distributed across

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[2] Mangosoft attempts to explain away this statement by asserting that it was directed to a NAS configuration rather than a SAN configuration. In fact, the declaration references an example that shows "several network storage devices connected through a switch (not directly attached) to several computer nodes (Ex. A, p. 5, Fig. 3)." Klausner Decl. at para. 6. Figure three shows a Switched Fibre Channel topology. Klausner Decl., Ex. A at 5. In the paragraphs preceding that figure, Fibre Channels are associated with a SAN configuration, not NAS configurations. Klausner Decl., Ex. A at 4.

In any case, the differences between a NAS and a SAN configuration bear no relationship to whether a switch constitutes an intervening communication channel. A switch performs the same function in both configurations – it allows more than one node to access a memory device.

local persistent memory devices. Thus, Mangosoft's motion for summary judgment is denied and Oracle's motion for summary judgment is granted as to literal infringement. Since Oracle does not infringe claims 1, 5, and 9 of the '377 patent, the court need not consider Oracle's assertion that the three configurations do not have a shared addressable memory space.

B. Infringement by Equivalents

None of the configurations identified by Mangosoft infringes under the doctrine of equivalents. "Under the doctrine of equivalents, a patent claim limitation not literally met may be satisfied by an element of the accused product if the differences between the two are 'insubstantial' to one of ordinary skill in the art." Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339, 1351 (Fed. Cir. 2003) (citing Reeves v. Sanderson Plumbing Prods., Inc., 530 U.S. 133, 150-51 (2000)). The doctrine of prosecution history estoppel, however, limits application of the doctrine of equivalents when "the applicant makes a narrowing amendment for purposes of patentability." Salazar v. Procter & Gamble Co., 414 F.3d 1342, 1344 (Fed. Cir. 2005) (citing Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 736 (2002)). The patentee's amendment to narrow the scope of a claim does not bar the application of the

doctrine of equivalents as to that element, but rather limits the range of equivalents available to the patentee. Festo Corp., 535 U.S. at 740 ("A patentee's decision to narrow his claims through amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim."). The patentee bears "the burden of showing that. . . [an] amendment does not surrender the particular equivalent in question." Id.

Claim 1, as originally filed, did not include the "local" limitation on the persistent memory devices. Mangosoft amended claim 1 to add the "local" restriction. That Mangosoft relied on the amendment for patentability is underscored by its representation to the PTO that "none of the relied upon [prior art] references teaches or suggests local volatile memory devices (e.g., RAM associated with each network computer) or persistent memory devices (e.g., hard disks associated with each networked computer), having portions of a shared memory space mapped thereon." Lumish Decl., Ex. 34 at ORCL 000386, submitted with Def.'s Mot. for Summ. J. (document no. 74). Since Mangosoft distinguished its invention from the prior art based on the use of local memory devices, Mangosoft is limited to claiming

equivalents of configurations that use "local" persistent memory devices.

The non-local persistent memory devices in the Dell, VeriSign, and SAN configurations would literally infringe claim 1 as originally filed. But, holding that a configuration with a non-local persistent memory device is equivalent to a configuration with a local persistent memory device would permit Mangosoft to reclaim territory that it surrendered during prosecution of the '377 patent - something Mangosoft is barred from doing. See Festo Corp., 535 U.S. at 733-734 ("When, however, the patentee originally claimed the subject matter alleged to infringe but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter that should be deemed equivalent to the literal claims of the issued patent."). Thus, Oracle's motion for summary judgment is granted as to infringement by equivalents.

C. Induced Infringement

Mangosoft further argues that Oracle is liable for inducing direct infringement. To succeed on its claim that Oracle induced others to infringe the '377 patent, however, Mangosoft must first

show that there actually has been direct infringement, either literally or by equivalents. See MEMC Elec. Materials, Inc. v. Mitsubishi Materials Silicon Corp., 420 F.3d 1369, 1378 (Fed. Cir. 2005) (citing Minn. Mining & Mfg. Co. v. Chemque, Inc., 303 F.3d 1294, 1304-05 (Fed. Cir. 2002)). As noted above in the literal infringement and infringement by equivalents discussions, Mangosoft has not shown direct infringement. It necessarily follows that Oracle did not induce third parties to infringe the patent by using its non-infringing software. See Anton/Bauer, Inc. v. PAG, Ltd., 329 F.3d 1343, 1345-46 (Fed. Cir. 2003). Mangosoft's motion for summary judgment on grounds of induced infringement is denied.

II. Validity of the '377 Patent

Both sides move for summary judgment on the issue of validity. Mangosoft moves for partial summary judgment, asserting that a number of prior art references submitted by Oracle do not anticipate the '377 patent. Oracle, on the other hand, argues that the '377 patent is anticipated and rendered obvious by prior art references.

A patent claim is invalid if it is anticipated or obvious. See 35 U.S.C. §§ 102, 103. A patent claim is generally presumed

to be valid. 35 U.S.C. § 282. The party alleging invalidity has the burden of producing clear and convincing evidence of the claim's invalidity. Schumer v. Lab. Computer Sys., Inc., 308 F.3d 1304, 1315 (Fed. Cir. 2002) (citing Apotex USA, Inc. v. Merck & Co., 254 F.3d 1031, 1036 (Fed. Cir. 2001)). Here, with one exception, neither party has demonstrated that it is entitled to judgment as a matter of law on the issue of validity or invalidity of the '377 patent. Only with respect to the Oracle Parallel Server ("OPS") reference is Mangosoft entitled to summary judgment on the issue of validity.

A. Anticipation

A patent claim is invalid as anticipated under section 102 if "each and every limitation is found either expressly or inherently in a single prior art reference." Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1339 (Fed. Cir. 2003) (quoting Celeritas Techs. Inc. v. Rockwell Int'l Corp., 150 F.3d 1354, 1360 (Fed. Cir. 1998)). "To anticipate, the reference must also enable one of skill in the art to make and use the claimed invention." Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1374 (Fed. Cir. 2001) (citing In re Donhue, 766 F.2d 531, 533 (Fed. Cir. 1985)).

Under section 102(a), prior art includes art "known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent." 35 U.S.C. § 102(a). And, under section 102(b), it includes art "patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States." 35 U.S.C. § 102(b). Whether a prior art reference anticipates an invention is a question of fact. Elan Pharms., Inc. v. Mayo Found., 346 F.3d 1051, 1054 (Fed. Cir. 2003) (citing Hoover Group, Inc. v. Custom Metalcraft, Inc., 66 F.3d 299, 302 (Fed. Cir. 1995)). With the exception of the OPS reference, genuine issues of material fact regarding anticipation exist with respect to each other reference. Consequently, neither party is wholly entitled to judgment as a matter of law on the issue of anticipation.

i. The OPS Reference

In support of its motion for summary judgment, Mangosoft asserts that the OPS reference does not anticipate claims 1, 5, and 9. Oracle disagrees and moves for summary judgment that the OPS references, under Mangosoft's theory of infringement, does anticipate.

Oracle's theory of anticipation rests on its argument that "beyond an issue of material fact, there is no relevant difference between the functionality of RAC alleged to infringe and the functionality of OPS in the prior art." Mem. in Supp. of Def.'s Mot. for Summ. J. at 33. Specifically, Oracle argues that OPS was designed to operate on the same type of computer clusters and in the same fashion as the accused RAC software. See Mem. in Supp. of Def.'s Mot. for Summ. J. at 34. As determined earlier, a computer cluster configured to use RAC software does not infringe, because it does not have a shared addressable memory space spanning local persistent memory devices. A system that generally mirrors the RAC system architecture, as Oracle concedes the OPS reference does, lacks the same required element. Thus, the OPS reference does not, as a matter of law, anticipate claim 1, and by extension claim 5 and 9, because is does not include every claim 1 limitation.

There is no need to further consider Mangosoft's arguments with respect to the OPS reference. Mangosoft's motion for summary judgment is granted and Oracle's motion for summary judgment is denied as to anticipation by the OPS reference.

ii. The VAXcluster References[3]

The VAXcluster references include three articles: the Snaman article,[4] the Thiel article,[5] and the Kronenberg article.[6] Mangosoft moves for summary judgment, asserting that the Snaman and Thiel articles do not anticipate claim 1, 5, and 9, while Oracle moves for summary judgment, asserting that the Kronenberg article does anticipate. Each side opposes the other's motion.

Mangosoft argues that the Snaman and Thiel articles do not anticipate because neither discloses a shared addressable memory space that spans the local volatile memory of the participating nodes. Oracle disagrees.

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[3] Sometimes referred to by the parties as the DEC references.

[4] William E. Snaman, Jr., Application Design in a VAXcluster System, Vol. 3 No. 3 Digital Technical Journal 1 (Summer 1991) (sometime referred to by the parties as the DEC VAXcluster reference).

[5] William E. Snaman, Jr. & David W. Thiel, The VAX/VMS Distributed Lock Manager, No. 5 Digital Technical Journal 29 (Sept. 1987) (sometime referred to by the parties as the DEC DLM reference).

[6] Nancy P. Kronenberg et al., The VAXcluster Concept: An Overview of a Distributed System, No. 5 Digital Technical Journal 7 (September 1987).

The Snaman article discusses the design and application of VAXcluster systems so that computing systems can survive the failure of any component. Gilman Decl., Ex RR at 1, submitted with Pl.'s Mot. for Summ. J (document no. 75). The processors in a VAXcluster system "interact to form a cooperating distributed operating system." Id. In a VAXcluster system, "all disks and their stored files are accessible from any processor as if those files were connected to a single processor." Id.

To support its argument, Mangosoft relies on the statements of its expert witness, David Klausner. Klausner argues that the Snaman article only discloses "nodes participating in a DECVAXcluster computer system . . . [accessing] the memory space across the persistent memory devices," not the volatile memory devices of the nodes. Klausner Decl. at paras. 105 and 106. (emphasis supplied). Although the article mainly discusses sharing memory between persistent storage devices such as disks and tapes, the article also discloses that the system may be configured to utilize local buffer caches, which are volatile storage devices. Gilman Decl., Ex. RR at 2. Whether one of ordinary skill in the art would understand utilizing local buffer caches to constitute shared addressable memory space spanning the local volatile memory is not readily apparent to the court.

Contrary to Mangosoft's expert, Oracle's expert witness, Paul Clark, states that "[the Snaman article] teaches sharing copies of blocks of data among clustered computers utilizing direct RAM to RAM transfer between nodes." Clark Decl. at 187, submitted with Def.'s Mot. for Summ. J. RAM, like cache, is volatile memory. Given the disparate statements of these two experts, a genuine issue of material fact arises with regard to whether a person of ordinary skill in the relevant art would understand the Snaman article to disclose a shared addressable memory space that spans local volatile memory. Thus, Mangosoft's motion for summary judgment is denied with respect to anticipation by the Snaman article.[7]

The Thiel article discloses a method of synchronizing access to shared resources on a VAXcluster system. As with the Snaman article, Mangosoft's expert states that "[a]s described in the [Thiel article], nodes participating in a computer system using the DEC DLM as described cannot access the memory space distributed across the volatile memory of all nodes participating in the system." Klausner Decl. at para. 108. The Thiel article discloses a method for preventing more than one node accessing

[7] Oracle did not move for summary judgment that the Snaman article anticipates claims 1, 5, and 9 of the '377 patent.

data at a time (i.e., data locking), while maintaining coherency between the cache (volatile memory) and disk (persistent memory). Ex. SS at 31. The ability of nodes in a VAXcluster system to access the cache, opines Oracle's expert, sufficiently reads on the necessary shared addressable memory space. Clark Decl. at 188, 189. Again, the disparity between expert witness opinions creates a genuine issue of material fact: whether a person of ordinary skill in the relevant art would understand the Thiel article to disclose a shared addressable memory space that spans local volatile memory. Thus, Mangosoft's motion for summary judgment is denied with respect to anticipation by the Thiel article.[8]

Turning to Oracle's motion and the third VAXcluster reference, the Kronenberg article provides a general overview of the VAXcluster system. Oracle argues that the Kronenberg article anticipates claims 1, 5, and 9. Mangosoft counters that Oracle has not even established a prima facie case of anticipation because Oracle confusingly and improperly compares the Kronenberg article to the claims limitations.

[8] Oracle did not move for summary judgment that the Thiel article anticipates claims 1, 5, and 9 of the '377 patent.

Typically, to show that a prior art reference anticipates a claim, a party "must identify each claim element, state [its] interpretation of the claim element, and explain in detail how each claim element is disclosed in the prior art reference." Koito Mfg. Co. v. Turn-Key-Tech, LLC, 381 F.3d 1142, 1152 (Fed. Cir. 2004) (citing Schumer, 308 F.3d at 1315). Here, Oracle's arguments and supporting exhibits are insufficient to show that the Kronenberg article anticipates. Oracle's argument is based entirely on conclusory statements that an element is disclosed, supported only by ambiguous quotes from the reference. For example, Oracle argues:

> The Kronenberg article describes the VAX nodes as having local RAM. See, e.g., ORCL 89125 ("high speed memory-to-memory block transfer between nodes"); ORCL 89129 ("copying block data from the process virtual memory of one node to the process virtual memory of another node."); ORCL 89136 (discussing buffer caching in a node.")

Mem. is Supp. of Def.'s Mot. for Summ. J. at 44 (emphasis in original). The conclusory statement and references to the article are not supported by expert testimony explaining the correlation between the article and elements of claim 1 of the '377 patent. And, the references to the article are not so unambiguous as to require no explanation or discussion. The court need not attempt to decipher confusing or generalized

argument to determine whether a case of invalidity has been made out, particularly at the summary judgment stage. See Schumer, 308 F.3d at 1316.

Oracle argues that its expert witness compared the VAXcluster system, on an element-by-element basis, to the claims. While the expert's declaration does discuss the VAXcluster system, it only discusses the VAXcluster system with reference to the Snaman article and the Thiel article. See generally, Clark Decl. at 148-216. The Kronenberg article is not discussed. Thus, Oracle's motion for summary judgment on grounds that the Kronenberg article anticipates is denied; it has failed to prove by clear and convincing evidence that the Kronenberg article discloses "each and every limitation" of claim 1, and by extension claims 5 and 9.

iii. The IBM Reference and the Franklin Reference

Mangosoft also moves for summary judgment, asserting that the IBM reference and the Franklin reference do not anticipate claims 1, 5, and 9. Specifically, Mangosoft argues that the IBM reference does not disclose a shared memory subsystem that is distributed among the participating nodes, as required by claim 1. And, as to the Franklin reference, Mangosoft says it does not

disclose a shared addressable memory space that includes local persistent and volatile memory. Oracle disagrees on both counts.

The IBM reference is a research paper that discusses a scheme for sharing, reading, and modifying data. The scheme uses a Global Lock Manager to control the flow of data. Mangosoft, relying on its expert witness, argues that this Global Lock Manager is centralized, not distributed. The expert's declaration, however, simply states that "the IBM reference describes a centralized Global Lock Manager that manages the locks of a system as opposed to a distributed manager for mapping," without further explanation. Klausner Decl. at para. 103. In response, Oracle, relying on its expert witness, argues that the Global Lock Manager is distributed. Oracle's expert bases his opinion on language from the IBM reference indicating that multiple copies of the Global Lock Manager exist. See Lumish Decl., Ex. AA at 255-56, submitted with Def.'s Opp'n to Pl.'s Mot. for Summ. J. (document no. 77). The disparity in expert witness testimony raises a question of material fact sufficient to preclude the court from granting Mangosoft's motion for summary judgment in regards to anticipation by the IBM reference.

For much the same reason, summary judgment is not proper with respect to the Franklin reference. Again, both sides disagree, relying on expert testimony to support their respective positions. The Franklin reference discusses techniques used to treat a system of computers as a single memory hierarchy. The technique uses workstation computers and server computers. Mangosoft's expert says the memory space disclosed in the Franklin reference does not incorporate the persistent memory of the workstations or the volatile memory of the servers. See Klausner Decl. at paras. 111-12. In opposition, Oracle's expert says the Franklin reference's memory space does include both local persistent and volatile memory. See Clark Decl. at paras. 180-82, 192-93. As with the IBM reference, the disparity in expert witness testimony raises a question of material fact sufficient to preclude the court from granting Mangosoft's motion for summary judgment as to the Franklin reference. Thus, Mangosoft's motion for summary judgment is denied with respect to anticipation by the IBM reference and the Franklin reference.

iv. The Opal Reference, the SAOS Reference, the WADS Reference, and the MESS Reference

Next, Mangosoft moves for summary judgment on grounds that the Opal reference, the Single Address-Space Operating System

("SAOS") reference, the Wide Area Data Space ("WADS") reference, and the MESS reference - all of which are cited by Oracle - do not anticipate claims 1, 5, and 9, because they are not enabling. Specifically, Mangosoft argues that the references do not enable a "shared addressable memory space." Again, Oracle disagrees.

"Whether a prior art reference is enabling is a question of law based upon underlying factual findings." SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331, 1342-43 (Fed. Cir. 2005). To be enabling, a prior art reference must enable "one of ordinary skill in the art [to] practice the invention without undue experimentation." Novo Nordisk Pharm., Inc. v. Bio-Techn. Gen. Corp., 424 F.3d 1347, 1355 (Fed. Cir. 2005) (citing SmithKline Beecham, 403 F.3d at 1343). Undue experimentation "is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988). Those factual considerations include: "(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

Warner-Lambert Co. v. Teva Pharms. USA, Inc., 418 F.3d 1326, 1337 (Fed. Cir. 2005) (citing In re Wands, 858 F.2d at 737).

Both patents and journal publications constitute prior art references. See 35 U.S.C. § 102(b). As an initial matter, Mangosoft and Oracle dispute whether the In re Wands factors apply to journal publications. Mangosoft argues that they do. Oracle disagrees, arguing that In re Wands only dealt with the patent validity enablement requirement under 35 U.S.C. § 112. Both are correct.

In In re Wands, the question was "[w]hether the specification in an application . . . is enabled." 858 F.2d at 736. Nevertheless, the Federal Circuit has also considered the In re Wands factors in determining whether a prior art reference is enabling. See, e.g., Elan Pharms., 346 F.3d at 1054-55. Still, the Federal Circuit recognizes that the enablement requirements for a patent under section 112 para. 1 are different from a non-patent prior art reference under section 102. Rasmusson v. SmithKline Beecham Corp., 413 F.3d 1318, 1325 (Fed. Cir. 2005). More specifically, section 112 para. 1 requires a patent's written description to disclose how to use the invention and "set forth the best mode of carrying out the invention

contemplated by the inventor." Although a written description that fails to meet these technical requirements of section 112 para. 1 is not enabled, the written description may still constitute an enabling reference under section 102. See Rasmusson, 413 F.3d at 1326 ("[A] prior art reference need not demonstrate utility in order to serve as an anticipating reference under section 102."). Thus, the In re Wands factors are applicable in determining enablement of prior art references consisting of journal publications.

Mangosoft argues that the four references are non-enabling because "the references do not provide close to the type of detail, such as specific guidance and working examples as set forth in the '377 patent." Mem. is Supp. of Pl.'s Mot. for Summ. J. at 53. The invention disclosed in a prior art reference need not actually have been made for the reference to be enabling. In re Donohue, 766 F.2d 531, 533 (Fed. Cir. 1985). A working example implies that the invention disclosed in the prior art reference had actually been made, which is not a requirement. Id. Thus, the absence of working examples is not dispositive of whether a prior art reference is enabling. See In re Wands, 858 F.2d at 737 ("Whether undue experimentation is needed is not a

single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations.").

Even though working examples are not required, a prior art reference must still be able to be made without undue experimentation by a person of ordinary skill in the relevant art. Novo Nordisk Pharm., Inc., 424 F.3d at 1355 (citing SmithKline Beecham, 403 F.3d at 1343). Mangosoft asserts that the prior art references are not enabling because "they are only memorialized ideas and state explicitly that there are implementation details left to the reader." Mem. is Supp. of Pl.'s Mot. for Summ. J. at 53 (emphasis in original). "But the question of undue experimentation is a matter of degree." PPG Indus. v. Guardian Indus. Corp., 75 F.3d 1558, 1564 (Fed. Cir. 1996) (quoting Atlas Powder Co. v. E.I. DuPont de Nemours & Co., 750 F.2d 1569, 1576 (Fed. Cir. 1984)). And, the proper inquiry is not whether some experimentation is required, but whether the experimentation is unduly extensive. See id.

Furthermore, a considerable amount of experimentation is not unduly extensive if it is merely routine. In re Wands, 858 F.2d at 737. The fact that certain "details" are undefined does not necessarily preclude enablement. See id. Mangosoft does not

address why making the invention would require undue experimentation without these "details," nor does it address any other In re Wands factor. Given that "undue experimentation" is a factual question, there exists a substantial question of material fact as to whether the unspecified implementation details in the Opal reference, the SAOS reference, the WADS reference, and the MESS reference would require undue experimentation. Thus, Mangosoft's motion for summary judgment with regard to those four prior art references is denied.

B. Obviousness

A patent may be invalid as obvious under section 103(a) "if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). Whether a claim is obvious under § 103(a), "depends on at least four underlying factual issues: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) evaluation of any relevant secondary considerations." Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1336

(Fed. Cir. 2005) (citing Graham v. John Deere Co., 383 U.S. 1, 17 (1966)). A claim may be rendered obvious by combining elements across different references if there is a "suggestion, motivation or teaching to those skilled in the art for such a combination." Iron Grip Barbell Co. v. USA Sports, Inc., 392 F.3d 1317, 1320 (Fed. Cir. 2004) (citing In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988)).

"The ultimate determination of obviousness is a question of law." Para-Ordnance Mfg. v. SGS Imps. Int'l, 73 F.3d 1085, 1088 (Fed. Cir. 1995)(citing Stiftung v. Renishaw PLC, 945 F.2d 1173, 1182 (Fed. Cir. 1991)). But, determining the scope and content of the prior art, differences between the prior art and the claimed invention, the level of ordinary skill in the art, and objective evidence of secondary considerations are questions of fact. Id.

Oracle argues claims 1, 5, and 9, are rendered obvious by some combination of the OPS reference and the VAXcluster references. Oracle's analysis is insufficient, however, to warrant the entry of summary judgment. Specifically, Oracle fails to properly address the first and second Graham factors. The first Graham factor considers the scope and content of the

prior art. Graham, 383 U.S. at 17. As noted above, there are questions of material fact as to the scope and content of VAXcluster references. Furthermore, the second Graham factor addresses the differences between the prior art and the claims at issue. Id. Oracle fails to address any differences. Instead, Oracle simply declares that "[b]oth OPS and the Kronenberg article teach all of the limitations of the asserted claims." Mem. in Supp. of Def.'s Mot. for Summ. J. at 47. Plainly, that argument is insufficiently developed to warrant the entry of summary judgment.

Additionally, Oracle is vague as to how the references should be combined, simply stating that "the scope and content of the prior art includes all of the functions Mangosoft alleges infringe the asserted claims, and there is no difference in scope." Mem. in Supp. of Def.'s Mot. for Summ. J. at 47. Like its arguments for anticipation, Oracle's arguments for obviousness are merely conclusory and lack any explanation or analysis. And, as mentioned previously, the court need not attempt to decipher confusing or generalized argument to determine whether a case of invalidity has been made out, particularly at the summary judgment stage. See Schumer, 308 F.3d at 1316. Oracle's motion for summary judgment as to

obviousness is denied, on grounds that it has failed to establish, by clear and convincing evidence, that claims 1, 5, and 9 are invalid as obvious. Accordingly, there is no need to consider Mangosoft's arguments regarding secondary indicia of non-obviousness.

III. Enforceability of the '377 Patent

Finally, Oracle moves for summary judgment on the issue of enforceability, accusing Mangosoft of misconduct during the prosecution of the '377 patent. Mangosoft denies misconduct.

A patent may be rendered unenforceable if it was procured by inequitable conduct. Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1569 (Fed. Cir. 1992) (citing Kingsdown Med. Consultants, Ltd. v. Hollister, Inc., 863 F.2d 867, 877 (Fed. Cir. 1988)). Applicants have a duty to prosecute a patent application with candor and good faith toward the PTO. Li Second Family Ltd. P'ship v. Toshiba Corp., 231 F.3d 1373, 1378 (Fed. Cir. 2000) (citing Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed. Cir. 1995)). This duty extends to "[e]ach individual associated with the filing and prosecution of a patent." 37 C.F.R. § 1.56(a). Breaching the duty of candor by failing to disclose material information with an intent to

deceive the PTO amounts to inequitable conduct. Li Second Family Ltd. P'ship, 231 F.3d at 1378 (citing Molins PLC, 48 F.3d at 1178). Here, Oracle asserts that Mangosoft breached its duty of candor when Scott Davis, allegedly one of two Mangosoft engineers involved in prosecuting the '377 patent, failed to disclose the VAXcluster references.[9]

To succeed on its claim of inequitable conduct, Oracle must show by "clear and convincing evidence" that Mangosoft failed to disclose material information with an intent to mislead the PTO. Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., 326 F.3d 1226, 1233-34 (Fed. Cir. 2003) (citing Kingsdown Med. Consultants, 863 F.2d at 872). In other words, Oracle must show that the VAXcluster references were material, and that Davis intended to deceive the PTO by failing to disclose them. Both materiality and intent to mislead are questions of fact. Id. at 1234 (citing GFI, Inc. v. Franklin Corp., 265 F.3d 1268, 1273

[9] Although Oracle argues that Mangosoft failed to disclose the VAXcluster references, it only specifically mentions the Kronenberg article. For purposes of this order, the court assumes Oracle is referring to the Snaman article and the Thiel article when it refers to the "other" VAXcluster references, since those three articles are the only ones discussed by Oracle that involve the VAXcluster technology.

(Fed. Cir. 2001). Oracle has failed to carry its burden at this stage.

Information is material if "[i]t establishes, by itself or in combination, a prima facie case of unpatentability . . . [by] compel[ling] a conclusion that a claim is unpatentable . . . giving each term in the claim its broadest reasonable construction consistent with the specification." 37 C.F.R. § 1.56(b). Oracle argues that the Kronenberg article, by itself and in combination with the other VAXcluster references, establishes a prima facie case that claim 1 is unpatentable. As noted above, however, there exists a substantial question whether the Kronenberg article would establish a prima facie case of unpatentability. Additionally, as mentioned above in the court's anticipation and obviousness discussion, there is a substantial question whether any VAXcluster reference would establish a prima facie case, either alone or in combination, of unpatentability. Thus, it cannot be said that, as a matter of law, the VAXcluster references were material. If the VAXcluster references were not material, then Mangosoft had no duty to disclose them. Hebert v. Lisle Corp., 99 F.3d 1109, 1116 (Fed. Cir. 1996) (citing Kingsdown Med. Consultants, 863 F.2d at 872).

Oracle further argues that the VAXcluster references are material because the references are inconsistent with Mangosoft's position opposing the PTO's argument of unpatentability. Information may also be material if "[i]t . . . is inconsistent with, a position the applicant takes in . . . [a]sserting an argument of patentability." 37 C.F.R. § 1.56(b)(2)(ii). During prosecution of the '377 patent, the PTO rejected all of the pending claims in the patent application over the Costa, Kish, and Parrish prior art references. Mangosoft traversed the rejection arguing that the cited prior art references do not disclose multiple computers sharing memory over a network, but rather disclose a single computer with multiple processors.

Oracle contends that (1) Mangosoft was asserting, for purposes of patentability, that multiprocessor systems are not similar to client-server systems, and (2) the VAXcluster references are material because they are inconsistent with Mangosoft's assertion. Oracle fails to show that any inconsistency in Mangosoft's assertion makes the VAXcluster references material. First, Mangosoft was merely asserting that a single computer with multiple processors does not anticipate a necessary element of claim 1 or the '377 patent: a plurality of computers. Second, Oracle fails to show any inconsistency in

this assertion because Oracle does not argue that the VAXcluster references show that a single computer with multiple processors is a plurality of computers. Therefore, Oracle has failed to show that the VAXcluster references are material as a matter of law.

Even assuming, arguendo, that the VAXcluster references were sufficiently material, "a mere showing that references having some degree of materiality were not disclosed does not establish inequitable conduct." Halliburton Co. v. Schlumberger Tech. Corp., 925 F.2d 1435, 1442 (Fed. Cir. 1991) (citing FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1411 (Fed. Cir. 1987)). "[T]here must be a factual basis for a finding of deceptive intent." Hebert, 99 F.3d at 1116 (Fed. Cir. 1996) (citing Braun, Inc. v. Dynamics Corp., 975 F.2d 815, 822 (Fed. Cir. 1992)). Oracle argues that Davis worked in "stealth mode," trying to distance himself from DEC, his former employer and creator of the VAXcluster technology, to maintain the secrecy of the inventions claimed in the '377 patent. Mangosoft counters that Davis's "stealth mode" was not driven by an intent to deceive the PTO but, instead, was necessary to prevent Mangosoft's new technology from being stolen or developed by a competitor. A substantial question exists as to Davis's intentions. Because there are

substantial questions of material fact as to both the materiality of the VAXcluster references and, assuming materiality, Davis's intentions, summary judgment is inappropriate. Thus, Oracles motion for summary judgment with respect to inequitable conduct is denied.

Conclusion

For the foregoing reasons, the court concludes that, as a matter of law, Oracle does not infringe claims 1, 5, and 9 of the '377 patent. But, the court also concludes that the OPS reference does not invalidate claims 1, 5, and 9 of the '377 patent by anticipation.

As to whether the other references identified by Oracle anticipate the '377 patent, genuine issues of material fact preclude entry of summary judgment in favor of either party. A substantial question of material fact also exists as to whether the references at issue invalidate claims 1, 5, and 9 of the '377 patent by rendering them obvious. Finally, there are a number of genuinely disputed material facts that preclude entry of summary judgment as to whether the '377 patent is unenforceable due to inequitable conduct.

Accordingly, Oracle's motion for summary judgment (document no. 74) is granted to the extent it seeks a judicial declaration that its products do not infringe claims 1, 5, or 9 of the '377 patent. It is, however, denied with respect to invalidity and unenforceability.

Mangosoft's motion for summary judgment (document no. 75) is denied with respect to its claims that Oracle infringes claims 1, 5, and/or 9 of the '377 patent. But, with respect to the validity of the patent despite the existence of the OPS reference, that motion is granted. In all other respects, Mangosoft's motion is denied.

At this juncture, Mangosoft's claim for infringement of the '377 patent is resolved in favor of Oracle. Oracle's counter claims on grounds of invalidity and/or inequitable conduct remain unresolved. Having construed the disputed terms in the patent, and having resolved the major issues at the core of this dispute, the court expects that the parties can resolve the remaining issues amicably and in the interests of their respective clients (and, parenthetically, notes that the USPTO provides alternate methods for invalidating a patent).

On or before April 17, 2006, Oracle shall notify the court if it intends to pursue its claims of invalidity and unenforceability.

SO ORDERED.

Steven J. McAuliffe
Chief Judge

March 14, 2006

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