

PUBLIC REDACTED VERSION

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ROKU, INC. and VIZIO, INC.,
Petitioner,

v.

ANCORA TECHNOLOGIES, INC.,
Patent Owner.

IPR2021-01406
Patent 6,411,941 B1

Before THU A. DANG, KEVIN W. CHERRY, and RYAN H. FLAX,
Administrative Patent Judges.

DANG, *Administrative Patent Judge.*

JUDGMENT

Final Written Decision on Remand
Determining All Challenged Claims Unpatentable
35 U.S.C. §§ 144, 318

I. INTRODUCTION

We address this case on remand after a decision by the U.S. Court of Appeals for the Federal Circuit (“the Federal Circuit”) in *Ancora Technologies, Inc. v. Roku, Inc., Vizio, Inc., Nintendo Co., Ltd., Nintendo of America Inc.*, no. 2023-1674 (Fed. Cir. June 16, 2025). Paper 55 (“Remand Decision” or “Rem. Dec.”).

A. Background

In response to a Petition (Paper 3, “Pet.”) filed by Roku, Inc. and VIZIO, Inc. (collectively, “Petitioner”), we instituted *inter partes* review (“IPR”) of claims 1–3, 6–14, and 16 (“the challenged claims”)¹ of U.S. Patent No. 6,411,941 B1 (Ex. 1001, “the ’941 patent”). See Paper 10 (“Decision” or “Dec. Inst.”). During the trial, Ancora Technologies, Inc. (“Patent Owner”) filed a Response (Papers 21, 22, “PO Resp.”), to which Petitioner filed a Reply (Papers 32, 33, “Pet. Reply.”). In turn, Patent Owner filed a Sur-Reply. Papers 36, 37 (“PO Sur-Reply”). An oral hearing was held with the parties on October 3, 2022. A transcript of the hearing has been entered into the record. Paper 48 (“Tr.”).

We issued a Final Written Decision on January 25, 2023, concluding that Petitioner had shown by a preponderance of the evidence that claims 1–3, 6–14, and 16 of the ’941 patent are unpatentable. Papers 49, 50 (“Final Dec.”). Patent Owner appealed the Final Written Decision to the United States Court of Appeals for the Federal Circuit. Paper 52.

¹ Claims 4, 5, 15, and 17–19 are not challenged in this proceeding. Pet. 7.

On June 16, 2025, the Federal Circuit issued a decision vacating the Final Written Decision because “the Board’s findings regarding the license evidence offered as objective indicia of nonobviousness constitute legal error and were not supported by substantial evidence.” Paper 55, 20 (“Rem. Dec.”). In the opinion, the Federal Circuit explained that, although the Board “did not err in its claim construction analysis and substantial evidence supports its prima facie case of obviousness,” the Board “erred in its secondary consideration analysis,” and thus, the Federal Circuit “vacate[d] and remand[ed] for the Board to reconsider the nexus issue as it pertains to the licenses offered as objective indicia of nonobviousness.” *Id.*

On August 15, 2025, a call was held with the parties and Judges Dang, Flax, and Cherry to discuss the remand proceedings. On the same day, we entered an Order authorizing the parties to submit briefing “addressing the impact of Patent Owner’s licensing evidence.” Paper 60, 1. The Order precluded the parties from filing additional evidence. *Id.* The parties duly filed their remand briefs. Papers 62, 63 (“Pet. Rem. Br.”), 65, 67 (“PO Rem. Br.”). The parties also filed their responsive briefs. Paper 68, 69 (“Pet. Rem. Resp.”), 71, 73 (“PO Rem. Resp.”).

For the reasons discussed below, after considering the parties’ arguments set forth in post-remand briefing regarding the license evidence offered as objective indicia of obviousness and nonobviousness, as well as the record previously developed during trial and the Federal Circuit’s Remand Decision, we conclude that Petitioner has met its burden to establish by a preponderance of the evidence that the challenged claims are unpatentable.

B. The '941 patent

According to the '941 patent, software products have been developed to validate authorized software usage by writing a license signature onto the computer's volatile memory. Ex. 1001, 1:19–21. However, the '941 patent recognizes that these products are vulnerable to attack by “hackers” and the license signatures are “subject to the physical instabilities of their volatile memory media.” *Id.* at 1:21–26. The '941 patent also recognizes that hardware-based products developed to validate authorized software usage are “expensive, inconvenient, and not particularly suitable for software that may be sold by downloading.” *Id.* at 1:27–32.

Thus, the '941 patent discloses a method of restricting software operation within a license limitation that relies on the use of a key and a record, which have been written into the non-volatile memory of a computer. *Id.* at 1:39–42. In particular, the method is applicable for a computer having a first non-volatile memory area, a second non-volatile memory area, and a volatile memory area (*see* below discussion of Figure 1). *Id.* at code (57). According to the '941 patent, the method includes the steps of selecting a program residing in the volatile memory, setting up a verification structure in the non-volatile memories, verifying the program using the structure, and acting on the program according to the verification. *Id.*

In a “specific non-limiting example,” a conventional computer includes a conventional Basic Input / Output System (“BIOS”) module in which a key constituting a unique identification code for the host computer was embedded at the read-only memory (“ROM”) section thereof during manufacture, wherein the key is stored in a non-volatile portion of the BIOS

where it cannot be removed or modified. *Id.* at 1:44–49. A verification structure is set in the BIOS so as to indicate that the specified program is licensed to run on the specified computer. *Id.* at 1:59–62. The encrypted license record is stored in another (second) non-volatile section of the BIOS, e.g., the electrically erasable programmable read-only memory (“EEPROM”) section. *Id.* at 1:62–2:1. Unlike the first non-volatile section, the data in the second non-volatile memory may be erased or modified so as to enable the computer to add, modify or remove licenses. *Id.* at 2:1–5.

Figure 1 of the '941 patent is reproduced below.

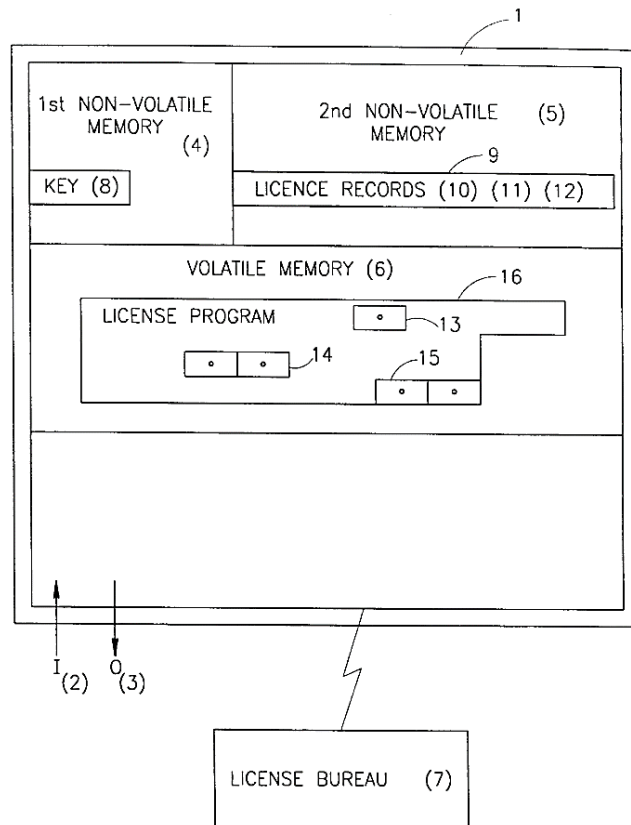


Figure 1 above shows a schematic diagram of computer processor 1 and license bureau 7. *Id.* at 5:9–16. Computer processor 1 is associated with input operations 2 and output operations 3. *Id.* Computer processor 1

contains first non-volatile memory area 4 (*e.g.*, the ROM section of the BIOS), second non-volatile memory area 5 (*e.g.*, the EEPROM section of the BIOS), and volatile memory area 6 (*e.g.*, the internal random access memory (“RAM”) of the computer). *Id.*

As shown in Figure 1, computer processor 1 is in temporary telecommunications linkage with license bureau 7. *Id.* at 5:17–18. The first non-volatile memory includes pseudo-random identification key 8, which constitutes unique identification of the computer, and which exclusively or in combination with other information (*e.g.*, user name), is sufficient to uniquely differentiate the first non-volatile memory from all other first non-volatile memories. *Id.* at 5:19–24. The second non-volatile memory includes license-record-area 9, which contains encrypted license records 10–12, and the volatile memory accommodates license program 16 having license record fields 1–15 appended thereto. *Id.* at 5:15–29.

C. The Challenged Claims

Of the challenged claims, only claim 1 is independent. Claims 2, 3, 6–14, and 16 directly or indirectly depend from claim 1. Claim 1, reproduced below, is illustrative:

1. A method of restricting software operation within a license for use with a computer including an erasable, non-volatile memory area of a BIOS of the computer, and a volatile memory area; the method comprising the steps of:

selecting a program residing in the volatile memory,

using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record,

verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS, and

acting on the program according to the verification.

Ex. 1001, 6:59–7:4.

D. Prior Art Relied Upon

Petitioner relies upon the references listed below (Pet. 7–8):

Reference	Date	Exhibit No.
Hellman, U.S. Patent No. 4,658,093	Apr. 14, 1987	Ex. 1004
Chou, U.S. Patent No. 5,892,906	Apr. 6, 1999	Ex. 1005
Schneck, U.S. Patent No. 5,933,498	Aug. 3, 1999	Ex. 1006

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 8):

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
1, 2, 11, 13	103(a)	Hellman, Chou
1–3, 6–14, 16	103(a)	Hellman, Chou, Schneck

² The '941 patent was filed on October 1, 1998, and claims priority to a foreign-filed application dated May 21, 1998. Ex. 1001, codes (22), (30). These dates are before the AIA revisions to 35 U.S.C. § 103 took effect on March 16, 2013. 35 U.S.C. § 100 (note). Therefore, pre-AIA § 103(a) applies. Our decision is not impacted by which version of the statute applies.

Petitioner relies on the Declarations of Andrew Wolfe, Ph.D. (Exs. 1003, 1033) in support of its unpatentability contentions. Patent Owner provides the Declarations of Jon B. Weissman, Ph.D. (Ex. 2006), Ian Jestice (Exs. 2004, 2017), and David Martin, Ph.D. (Ex. 2018), as well as the deposition of Dr. Weissman taken on behalf of Patent Owner (Ex. 2003). Dr. Wolfe was cross-examined by Patent Owner, and a transcript of his deposition was entered into the record. Ex. 2026.

II. ANALYSIS

A. Claim Construction

In the Remand Decision, the Federal Circuit found that the Board “did not err in its claim construction analysis.” Rem. Dec. 20. We reiterate the claim construction analysis below.

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b) (2019). Under this standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (“*Phillips*”).

In light of the parties’ arguments and supporting evidence, we find that it is necessary to address only the claim term “agent” recited in claim 1.

“agent”

Claim 1 recites “using an *agent* to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure

accommodating data that includes at least one license record.” Ex. 1001, 6:64–67 (emphasis added). The claim term also appears in claims 7, 14, and 18. *Id.* at 7:5–8:64.

Patent Owner proposes that the claim term “agent” requires construction. PO Resp. 30–36. Patent Owner contends that the term “agent” should be understood as “an ‘OS-level software program or routine,’ in view of file history that firmly establishes that the claimed ‘agent’ runs separate from the BIOS.” *Id.* at 32. Patent Owner further argues that the plain meaning of “agent” as “a software program or routine” excludes hardware in the context of the ’941 patent, since the ’941 patent “specifically distinguishes prior art hardware-based products.” PO Sur-Reply 3 (citing Ex. 1001, 1:27–35; Ex. 2018 ¶ 61 (“[T]he ’941 Patent discloses using existing computer hardware with ‘a conventional BIOS module.’”)).

According to Patent Owner, the court in the prior litigation involving the ’941 patent held that “the plain and ordinary meaning [of] ‘agent’ is ‘a software program or routine.’” PO Resp. 33 (alteration in original) (citing Ex. 1012, 3; Ex. 1013, 36) (alteration in original). Patent Owner contends that construing “agent” as software-only is consistent with its plain meaning and the disclosure of the ’941 patent. PO Sur-Reply 2–3.

Although Patent Owner contends that a person of ordinary skill in the art “is deemed to read the words used in the patent documents with an understanding of their meaning in the field,” Patent Owner also contends that “[t]he prosecution history also plays a role in claim interpretation.” PO Resp. 30–31 (citing *Phillips*, 415 F.3d at 1317–18). Patent Owner then argues, “[r]emarks made both by the applicants and the examiner during

prosecution of the '941 patent require a narrower interpretation of 'agent.'” *Id.* at 33 (citing *Rembrandt Wireless Techs. LP v. Samsung Elecs. Co.*, 853 F.3d 1370, 1376 (Fed. Cir. 2017); *Kaken Pharm. Co. v. Iancu*, 952 F.3d 1346, 1354 (Fed. Cir. 2020)). Patent Owner contends that, during prosecution of the '941 patent, “the applicant and the examiner both filed remarks that limit the ‘agent’ to an ‘OS-level software program or routine,’ by distinguishing references in which *BIOS programs* stored information in the BIOS,” and, in view of these remarks, the Examiner allowed the claims. *Id.* at 34. According to Patent Owner, such interpretation of “agent” to be an “OS level software program or routine” is not inconsistent with positions it adopted in related district court cases, wherein, throughout claim construction briefing, it “noted that the claimed ‘agent’ is OS-level.” PO Sur-Reply 4–5.

Patent Owner furthermore argues that “disavowal of claim scope can be shown by the applicant’s actions during prosecution of a patent, particularly when the examiner accedes to the applicant’s position.” PO Sur-Reply 6. Patent Owner refers to the prosecution history of the '941 patent, wherein “the examiner’s reasons for allowance explained that the cited references ‘do not teach licensed programs running at the OS level interacting with a program verification structure stored in the BIOS’ and that ‘a computer BIOS is not set up to manage a software license verification structure.” *Id.* at 8 (emphasis omitted) (citing Ex. 2011, 162).

Petitioner points out that Patent Owner’s construction for “agent” is “significantly narrower than what Patent Owner has advanced in more than a dozen proceedings involving the '941 patent over the past decade,” wherein

“Patent Owner has all along argued—successfully, no less—that ‘agent’ encompasses *any* type of software.” Pet. Reply 1 (citing Ex. 1036, 18; Ex. 1012, 3; Ex. 1013, 36; Ex. 1035, 33:17–36:14, 92:17–93:16). Petitioner contends that, after having consistently and successfully advanced a broad construction of “agent” for infringement, “Patent Owner cannot now advance an entirely new, and much narrower, construction in an attempt to evade Petitioner’s obviousness challenge.” *Id.* (citing *01 Communique Lab, Inc. v. Citrix Sys., Inc.*, 889 F.3d 735, 743 (Fed. Cir. 2018) (claims “may not, like a nose of wax, be twisted one way to avoid [invalidity] and another to find infringement”))).

Petitioner contends that the plain and ordinary meaning of “agent” is not limited to software let alone OS-level software. Pet. Reply 1–2. According to Petitioner, Patent Owner “resorts to a prosecution history disclaimer theory” to justify its narrow construction even though Patent Owner “does not use the word ‘disclaimer,’ [in its arguments,] its invitation for the Board to limit ‘agent’ is obviously premised on a disclaimer theory.” *Id.* at 2 (citing *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal”). However, Petitioner contends that “Patent Owner cannot—and has not even tried to—meet the ‘exacting’ standard to show clear and unmistakable disclaimer,” and thus, “‘agent’s’ plain and ordinary meaning should prevail.” *Id.* at 2–3.

a. Law of Lexicography and Disavowal (Disclaimer)

As Patent Owner acknowledges, the district courts have held that “the plain and ordinary meaning [of] ‘agent’ is ‘a software program or routine.’” PO Resp. 33 (alteration in original). In fact, Patent Owner also acknowledges that “[t]he plain meaning of ‘agent’ requires ‘a software program or routine.’” PO Sur-Reply 2; *see also* Tr. 31:17–19 (“JUDGE FLAX: Counsel, if the plain meaning of the agent is . . . [w]hat did you say it was? MR. GOSSE: Software program or routine”).

A claim term is given its “plain and ordinary meaning absent lexicography or disavowal.” *See Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). That is, “[t]here are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution.” *See id.*

For lexicography, “[e]ven when guidance is not provided in explicit definitional format, 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.” *In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1150 (Fed. Cir. 2012) (quoting *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004)) (alteration in original). For example, “a patent’s repeated and consistent description of a claim term may inform its construction.” *Groove Digital, Inc. v. United Bank*, 825 F. App’x 852, 856 (Fed. Cir. 2020) (nonprecedential) (citing *Abbott*, 696 F.3d at 1150).

For disavowal, a patentee disavows the full scope of a claim term either in the specification or during prosecution. *See Thorner*, 669 F.3d at 1365. For disavowal in the specification, “the specification must contain expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” *Cont’l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 797 (Fed. Cir. 2019) (internal quotations omitted). For disavowal during prosecution, “[t]he party seeking to invoke prosecution history disclaimer bears the burden of providing the existence of a ‘clear and unmistakable’ disclaimer that would have been evident to one skilled in the art.” *Mass. Inst. Of Tech. v. Shire Pharms., Inc.*, 839 F.3d 1111, 1119 (Fed. Cir. 2016). In either scenario the disavowal must be clear.

b. Disavowal

Patent Owner does not cite to any portion of the Specification that may define “agent” explicitly or implicitly. As discussed above, the only mention of “agent” in the ’941 patent is in the claims as issued. *See generally* Ex. 1001. Further, the Specification of the ’941 patent does not mention “OS-level” or even “operating system.” *See id.* Patent Owner’s briefing instead relies heavily on the prosecution history of the ’941 patent to construe “agent” as “OS level software program or routine.” *See* PO Resp. 31–36; PO Sur-Reply 6–10. Thus, we focus our attention there.

i. Prosecution History Overview

As Patent Owner suggests, in order to construe the meaning of the term “agent” in claim 1, we look at the history of the ’941 patent as well as claim 1 itself. As shown in the history of the ’941 patent, the application as

originally filed, including the originally filed claims, does not mention “agent.” *See* Ex. 2011, 21–35.

As shown in the prosecution history of the ’941 patent, in an office action dated June 22, 2001 (“the June 22, 2001 Office Action”), the Examiner rejected claim 1 under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Ex. 2011, 104–105, 108–109. In particular, the Examiner concluded that “[t]he Applicants do not teach the device necessary to edit an EEPROM nor have they made it clear to the Examiner how their system would be implemented in light of the non-trivial processing required to write and erase its data.” *Id.* at 109. In response to the June 22, 2001 Office Action, in an amendment dated November 16, 2001 (*id.* at 121, 127, 130, “the November 16, 2001 Amendment”), Applicant in the ’941 patent then amended claim 1 to include an “agent” to “set up the verification structure in the erasable, non-volatile memory of the BIOS.” *See id.* at 130.

After the November 16, 2001 Amendment, in a non-final office action dated January 15, 2002, the Examiner rejected all claims under 35 U.S.C. § 103(a) over Misra (U.S. Patent No. 6,189,146), Goldman (U.S. Patent No. 5,684,951), and Ewertz (U.S. Patent No. 5,479,639). Ex. 2011, 139–140, 143–145. In response to this rejection, in an amendment dated February 5, 2002, Applicant stated that “[t]he cited references . . . do not teach or suggest, among other things, storing a verification structure, such as a

software license information, in the BIOS of a computer as is recited in the present claims.” *Id.* at 151.

The Examiner then eventually allowed the claims, stating the reason for allowance as

the closest prior art systems, singly or collectively, do not teach licensed programs running at the OS level interacting with a program verification structure stored in the BIOS to verify the program using the verification structure and having a user act on the program according to the verification.

Id. at 162. Further, the Examiner stated,

it is well known to those of ordinary skill [in] the art that a computer BIOS is not setup to manage a software license verification structure. The present invention overcomes this difficulty by using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS.

Id.

ii. Does the Prosecution History Limit the “Agent” to OS-Level?

Based on this complete record, and in particular, the prosecution history of the ’941 patent, we are unpersuaded by Patent Owner’s contention that, during prosecution of the ’941 patent, remarks by the applicant and the examiner “limit the ‘agent’ to an ‘OS-level software program or routine,’ by distinguishing references in which *BIOS programs* stored information in the BIOS.” PO Resp. 34. Turning to the prosecution history, we refer to Patent Owner’s reliance on the Notice of Allowance for forming the meaning of “agent”:

the examiner’s reasons for allowance explained that the cited references “do not teach licensed programs running at the OS

level *interacting with a program verification structure* stored in the BIOS” and that “a computer BIOS is not set up to *manage* a software license verification structure.” . . . The [E]xaminer further stated that “[t]he present invention overcomes this difficulty by *using an agent to set up a verification structure* in the erasable, non-volatile memory of the BIOS.” . . . Taken as a whole, the examiner’s statement clearly and unmistakably refers to the claimed agent.

PO Sur-Reply 8.

But focusing on the Examiner’s actual statement in the Notice of Allowance (quoted above), we find that the ’941 patent’s prosecution history does not unambiguously support Patent Owner’s “agent” claim construction, i.e., as an “OS-level” software program or routine. We find that, at most, the Examiner’s statement says that “licensed programs running at the OS level” interact with a program verification structure stored in the BIOS, wherein the agent is used to set up the verification structure. Ex. 2011, 162. That is, the Examiner’s statement says that “licensed programs” interacting with the verification structure are “running at the OS level,” but does not say whether the “agent” setting up the verification structure is also OS-level. *Id.*

We agree with Petitioner that “[t]here is no indication in the file history that ‘agent’ was added to the claims to require OS-level implementation.” Pet. Reply 4. That is, as Petitioner points out, “the Examiner nowhere tied OS-level implementation to the agent,” and thus, we agree with Petitioner that “remarks in the examiner’s statement of reasons for allowance” are “insufficient to limit claim scope.” *Id.* at 6 (citing *Ancora Techs., Inc. v. Apple, Inc.*, 744 F.3d 732, 737 (Fed. Cir. 2014)).

We agree with Petitioner that the prosecution history cited by Patent Owner is, at best, ambiguous and, in any case, lacks a clear and unambiguous disavowal that would support Patent Owner's proposed construction calling for the agent to be "OS-level." Pet. Reply 7. That is, we agree that "the ambiguity here makes the file history unhelpful in informing the meaning of 'agent' even in the absence of disclaimer." *Id.* (citing *AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1277 (Fed. Cir. 2015)).

The Examiner's statement as to the reasons for allowance in the prosecution history was that prior art systems, individually or collectively, do not teach licensed programs running at the OS level interacting with a program verification structure stored in the BIOS, where an agent is used to set up a verification structure in the erasable, non-volatile memory of the BIOS. *See* Ex. 2011, 162. Applicant never argued to the Examiner in the '941 patent's prosecution that the agent itself is "OS-level." *Id.*

In sum, for the reasons given, we are not persuaded by Patent Owner's arguments that the claims should be construed as requiring the agent to be "OS level." And, as set forth in the Remand Decision, the Federal Circuit found that "the Board correctly construed 'agent' as 'a software program or routine,' without limiting it to use at the OS-level." Rem. Dec. 11–12.

As Patent Owner's reliance on disavowal does not support its proposed construction, we determine that the definition of "agent" as recited in claim 1, discussed by the parties as a "software program or routine," more closely aligns with the plain and ordinary meaning in light of the

Specification and the claim language. We further address the related “software” aspect of the disputed limitation below.

iii. Software-only

Based on the record, we are also unpersuaded by Patent Owner’s contention that the plain meaning of “agent” in the context of the ’941 patent excludes hardware. PO Sur-Reply 2. In particular, we are unpersuaded by Patent Owner’s contention that “[t]he use of special hardware in the agent would be anathema to the ’941 patent, which specifically distinguishes prior art hardware-based products.” *Id.* at 3 (citing Ex. 1001, 1:27–35; Ex. 2018 ¶ 61 (the ’941 patent discloses using existing computer hardware with ‘a *conventional* BIOS module’)). We refer to Patent Owner’s reliance on the Specification of the ’941 patent for supporting its construction of the “plain meaning” of “agent” as excluding hardware:

Software based products have been developed to validate authorized software usage by writing a license signature onto the computer's volatile memory (e.g. hard disk). These products may be appropriate for restricting honest software users, but they are very vulnerable to attack at the hands of skilled system's programmers (e.g. “hackers”). These license signatures are also subject to the physical instabilities of their volatile memory media.

Hardware based products have also been developed to validate authorized software usage by accessing a dongle that is coupled e.g. to the parallel port of the P.C. These units are expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (e.g. over the internet).

There is accordingly a need in the art to provide for a system and method that substantially reduce[s] or overcome[s] the drawbacks of hitherto known solutions.

Ex. 1001, 1:19–35 (“Background of the Invention”).

But, focusing on Patent Owner’s cited passage in the “Background of the Invention” Section of the ’941 patent, we find that the ’941 patent’s Specification does not unambiguously support Patent Owner’s “agent” claim construction, i.e., as “software-only.” We find that, at most, the cited passage says that both software-based products and hardware-based products have been developed to validate authorized software, whereby software based products writing a license signature to the computer’s volatile memory (*e.g.* hard disk) are “vulnerable to attack at the hands of skilled system’s programmers (*e.g.* ‘hackers’),” while hardware-based products accessing a dongle coupled to the parallel port of the personal computer are “expensive, inconvenient, and not particularly suitable for software that may be sold by downloading (*e.g.* over the internet).” Ex. 1001, 1:19–32. That is, the cited passage says that both software-based products and hardware-based products have drawbacks, but does not say whether the “agent” should be in software or hardware to overcome the drawbacks. *Id.* We find that there is nothing clear or unmistakable in the cited passage to amount to a disavowal of the scope of “agent” to limit it to “software only,” and in fact, the cited passage is silent as to the term “agent.” *Id.*

We find, that the Specification of the ’941 patent is, at best, ambiguous and, in any case, lacks any “disavowal” that would support Patent Owner’s proposed construction calling for the agent to exclude hardware. *See Novartis Pharms. Corp. v. Accord Healthcare, Inc.*, 38

F.4th 1013, 1017–18 (Fed. Circ. 2022) (To exclude an embodiment, there generally must be something in the specification that conveys to a skilled artisan that the inventor intended the exclusion, such as a discussion of disadvantageous or alternatives). The passage in the Specification of the ’941 patent cited by Patent Owner merely discusses the drawbacks of particular prior art software-based products *and* hardware-based products that had been developed to validate authorized software usage, but disclaims neither. *See* Ex. 1001, 1:19–35. That is not enough.

We credit Dr. Wolfe’s testimony that “agents ‘may be software, *hardware*, or both.” Ex. 1033¶ 5 (citing Ex. 1038 (“Oxford Dictionary of Computing”), 11). Patent Owner acknowledges that Dr. Wolfe relies upon U.S. Patent No. 5,568,552 (Ex. 1039, “Davis”) to support his testimony that “agent” can be understood to include hardware. PO Sur-Reply 3. Although Patent Owner contends that “Davis does not disclose a single instance where the unmodified work ‘agent’ is used to describe a hardware-based agent,” Patent Owner acknowledges that Davis does disclose a “hardware agent,” using the term “hardware agent” as “shorthand to describe an integrated circuit component.” *Id.* (citing Ex. 1039, 8:55–9:12).

During oral arguments, Patent Owner acknowledged that there is no dispute that every computer has hardware. Tr. 33:15–33:17 (“JUDGE CHERRY: Every computer has a wire. . . . You’re not disputing that, are you? MR. GOSSE: No, Your Honor. Of course not”). Further, Patent Owner acknowledged that computers have software thereon. *Id.* at 34:10–34:16 (“JUDGE CHERRY: Those examples that you gave all run software, right? . . . You’re not disputing that, are you, at 1998? MR. GOSSE: Your

Honor, there were a certainly a number of computers that ran software, yes.”). Patent Owner’s expert, Dr. Martin, testified that “a mixed software/hardware entity does have a software component,” wherein “it may be possible to analyze the software component without the hardware,” depending on the specific circumstance. Ex. 1035, 123:6–10. In fact, Dr. Martin testified that hardware can be used to set up the verification structure. *Id.* at 131:14–19 (“I don’t see anything precluding the use of hardware in setting up the verification structure.”).

In this case, there is no indication in the claim language itself, the Specification, or the prosecution history of any intent to limit the scope of the claim to only a preferred embodiment where an agent excludes hardware components. *See Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed. Cir. 2011) (quoting *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1335 (Fed. Cir. 2009)); *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001) (“Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.”).

In sum, for the reasons given, we are not persuaded by Patent Owner’s arguments that the claims should be construed as requiring the agent to be “software-only.” And, as set forth in the Remand Decision, the Federal Circuit found that “the Board correctly construed ‘agent’ as ‘a software

program or routine,’ without limiting it to use . . . in software.” Rem. Dec. 11–12.

As Patent Owner’s reliance on the Specification does not support its proposed construction, we determine that the dictionary definition relied on by Dr. Wolfe in his testimony more closely aligns with the plain and ordinary meaning in light of the Specification and the claim language. In other words, we construe “agent” in claim 1 to mean a “computer program or routine” wherein such computer program or routine does not exclude hardware components.

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The Supreme Court, in *KSR*, reaffirmed the framework for determining obviousness set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* (383 U.S. at 17–18) that are applied in determining whether a claim is unpatentable as obvious under 35 U.S.C. § 103(a) as follows:

(1) determine the scope and content of the prior art; (2) ascertain the differences between the prior art and the claims at issue; (3) resolve the level of ordinary skill in the art; and (4) consider objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406.

In *Graham*, the Supreme Court determined that objective indicia (also called secondary considerations), such as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. *Graham*, 383 U.S. at 17–18. According to the *Graham* Court, as indicia of obviousness or nonobviousness, these inquiries may have relevancy. *Id.*

C. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation marks omitted).

Here, Petitioner asserts that a person of ordinary skill in the art (“POSITA”) in the context of the ’941 patent “would have had at least a B.S. degree in computer science, computer engineering, or electrical engineering (or equivalent experience)” and “would have had at least two years of experience with computer science and computer engineering, including information encryption, computer architecture, and firmware programming,” citing to the declaration of Dr. Wolfe for support. Pet. 21–22 (citing Ex. 1003 ¶¶ 21–25).

Patent Owner contends that the POSITA “would be an individual who, as of the 1997/1998 time frame, had earned an accredited Bachelor’s degree in electrical engineering, computer engineering, or computer science,

or an equivalent education or level of knowledge,” and had “two years of industrial experience with computer hardware, software, and operating systems,” citing to the declaration of Dr. Martin for support. PO Resp. 29 (citing Ex. 2018 ¶ 51).

The parties propose similar levels of ordinary skill in the art and do not directly challenge the other’s proposal. We consider the level of ordinary skill in the art to be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001) (holding that absent evidence to the contrary, “the prior art itself [may] reflect[] an appropriate level” of ordinary skill in the art). We adopt both parties’ proposed general experience of working with “computer architecture,” including “computer hardware, software” which comports with the level of ordinary skill in the art reflected in the prior art of record. Accordingly, we determine that a person of ordinary skill would have a Bachelor’s degree in electrical engineering, computer engineering, or computer science, or the equivalent plus two years of experience working with computer science and computer engineering, including computer architecture, hardware and software.

D. Obviousness Over Hellman, Chou, and Schneck

In the Remand Decision, the Federal Circuit found that “substantial evidence supports [the Board’s] prima facie case of obviousness.” Rem. Dec. 20. We reiterate the obviousness analysis below.

Petitioner asserts that claims 1, 2, 11, and 13 are unpatentable under § 103(a) as obvious over Hellman and Chou (Ground 1), and that claims 1–3, 6–14, and 16 are unpatentable as obvious over Hellman, Chou, and

Schneck (Ground 2), thus Ground 1 is subsumed by Ground 2 and we will discuss them together. Pet. 22–64. For each of the prior art combinations, Petitioner provides detailed explanations as to how the combination teaches or suggests each claim limitation, and articulates reasons to combine the prior art teachings, citing to Dr. Wolfe’s Declaration for support. *Id.* (citing Ex. 1003).

Patent Owner counters that the asserted combinations fail to disclose key elements of claim 1 (PO Resp. 48–66), and that the Petition fails to establish a valid motivation for combining Hellman with Chou. *Id.* at 52–56.

We summarize the asserted prior art below.

1. Hellman (Exhibit 1004)

Hellman discloses a method and an apparatus in which use of a software package can be authorized for a particular base unit a specific number of times. Ex. 1004, 4:37–40. It is undisputed that Hellman is prior art. *See generally* PO Resp.

Figure 1 of Hellman is reproduced below:

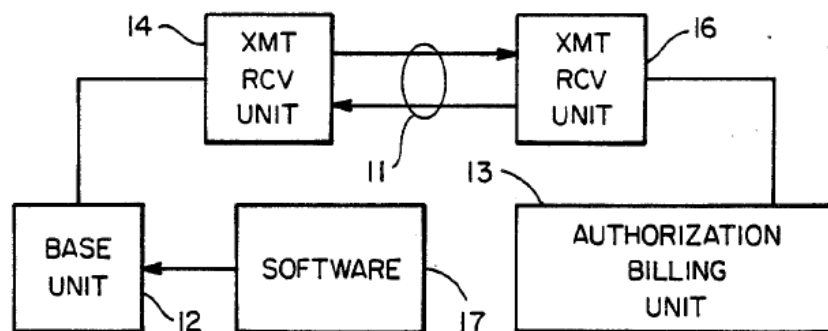


Figure 1 above illustrates a block diagram of a pay-per-use software control system. Ex. 1004, 5:1–2. Base unit 12 communicates with authorization

and billing unit 13 over an insecure communication channel 11, using transmitter-receiver units 14, 16. *Id.* at 5:39–42. The user at base unit 12 obtains software package 17 by purchasing it and requests its use. *Id.* at 5:51–59. Authorization and billing unit 13 receives the user's request, generates authorization A for unit 12 to use software package 17 an additional N times, and sends authorization A to base unit 12. *Id.* at 6:3–8.

Figure 8 of Hellman is reproduced below.

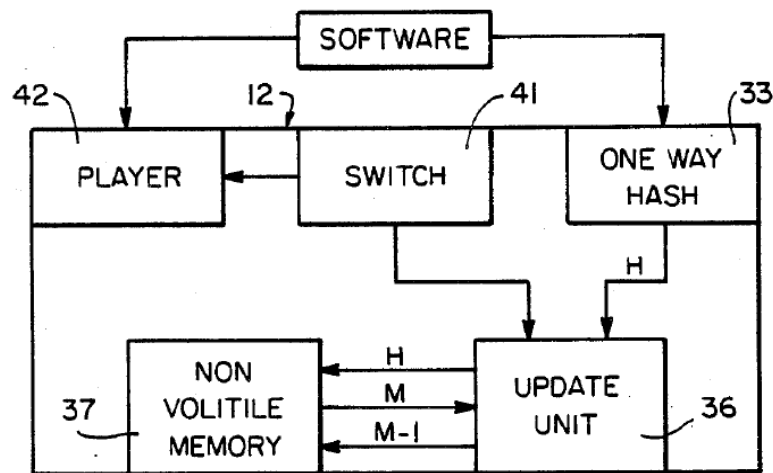


Figure 8 above depicts an implementation of base unit 12 during use of a software package. *Id.* at 10:33–34. Software package 17 (*see* Fig. 1) is connected to base unit 12 and a signal representing software package 17 is operated on by one-way hash function generator 33 to produce an output signal which represents hash value H. *Id.* at 10:34–38. Signal H is transmitted to update unit 36 to indicate which software package is being used. *Id.* at 10:38–40. Update unit 36 uses value H as an address to non-volatile memory 37, which responds with a signal representing M, the number of uses of software package 17 which are still available. *Id.* at 10:40–43.

If value M is greater than 0, then update unit 36 sends a control signal to switch 41 which activates software player 42, allowing it to use software package 17. *Id.* at 10:44–46. Update unit 36 also decrements M to M–1 and stores this as the new value in address H in non-volatile memory 37. *Id.* at 10:46–49. If M=0, then update unit 36 does not change the contents of non-volatile memory 37, but neither does it send a control signal to activate software player 42. *Id.* at 10:50–53. Thus, the user is prevented from using software package 17 for which he does not have current authorized use. *Id.* at 10:53–54.

2. Chou (Exhibit 1005)

Chou discloses an apparatus and a method for discouraging computer theft. Ex. 1005, code (57). It is undisputed that Chou is prior art. *See generally* PO Resp.

Chou’s invention requires that a user enters a unique word or number related to the particular computer each time the computer is powered up. Ex. 1005, 2:11–14. Chou discloses a security routine that is stored in the BIOS memory. *Id.* at 2:14–16. The security routine requires verification of a password entered by the user, or a verification of a quantity read from an externally connected memory device. *Id.* at 2:16–18.

Chou also discloses that, at the time of its invention, “[r]ecent changes in the computer BIOS memory storage devices permit writing data to the BIOS memory, offering the opportunity to provide password protection within the same memory which stores the BIOS routines.” *Id.* at 1:63–66. And, “any attempt to delete the protection will result in the BIOS routine being disabled, disabling the boot up process.” *Id.* at 1:66–2:1. “EEPROM

flash devices may be programmed with BIOS routines which permit the user to enter data without requiring the computer to be returned to the manufacture.” *Id.* at 2:2–4. According to Chou, its “invention makes use of these new BIOS memory devices for effecting security measures which discourage theft.” *Id.* at 2:4–7.

3. Schneck (Exhibit 1006)

Schneck discloses a technique that “controls access to and use and distribution of data.” Ex. 1006, 6:49–50. Schneck’s technique can be used to “control how much of the software’s functionality is available.” *Id.* at 6:53–56. Schneck prevents the authorization to use software on one device from being used on another, unauthorized device, to address the “secondary distribution” problem. *Id.* at 2:40–67, 6:57–62.

It is undisputed that Schneck is prior art. *See generally* PO Resp.

4. Discussion

On the record, we are persuaded by Petitioner’s reliance on Hellman for disclosing “almost all of the features of claim 1, including authorizing a software use through verification data stored in a non-volatile memory such as EEPROM.” Pet. 28. Although Petitioner acknowledges that Hellman does not expressly disclose that the computer (base unit 12) has a BIOS and that nonvolatile memory 37 (*e.g.*, EEPROM) would be used to store the BIOS for the computer, we agree with Petitioner that a POSITA “would have found it obvious to provide a BIOS in the computer (base unit 12) and to store the BIOS in the nonvolatile memory 37 (*e.g.*, EEPROM), as disclosed by Chou.” *Id.*

a. Motivation to combine prior art references

According to Petitioner, Hellman discloses “as early as 1983 that a computer could store a number of licensed uses of a software program (the claimed ‘license record’) in an EEPROM memory.” Pet. 29 (citing Ex. 1004, 9:64–10:4; Ex. 1003 ¶¶ 104, 134–137). We are persuaded by Petitioner’s contention, despite Patent Owner’s arguments to the contrary, that the POSITA would have been motivated to add a BIOS to the computer (base unit 12) of Hellman, “at least because that was the standard—nearly universal—way in which computers operated prior to the priority date of the ’941 Patent.” *Id.* at 30. That is, the POSITA “would have recognized that one such EEPROM that already existed in the computer would be the EEPROM used to store the BIOS,” wherein “other information, like security routines should be stored in the same memory as the BIOS to prevent tampering by the user, as disclosed by Chou.” *Id.* (citing Ex. 1005, 3:21–35, 3:52–62; Ex. 1003 ¶¶ 112 –116) (emphasis omitted).

Chou discloses that it was well-known at the time of the invention that a computer would have BIOS and that it would be common to store it in EEPROM memory. *See* Ex. 1005, 1:54–62, 2:2–7, 3:21–35; Ex. 1003 ¶¶ 105–111. Indeed, during prosecution of the ’941 patent, Applicant admitted that “all computers must have a BIOS.” Ex. 2011, 155 (Prosecution History of the ’941 patent—Office Action Response, dated February 5, 2002). We credit Dr. Wolfe’s testimony that a person of ordinary skill in the art would have been motivated to store BIOS in the non-volatile memory 37. Ex. 1003 ¶ 115 (citing Ex. 1005, 1:63–2:7).

We are also persuaded by Petitioner’s contention that a POSITA would further have been motivated to use the non-volatile memory 37 in Hellman as the BIOS EEPROM of Chou “because that would have been one of a limited number of design choices.” Pet. 31 (citing Ex. 1003 ¶ 114). In particular, according to Petitioner, a POSITA “would have recognized that in many computers of the era in the late 1990’s, there would be few if any other EEPROM memory modes present on the computer other than the EEPROM storing the BIOS.” *Id.* The *KSR* Court explained that the concept of “obvious to try” applies when “there are a finite number of identified, predictable solutions” to a known problem. *See KSR*, 550 U.S. at 421. And, when the path has been identified and “leads to the anticipated success, it is likely the product [was derived] not of innovation but of ordinary skill and common sense.” *Id.* Further, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. These concepts apply here.

Here, the evidence of record shows that storing sensitive information, such as Hellman’s license information, in the BIOS memory was not beyond the skill of a pertinent artisan. In particular, Chou discloses that, at the time of its invention, “[r]ecent changes in the computer BIOS memory storage devices permit writing data to the BIOS memory, offering the opportunity to provide password protection within the same memory which stores the BIOS routines.” Ex. 1005, 1:63–66. Chou also discloses “EEPROM flash devices may be programmed with BIOS routines which permit the user to enter data

without requiring the computer to be returned to the manufacture.” *Id.* at 2:2–4. Chou further discloses that its “invention makes use of these new BIOS memory devices for effecting security measures which discourage theft.” *Id.* at 2:4–7.

We are persuaded by Petitioner’s contention that a POSITA would have been motivated to use the non-volatile memory 27 in Hellman as the BIOS memory of Chou “because Chou disclosed that embedding sensitive information in the BIOS memory reduced the risk of tampering with that information.” Pet. 32 (citing Ex. 1003 ¶ 115). According to Petitioner, “Chou explained that, by storing sensitive information (passwords in Chou) in the BIOS memory, any attempt to delete or disable the sensitive information would also disable the BIOS program.” *Id.* (citing Ex. 1005, 1:63–2:1; Ex. 1003 ¶ 115).

Indeed, Chou discloses that “EEPROM flash devices may be programmed with BIOS routines,” and that “[t]he present invention makes use of these new BIOS memory devices for effecting security measures which discourage theft.” Ex. 1005, 1:63–2:7. That is, Chou teaches storing sensitive information in the BIOS EEPROM to reduce the risk of tampering with that information. *Id.* at code (57), 1:54–2:7, 3:52–62.

Finally, we are persuaded by Petitioner’s contention that a POSITA would further have been motivated to use the Hellman non-volatile memory 37 as the BIOS EEPROM of Chou “because that would have provided economic and operational efficiencies.” Pet. 32 (Ex. 1003 ¶ 116). According to Petitioner, using an EEPROM module other than non-volatile memory 37 to store the BIOS “would have increased the cost of the

computer and increased the space used on the motherboard for the chips.”
Id.

We are unpersuaded by Patent Owner’s contention that “[t]he mere presence of BIOS among computers does not establish that Chou’s BIOS memory would have been used to store Hellman’s value ‘M,’ in place of Hellman’s separately disclosed non-volatile memory 37.” PO Resp. 52. As Petitioner points out, such contention ignores the actual proposed combination of “implementing Hellman’s *existing* EEPROM as BIOS memory,” wherein a POSITA “would have been motivated to use Hellman’s existing non-volatile memory 37 . . . ‘for storing the BIOS.’” Pet. Reply 16 (citing Pet. 28, 30). As Petitioner explains, the proposed combination “does not rely on the entirety of Chou’s memory to teach storing data in BIOS, but rather uses Hellman’s EEPROM (which already stores licensed uses) as the BIOS memory.” *Id.* at 19–20 (Ex. 1033 ¶¶ 60–61); *see Allied Erecting & Dismantling Co., Inc. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.”).

Further, such argument does not address Petitioner’s reliance on Chou’s disclosure of embedding sensitive information in the BIOS memory to reduce the risk of tampering with that information because Chou explains that, “by storing sensitive information (passwords in Chou) in the BIOS memory, any attempt to delete or disable the sensitive information would also disable the BIOS program.” Pet. 32. As discussed above, Chou discloses that “EEPROM flash devices may be programmed with BIOS

routines which permit the user to enter data without requiring the computer to be returned to the manufacture,” and that “[t]he present invention makes use of these new BIOS memory devices for effecting security measures which discourage theft.” *See* Ex. 1005, 1:63–2:7.

We are also unpersuaded by Patent Owner’s contention that “it was known that BIOS routines and configuration data occupied more memory that was available in standard BIOS memory space.” PO Resp. 53 (citing Ex. 2015, 2:6–12). As Petitioner contends, with the support of Dr. Wolfe’s testimony, “Hellman discloses a few memory modules, including the non-volatile memory 37 (EEPROM), . . . but no other EEPROM modules,” wherein, “given the limited number of memory options in Hellman’s base unit and explicit teaching of only a single EEPROM, [a POSITA] would have used Hellman’s EEPROM to store BIOS.” Pet. Reply 18 (citing Ex. 1003 ¶¶ 113, 114; Ex. 1033 ¶ 51).

Although Patent Owner contends that “Chou’s disclosure does not discuss tamper-prevention” (PO Resp. 52), as Petitioner points out, “the Petition relied on Chou’s use of a BIOS to further *Hellman*’s purpose of tamper-prevention.” Pet. Reply 17 (citing Pet. 30; Ex. 1004, 4:22–26). We find persuasive Dr. Wolfe’s testimony that, in light of Chou, one of ordinary skill in the art would have been motivated to store Hellman’s license information in the BIOS EEPROM, in order to discourage users from tampering with the license information and to provide extra protection to the sensitive information. Ex. 1003 ¶¶ 112–116.

We are also unpersuaded by Patent Owner’s contention that implementing Hellman’s system would require adding a switch, wherein

“the value of the security functions could reasonably outweigh the cost of an EEPROM chip, eliminating the need for cost savings.” PO Resp. 54. We agree with Petitioner that “Patent Owner mischaracterizes Petitioners’ motivation to combine as the economic and operational efficiencies of using ‘Chou’s EEPROM BIOS *in place of* Hellman’s non-volatile memory 37.’” Pet. Reply 19. As Petitioner points out, “[w]hat the Petition actually states is that there are efficiencies in using Hellman’s non-volatile memory rather than adding any additional EEPROM modules.” *Id.* (citing Pet. 32; Ex. 1033 ¶¶ 57–58).

Further, Patent Owner’s argument is premised on Patent Owner’s proposed claim construction requiring that the agent is “software only,” which, as discussed above, we decline to adopt. We credit Dr. Wolfe’s testimony that a POSITA would have recognized that “the update unit 36 [of Hellman] would have been implemented by software, hardware, or some combination of the two” (*see* Ex. 1003 ¶¶ 137A–137B), wherein there would not be any need to replace Hellman’s hardware with software when combining the teachings of Hellman and Chou.

Accordingly, we are persuaded by Petitioner’s assertion that, in light of Chou’s teachings, a person of ordinary skill in the art would have been motivated to use “non-volatile memory 37 (*e.g.*, EEPROM) of Hellman to store the BIOS for Hellman’s computer (base unit 12), in addition to the license information explicitly disclosed in Hellman, in order to achieve Hellman’s purpose of discouraging tampering with the license information.” Pet. 28–33 (citing Ex. 1004, 4:22–26; Ex. 1003 ¶¶ 112–116). We find that Petitioner has set forth reasoning with rational underpinning explaining why

it would have been obvious to combine the teachings of Hellman and Chou with a reasonable expectation of success. *Id.* We find that, based upon the record, Petitioner has demonstrated that one of ordinary skill in the art at the time of the claimed invention would have had sufficient reason to combine the teachings of Hellman and Chou in the manner described by Petitioner and the proffered combination of familiar prior art elements according to their established functions would have conveyed a reasonable expectation of success to a person of ordinary skill at the time of the invention. *See KSR*, 550 U.S. at 416 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”). And, in the Remand Decision, the Federal Circuit determined that our finding “was thus supported by substantial evidence.” Rem. Dec. 12–13.

Petitioner then relies on Schneck for disclosing that “licensing information is transmitted in encrypted form,” and that any information stored on a non-volatile memory “should be stored in encrypted form to prevent an unauthorized use of a licensed software.” Pet. 44–45 (citing Ex. 1006, 9:46–59, 25:64–67). Indeed, Schneck discloses that “packaged data 108 may include access rules 116 in encrypted form,” and that “[s]ince all storage of data on internal non-volatile memory devices (for example, disks, flash memory, and the like) is encrypted, this ensures that a physical attack on the system will not result in compromise of plaintext.” Ex. 1006, 9:46–59, 25:64–67. Patent Owner does not make any specific argument regarding Petitioner’s reliance on Schneck for this disclosure. *See generally* PO Resp.

We are persuaded by Petitioner’s contention that, based on Schneck’s teachings, a POSITA would have stored “the licensing information in non-volatile memory 37 in encrypted form to address Hellman’s deficiencies.” Pet. 45–46 (citing Ex. 1003 ¶¶ 144–150). As Dr. Wolfe testifies, such an artisan would have recognized that storing licensing information in encrypted form would “prevent the sort of tampering described . . . and warned against by Schneck.” Ex. 1003 ¶¶ 145–146 (citing Ex. 1006, 16:64–17:12, 25:64–67).

We find that, based upon the record, Petitioner has demonstrated that one of ordinary skill in the art at the time of the claimed invention would have had sufficient reason to further combine the teachings of Schneck with Hellman and Chou in the manner described by Petitioner.

b. Independent Claim 1’s Obviousness over Hellman and Chou, and Hellman, Chou, and Schneck

Having reviewed Petitioner’s arguments and supporting evidence in the complete record, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 11, and 13 would have been obvious over Hellman in further view of Chou, notwithstanding Patent Owner’s arguments to the contrary. As the combination of Hellman and Chou meets all the limitations of claim 1, we need not address Schneck and determine that claims 1–3, 6–14, and 16 are thus obvious over Hellman and Chou, in further view of Schneck. We address in detail Petitioner’s evidence and Patent Owner’s responses with respect to the limitations of illustrative claim 1.

i. The preamble of claim 1

The preamble of claim 1 recites a “method of restricting software operation within a license for use with a computer including an erasable, non-volatile memory area of a BIOS of the computer, and a volatile memory area.” Ex. 1001, 6:59–62.

Petitioner asserts that, even if the preamble is considered limiting, the POSITA “would have found the limitations of the preamble obvious based on the combination of Hellman and Chou.” Pet. 46–47. According to Petitioner, “Hellman disclosed a computer (base unit 12) with a volatile memory area (temporary memory 28) and a non-volatile memory area (non-volatile memory 38).” *Id.* at 47. Further, Petitioner contends that “Hellman disclosed a method of restricting software operation (software package 17) with a license (authorized uses M).” *Id.*

We are persuaded by Petitioner’s argument that a POSITA “would have found it obvious to modify Hellman’s system to provide the non-volatile memory area (non-volatile memory 28) as the non-volatile memory storing the BIOS of the computer, a commonly known technique at the priority date, as exemplified by Chou.” Pet. 47; *see also* Ex. 1005, 1:54–2:7, 3:21–35, Figs. 1, 3, 7; Ex. 1003 ¶¶ 104–106.

In particular, Hellman discloses base unit 12 that includes temporary memory 28 (RAM) and non-volatile memory 37 (EEPROM). *See* Ex. 1004, 2:24–27, 8:67–68, 10:1–4, Figs. 1, 6. Chou discloses a BIOS EEPROM on a computer. *See* Ex. 1005, 1:54–2:7, 3:21–35, Figs. 1, 3, 7. We are persuaded by Dr. Wolfe’s testimony that a person of ordinary skill in the art “would have been motivated to use non-volatile memory 37 of Hellman to

store BIOS because non-volatile memory 37 used a type of memory disclosed by Chou as being advantageous for storing BIOS,” noting that Chou discloses that “a transition had occurred to using EEPROM for BIOS, and that the programmability of EEPROM made that an advantageous medium for storing BIOS.” Ex. 1003 ¶¶ 112–115 (citing Ex. 1005, 1:63–2:7).

Patent Owner does not make any specific argument regarding the preamble. *See generally* PO Resp. Regardless of whether the preamble of claim 1 is limiting, based on the complete record presented, Petitioner has demonstrated persuasively that the combination of Hellman and Chou discloses the subject matter recited in the preamble of claim 1.

ii. “selecting a program residing in the volatile memory”

As to the limitation “selecting a program residing in the volatile memory,” we are persuaded by Petitioner’s argument that a POSITA would have found it obvious based on the teachings of Hellman to select a software package 17 (the required “program”) residing in temporary memory 28 (the required “volatile memory”). Pet. 47–48. In particular, Hellman discloses a user selecting/purchasing software package 17. *See* Ex. 1004, 5:51–53. According to Petitioner, Schneck demonstrates that a POSITA “would have recognized that a first step to accessing protected information would be to ‘request the operating system to read such data into memory.’” Pet. 47. We are persuaded by Petitioner’s contention that, once in memory, “the protected information, such as software package 17 from Hellman, would be selected from the temporary memory 28.” *Id.* (citing Ex. 1006, 18:7–10; Ex. 1004, 5:57–61, 9:15–28, 10:33–65; Ex. 1003 ¶¶ 130–132).

Patent Owner does not make any argument regarding this limitation. *See generally* PO Resp. Based on the record presented, Petitioner has demonstrated by a preponderance of the evidence that Hellman discloses the limitation “selecting a program residing in the volatile memory,” as recited in claim 1.

iii. “using an agent to set up a verification structure in the erasable, non-volatile memory of BIOS, the verification structure accommodating data that includes at least one license record”

Claim 1 recites “using an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record.” Ex. 1001, 6:64–67.

On this complete record, we are persuaded by Petitioner’s assertion that a POSITA would have found it obvious, based on the disclosures of Hellman and Chou,

to use an agent (update unit 36) to set up a verification structure (memory location in non-volatile memory 37 as defined by hash value H) in the erasable, non-volatile memory of the BIOS (non-volatile memory 37 provided as EEPROM, storing BIOS as taught by Chou), with the verification structure accommodating data that includes at least one license record (authorized uses value M).

Pet. 48.

Patent Owner argues that “the mere use of a common erasable, non-volatile memory to *store* a BIOS and a license record is not adequate to invalidate the challenged claims,” because claim 1 “requires ‘using an *agent* to set up a verification structure accommodating data that includes at least

one license record.” PO Resp. 56. According to Patent Owner, “the ’941 patent’s prosecution history establishes that the claimed ‘agent’ would be understood as an ‘OS-level software program or routine,’” and that “[n]either Petitioners nor Dr. Wolfe considered the prosecution history when evaluating whether the art discloses the claimed ‘agent.’” *Id.* at 56–57 (citing Pet. 20–21; Ex. 2026, 23:20–24:1).

We are not persuaded by Patent Owner’s argument because it relies upon Patent Owner’s proposed claim construction, which interprets the claim term “agent” as “an OS-level software program or routine.” *See* PO Resp. 56–57. As discussed above (*see supra* Section II.A.), we decline to adopt Patent Owner’s proposed claim construction as it improperly imports extraneous requirements into the claims and relies on a non-existent “disavowal.” Therefore, Patent Owner’s argument that Hellman does not disclose an “agent” as an “OS-level” software program or routine is unpersuasive.

Patent Owner also argues that there is no motivation to modify “Hellman’s hardware-based system.” PO Resp. 61. However, as discussed above in section II(D)(4)(a), we find there would not be any need to replace Hellman’s hardware with software when combining the teachings of Hellman and Chou. As discussed above, Patent Owner’s argument is premised on Patent Owner’s proposed claim construction requiring that the agent is “software only,” which, as discussed above, we decline to adopt. Further, as Petitioner points out, Patent Owner mischaracterizes Petitioner’s combination of Hellman and Chou. Pet. Reply 19. As Petitioner points out, Petitioner is proposing using Hellman’s *existing* non-volatile memory rather

than adding any additional EEPROM modules. *Id.* (citing Pet. 32; Ex. 1033 ¶¶ 57–58).

Although Patent Owner further argues that Petitioner improperly cites the same element of Hellman for “memory of the BIOS” and “verification structure” (PO Resp. 62–63), we find such argument unpersuasive. In particular, as Patent Owner itself points out, Dr. Wolfe testified that “Hellman discloses a ‘verification structure’ in the form of the *memory structure* of non-volatile memory 37 storing at least one value M at memory addresses defined by at last one hash value H.” *Id.* at 63 (citing Pet. 38–39; Ex. 1003 ¶¶ 133–138). That is, Dr. Wolfe testified that Hellman discloses a verification structure in the form of a memory structure storing at least M value at an address defined by hash value H, wherein the verification structure is set in (i.e., not the same element as) the erasable, non-volatile memory 37. Ex. 1003 ¶¶ 133–138.

We are persuaded by Dr. Wolfe’s testimony that that a person of ordinary skill in the art “would additionally have recognized that the authorization and billing unit 13 may cooperate with the update unit 36 to act as the ‘agent’” because “authorization and billing unit 13 generates the authorization A that leads to the updating of the authorized use value M in the non-volatile memory 37.” Ex. 1003 ¶¶ 138–150. And, in the Remand Decision, the Federal Circuit found that Dr. Wolfe’s testimony “was substantial evidence supporting the Board’s finding that Hellman taught the claimed verification structure.” Rem. Dec. 13.

Based on the record presented, Petitioner has demonstrated by a preponderance of the evidence that Hellman in view of Chou teaches “using

an agent to set up a verification structure in the erasable, non-volatile memory of the BIOS, the verification structure accommodating data that includes at least one license record,” as recited in claim 1.

iv. “verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS”

Claim 1 also recites “verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS.” Ex. 1001, 7:1–3. We are persuaded by Petitioner’s argument that Hellman discloses this “in the form of verifying the software package 17 (the required ‘program’) using the value stored in non-volatile memory 37 at the memory address identified by hash value H (the required ‘verification structure’) whenever the software package 17 was used.” Pet. 50 (citing Ex. 1004, 10:33–43, 10:55–65; Ex. 1003 ¶¶ 151–152). In particular, Hellman discloses that when an attempt is made to run software package 17, value H is generated and sent to update unit 36, which uses value H as an address in non-volatile memory to verify if a license exists for software package 17. Ex. 1004, 10:33–54. If a license does exist, update unit 36 retrieves the number of remaining authorized uses value M, and a determination is made as to whether the number of authorized uses is greater than zero. *Id.*

Patent Owner does not make any argument regarding this limitation. *See generally* PO Resp. Based on the record presented, Petitioner has demonstrated persuasively that Hellman discloses the limitation “verifying the program using at least the verification structure from the erasable non-volatile memory of the BIOS,” as recited in claim 1.

v. “*acting on the program according to the verification*”

Lastly, claim 1 recites “acting on the program according to the verification.” Ex. 1001, 7:4. Petitioner argues that Hellman discloses this limitation because it discloses “allowing the software package 17 (the required ‘program’) to be used if a license record was found in the non-volatile memory 37 and there were authorized uses remaining.” Pet. 51 (citing Ex. 1004, 10:40–49; Ex. 1003 ¶¶ 154–155).

Patent Owner does not make any argument regarding this limitation. *See generally* PO Resp. Based on the record presented, Petitioner has demonstrated persuasively that Hellman discloses the limitation “acting on the program according to the verification,” as recited in claim 1.

vi. *Conclusion on Claim 1*

For the reasons discussed above, we determine Petitioner has proven, by a preponderance of the evidence that the combination of Hellman and Chou, as well as over the combination of Hellman, Chou, and Schneck account for all of the limitations of claim 1 and that Petitioner has shown an adequate motivation to combine with a reasonable expectation of success. And, the Federal Circuit concluded in the Remand Decision that it “agree[s] with what is in effect a prima facie determination of obviousness based on the Hellman[-]Chou combination.” Rem. Dec. 13.

We reserve our final conclusion of obviousness until we consider the Patent Owner’s evidence of objective indicia of non-obviousness. *See infra* Section II.D.4.d.

c. Remaining challenged claims

Petitioner also similarly accounts for claims 2, 3, 6–14, and 16 as obvious over the asserted prior art. Pet. 51–64. Petitioner provides detailed explanations as to how the asserted prior art combinations teach or suggest these claims and articulates reasons to combine the prior art teachings, citing Dr. Wolfe’s testimony for support. *Id.* (citing Ex. 1004; Ex. 1005; Ex. 1003).

As to claims 3, 8, 9, and 14, Patent Owner contends that, because Dr. Wolfe testified that the license record “would have been supplied in a modified version of Hellman’s system, in which the authorization A is stored in the non-volatile memory 37,” Petitioner’s proposed modification “would render Hellman’s system inoperative.” *See* PO Resp. 64–65 (citing Ex. 1003 ¶¶ 139–150; Ex. 2018 ¶¶ 197–205). In particular, Patent Owner contends that Petitioner relies on two embodiments, both of which render Hellman’s system inoperative. *Id.* For example, in one embodiment in which Petitioner contends that authorization A is an encrypted value, Patent Owner argues that only a certain system would allow the base unit to update the value of authorization A to increment or decrement the number of remaining uses, wherein “only the authorization and billing unit can generate new values of A, making it impossible for the update unit to change the number of remaining uses.” *Id.* (citing Ex. 2018 ¶¶ 199–205).

However, as Petitioner points out, Patent Owner does not address “Hellman’s unlimited-use embodiment and the relationship between Hellman’s M, N, and A values.” Pet. Reply 21–22 (citing PO Resp. 64–65). We are persuaded by Petitioner’s contention that “Hellman makes clear that

software can be licensed for an ‘unlimited number of uses,’ such that M is a value representing infinity,” and thus, as Dr. Martin acknowledged, in that instance “M would not need to be incremented or decremented.” *Id.* at 21 (citing Ex. 1004, 10:55–57; Ex. 1035, 157:2–18). Rather, “Hellman’s update unit would be configured to recognize this infinite value and not change it after the software has been used.” *Id.* (citing Ex. 1004, 10:55–65; Ex. 1033 ¶¶ 62–63).

In its Sur-Reply, Patent Owner does not dispute Petitioner’s contentions. *See* PO Sur-Reply 20–21. In fact, Patent Owner acknowledges that Petitioner is relying on an “embodiment that *could be* . . . modified,” even though it contends that Petitioner’s arguments are “improper hindsight,” wherein Petitioner “cherry-picks the . . . embodiment. *Id.* This last argument is also unpersuasive. “Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure,” as Petitioner does here, “such a reconstruction is proper.” *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971).

We determine that Petitioner has set forth reasoning with rational underpinning explaining why it would have been obvious to combine the teachings of Hellman and Chou and Schneck with a reasonable expectation of success. Pet. 28–33. We find that, based upon the complete record, Petitioner has demonstrated that one of ordinary skill in the art at the time of the claimed invention would have had sufficient reason to combine the

teachings of Hellman and Chou in the manner described by Petitioner and the proffered combination of familiar prior art elements according to their established functions would have conveyed a reasonable expectation of success to a person of ordinary skill at the time of the invention. *See KSR*, 550 U.S. at 416.

Having reviewed Petitioner's arguments and supporting evidence in the record, we determine Petitioner has proven, by a preponderance of the evidence that Hellman and Chou account for the limitations of claims 2, 11, and 13, and that Hellman, Chou, and Schneck account for the limitations of claims 2, 3, 6–14, and 16.

d. Objective Indicia of Obviousness or Nonobviousness

We have considered the parties' evidence concerning objective indicia (or "secondary considerations") of obviousness and nonobviousness. *See Graham* 383 U.S. 17–18. Our analysis and conclusions, taking into consideration the Federal Circuit's instructions on remand, are set forth below.

Secondary considerations "may often be the most probative and cogent evidence in the record" and "may often establish that an invention appearing to have been obvious in light of the prior art was not."

Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc., 699 F.3d 1340, 1349 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed.Cir.1983)). For such evidence to have substantial weight, however, "its proponent must establish a nexus between the evidence and the merits of the claimed invention." *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). The patentee "bears the

burden of showing that a nexus exists.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

A rebuttable presumption of nexus arises “when the patentee shows that the asserted objective evidence is tied to a specific product and that product ‘embodies the claimed features, and is coextensive with them.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)). Whether a rebuttable presumption of nexus arises “turns on the nature of the claims and the specific facts.” *Teva Pharms. Int’l GmbH v. Eli Lilly & Co.*, 8 F.4th 1349, 1362 (Fed. Cir. 2021).

Thus, the Board employs a two-step analysis in evaluating whether a patentee has established a nexus between the evidence concerning objective indicia of non-obviousness and the merits of the claimed invention. *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 32–33 (PTAB Jan. 24, 2020) (precedential). Initially, the Board considers whether the patentee has demonstrated that the “products are coextensive (or nearly coextensive) with the challenged claims,” resulting in a rebuttable presumption of nexus. *Id.* at 33. Absent a presumption of nexus, the Board considers whether the patentee has demonstrated “a legally and factually sufficient connection” between the evidence and the claimed invention. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019); *Lectrosonics*, IPR2018-01129, Paper 33 at 33.

As the Federal Circuit noted in the Remand Decision, Patent Owner submitted “evidence of two objective indicia of nonobviousness: industry praise and licensing,” and argued that the Board’s findings on both indicia

Petitioner responds that the joint press release was not industry praise, but rather “[i]n the named inventor’s own words, . . . nothing more than a ‘marketing piece’ describing [REDACTED] between Patent Owner’s predecessor [REDACTED] to garner publicity.” Pet. Reply 23 (citing Ex. 1034, 48:13). In particular, according to Petitioner, “the inventor testified that he had a part in authoring the press release,” wherein “[t]he self-serving nature of such puffery . . . makes it non-probative of industry praise.” *Id.* (citing Ex. 1034, 49:2–4).

We have considered Patent Owner’s evidence concerning industry praise (the press release) and the [REDACTED]. *See* Exs. 2027, 2029.

However, we find the evidence does not address a nexus between the merits of *the challenged claims* and the evidence offered to show that the ’941 patent was the object of industry praise. *See* PO Resp. 66. That is, we see no evidence in the record that the subject matter recited by claim 1 of the ’941 patent, itself, was the object of the alleged [REDACTED] praise or [REDACTED]. In fact, the press release and [REDACTED] refer not to the claims of the ’941 patent or the invention, but only broadly to the ’941 patent itself. *See* Ex. 2027; Ex. 2029. We agree with Petitioner that, although the press release “obliquely refers to security enhancements related to encryption keys and BIOS,” Patent Owner “has made no attempt to prove that these statements are objectively true, let alone that [REDACTED]” Pet. Reply. 24 (citing *Fox Factory*, 944 F.3d at 1373–74). That is, Patent Owner does not explain how

the relied-upon praise [REDACTED] relate to the claims of the '941 patent in particular. *See* PO Resp. 66; PO Sur-Reply 21.

As the Federal Circuit pointed out in the Remand Decision, [REDACTED]
[REDACTED]
[REDACTED] Thus, the Federal Circuit found that “[i]t was not error for the Board to require that the [REDACTED] press release [REDACTED] have a nexus to the challenged claims as opposed to the patent as a whole.” *Id.*

As discussed above, for Patent Owner’s evidence concerning objective indicia of non-obviousness to be given any weight, Patent Owner must establish a nexus between the evidence concerning objective indicia of non-obviousness, i.e., the press release [REDACTED] and the merits of the claimed invention. *See Lectrosonics, Inc.*, IPR2018-01129, Paper 33, 32–33.

Since Patent Owner has not provided evidence that a product embodies the claimed features and is coextensive with the claims, it is not entitled to presumption of nexus. Absent a presumption of nexus, the Board considers whether the patentee has demonstrated “a legally and factually sufficient connection” between the evidence and the claimed invention. *See Henny Penny*, 938 F.3d at 1332. Here, Patent Owner also does not demonstrate any legally and factually sufficient connection of the press release [REDACTED] to the claims of the '941 patent. *See generally* PO response; PO Sur-Reply.

Furthermore, even if there were a nexus (which there is not), we are persuaded by Petitioner’s contention that the single joint press release by

two parties in a business relationship is insufficient evidence of “industry praise,” as opposed to mere “self-serving statements.” Pet. Reply 23. As Patent Owner acknowledged, [REDACTED] [REDACTED]. PO Resp. 66. But, a joint press release by two parties in business relationship is not a statement by a third party, but rather by two parties working together to market a product or the relationship itself. [REDACTED]

Thus, even were a nexus shown, we find this evidence would be entitled to little weight in our obviousness analysis.

ii. Licensing

In the Remand Decision, the Federal Circuit concluded that “the Board’s findings regarding the license evidence offered as objective indicia of nonobviousness constitute legal error and were not supported by substantial evidence.” Rem. Dec. 20. Thus, the Federal Circuit vacated and remanded for the Board to reconsider the issue as it pertains to high-value licenses offered by Patent Owner as objective indicia of nonobviousness. *Id.*

And, the Federal Circuit also directed us to reconsider the issue as it pertains to low-value licenses offered by Petitioner as objective indicia of obviousness. Rem. Dec. 20. In particular, the Federal Circuit directed us to evaluate the issue regarding high-value licenses produced by Patent Owner in support of its argument of commercial success as objective indicia of nonobviousness, evaluate the probative value of Patent Owner’s other, lower value licenses and weigh that against the high-value licenses produced by

Patent Owner, and then “weigh such evidence against what was in effect [the Board’s] prima facie case of obviousness.” *Id.*

As directed by our reviewing court, as discussed further below, we reconsider the nexus issue as it pertains to the high-value and low-value licenses offered, and evaluate it against Petitioner’s showing of obviousness. *Transocean*, 699 F.3d at 1349. We provide our analysis regarding the record’s evidence of licensing of the ’941 patent below:

Patent Owner contends that several “very significant” companies, including [REDACTED], have taken a license to the ’941 patent, wherein each license was for “only the ’941 patent” such that “the nexus between the ’941 patent and the licensing cannot be questioned.” PO Resp. 69. According to Patent Owner, although Patent Owner sued [REDACTED] to obtain these licenses, “the amounts paid by each [REDACTED] exceeded the average cost for defending a patent lawsuit” (*id.* (citing Ex. 2035; Ex. 2031, Sect. 3.1; Ex. 2032, Sect. 3.1)), and licenses in which the licensee paid above the cost of litigation “demonstrate a nexus between the license and patent’s strength.” *Id.* at 69–70 (citing *Transocean*, 699 F.3d at 1353). Patent Owner contends that, instead of going to trial on the Hellman-Chou prior art combination, “after incurring years of litigation costs,” the companies took licenses. *Id.* at 70 (“at least [REDACTED] asserted the Hellman[-]Chou invalidity combination,” but “still decided to pay significantly more than the cost of litigation instead of pursue trial on obviousness.”). In its Sur-Reply, Patent Owner adds that [REDACTED] also entered an agreement with Patent Owner, wherein “[t]he ’941 patent was the sole patent at issue, and

█ was well-aware of the combination of Hellman and Chou,” but “chose to settle for an amount that necessarily reflects strength of the ’941 patent.” PO Sur-Reply 21–22.

In its Opening Brief on Remand, Patent Owner points to the Remand Decision’s directive that these licenses with █ (“high-value” licenses) “**should have been given more, if not controlling, weight** in the Board’s obviousness determination.” PO Rem. Br. 1 (quoting Rem. Dec. 19–20). According to Patent Owner, because of “the absence of any evidence to countermand,” the Board “should hold that Petitioner has not established the obviousness of the challenged claims of the ’941 Patent.” *Id.* at 2.

Although Patent Owner acknowledges that it also entered into settlements with other companies, █ for less than the cost of litigation, it contends that Petitioner does not cite to any caselaw “finding that low-dollar license agreements can *detract* from an otherwise strong showing of objective indicia of non-obviousness.” *Id.* at 22–23. According to Patent Owner, “[t]he Federal Circuit has repeatedly held that settlements for less than the cost of litigation have no bearing on the obviousness analysis.” *Id.* (citing *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004); *Cole Kepro Int’l, LLC v. VSR Inds., Inc.*, 695 Fed. App’x 566, 572 (Fed. Circ. 2017)).

Petitioner argues that “Patent Owner’s licensing activity is, at best, inconclusive as evidence of non-obviousness.” Pet. Reply 25. In particular, Petitioner contends that “Patent Owner relies on two cherry-picked license agreements with █,” but “fails to take into account *five*

additional license agreements that were subsequently produced in response to Petitioner’s motion” for discovery. *Id.* (citing Exs. 1050–1054).

According to Petitioner, “in two of the proceedings in which Hellman and Chou were used to prove invalidity, and where an IPR trial was instituted,

_____” *Id.* at 26 (citing Exs. 1051, 1052). According to Petitioner, “the presence of the low-value _____ licenses suggests that the _____ licenses were not based on the merits of the claimed invention, and instead were based on some other economic reasons specific to each licensee.” *Id.*

In its Opening Brief on Remand, Petitioner reiterates that, even assuming there is a nexus, the high-value licenses to [REDACTED] “are offset by several others taken by sophisticated companies [REDACTED] [REDACTED] for sums *far below* the median cost of litigation.” Pet. Rem. Br. 2. According to Petitioner, these low-value licenses “substantially undermine Patent Owner’s claim that the ’941 patent enjoyed licensing success,” or “[a]t the very least, this mixed bag is inconclusive.” *Id.* (citing *Navico Inc. v. ITC*, 696 F. App’x 989, 999 (Fed. Circ. 2017)).

We have reconsidered Patent Owner’s high-value licenses with [REDACTED], as evidence concerning objective indicia of nonobviousness. *See* Exs. 2031, 2032, 1050. Furthermore, as directed, we have also reconsidered Patent Owner’s licenses with [REDACTED], examples among others of low-value licenses, as evidence concerning objective indicia of obviousness. *See* Ex. 1051, 1052, 1053. We begin by summarizing the background of the licenses.

Background of Licenses

Microsoft petitioned for *ex parte* reexamination of the '941 patent on May 28, 2009. Ex. 2001 (U.S. Patent Application No. 90/010,560), 4–40. The Reexamination Petition did not include any Hellman-Chou ground. *Id.* On August 3, 2009, the Patent Office instituted reexamination. *Id.* at 156–165. [REDACTED]

[REDACTED]

According to Patent Owner, it sued [REDACTED] for infringement of the '941 patent on [REDACTED]. PO Resp. 26. [REDACTED] filed a petition for [REDACTED] of the '941 patent. *See* [REDACTED] Paper 1. The [REDACTED] did not include any Hellman-Chou obviousness unpatentability ground. *See id.* Before any decision on institution, [REDACTED], Patent Owner and [REDACTED] entered a [REDACTED] for the '941 patent. *See* Ex. 2032. According to Patent Owner, the [REDACTED] is for a substantial amount (high value), “well in excess of the reported costs of litigation.” PO Resp. 69–70. Patent Owner [REDACTED]

[REDACTED]

[REDACTED] and the Board granted the Joint Motion on April 26, 2016. *Id.* at Paper 7.

According to Patent Owner, it sued [REDACTED] for infringement of the '941 patent on August 27, 2019. PO Resp. 28. On [REDACTED]

requested that the Board terminate [REDACTED] before deciding the joinder motions by Joinder Petitioners because preliminary responses were still due in the Joinder Petitioners' IPRs and Patent Owner would be unduly prejudiced by the delay. *Id.* The Board authorized Patent Owner [REDACTED] to file a Joint Motion to Terminate [REDACTED] before deciding the joinder motions by Joinder Petitioners. *Id.*

[REDACTED], four days after that conference call, Patent Owner filed an Opposition [REDACTED] Motion for Joinder in the [REDACTED] [REDACTED] Patent Owner contended that [REDACTED] would "likely be terminated before the motion is fully briefed," thus, [REDACTED] Motion for Joinder would be "moot." *Id.* Further, Patent Owner contended that the Board should exercise its discretion to deny institution in [REDACTED], because, among other things, [REDACTED] Petition constituted an improper serial attack on the '941 patent, wherein [REDACTED] moved for joinder after Patent Owner [REDACTED] had settled their dispute. *Id.* With the Opposition, Patent Owner submitted an Amended Scheduling Order for the [REDACTED] District Court litigation setting a trial date of April 19, 2021, with a final pre-trial conference to occur on April 2, 2021. *Id.*, Ex. 2008.

Immediately before that pre-trial conference date, on April 1, 2021, Patent Owner [REDACTED] for the '941 patent. *Id.*, Ex. 2016. According to Patent Owner, [REDACTED] [REDACTED] PO Resp. 69–70.

[REDACTED], Patent Owner similarly filed an Opposition to [REDACTED] Motion for Joinder [REDACTED] Patent

Owner similarly contended that [REDACTED] would “likely be terminated before the motion is fully briefed” so [REDACTED] Motion for Joinder would be “moot.” *Id.* Patent Owner similarly contended that the Board should exercise its discretion to deny institution [REDACTED], because, among other things, [REDACTED] Petition constituted an improper serial attack on the ’941 patent, wherein [REDACTED] moved for joinder after Patent Owner [REDACTED] had settled their dispute. *Id.* With the Opposition, Patent Owner submitted a Scheduling Order for the [REDACTED] District Court litigation setting a trial date of October 17, 2022. *Id.*, Ex. 2001. However, [REDACTED], the Board granted institution [REDACTED], and granted [REDACTED] Motion for Joinder [REDACTED]. *Id.*, Paper 17. The Board determined that [REDACTED] filed its Petition and Motion for Joinder prior to Patent Owner’s Motion to Terminate [REDACTED] and, thus, continuation “was foreseeable and any prejudice to Patent Owner due to the continuation was not undue.” *Id.* The Board also agreed [REDACTED] that “the number of petitions filed by other petitioners challenging the ’941 patent is the result of Patent Owner’s litigation activity.” *Id.* On July 8, 2021, Patent Owner entered into a [REDACTED] [REDACTED]. *Id.*, Ex. 2026. This [REDACTED] [REDACTED] for the ’941 patent [REDACTED] [REDACTED] [REDACTED] [REDACTED] Pet. Reply 26.

On June 10, 2021, the same day the Board instituted trial in the [REDACTED] IPR, the Board also exercised discretion to deny institution of the [REDACTED] IPR under 35 U.S.C. § 314(a) based on a *Fintiv* analysis (*see Apple Inc. v Fintiv, Inc.*, IPR2020-00019, Paper 11), stating, *inter alia*, “as of the time of this

Decision, the parallel trial in the [REDACTED] would appear to have already started, more than eight months before a Final Written Decision would be due in the proceeding which Petitioner seeks to join.” [REDACTED], Paper 16, 5–12. Because the Board exercised discretion to deny institution under § 314(a), the Board also denied [REDACTED] Motion for Joinder. *Id.* According to the Amended Scheduling Order submitted with Patent Owner’s Opposition to [REDACTED] Motion for Joinder, trial in that related district court litigation was scheduled for June 7, 2021, three days before the Board’s Decision Denying Institution. *Id.*, Ex. 2008. On June 21, 2021, within two weeks of the Board’s Decision Denying Institution, Patent Owner [REDACTED] entered into a [REDACTED] for the ’941 patent. Ex. 2050.

According to Patent Owner, [REDACTED] is for a significant amount (high value), “well in excess of the reported costs of litigation.” PO Resp. 69–70.

Thus, as reviewed above, the licensing history for the ’941 patent is somewhat complex and the evidence of record indicates a broad diversity of values for such licenses. We analyze this evidence under the relevant law below.

Weighing License Evidence

As directed by the Federal Circuit, we have evaluated Patent Owner’s high-value licenses with [REDACTED] (Exs. 2031, 2032, 1050), as evidence concerning objective indicia of nonobviousness, and have evaluated Patent Owner’s licenses with [REDACTED], among other low-value licenses such as [REDACTED], as evidence concerning objective indicia of obviousness. *See* Exs. 1051, 1052, 1053. In particular, we evaluate the

nexus issue regarding high-value licenses produced by Patent Owner, weigh the low-value licenses against the high-value licenses produced by Patent Owner, and then weigh such evidence against what was in effect our *prima facie* case of obviousness discussed *supra*. Rem. Dec. 20. We note at the outset the Federal Circuit’s express explanation that the Board should refrain from “too finely pars[ing] the patent owner’s licensing activities,” and “that ‘licensing the ’941 patent necessarily conveys a right to all of the challenged claims,’” which “supports a nexus finding.” Rem. Dec. 17–18. Our analysis and determination are as follows:

As the Federal Circuit noted, the settlements resulting in the high-value licenses were reached “after four years of litigation, within a month of trial, and one day before trial,” wherein the license payments “far exceeded the cost of litigation.” Rem. Dec. 17–18.

Although Patent Owner contends that defendants in the litigations that led to the high-value licenses were fully aware of the Hellman and Chou prior art references (PO Resp. 70), Patent Owner acknowledges that [REDACTED] merely identified the references, but does not assert that [REDACTED] was aware of their use in combination for an unpatentability challenge, as in [REDACTED]. *Id.*; see [REDACTED]. In particular, the [REDACTED] litigation was settled in [REDACTED], before [REDACTED], which introduced the Hellman-Chou prior art combination in [REDACTED]. *Id.* Although [REDACTED] filed a petition in the [REDACTED] [REDACTED] before settlement with Patent Owner, the [REDACTED] did not include a Hellman-Chou obviousness ground. See [REDACTED]

Although some defendants in litigations resulting in the other high-value licenses, such as [REDACTED], were aware of the Hellman-Chou

prior art combination, and related unpatentability/invalidity arguments, and, as Patent Owner points out, “at least [REDACTED] asserted the Hellman[-]Chou invalidity combination” (PO Resp. 70), both [REDACTED] asserted the combination in a “me too” petition with a motion seeking to join [REDACTED]. See [REDACTED]. And, Patent Owner and [REDACTED], and Patent Owner and [REDACTED], respectively entered into licensing agreements for the ’941 patent after the Board authorized Patent Owner and [REDACTED] to file a Joint Motion to Terminate [REDACTED], and before deciding on the joinder motions. See [REDACTED]. Furthermore, Patent Owner and [REDACTED] entered into the [REDACTED] within two weeks of the Board’s discretionary denial of institution of [REDACTED] based on a *Fintiv* analysis and denial of [REDACTED] Motion for Joinder. [REDACTED]. We note that [REDACTED] faced similar *Fintiv* concerns to those at issue in [REDACTED]. See Ex. 2016.

As the Federal Circuit instructed on remand, we have considered the significance of the substantial license fees paid for licenses to the ’941 patent late in litigation. Rem. Dec. 19. However, as also instructed on remand, we have considered the circumstances surrounding the various defendants’ knowledge of the Hellman-Chou prior art combination and any validity/patentability challenges leading to these high-value licenses. Each of these licenses conveys rights to the ’941 patent, thus, as identified by the Federal Circuit, there is a nexus for each. Because, under this record, there is no evidence that [REDACTED] was aware of the Hellman-Chou prior art combination, and [REDACTED] entered their respective licensing agreements with Patent Owner for the ’941 patent after we authorized Patent

Owner [REDACTED] to file a Joint Motion to Terminate [REDACTED] before we ruled on [REDACTED] respective requests for joinder with [REDACTED], we give somewhat significant weight to these high-value licenses.

These licenses weigh somewhat significantly in favor of a conclusion of nonobviousness. But, our analysis does not end there.

We also consider the significance of the fact that Patent Owner also entered into license agreements for the '941 patent with other parties, late in a litigation, for insubstantial amounts “much less than anticipated litigation costs,” including a license with [REDACTED]

[REDACTED] Pet. Rem. Br. 7–8.

Although Patent Owner cites the Federal Circuit’s precedent in *Iron Grip*, and contends that the Federal Circuit has repeatedly held that settlement for less than the cost of litigation “simply cannot inform the obviousness analysis” (PO Rem. Br. 8), in this proceeding, the Federal Circuit on remand has explained that “the *Iron Grip* panel declined to credit low-value licenses not because of their value, but because of the failure of the patentee to provide adequate evidence that the licenses had a nexus to the patents at issue.” Rem. Dec. 20 (citing *Iron Grip*, 392 F.3d at 1324). Per the Federal Circuit’s instructions here, the low value licenses convey rights to the '941 patent, just as do their high value counterparts; therefore, a nexus is shown.

We recognize the significance that just two days after the Board instituted *inter partes* review [REDACTED], which included Hellman-Chou obviousness grounds [REDACTED], Patent Owner [REDACTED] entered into a [REDACTED] the '941 patent. *See* Ex. 1051. As

Petitioner points out, [REDACTED]

[REDACTED] of the Hellman-Chou prior art combination. Pet. Rem. Br. 7–8.

We also recognize the significance of the low-value license [REDACTED] after the Board granted institution in [REDACTED] and granted [REDACTED] Motion for Joinder with [REDACTED]. [REDACTED] Unlike [REDACTED], [REDACTED] filed its IPR Petition and Motion for Joinder prior to Patent Owner’s Motion to Terminate [REDACTED]. *Id.* [REDACTED]

[REDACTED] Rem. Dec. 18.

Because Patent Owner [REDACTED] entered a licensing agreement for the ’941 patent [REDACTED] after the Board instituted trial in [REDACTED], and Patent Owner [REDACTED] entered a license agreement for [REDACTED] [REDACTED] after the Board instituted trial [REDACTED] and granted [REDACTED] motion for joinder [REDACTED], we give somewhat significant weight to these low-value licenses. These licenses weigh somewhat significantly in favor of a conclusion of obviousness.

When the high-value licenses are considered with the low-value licenses, collectively, we are unpersuaded that the licensing evidence has much probative value. The evidence of record concerning licensing weighs somewhat significantly in favor of both obviousness and nonobviousness, to equal degrees. That is, although Patent Owner argues that licenses to [REDACTED]

[REDACTED]
[REDACTED] undermine Patent Owner's claim of licensing success that evidences nonobviousness. In fact and to the contrary, the low-value licenses evidence obviousness because Patent Owner was [REDACTED] [REDACTED] to the '941 patent in exchange for settling patentability/validity challenges over the combination of Hellman and Chou.

Thus, although we evaluated the nexus issue regarding high-value licenses and find the high-value licenses should be accorded somewhat significant weight and evidence of nonobviousness, we balance that with the substantially equal evidence of the low-value licenses weighing against nonobviousness and for obviousness, and we find that Patent Owner's objective evidence does not tip the scales of patentability toward nonobviousness to disturb our conclusions above regarding Hellman and Chou (and Schneck).

E. Final Conclusion as to Obviousness

Weighing the evidence of the level of ordinary skill in the art, the disclosure of the prior art, differences between the prior art references and the claims at issue, the reasoning to combine the references with a reasonable expectation of success, and the objective indicia of non-obviousness or obviousness, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 11, and 13 would have been obvious over Hellman and Chou and claims 1–3, 6–14, and 16 would have been obvious over Hellman, Chou, and Schneck. We find that Patent Owner's objective evidence does not tip the scales of patentability in comparison to the evidence regarding the prior art under the first three

Graham factors. *See Graham*, 383 U.S. at 36 (holding that alleged secondary considerations of commercial success and long-felt need did not “tip the scales of patentability” where the invention “rest[ed] upon exceedingly small and quite non-technical mechanical differences in a device which was old in the art”).

Accordingly, in view of the Federal Circuit’s instructions on remand, after considering the parties’ positions and weighing the evidence of record, we find that Petitioner proves by a preponderance of the evidence that claims 1, 2, 11, and 13 would have been obvious over Hellman and Chou and claims 1–3, 6–14, and 16 would have been obvious over Hellman, Chou, and Schneck.

III. CONCLUSION

For the foregoing reasons, Petitioner has demonstrated by a preponderance of the evidence, that claims 1–3, 6–14, and 16 of the ’941 patent are unpatentable.³

The following table summarizes our Decision on Remand:

³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 11, 13	103(a)	Hellman, Chou	1, 2, 11, 13	
1-3, 6-14, 16	103(a)	Hellman, Chou, Schneck	1-3, 6-14, 16	
Overall Outcome			1-3, 6-14, 16	

Final outcome of after Remand:

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 11, 13	103(a)	Hellman, Chou	1, 2, 11, 13	
1-3, 6-14, 16	103(a)	Hellman, Chou, Schneck	1-3, 6-14, 16	
Overall Outcome			1-3, 6-14, 16	

ORDER

For the foregoing reasons, it is

ORDERED that, based on a preponderance of the evidence, claims 1-3, 6-14, and 16 of U.S. Patent No. 6,411,941 B1 have been shown to be unpatentable; and

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FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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For PETITIONER:

Jon Wright
Lestin Kenton
Dohm Chankong
Richard Crudo
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
jwright-ptab@sternekessler.com
lkenton-ptab@sternekessler.com
dchankong-ptab@sternekessler.com
rcrudo-ptab@sternekessler.com

For PATENT OWNER:

David Gosse
Nicholas T. Peters
Karen Wang
FITCH, EVEN, TABIN & FLANNERY LLP
dgosse@fitcheven.com
ntpete@fitcheven.com
kwang@fitcheven.com

Vincent Ferraro
vferraro@kelleydrye.com