

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTERN DIGITAL CORPORATION,
TOSHIBA CORPORATION,
TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC., and
APRICORN,
Petitioners,

v.

SPEX TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2018-00082¹
Patent 6,088,802

Before LYNNE E. PETTIGREW, DANIEL N. FISHMAN, and
CHARLES J. BOUDREAU, *Administrative Patent Judges*.

FISHMAN, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

¹ Toshiba Corporation, Toshiba America Electronic Components, Inc., and Apricorn, which filed a Petition in Case IPR2018-01068, have been joined as petitioners in this proceeding.

I. INTRODUCTION

Western Digital Corporation (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1, 2, 6, 7, 11, 12, 23–25, 38, and 39 (the “challenged claims”) of U.S. Patent No. 6,088,802 (“the ’802 patent,” Ex. 1001) pursuant to 35 U.S.C. §§ 311 *et seq.* Paper 1 (“Petition” or “Pet.”). SPEX Technologies, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6. In response to Patent Owner’s Preliminary Response, Petitioner filed an authorized Reply to Patent Owner’s Preliminary Response, addressing Patent Owner’s arguments directed to claim construction issues and to discretionary denial issues. Paper 9. Responsive to Petitioner’s Reply to the Preliminary Response, Patent Owner filed an authorized Sur-Reply. Paper 10.

The Supreme Court held, on April 24, 2018, that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018) (“SAS”). The day after the SAS decision issued, we issued a decision instituting trial on all claims and all grounds. Paper 11 (“Dec.” or “Decision”). However, our Decision made clear that, based on the preliminary record at that time, we found a reasonable likelihood of Petitioner prevailing **only** with respect to certain grounds addressing claims 38 and 39. Dec. 2, 26–42.

Patent Owner requested rehearing of our Decision (Paper 15) and we denied that request (Paper 21).

In view of our remarks in the Decision regarding challenged claims other than claims 38 and 39, Petitioner filed a Motion to Submit Supplemental Information. Paper 17. Patent Owner opposed this motion.

Paper 18. For reasons discussed further below, we denied Petitioner's motion. Paper 22.

Patent Owner elected to waive its right to file a Patent Owner Response. Paper 23. Responsive to Patent Owner's waiver, Petitioner filed a Motion for Leave to File a Reply in the Absence of Patent Owner's Response. Paper 24. Patent Owner opposed that motion. Paper 25. For reasons discussed further below, we denied Petitioner's motion. Paper 32.

Petitioner filed a Motion to Exclude Evidence requesting that we exclude Patent Owner's Exhibit 2004. Paper 33. For the reasons discussed below, we dismiss Petitioner's motion as moot.

A telephonic hearing was conducted Thursday, January 24, 2019. A transcript of that hearing is in the record. Paper 39 ("Tr.").

Upon consideration of the complete record, we are persuaded by a preponderance of the evidence that claims 38 and 39 are unpatentable but are not persuaded that claims 1, 2, 6, 7, 11, 12, and 23–25 are unpatentable.

II. BACKGROUND

A. Related Matters

The parties inform us that the '802 patent is presently at issue in *SPEX Technologies, Inc. v. Western Digital Corp.*, Case No. 8:16-cv-01799 (C.D. Cal.). Pet. 67–68; Paper 5, 2.² In addition, Patent Owner further informs us that the '802 patent is or has been involved in Case Nos. IPR2017-00430 and IPR2017-00824 before the Board (institution denied in both cases);

² Paper 5, as filed, does not include page numbering as required by our rules. For purposes of this decision, we refer to the pages of Paper 5 sequentially with the caption page starting as page number 1.

SPEX Technologies, Inc. v. Kingston Technologies Co., Case No. 8:16-cv-01790 (C.D. Cal.); *SPEX Technologies, Inc. v. Toshiba America Electronic Components Inc.*, Case No. 8:16-cv-01800 (C.D. Cal.); *SPEX Technologies, Inc. v. CMS Products, Inc.*, Case No. 8:16-cv-01801 (C.D. Cal.); *SPEX Technologies, Inc. v. Integral Memory, PLC*, Case No. 8:16-cv-01805 (C.D. Cal.); and *SPEX Technologies, Inc. v. Apricorn*, Case No. 2:16-cv-07349 (C.D. Cal.). Paper 5, 2.

B. The '802 Patent

The '802 patent is directed to a peripheral device that may be connected to a host computer, where the peripheral device performs security operations such as encryption and decryption on data communicated between the peripheral device and the host computer. Ex. 1001, 1:17–27, 1:35–38, 4:49–5:4. Figures 1, 2, and 3A of the '802 patent are reproduced below.

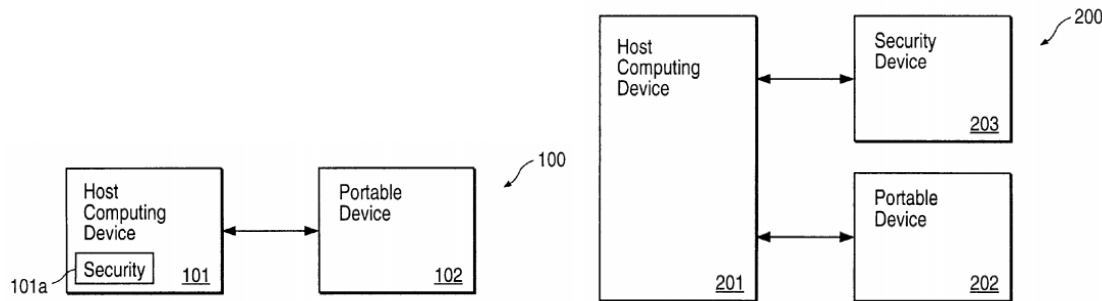


FIG. 1
(PRIOR ART)

FIG. 2
(PRIOR ART)

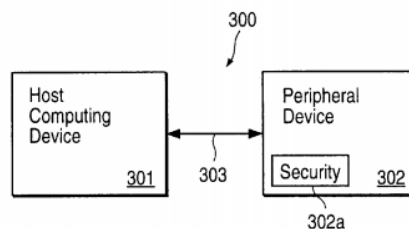


FIG. 3A

Figures 1 and 2 are block diagrams of prior art systems described in the '802 patent. *Id.* at 1:52–3:14, 4:14–19. Figure 3A is a block diagram of a system according to the claimed invention of the '802 patent. *Id.* at 4:20–21. The '802 patent explains that in the prior art, such security operations were either performed by the host computer, as illustrated in Figure 1 with security mechanism 101a included in host computing device 101, or by a standalone security device, as illustrated by security device 203 in Figure 2. *Id.* at 1:58–59, 2:22–32. According to the '802 patent, both of those arrangements were deficient in various ways. *Id.* at 2:10–21, 2:58–3:14.

The '802 patent purports to address these problems by integrating security operations into the peripheral device, as security mechanism 302a is integrated in peripheral device 302 of Figure 3A. *See id.* at 3:27–33, 4:56–62.

C. Illustrative Claim

Claims 1, 6, 11, 23, 24, 38, and 39 are the independent claims among the challenged claims. Claims 1, 6, 38, and 39, reproduced below, are illustrative of the claimed subject matter:

1. A peripheral device, comprising:
 - security means for enabling one or more security operations to be performed on data;
 - target means for enabling a defined interaction with a host computing device;
 - means for enabling communication between the security means and the target means;
 - means for enabling communication with a host computing device;

means for operably connecting the security means and/or the target means to the host computing device in response to an instruction from the host computing device; and

means for mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means.

Id. at 18:55–19:4.

6. A peripheral device, comprising:

security means for enabling one or more security operations to be performed on data;

target means for enabling a defined interaction with a host computing device;

means for enabling communication between the security means and the target means,

means for enabling communication with a host computing device;

means for operably connecting the security means and/or the target means to the host computing device in response to an instruction from the host computing device; and

means for providing to a host computing device, in response to a request from the host computing device for information regarding the type of the peripheral device, information regarding the function of the target means.

Id. at 19:15–32.

38. For use in a peripheral device adapted for communication with a host computing device, performance of one or more security operations on data, and interaction with a host computing device in a defined way, a method comprising the steps of:

receiving a request from a host computing device for information regarding the type of the peripheral device; and

providing to the host computing device, in response to the request, information regarding the type of the defined interaction.

Id. at 22:13–23.

39. For use in a peripheral device adapted for communication with a host computing device, performance of one or more security operations on data, and interaction with a host computing device in a defined way, a method comprising the steps of:

communicating with the host computing device to exchange data between the host computing device and the peripheral device;

performing one or more security operations and the defined interaction on the exchanged data; and

mediating communication of the exchanged data between the host computing device and the peripheral device so that the exchanged data must first [pass] through means for performing the one or more security operations.

Id. at 22:24–38.

D. Asserted Grounds of Unpatentability

Petitioner asserts the challenged claims are unpatentable based on the following grounds (Pet. 2³):

References	Basis	Claims challenged
Harari ⁴ and Anderson ⁵	§ 103	1, 2, 6, 7, 11, 12, 23–25, 38, and 39
Harari, Anderson, and Wang ⁶	§ 103	1, 2, 11, 12, 23, and 39
Harari, Anderson, and Dumas ⁷	§ 103	1, 2, 11, 12, 23, and 39
Harari, Anderson, Dumas, and Wang	§ 103	1, 2, 11, 12, 23, and 39

Petitioner relies on the testimony of Martin Kaliski, Ph.D. (Ex. 1015) in support of its assertions.

III. DISCUSSION

A. Claim Construction

The '802 patent issued from an application filed June 4, 1997, and accordingly expired no later than June 4, 2017. *See* 35 U.S.C. § 154(a)(2). “While claims are generally given their broadest possible scope during

³ The summary of the asserted grounds on page 2 of the Petition fails to list claim 39 in grounds 2 and 4. However, the substance of the Petition addresses claim 39 in both of these grounds. *See* Pet. 59, 64. We deem this apparent typographic error to be harmless.

⁴ U.S. Patent No. 5,887,145 (“Harari,” Ex. 1004).

⁵ Don Anderson, *PCMCIA System Architecture 16-Bit PC Cards, Second Edition*, 1995 (“Anderson,” Ex. 1006).

⁶ U.S. Patent No. 5,765,027 (“Wang,” Ex. 1019).

⁷ U.S. Patent No. 6,199,163 B1 (“Dumas,” Ex. 1005).

prosecution, *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000), the Board’s review of the claims of an expired patent is similar to that of a district court’s review.” *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). Specifically, we apply the principles set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). Under that standard (the “*Phillips* Standard”), the words of a claim are generally given their ordinary and customary meaning, which is the meaning the words 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*, 415 F.3d at 1312–13.

Furthermore, a claim limitation using the phrase “means for” creates a rebuttable presumption that the drafter intended to invoke 35 U.S.C. § 112 ¶ 6.⁸ *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Section 112 ¶ 6 provides that:

An element in a claim for a combination may be expressed as a means . . . for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Construing a means-plus-function claim term is a two-step process, wherein we first identify the claimed function and then determine what structure, if any, disclosed in the specification corresponds to the claimed function.

Williamson, 792 F.3d at 1351; *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1210 (Fed. Cir. 2003); *Cardiac Pacemakers, Inc.*

⁸ Section 4(c) of the Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, § 4(c), 125 Stat. 284 (2011), re-designated 35 U.S.C. § 112 ¶ 6, as 35 U.S.C. § 112(f). Because the ’802 patent has a filing date before September 16, 2012 (effective date of the statute), we refer to the pre-AIA version of 35 U.S.C. § 112.

v. St. Jude Med., Inc., 296 F.3d 1106, 1119 (Fed. Cir. 2002). Moreover, “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1334 (Fed. Cir. 2004); *Cardiac Pacemakers*, 296 F.3d at 1113.

Lastly, only terms that are in controversy need to be construed and only to the extent necessary to resolve the controversy. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

1. District Court Constructions Adopted

The Petition represents itself to be “based on the claim constructions urged by Patent-Owner in the [District Court] Litigation or as the parties agreed.” Pet. 8. In interpreting various terms, as discussed further below, the Petition cites claim interpretations adopted by the District Court in the underlying litigation and notes where the parties agreed to certain interpretations. *See* Pet. 8–15.

A district court’s interpretation of claim terms may be useful in our claim construction and must be considered in our analysis. *See Knowles Elecs. LLC v. Iancu*, 886 F.3d 1369, 1376 (Fed. Cir. 2018) (“While ‘the [PTAB] is not generally bound by a previous judicial interpretation of a disputed claim term[, this] does not mean . . . that it has no obligation to acknowledge that interpretation or to assess whether it is consistent with the [broadest reasonable interpretation] of the term.’” (quoting *Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1327 (Fed. Cir. 2015))). Here, in view of the expiration of the ’802 patent no later than June 4, 2017, we apply

the same claim construction standard as the District Court, and accordingly, the case for adopting the District Court's construction is stronger than in certain proceedings involving unexpired patents in which we would apply the broadest reasonable interpretation standard.⁹

In the related litigation, the U.S. District Court for the Central District of California engaged in a *Markman* hearing considering the positions of the parties regarding construction of disputed terms. *See* Ex. 1017 (*Reporter's Transcript of Proceeding* dated Sept. 18, 2017). The Court then issued a tentative *Markman* order construing terms of the '802 patent claims (*Tentative Order Regarding Claim Construction* undated, Ex. 1014) and issued a *Markman* order, seemingly substantively identical to the tentative order, establishing the Court's claim construction in the related litigation (*Order Regarding Claim Construction* dated Oct. 18, 2017, Ex. 2003).

The *Markman* orders of the District Court address only terms for which the parties did not agree to a construction. For those disputed terms, we agree with the District Court's claim interpretation, finding it thorough and well-reasoned. We adopt the claim term interpretations as presented in the District Court's *Markman* order entered October 18, 2017 (Ex. 2003), and we highlight below particular constructions of the District Court relevant to this Decision.

⁹ *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42) (applies to petitions filed on or after November 13, 2018).

2. “[S]ecurity means”

The Petition notes that the parties in litigation agreed that the term “security means” is subject to means-plus-function interpretation and notes Patent Owner’s arguments in litigation directed to the structure corresponding to the function but does not indicate that the parties agreed on identification of the structure corresponding to the recited function. Pet. 16. In view of the parties’ apparent disagreement in interpreting the term, we adopt the District Court’s interpretation of this term under 35 U.S.C. § 112 ¶ 6 where the function is “enabling one or more security operations to be performed on data” and the corresponding structure is “[a] specific hardware component programmed or configured to perform a security operation disclosed in ’802 Patent at 18:1–47.” Ex. 2003, 16–22.

We further note the District Court construed “means for performing the one or more security operations” as recited in method claim 39, finding the function (“performing the one or more security operations”) is provided by the same structure as the “security means” recited in the apparatus claims. *See id.* at 16–17, 22–23.

3. “[T]arget Means”

The District Court did not construe the term “target means” because the parties in litigation generally agreed on a construction of this term. Specifically, the parties agreed that the recited function is “enabling a defined interaction with a host computing device” and generally agreed that the ’802 patent discloses structure corresponding to the recited function as: (1) a memory module adapted to enable non-volatile storage of data, (2) a communications module adapted to enable communications between the host computing device and a modem or LAN transceiver, (3) a smart card

reader, or (4) a biometric device. Pet. 11–12; *see also* Ex. 1016, 2; Ex. 2005, 40. We find the parties’ agreed upon interpretation of “target means” is consistent with the claims and with the Specification of the ’802 patent and, therefore, we adopt the above construction agreed to by the parties.

4. “[M]eans for mediating . . .”

The Petition identifies the function of the recited “means for mediating” as “mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means.” Pet. 14. Petitioner then notes Patent Owner’s proposed interpretation that the corresponding structure is a field programmable gate array (“FPGA”) or interface control device 910 of Figure 9B. *Id.* (citing Ex. 1013, 20). The Petition does not indicate that the parties agreed on an identification of the structure corresponding to the identified function. *Id.* Petitioner further notes that the District Court “tentatively agreed with Patent-Owner’s proposed function, but rejected that the FPGA was a corresponding structure.” *Id.* (citing Ex. 1014, 24–25).

In view of the parties’ apparent disagreement in interpreting the term, we adopt the District Court’s interpretation of this term under 35 U.S.C. § 112 ¶ 6 in which the function is “mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means” and the corresponding structure is “[i]nterface control device 910 (as shown in Fig. 9B).” Ex. 2003, 31–38.

5. “[M]eans for providing . . .”

Claims 6, 7, and 23–25 each include a recitation relating to a means for providing information regarding the function of the target means to the

host computing device. The Petition identifies the function as “providing to a host computing device, in response to a request from the host computing device for information regarding the type of the peripheral device, information regarding the function of the target means.” Pet. 14–15. The Petition then notes Patent Owner’s argument in litigation identifying memory 612a as the corresponding structure. Pet. 15 (citing Ex. 1013, 23; Ex. 1001, 7:60–8:14); *see also* Ex. 1014, 30.

The Petition does not indicate that the parties agreed on the interpretation of this term. To the contrary, in the underlying litigation, Petitioner argued the ’802 patent fails to disclose a corresponding structure and, thus, that the term is indefinite. Pet. 30. The District Court agreed with Petitioner in the related litigation that the ’802 patent Specification fails to disclose sufficient corresponding structure that performs this function and, thus, claims reciting this element are indefinite. Pet. 15; *see also* Ex. 1014, 30–32; Ex. 2003, 38–43. In the litigation, Patent Owner argued memory 612a of the ’802 patent Specification is the structure that corresponds to the recited function of providing the function of the target means to the host computing device. *See* Ex. 2003, 42 (quoting cited portions of Ex. 1001, 7:62–8:21). However, the District Court found, and we agree, the cited portions of the ’802 patent Specification fail to disclose that memory 612a stores such information regarding the function of the target means, let alone provides such information to the host computing device. Ex. 2003, 42–43.

As discussed *supra*, Petitioner has not proffered any particular interpretation but, instead, merely notes Patent Owner’s proffered claim construction from the litigation—an interpretation with which Petitioner disagreed in the litigation. *See* Pet. 15; *see also* Ex. 1014, 30. We agree

with the District Court that Patent Owner’s construction, the only construction put forth in this proceeding, does not satisfy the requirement for a disclosure (in the Specification) of structure corresponding to the identified function. Thus, we are unable to construe this limitation. *See In re Aoyama*, 656 F.3d 1293, 1298 (Fed. Cir. 2011).

B. Petitioner’s Motion to Submit Supplemental Information

On May 29, 2018, Petitioner timely filed an authorized Motion to Submit Supplemental Information (Paper 17, “Mot. Supp. Inf.”), and on June 1, 2018, Patent Owner timely filed its authorized Opposition to Petitioner’s Motion to Submit Supplemental Information (Paper 18, “Opp. Supp. Inf.”). The Motion to Submit Supplemental Information requested entry of proposed Exhibits 1022, 1023, and 1024—now renumbered as Exhibits 3001, 3002, and 3003, respectively.¹⁰ Exhibits 3001 and 3002 are excerpts of deposition testimony by Patent Owner’s expert witnesses in the related District Court litigation. Exhibit 3003 is a supplemental declaration by Petitioner’s declarant in this proceeding, Dr. Martin Kaliski, explaining the relevance of Exhibits 3001 and 3002 to our Decision’s construction of the term “means for mediating.”

Regarding the proposed supplemental information, Petitioner argued:

Patent Owner’s (PO) district court invalidity rebuttal experts—Dr. Rhyne and Mr. Gomez—confirmed in their depositions that the controllers in Harari Fig. 4 are structures corresponding to

¹⁰ Because Exhibits 1022, 1023, and 1024 were denied entry to the record, the Exhibits have been removed from the evidence considered of record and remain for consideration of the order denying their entry renumbered as Exhibits 3001, 3002, and 3003, respectively. We refer to the renumbered Exhibits.

interface control device 910 in Fig. 9B of the '802 patent (Exs. [3001], [3002]). Petitioner's expert, Dr. Kaliski, explains in a supplemental declaration (Ex. [3003]) that this testimony shows that Harari teaches the "means for mediating" limitation in claims 1–2, 11–12, and 23. This evidence (Exs. [3001–3003]) should be allowed as supplemental information.

Mot. Supp. Inf. 1. Petitioner further contended denial of its Motion risked violating its due process rights because "if PO waives its response to try to close the record on issues that the Board believes were not reasonably likely to succeed, that would result in a *de facto* partial institution because the outcome would be preordained." *Id.* at 5; *see also* Tr. 4:10–7:21, 10:8–11:19.

Patent Owner argued in opposition that the proposed new exhibits do not support the arguments of the Petition regarding the "means for mediating" of claim 1 but, instead, presented a new argument that Harari's Figure 4 discloses structure equivalent to control device 910 of the '802 patent. Opp. Supp. Inf. 3–4. Patent Owner noted that Petitioner's Motion to Submit Supplemental Information did not explain why the proposed new exhibits support the arguments presented in the Petition but, instead, "attempt[ed] to effectively amend the Petition." *Id.* at 4. Patent Owner contended the Court's ruling in SAS "does not create the requirement that the Board give a Petitioner a second chance to submit a viable invalidity argument with new evidence in order to address claims as to which it did not meet its burden of proof in the petition." *Id.* at 4; *see also* Tr. 8:10–10:3, 12:1–19.

After consideration of the parties' respective positions, we entered an order denying Petitioner's Motion to Submit Supplemental Information Paper 22 ("Order Supp. Inf."). We agreed with Patent Owner that the

proposed supplemental information presented a new ground for unpatentability based on different disclosures of Harari in an attempt to correct a weakness of the Petition we noted in our Decision on Institution. We instituted trial (e.g., for claim 1) based on the Petition’s arguments regarding elements 41 and 42 of Harari disclosing the recited “means for mediating” and noted the weakness of that argument. Dec. 34–36. The new arguments presented in the proposed supplemental information and Petitioner’s Motion for Supplemental Information did not address those issues but, instead, presented a wholly new argument that reads the recited means for mediating on disclosed structures of Harari’s Figure 4—structure unrelated to elements 41 and 42 of Figures 5B and 7 as identified in the Petition.

For the above reasons, we denied Petitioner’s Motion to Submit Supplemental Information. Order Supp. Inf. 11.

C. Petitioner’s Motion for Leave to File a Reply

Our Decision on Petitioner’s Motion to Submit Supplemental Information also clarified that our rules require that a Petitioner’s Reply be limited to addressing only issues raised in a Patent Owner Response. Order Supp. Inf. 2 (citing 37 C.F.R. § 42.23(b)).

On August 7, 2018, Patent Owner filed a paper notifying the Board and Petitioner that it did not intend to file a Patent Owner Response. Paper 23. On August 13, 2018, Petitioner filed an authorized Motion For Leave To File A Reply Under 37 C.F.R. § 42.5 In The Absence Of Patent Owner’s Response. Paper 24 (“Mot. for Reply” or “Motion to File Reply”). On August 21, 2018, Patent Owner filed an authorized opposition to Petitioner’s Motion. Paper 25 (“Opp. to Reply”). After reviewing the parties’ respective

positions, discussed below, we denied Petitioner's Motion to File Reply, finding Petitioner failed to show good cause for waiving our rule. Paper 32 ("Order Denying Reply").

1. Due Process

Petitioner argued we were required to waive our rules to allow Petitioner to file a Reply despite the absence of a Patent Owner Response:

Absent waiver, Petitioner would not have had any opportunity to establish unpatentability during the trial based on the grounds instituted on claims 1, 2, 11 and 12. Depriving Petitioner of this opportunity would violate *SAS Institute, Inc. v. Iancu*, 138 S. Ct. 1348 (2018), the APA, and Petitioner's Due Process rights.

Mot. for Reply 1.

Patent Owner argued Petitioner's due process rights are not violated because the Petition recognized the District Court identified interface control device 910 of the '802 patent as the corresponding structure of the means for mediating "but elected not to analyze whether any of the cited references, including Harari, disclose that structure." Opp. to Reply 4 (citing Pet. 14). Patent Owner further argues Dr. Kaliski (Petitioner's expert) admitted in his deposition that he was aware of device 910 as identified corresponding structure but decided not to address device 910 in his original declaration. *Id.* at 4–5 (citing Ex. 2008, 62:11–14). Therefore, Patent Owner contended Petitioner had "a full and fair opportunity to analyze its disclosure for a structure equivalent to the interface control device 910," and thus, had no basis "to obtain a 'do-over' on reply" when it specifically decided not to present that argument in its Petition. *Id.* at 5.

We agreed with Patent Owner that Petitioner had the opportunity in its Petition to identify equivalent structures in the references by comparisons

with device 910 of the '802 patent—identified as the structure corresponding to the recited means for mediating element by the Petition and by the District Court—to identify equivalent structures in the references but chose not to do so in its Petition. Order Denying Reply 5. Furthermore, Petitioner chose not to avail itself of the opportunity to be heard in a request for rehearing. *Id.* at 5–6.

Accordingly, we were unpersuaded that denial of Petitioner's Motion to file a Reply in the absence of a Patent Owner Response denied Petitioner's Due Process rights.

2. No New Construction

Petitioner further asserted our Decision on Institution reflected a change from the grounds asserted by the Petition by narrowing “the ‘means for mediating’ limitation’s claim construction from the one used in the Petition” and, thus, that we must waive our rules to permit Petitioner to file a Reply to respond to that “new theory.” Mot. for Reply 2.

We disagreed. Order Denying Reply 6–7. As discussed above, Petitioner clearly understood that the District Court identified interface control device 910 as the corresponding structure and rejected an interpretation that an FPGA is the corresponding structure. The District Court's tentative claim construction and ultimate claim construction both rejected an FPGA as the corresponding structure for the means for mediating because of the programmable nature of such a device and the lack of any disclosed algorithm for such a device. Ex. 1014, 26–28; Ex. 2003, 33–35.

Our Decision on Institution did not change the construction from that proposed in the Petition, as suggested by Petitioner, but, instead, merely adopted the District Court's ultimate claim construction identified in the

Petition—an interpretation that identified the corresponding structure as interface control device 910 in Figure 9B of the '802 patent. Dec. 15 (citing Ex. 2003, 31–38). Thus, our Decision on Institution did not change the construction of “means for mediating” from that of the Petition such that Petitioner must be afforded the opportunity to respond to a “new theory.”

3. New Arguments in Proposed Reply

Petitioner contended its proposed reply (based on Exhibits 3001–3003) would not introduce any new ground because a new ground “requires new prior art or a new statutory basis for invalidity.” Mot. for Reply 4. By contrast, Petitioner argued “[a]ddressing a different figure in an already-identified prior art reference or presenting new arguments and evidence addressing that same prior art would not create a new ground of unpatentability.” *Id.* Furthermore, Petitioner acknowledged that the Petition identified modules 41 and 42 and Figure 7 of Harari as the structure for the recited means for mediating and contended the proposed Reply would not propose a “new ground”:

Although Petitioner compared these elements [(modules 41 and 42)] to the FPGA in the '802 patent in accordance with the Petition's claim construction, the proposed Reply would explain, supported by new evidence, how these elements are also equivalent to device 910 in Fig. 9B, in accordance with the narrowed claim construction adopted by the Board. This is not a new ground.

Mot. for Reply 5.

We were not persuaded by Petitioner's argument. Order Denying Reply 7–9. Petitioner's statement that “Petitioner compared these elements [(modules 41 and 42)] to the FPGA in the '802 patent” is simply incorrect. The Petition identifies modules 41 and 42 of Harari as the structure of the

recited means for mediating but in no way compares these elements to any structures of the '802 patent. *See* Pet. 43–45. Therein lies a deficiency in the Petition. After discussing construction of “means for mediating” (Pet. 14), there is no further discussion of interface control device 910 of the '802 patent in the remainder of the Petition—let alone a comparison of interface control device 910 to Harari’s modules 41 and 42.

Thus, Petitioner’s Reply, as proposed, would necessarily be raising new arguments not present in the Petition and, in the absence of a Patent Owner Response, could not possibly be in response to issues raised therein.

4. Conclusion Regarding Motion to File Reply

For the above reasons, we denied Petitioner’s Motion to File a Reply in the Absence of a Patent Owner Response. Order Denying Reply 9.

D. Obviousness Grounds

1. Legal Framework for Obviousness

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 question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence

of nonobviousness, i.e., secondary considerations.¹¹ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

2. *Level of Ordinary Skill in the Art*

Petitioner argues “[a] person of ordinary skill in the art of the ’802 Patent would have at least a Bachelor’s degree in electrical engineering or computer science, and at least one year of experience in computer security and/or computer architecture for peripheral devices or equivalent education or experience.” Pet. 7 (citing Ex. 1015 ¶ 16).

As noted *supra*, Patent Owner waived its right to respond to the Petition and, therefore, provides no rebuttal to Petitioner’s arguments regarding the level of skill in the art.

We are persuaded by Petitioner’s definition of the level of ordinary skill in the art and we find this definition is commensurate with the level of ordinary skill in the art as reflected in the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350 (Fed. Cir. 2001).

Therefore, we define the level of ordinary skill in the art, at the time of the ’802 patent, to include a Bachelor’s degree in computer science or electrical engineering plus at least a year of experience in computer security and/or computer architecture for peripheral devices or equivalent education or experience.

¹¹ Without any evidence regarding secondary considerations of non-obviousness in the record, secondary considerations contribute no weight in our obviousness analysis.

3. Cited Prior Art References

a. Overview of Harari (Ex. 1004)

Harari is directed to a peripheral device that can be removably connected to a host computer system. Ex. 1004, 3:9–12. The disclosed peripheral device includes a mother card portion and a daughter card portion. *Id.* at 3:50–51. The daughter card portion is removably connected to the mother card portion and the mother card portion is removably connected to the host computer system, both through a standard interface that provides both mechanical and electrical coupling. *Id.* at 3:51–57. According to Harari, the mother card may contain common functional components useful for a variety of types of peripheral devices, and the daughter card contains the remainder of the functional components unique to the particular function of the peripheral device. *Id.* at 4:22–33.

Harari's Figure 1 is reproduced below.

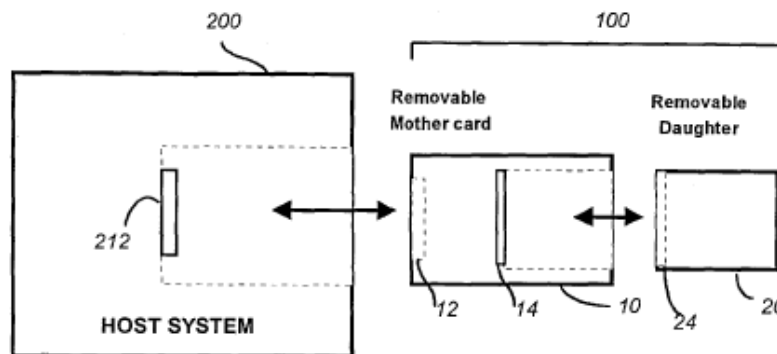


FIG. 1

Figure 1 is a schematic representation of peripheral device 100 that removably connects with host system 200 via connectors 12 and 212. *Id.* at 6:59–7:3. Peripheral device 100 comprises daughter card portion 20 that

removably connects with mother card portion 10 through connectors 24 and 14. *Id.* at 7:4–6.

In a preferred embodiment in which the peripheral device is a memory, Harari discloses mother card 10 includes controller 40 comprising processor 50 and related components 52–58 all coupled via internal bus 55. *See id.* at 7:24–8:23, Figs. 3–4.

Figure 5B of Harari is reproduced below.

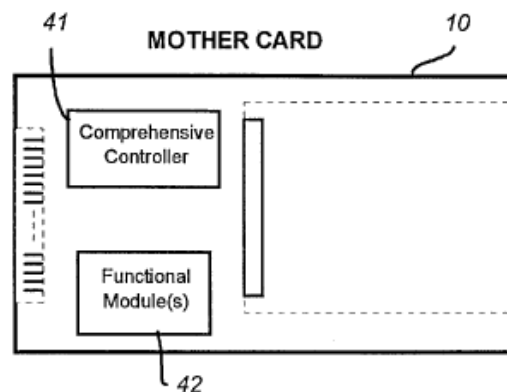


FIG. 5B

Figure 5B depicts generalized mother card 10 comprising comprehensive controller 41 that functions as a controller or interface common to a number of peripheral device functions implemented on various daughter cards. *See id.* at 8:28–32. Mother card 10 further comprises functional module(s) 42 that provide additional functions common to a variety of peripheral device functions implemented on a variety of daughter cards, additional functions including, for example, error detection/correction, encryption/decryption, compression/decompression, etc. *Id.* at 8:58–64. Functional modules 42 are also referred to in Harari as “functional components 42.” *See, e.g., id.* at 11:32–34, 12:20–34, 12:61–67, 13:6–17. In this Decision, we refer to “functional module” and “functional

component,” including singular and plural forms of each, as synonyms in the disclosures of Harari.

According to Harari, Personal Computer Memory Card International Association (“PCMCIA”) provides a widely known standard for mechanical and electrical interfacing of a memory card (incorporated by reference in Harari), and other types of peripheral devices, to a host computer system. *See id.* at 2:15–39. The PCMCIA interface standard is disclosed as an exemplary embodiment for connecting the peripheral device to the host computer system. *See id.* at 6:63–7:3.

b. Overview of Anderson (Ex. 1006)

Anderson is a book providing a reference for design of PCMCIA compatible devices. *See Ex. 1006*, 25–28. Configuration software associated with the PCMCIA standard includes “card services” and “enabler” elements that create and maintain a database of system resources presently assigned to PCMCIA-compatible peripheral devices (commonly referred to as “PC Cards”) presently connected to the host computing system. *Id.* at 49. When a PC Card is first detected by the host computing system, enabler software determines configuration requirements of the PC Card by reading the Card Information Structure (“CIS”) from the PC Card and requests that the required resources be allocated to the PC Card. *Id.* at 49–50. Card services software then allocates the requested resources, if available, and assigns those resources to the PC Card. *Id.* at 50.

c. Overview of Wang (Ex. 1019)

Wang discloses a PCMCIA PC Card that utilizes an application specific integrated circuit (“ASIC”) or field programmable gate array (“FPGA”) coupled with a local processor and memory to provide a LAN

controller (peripheral device) that communicates with a host computer system. See Ex. 1019, Abstract, 4:14–17, 4:39–50

d. Overview of Dumas (Ex. 1005)

Dumas discloses “an encryption circuit for encrypting and decrypting data as it travels to and from a hard disk or other mass storage device.”

Ex. 1005, 1:49–51. Figure 2 of Dumas is reproduced below.

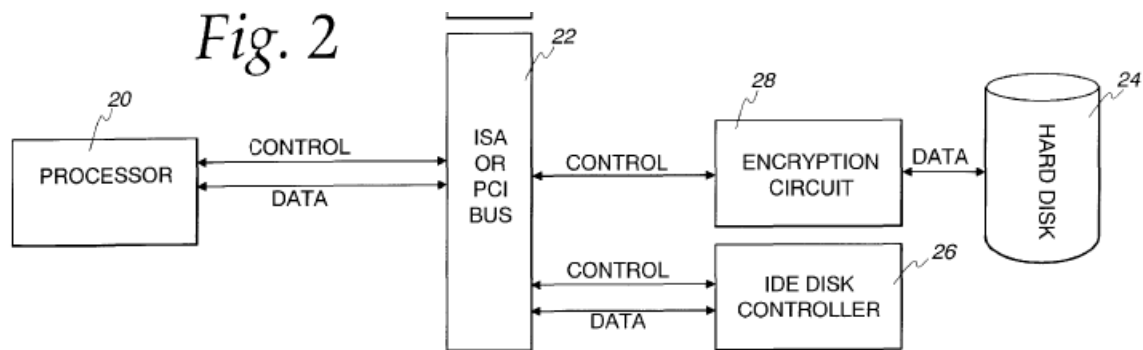


Figure 2 is a block diagram of a system including the present invention. *Id.* at 1:64–65. Data exchanged between host processor 20 and hard disk 24 must pass through encryption circuit 28. *Id.* at 2:28–30.

4. Obviousness over Harari and Anderson or Harari, Anderson, and Wang

Petitioner contends all challenged claims (1, 2, 6, 7, 11, 12, 23–25, 38, and 39) are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Harari and Anderson and contends that claims 1, 2, 11, 12, 23, and 39 are also unpatentable as obvious over the combination of Harari, Anderson, and Wang. See Pet. 25–64.

As noted *supra*, Patent Owner waived its right to respond to the Petition and, therefore, provides no rebuttal to Petitioner’s arguments regarding the asserted grounds. Nonetheless, it remains Petitioner’s burden

to persuade us by a preponderance of the evidence that the challenged claims are unpatentable as obvious over the proposed combination of references.

a. Motivation to Combine Harari and Anderson

Petitioner argues “[u]sing standard architectures to connect peripherals was not only common but also a best practice of skilled artisans at the time” and contends PCMCIA is such a standard architecture that is specifically incorporated by reference in Harari. Pet. 27–28 (citing Ex. 1015 ¶ 57). Petitioner further contends the ordinarily skilled artisan would have been motivated to combine Anderson with Harari “to achieve the compatibility and interoperability of the PC Card system with host computers” with a reasonable expectation of success to obtain a predictable and reliable result. *Id.* at 28 (citing Ex. 1015 ¶¶ 57–59).

We are persuaded by a preponderance of the evidence that the ordinarily skilled artisan would have been motivated to combine Anderson and Harari. Although Harari discloses the use of a standard interface such as PCMCIA, it only incorporates the PCMCIA specifications by reference, and thus, the ordinarily skilled artisan would have been motivated to seek out a further reference for details of the PCMCIA architecture and design. Anderson is such a reference. Thus, Petitioner has articulated a reason the ordinarily skilled artisan would have been motivated to combine Harari and Anderson based on rational underpinnings—the need for further details on design and implementation of the PCMCIA interface disclosed by Harari.

b. Motivation to Combine Wang with Harari and Anderson

Petitioner argues both Harari and Wang disclose a peripheral device with a controller that controls communication between the host system and an ultimate function of the peripheral device (e.g., communications

functions of a peripheral device). Pet. 59–60. Petitioner contends “Wang improves Harari by teaching a specific system for moving data between a host computer and a peripheral communication module with a PCMCIA form factor.” *Id.* at 60. Petitioner further contends the ordinarily skilled artisan “would have been motivated to use Wang as a specific way to implement the teachings of Harari.” *Id.* at 60 (citing Ex. 1015 ¶¶ 163–166).

We are persuaded by a preponderance of the evidence that the ordinarily skilled artisan would have been motivated to combine Wang with Harari and Anderson. Although Harari discloses a generalized controller (e.g., controllers 40, 41, and 42) and Anderson provides certain other details of the PCMCIA architecture and design, neither provides specific details regarding implementation of circuits for control of a PCMCIA interface coupling the host computer system to the peripheral device. The ordinarily skilled artisan would have been motivated to seek out a further reference for details for a communications processor useful in the PCMCIA architecture and design. Wang is such a reference, providing details of an exemplary ASIC/FPGA circuit to control the exchange of information between a host system and the peripheral device through a PCMCIA interface. *See* Ex. 1019, Figs. 2–14 (providing detailed circuit diagrams to implement its FPGA controller). Thus, Petitioner has articulated a reason the ordinarily skilled artisan would have been motivated to combine Harari, Anderson, and Wang based on rational underpinnings—the need for further details on design and implementation of the PCMCIA interface disclosed by Harari in a complementary manner to Anderson.

c. Independent Claim 38

We are persuaded by a preponderance of the evidence that claim 38 is unpatentable over the combined teachings of Harari and Anderson.

Independent method claim 38 recites method steps for use in a peripheral device. The preamble of claim 38 recites that the peripheral device is adapted to communicate with a host, perform one or more security operations on data, and interact with the host in a defined way. Ex. 1001, 22:12–15, 22:23–26. To the extent this preamble limits the claim, Petitioner argues the recited peripheral “adapted for communications with a host computing device” is disclosed by Harari’s use of PCMCIA interface standards for communicating between peripheral device 100 (comprising mother card 10 and daughter card 20) and a host system 200. Pet. 55 (citing Ex. 1004, Figs. 1, 3, 2:15–39, 6:59–7:3, 7:52–57, 12:16–19; Ex. 1015 ¶ 155). Petitioner further argues the claimed peripheral device performing “one or more security operations” is disclosed by Harari’s “functional module” in mother card 10 that provides security features such as encryption/decryption. *Id.* (citing Ex. 1004, Fig. 5B, 8:58–9:2, 13:12–23, 13:63–14:30, 18:1–47). Lastly, Petitioner argues the preamble limitation reciting that the peripheral device interacts with the host in a defined way is disclosed by Harari’s daughter card that interacts with the host system (directly or indirectly through the mother card) “to provide various interactions with the host computer such as flash memory, modem communication, LAN adapter, or wireless fax modem.” *Id.* (citing Ex. 1004, Figs. 4, 5A, 2:25–29, 4:65–5:1, 7:24–34, 7:64–8:16, 8:40–53).

To the extent the preamble of claim 38 limits the claim, we are persuaded by Petitioner’s arguments that Harari meets these limitations.

Unlike related means-plus-function limitations in the apparatus claims discussed *infra*, the preamble of claim 38 does not limit the claim to any *particular* disclosed structures but, instead, merely recites, at most, a general structural context in which the method claim operates—a peripheral device adapted to communicate/interact with a host system and to perform a security operation on data within the peripheral device.

Regarding the method steps of claim 38, Petitioner argues Harari, in combination with Anderson, discloses the steps of receiving a request for peripheral device type information from a host and providing the type of the defined interaction to the host in response to the received request. Pet. 56. Specifically, Petitioner contends PCMCIA standards establish communication between a host and a peripheral device and, as part of that process, provide the host with device information regarding the function of the PCMCIA device. *Id.* (citing Ex. 1004, Fig. 11, 5:7–53, 13:47–62; Ex. 1006, 45,¹² 49–50, etc.); *see also* Pet. 47–52 (discussion of element “[6F]” incorporated into the discussion of claim 38).

We are persuaded by a preponderance of the evidence that the method steps of claim 38 are taught or suggested by the combination of Harari and Anderson. Harari discloses that the daughter card stores identifying information readable by the mother card or the host system. Ex. 1004, 5:37–53. Anderson discloses that such identifying information is read from the CIS memory of a peripheral device by a host device to identify the type of

¹² Although Exhibit 1006 is correctly filed with page numbers starting at 1 and incrementing sequentially, the Petition cites to the page number of the underlying document. Our citations refer to the page numbers added to the exhibit by Petitioner.

peripheral. Ex. 1006, 45 (PC Card enabler software reads the content of the CIS memory of a newly detected PC Card). Harari's mother card and daughter card, operating in accordance with PCMCIA standards as disclosed in Anderson, receive a read (i.e., a request or instruction) from the attached host and respond by returning (i.e., providing) the identification information in the CIS to the host. *See* Pet. 56; *see also* Ex. 1015 ¶ 155.

Accordingly, we are persuaded by a preponderance of the evidence that claim 38 is unpatentable as obvious over the combination of Harari and Anderson.

d. Independent Claim 39

We are not persuaded that the Petition has shown that claim 39 is unpatentable over the combined teachings of Harari and Anderson or over the combined teachings of Harari, Anderson, and Wang.

The preamble of claim 39 is identical to that of claim 38 and, to the extent the preamble of claim 39 limits the claim, for the same reasons as for claim 38, we are persuaded Harari discloses the same structural context in which the method of claim 39 operates.

Regarding the method steps of claim 39, Petitioner argues Harari discloses the step of communicating with the host to exchange data between the host and the peripheral device in that, "Harari teaches, '[t]he controller interfaces with the host system via a host interface 54, and with the flash memory via a memory interface 56' and that '[i]n the preferred embodiment, the host interface 54 *communicates with the host system* 200 in accordance with the PCMCIA specifications or any other standard card interface.'" Pet. 58 (quoting Ex. 1004, 7:52–57). Regarding the step of performing one or more security operations, Petitioner contends Harari discloses this step in

that its functional module performs encryption/decryption as well as other security operations. *Id.* at 57, 55 (citing Ex. 1004, Fig. 5B, 8:58–9:2, 13:12–23, 13:63–14:30, 18:1–47).

We are persuaded by a preponderance of the evidence that Harari discloses the steps of communicating and performing recited in claim 39.

However, we are not persuaded that Harari discloses claim 39’s step of “mediating communication . . . so that the exchanged data must first [pass] through means for performing the one or more security operations.” For that step, Petitioner argues Harari discloses this function for the same reasons as the similar means for mediating in claim 1 because Harari discloses that its comprehensive controller or functional module “can be used to encrypt data that is being transferred to the daughter card.” Pet. 57 (citing Ex. 1004, Figs, 5B, 7, 8:58–64, 9:18–30, 13:12–23, 13:63–14:19; Ex. 1015 ¶¶ 156–157). Regarding the similar function of the means for mediating in claim 1, Petitioner argues:

Mediating communication between the host computing device and the target means so that the communicated data must first pass through the security means would have been obvious in view of Harari because it would have been obvious to use the data encryption module disclosed in Harari to encrypt the data before storing it in memory in view of Harari’s disclosure of an encryption module on the mother card between the host computer and target memory device.

Id. at 45 (citing Ex. 1015 ¶¶ 115–116).

We are not persuaded by Petitioner’s arguments. Although Harari’s peripheral device includes functional module 42 to provide encryption/decryption and other security operations, the Petition does not identify a disclosure in Harari to meet the recited function of “mediating

communication . . . so that the exchanged data must first [pass] through means for performing the one or more security operations,” and we independently discern no such disclosure in Harari of a process, function, step, or action whereby functional module 42 (or controller 41) assures that data exchanged between the host and the daughter card must pass through the functional module for performing a security operation (such as encryption). Petitioner’s above-cited portions of Harari do not disclose such a step. Column 8, lines 57–64 of Harari merely discloses that functional module 42 may provide a variety of security services including encryption/decryption but does not disclose that there is a step or action that assures data transfers between the host and the daughter card must first pass through the functional module. Column 9, lines 18–30 of Harari discloses an embodiment in which the peripheral device includes circuits to move blocks of data between the memory of a daughter board and memory of the mother card—i.e., moving blocks of data between memories of the peripheral device. However, this disclosure does not teach or suggest that there is a step or action that assures data transfers between the host and the daughter card must first pass through the functional module. In like manner, the cited portion of Harari in columns 13 and 14 discloses an embodiment in which functional module 42 may encrypt or decrypt data stored in the memory of the daughter card using a key also stored on the daughter card but does not disclose that there is a step or action that assures data transfers between the host and the daughter card must first pass through Harari’s functional module 42.

Petitioner’s arguments merely speculate that Harari’s controller (41) and functional module (42) “can be used to encrypt data that is being

transferred to the daughter card.” Pet. 57. Petitioner cites paragraphs 115, 116, 156, and 157 of Dr. Kaliski’s Declaration to provide support for this assertion. However, Dr. Kaliski merely essentially repeats the same arguments as in the Petition, with essentially the same citations to Harari, and otherwise fails to identify any other basis for his opinion that Harari’s controller and functional module can be so used for encrypting data that is being transferred to the daughter card. Thus, Dr. Kaliski’s Declaration deserves little weight in this regard. *See* 37 C.F.R. § 42.65(a).

Petitioner does not rely on Anderson to address the step of mediating. Accordingly, we are not persuaded that the combined disclosures of Harari and Anderson teach or suggest the step of mediating in claim 39.

Petitioner also argues the combination of Harari, Anderson, and Wang discloses this step. Pet. 60–64. In particular, Petitioner contends,

In Wang, the peripheral device “enables communication between the host computer 110, the local processor 102, and the RF communication module 120 [target means].” Wang, Ex. 1019, at 4:58–60. The ASIC/FPGA also “enables transmission of control signals between these three components and controls host computer 110 and local processor 102 access to the SRAM 106 and the FLASH ROM 105.” *Id.* at 4:60–64. Thus, Wang’s FPGA mediates communication of data between the host computer and target means (communication module).

Id. at 62. Petitioner further contends,

When combined with the teachings of Harari, a POSITA would have been motivated to use an FPGA as the controller in Harari to mediate communication of data between the host computer and a daughter card and place Harari’s “functional modules” that provide encryption, between the daughter card and the FPGA so that the communicated data must first pass through the encryption “module” before being sent to the daughter card.

Id. at 63–64 (citing Ex. 1015 ¶ 175 (essentially repeating the same argument as the Petition)).

Petitioner articulated a reason to combine Wang with Harari as discussed *supra*—an improvement to address the ordinarily skilled artisan’s need for detailed design to implement Harari’s controller such as the details describing Wang’s ASIC/FPGA controller. *See* section III.D.4.a. However, the Petition provides insufficient persuasive evidence that Wang teaches or suggests that its ASIC/FPGA controller addresses security operations in any way. Specifically regarding method claim 39, Petitioner further reasons the ordinarily skilled artisan would have been motivated to combine Wang with Harari “so that the communicated data must first pass through the encryption ‘module’ before being sent to the daughter card.” Pet. 63–64. This additional reasoning is the epitome of hindsight, essentially asserting the ordinarily skilled artisan would have been motivated to combine Wang and Harari *to achieve the claimed step of mediating*. The Petition does not provide sufficient persuasive evidence that Harari expresses a need for encrypting data as it is exchanged between the host and the daughter card or that Wang is concerned in any way with security operations such as Harari’s functional module to encrypt/decrypt data.

Accordingly, we are not persuaded that the combined disclosures of Harari, Anderson, and Wang teach or suggest the step of mediating in claim 39.

For the above reasons, we are not persuaded by a preponderance of the evidence that claim 39 is unpatentable as obvious over the combination of Harari and Anderson or over the combination of Harari, Anderson, and Wang.

e. Claims 1, 2, 11, 12, and 23

We are not persuaded by a preponderance of the evidence that claims 1, 2, 11, 12, and 23 are unpatentable over the combined teachings of Harari and Anderson or over Harari, Anderson, and Wang.

Claims 1, 2, 11, 12, and 23 each include recitation of a “means for mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means.”

Under the District Court’s construction, which we have adopted, the function of this means is “mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means,” and the corresponding structure disclosed in the ’802 patent is “interface control 910 (as shown in Fig. 9B).” Pet. 14; *see also* Ex. 2003, 31–38.

As noted above in discussing claim 1, Petitioner argues Harari discloses this function. Pet. 43 (citing Ex. 1004, 8:58–64, 13:63–14:19). As discussed *supra* regarding claim 39, we are not persuaded that the combination of Harari and Anderson, or the combination of Harari, Anderson, and Wang, teaches or suggests the method step of mediating of claim 39. *See* section III.D.4.d. For the same reasons, we are not persuaded these combinations of references teach or suggest the function of the means for mediating recited in claim 1—namely, “mediating communication of data between the host computing device and the target means *so that the communicated data must first pass through the security means.*” We are not persuaded Harari discloses such a function, and neither Anderson nor Wang cures this deficiency.

Furthermore, even assuming, *arguendo*, that Harari teaches or suggests the disclosed function of the means for mediating, the Petition does not persuade us that structure identical to or equivalent to the identified corresponding structure for this means is disclosed by the proposed combinations of references. In accord with the District Court construction, interface control device 910 is disclosed in the '802 patent as the structure corresponding to the function of the means for mediating. Ex. 2003, 31–38. Although Petitioner notes this construction by the District Court (Pet. 14 (citing Ex. 1014, 24–25)), Petitioner does not apply the District Court's interpretation of this element to compare the structure of interface control device 910 to controller 41 or functional module 42 of Harari (*see id.* at 43–45) or to the ASIC/FPGA of Wang (*see id.* at 59–64). Instead, based on a construction proffered by Patent Owner that Petitioner acknowledged the District Court rejected, in which the structure for this means is disclosed as an FPGA (*see* Ex. 2003, 33–36), Petitioner compares the FPGA structure of Wang with an FPGA structure in Figure 8 of the '802 patent. *Id.* at 61–64.

Accordingly, we are not persuaded Petitioner has shown the proposed combinations teach or suggest “means for mediating communication of data between the host computing device and the target means so that the communicated data must first pass through the security means,” as recited in claim 1.

For the above reasons, we are not persuaded that claim 1 is unpatentable over the combined teachings of Harari and Anderson or over the combined teachings of Harari, Anderson, and Wang.

Independent claims 11 and 23 include the same recitation of a means for mediating, and Petitioner makes similar arguments regarding

unpatentability of claims 11 and 23 over Harari and Anderson (Pet. 53–54) and over Harari, Anderson, and Wang (*id.* at 60–64). For essentially the same reasons as for claim 1 discussed *supra*, we are not persuaded that claims 11 and 23 are unpatentable over the combined teachings of Harari and Anderson or over the combined teachings of Harari, Anderson, and Wang.

Claim 2 depends from claim 1, and claim 12 depends from claim 11. Thus, for the same reasons as for claims 1 and 11, we are not persuaded that claims 2 and 12 are unpatentable over the combined teachings of Harari and Anderson or over the combined teachings of Harari, Anderson, and Wang.

f. Claims 6, 7, and 23–25

Independent claim 6 recites “means for providing to a host computing device, in response to a request from the host computing device for information regarding the type of the peripheral device, information regarding the function of the target means.” Independent claims 23 and 24 include a similar recitation, and claims 7 and 25 include a similar recitation due to their dependency on claims 6 and 24, respectively.

As discussed *supra*, we are unable to construe this limitation. Because we cannot determine the scope of claims 6, 7, and 23–25 without speculation, we cannot compare those claims to the asserted prior art without speculation. *See United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 236–37 (1942) (holding that “the claims must be reasonably clear-cut to enable courts to determine whether novelty and invention are genuine”); *In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) (holding that where a claim’s meaning is indefinite under 35 U.S.C. § 112 ¶ 2, any ground based on prior art is improperly based on speculation); *Blackberry Corp. v. MobileMedia*

Ideas, LLC, Case IPR2013-00036, slip op. at 20 (PTAB Mar. 7, 2014) (Paper 65).

Accordingly, we are not persuaded by Petitioner that claims 6, 7, and 23–25 are unpatentable under the asserted grounds.

5. *Obviousness over Harari, Anderson, and Dumas or Harari, Anderson, Dumas, and Wang*

Petitioner contends claims 1, 2, 11, 12, 23, and 39 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Harari, Anderson, and Dumas or over the combination of Harari, Anderson, Dumas, and Wang. *See* Pet. 64–67.

As noted *supra*, Patent Owner waived its right to respond to the Petition and, therefore, provides no rebuttal to Petitioner’s arguments regarding the asserted grounds. Nonetheless, it remains Petitioner’s burden to persuade us by a preponderance of the evidence that the challenged claims are unpatentable as obvious over the proposed combinations of references.

a. *Motivation to Combine Harari, Anderson, and Dumas*

Petitioner argues Dumas, like Harari, discloses a peripheral device that assures data passing between the host and the target means must pass through an encryption circuit of the peripheral device. Pet. 65–66 (citing Ex. 1005, 1:49–55). Petitioner further argues Dumas discloses a fast encryption circuit that enables encryption in real time at the normal data transfer speeds to achieve transparency to the rest of the computer system. *Id.* at 66. Therefore, Petitioner contends the ordinarily skilled artisan would have been motivated to combine Dumas with Harari to improve security through encryption without impacting processing time. *Id.* at 65; Ex. 1015 ¶ 181.

We are persuaded by a preponderance of the evidence that Petitioner has articulated a reason the ordinarily skilled artisan would have been motivated to combine Harari and Dumas based on rational underpinnings—the need for improved speed to allow for secure encryption at normal data speeds in the peripheral device of Harari.

b. Claims 1, 2, 11, 12, and 23

We are not persuaded by a preponderance of the evidence that claims 1, 2, 11, 12, and 23 are unpatentable over the combined teachings of Harari, Anderson, and Dumas or over the combined teachings of Harari, Anderson, Dumas, and Wang.

In addition to the arguments discussed above regarding the combined teachings of Harari, Anderson, and Wang, Petitioner argues, to the extent Harari and Anderson or Harari, Anderson, and Wang fail to sufficiently disclose the means for mediating, Dumas teaches or suggests such a means. Pet. 66 (citing Ex. 1015 ¶¶ 184–187). Specifically, Petitioner contends Dumas discloses adding an encryption circuit so that data must pass through the encryption circuit to travel between a hard disk (i.e., a target means) and a processor (i.e., a host system). *Id.* at 67 (citing Ex. 1005, 2:28–41, Fig. 2; Ex. 1015 ¶ 186).

As above regarding Harari and Wang, the Petition does not provide a comparison of encryption circuit 28 of Dumas with interface control device 910 of the '802 patent (the structure corresponding to the function of the means for mediating as identified by the District Court construction). *See* Pet. 66–67. Thus, we are not presented with sufficient persuasive evidence that the encryption circuit of Dumas is identical or equivalent structure to interface control device 910 of the '802 patent.

For the above reasons, we are not persuaded by a preponderance of the evidence that claims 1, 2, 11, 12, and 23 are unpatentable over the combined teachings of Harari, Anderson, and Dumas or over the combined teachings of Harari, Anderson, Dumas, and Wang.

c. Claim 39

We are persuaded by a preponderance of the evidence that claim 39 is unpatentable over the combined teachings of Harari, Anderson, and Dumas, as well as over the combined teachings of Harari, Anderson, Dumas, and Wang.

As discussed *supra*, Petitioner has sufficiently shown that Harari discloses the preamble recitations of claim 39, as well as the first two steps of claim 39. *See* section III.D.4.d.

Additionally, Petitioner argues, to the extent the combinations of Harari, Anderson, and Wang fail to teach the function of the means for mediating in the apparatus claims, or the mediating step of claim 39, Dumas explicitly teaches that function. Pet. 66 (citing Ex. 1015 ¶¶ 184–187). In particular, Petitioner contends,

Specifically, Dumas describes its invention as “add[ing] an encryption circuit 28” where “[d]ata must pass through encryption circuit 28 to travel from hard disk 24 to processor 20, or from processor 20 to hard disk 24.” That data “is encrypted as it passes through encryption circuit 28, as it goes from processor 20 to hard disk 24. Data is decrypted as it passes through encryption circuit 28 as it goes from hard disk 24 to processor 20.”

Id. at 67 (quoting Ex. 1005, Fig. 2, 2:28–41). Petitioner further contends that, as combined with Harari, the ordinarily skilled artisan “would have been motivated to place Harari’s ‘functional modules,’ that provide

encryption, between the daughter card and the controller so that the “[d]ata must pass through [the functional module] to travel from [daughter card] to [controller], or from [controller] to [daughter card].” *Id.* (citing Ex. 1005, 2:28–30).

As discussed *supra*, we are not persuaded by the Petition that the combination of Harari, Anderson, and Dumas or the combination of Harari, Anderson, Dumas, and Wang teaches an identical or equivalent structure to interface control device 910 (the structure corresponding to the function of the means for mediating). However, regarding the mediating step of method claim 39, not tied to any particular, corresponding structure of the ’802 patent, Petitioner has sufficiently shown that Dumas, in the proposed combinations, teaches or suggests a step that mediates communications between a host and a target means (a peripheral device) “so that the exchanged data must first [pass] through means for performing the one or more security operations.” In particular, Dumas expressly teaches, “[t]he invention provides an encryption circuit for *encrypting and decrypting data as it travels to and from a hard disk or other mass storage device*” (Ex. 1005, 1:49–51 (emphasis added)) and further teaches “[d]ata *must pass through encryption circuit 28* to travel from hard disk 24 to processor 20, or from processor 20 to hard disk 24” (*id.* at 2:28–30 (emphasis added)). As discussed *supra*, the Petition identifies Harari’s functional module as equivalent to “a specific hardware component programmed or configured to perform a security operation disclosed in ’802 Patent at 18:1–47”—i.e., the disclosed structure identified by the District Court as corresponding to the “means for performing the one or more security operations.” Further, Petitioner has sufficiently shown that Dumas, when combined with Harari,

would teach or suggest the step of mediating such that communications between the host and target means must pass through Harari's functional module as suggested by Dumas's use of encryption circuit 28. Thus, Petitioner has shown by a preponderance of the evidence that Dumas, in the proposed combination, teaches or suggests the step of mediating as recited in claim 39.

Accordingly, we are persuaded Petitioner has shown by a preponderance of the evidence that claim 39 is unpatentable as obvious over the combination of Harari, Anderson, and Dumas.

Method claim 39 is not limited to operating on any particular circuit implementation. As discussed *supra*, adding Wang to the combination of Harari, Anderson, and Dumas merely serves to disclose use of an FPGA as a particular implementation of a PCMCIA controller. With respect to the method steps of claim 39, Wang neither adds nor detracts from the combined teachings of Harari, Anderson, and Dumas. Thus, for the same reasons as the combination of Harari, Anderson, and Dumas, we are persuaded Petitioner has shown by a preponderance of the evidence that claim 39 is unpatentable over the combined teachings of Harari, Anderson, Dumas, and Wang.

E. Petitioner's Motion to Exclude

Petitioner filed a Motion to Exclude, seeking to exclude Patent Owner's Exhibit 2004. Paper 33. Exhibit 2004 is referenced only in Patent Owner's Preliminary Response as an aspect of Patent Owner's arguments that we should exercise our discretion under 35 U.S.C. § 314(a) to deny this Petition. Paper 6, 11. We declined to exercise that discretion to deny the Petition. Furthermore, arguments in Patent Owner's Preliminary Response

that are not repeated in Patent Owner's Response are waived. See Paper 12, A.2.b. Because Patent Owner expressly waived its right to file a Patent Owner Response, all of Patent Owner's arguments in its Preliminary Response citing Exhibit 2004 are waived. Accordingly, we dismiss Petitioner's Motion to Exclude Exhibit 2004 as moot.

IV. CONCLUSION

For the foregoing reasons, we determine that the information presented by Petitioner establishes, by a preponderance of the evidence, that claims 38 and 39 of the '802 patent are unpatentable but fails to establish that claims 1, 2, 6, 7, 11, 12, and 23–25 are unpatentable.

V. ORDER

After due consideration of the record before us, and for the foregoing reasons, it is:

ORDERED that claims 38 and 39 of U.S. Patent No. 6,088,802 are held *unpatentable*;

FURTHER ORDERED that claims 1, 2, 6, 7, 11, 12, and 23–25 have not been persuasively shown to be unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude Exhibit 2004 is *dismissed as moot*; and

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

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Patent 6,088,802

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