

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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WESTERN DIGITAL CORPORATION, WESTERN DIGITAL  
TECHNOLOGIES, INC., AND SANDISK, LLC,  
Petitioner,

v.

MARTIN KUSTER,  
Patent Owner.

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IPR2020-01391  
Patent 8,693,206 B2

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Before THOMAS L. GIANNETTI, DAVID C. McKONE, and  
NABEEL U. KHAN, *Administrative Patent Judges*.

GIANNETTI, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

### A. Background

Western Digital Corporation (WDC), Western Digital Technologies, Inc. (WDT), and SanDisk, LLC (SanDisk) (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 1–19 (the “challenged claims”) of U.S. Patent No. 8,693,206 B2 (Ex. 1001, the “’206 patent”). Paper 1 (“Pet.”). Patent Owner, Martin Kuster, filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply (Paper 7, “Reply”) and Patent Owner filed a Sur-reply (Paper 8, “Sur-reply”) addressing the issues of discretionary denial under 35 U.S.C. §§ 314 (a) and 325(d).

For the reasons that follow, we institute *inter partes* review of all challenged claims on all grounds in the Petition.

## II. INSTITUTION OF INTER PARTES REVIEW

### A. Standard for Institution

The standard for institution is set forth in 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314 (2018); *see also* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”).

### B. Related Proceedings

The parties identify the following pending district court proceeding involving the ’206 patent: *Kuster v. Western Digital Technologies, Inc.*, Case No. 6:20-cv-00563 ADA, filed June 24, 2020, currently pending in the U.S. District Court for the Western District of Texas, Waco Division (“the

Waco Litigation”). Pet, 2; Paper 4, 2. In addition, they inform us that the ’206 patent was the subject of a civil action in *Kuster v. Western Digital Corporation*, Case No. 3:20-cv-01089, filed in the U.S. District Court for the Northern District of Texas, Dallas Division, which was dismissed by Patent Owner on June 24, 2020 (“the Dallas Litigation”). *Id.*

In addition, Petitioner has filed a petition (IPR2020-01410) seeking *inter partes* review of U.S. Patent No. 8,705,243, the parent of the ’206 patent. *Id.*

### *C. Real Parties-in-Interest*

Petitioner identifies Western Digital Corporation, Western Digital Technologies, Inc., and SanDisk, LLC, as the real parties-in-interest. Pet. 2. Patent Owner identifies Martin Kuster, of Walchwil, Switzerland, as the real party-in-interest. Paper 4, 2. In addition, Patent Owner discloses that “Nivalion AG has a financial interest in the outcome of underlying district court litigation and is a real party-in-interest.” *Id.*

### *D. The ’206 Patent*

The ’206 patent is titled “External Storage Device.” Ex. 1001, (54). The patent relates to mobile storage devices, specifically, Universal Serial Bus (“USB”) sticks that consist of a memory data storage device integrated with a USB interface. Ex. 1001, 1:18–24.

According to the patent, USB sticks are typically used for purposes similar to those for which floppy disks or CD-ROMs were previously used. However, USB sticks are smaller, faster, have thousands of times more capacity, and are more durable and reliable. In the case of USB sticks with chip on board (“COB”) flash memory, a USB controller and flash memory can be combined into one structure that is embedded into one side of a

printed circuit board (“PCB”), with the USB connection located on an opposing surface. *Id.* at 1:24–33.

The patent states that in 2008, USB 3.0, a new standard, was announced. USB 3.0 includes a new “SuperSpeed” bus that provides a higher SuperSpeed data transfer mode. *Id.* at 1:45–47.

The ’206 patent explains that in order to achieve increased throughput and provide backward compatibility with earlier USB versions, a USB 3.0 cable has a total of eight wires: two wires for power (+5 volts and ground), a twisted pair of wires for carrying non-SuperSpeed data, and two differential pairs for carrying SuperSpeed data. In contrast, a standard USB 2.0 cable has four wires: two wires for power (+5 volts and ground) and a twisted pair of wires for carrying data. Inclusion of the twisted pair in USB 3.0 devices allows backward compatibility with earlier USB versions (e.g., USB 2.0). *Id.* at 1:47–52.

The ’206 patent discloses that because the USB 2.0 COB stick configuration has a rectilinear design, with the components embedded on one side of the PCB and the USB 2.0 connections positioned flush with the opposing side of the PCB, the shape and configuration does not readily allow the addition of a USB 3.0 connection with additional wires to the existing USB 2.0 COB stick. The ’206 patent describes a design that incorporates USB 3.0 connections into existing USB 2.0 COB sticks so that the USB COB stick may connect to either version of the USB standard. *Id.* at 1:60–2:2.

*E. Illustrative Claims*

The '206 patent has 19 claims, all of which are challenged in the Petition. *See supra*. Of the challenged claims, claims 1, 10, and 11 are independent. Claim 1 recites<sup>1</sup>:

[1a] An external storage device comprising:

[1b] a substrate that includes a connection surface and a component surface, the connection surface opposite the component surface;

[1c] at least one memory die stack mounted on one of the connection surface and the component surface of the substrate;

[1d] a controller configured to access the at least one memory die stack, the controller mounted on one of the connection surface and the component surface of the substrate;

[1e] a contact bar mounted on the connection surface of the substrate, the contact bar comprising a plurality of extensions, each of the plurality of extensions including a portion that is located at a first distance relative to the connection surface of the substrate;

[1f] a plurality of connection fingers embedded to be exposed upon the connection surface of the substrate at a second distance relative to the connection surface of the substrate, the second distance being less than the first distance; and

[1g] wherein a first interface comprises the plurality of connection fingers, and a second interface comprises the plurality of extensions of the contact bar.

Ex. 1001, 9:53–10:8. Independent claims 10 and 11 are similar in scope.

*F. References and Other Evidence*

The Petition relies on the following references:

1. U.S. Patent No. 8,480,435 (Ex. 1009, “Hsiao”)

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<sup>1</sup> Reference letters in brackets mirror those provided by Petitioner. Pet. 36–45.

2. U.S. Patent No. 7,625,243 (Ex. 1010 “Chen”)
3. U.S. Patent No. 7,909,654 (Ex. 1011, “He”)
4. U.S. Patent Pub. No. 2009/0098773 (Ex. 1012, “Cheng”)
5. U.S. Patent Pub. No. 2008/0150111 (Ex. 1013, “Hiller”)
6. WIPO Pub. WO 2011/160321 (Ex. 1014, “Sun”)
7. U.S. Patent No. 7,563,140 (Ex. 1015, “Wan”)

Pet. 108–09. Petitioner also relies on the USB 2.0 Specification (Ex. 1007) and the USB 3.0 Specification (Ex. 1008).

In addition, Petitioner submits the Declaration of R. Jacob Baker, Ph.D., P.E. (Ex. 1005, “Baker Decl.”). Patent Owner has not submitted a declaration of a technical expert.

*G. Asserted Grounds of Unpatentability*

Petitioner asserts the challenged claims are unpatentable on the following grounds.

<b>Claims Challenged</b>	<b>Statutory Basis<sup>2</sup></b>	<b>References</b>
1–5, 8–11, 13–15, 18, 19	35 U.S.C. § 103	He, Chang
6, 7, 16, 17	35 U.S.C. § 103	He, Chang, Hiller
1–11, 13–19	35 U.S.C. § 103	He, Sun
11, 12	35 U.S.C. § 102	Hsiao
11, 12	35 U.S.C. § 103	Hsiao
11, 12	35 U.S.C. § 103	Hsiao, Sun
11, 12, 14, 15, 18	35 U.S.C. § 103	Chen, Cheng
16, 17	35 U.S.C. § 103	Chen, Cheng, Hiller
19	35 U.S.C. § 103	Chen, Cheng, Wan

Pet. 4–5.

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<sup>2</sup> Because the application from which the ’206 patent issued was filed before March 16, 2013, citations to 35 U.S.C. §§ 102 and 103 are to their pre-AIA versions. Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29.

### III. PATENT OWNER’S REQUEST FOR DISCRETIONARY DENIAL OF THE PETITION

#### *A. Overview*

Patent Owner contends we should deny the Petition under 35 U.S.C. § 314(a) because “institution of this proceeding would not be consistent with the objective of the AIA to ‘provide an effective and efficient *alternative* to district court litigation.’” Prelim. Resp. 3. Patent Owner relies on the Board’s precedential decision in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB March 20, 2020) (“*Fintiv*”). Prelim. Resp. 3–4. Patent Owner contends the parallel Waco Litigation, which asserts the same prior art as the Petition, begins jury selection three-and-a-half months before a final determination would be expected in this proceeding. *Id.* at 4. Anticipating Patent Owner’s challenge, Petitioner addresses the § 314(a) issue in its Petition. Pet. 16–19. The discretionary denial issue is addressed as well as in Petitioner’s Reply (Paper 7) and Patent Owner’s Sur-reply (Paper 8).

#### *B. Fintiv Factors*

*Fintiv* identifies a non-exclusive list of factors parties may consider addressing where there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, Paper 11 at 5–6. Those factors include:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;

5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

*Id.* at 5–6.

In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.

*Fintiv*, Paper 11 at 6.

### *C. The Waco Litigation*

The Waco Litigation is pending before District Judge Alan Albright, in the United States District Court for the Western District of Texas, Waco Division. A *Markman* Hearing was held on February 11, 2021. A trial date has been set by Judge Albright for November 8, 2021. Ex. 2021.

### *D. Analysis of the Fintiv Factors*

Both Petitioner and Patent Owner have addressed the *Fintiv* factors in their initial submissions. Pet. 16–19; Prelim. Resp. 7–26. We conclude that overall, the factors do not favor exercising our discretion to decline to institute a trial. Our reasoning follows.

#### *i. Stay in the Waco Litigation*

The Waco litigation has not been stayed. Petitioner WDT states that it intends to move for a stay if *inter partes* review is instituted. Pet. 17. Petitioner contends this factor is neutral because “the district court’s decision on WDT’s motion will come after institution.” *Id.*

Patent Owner contends that “any stay of the parallel district court proceeding in view of the instant Petition is unlikely.” Prelim. Resp. 8; Sur-reply 1–2. According to Patent Owner, “[t]he U.S. District Court for the Western District of Texas, and in particular Judge Alan D Albright who is presiding over the parallel proceeding, have a consistent practice of denying



motions to stay when the PTAB has yet to institute post-grant proceedings.” Prelim. Resp. 8. Furthermore, Patent Owner asserts that “any decision from this Board regarding institution is not due until *after* the Court will have completed claim construction proceedings and when the parties are well under a year from trial.” *Id.* at 9. Patent Owner continues: “At that time, the stage of the district court proceeding will necessarily weigh against a stay.” *Id.*

We decline to speculate on the likelihood of Judge Albright entering a stay after institution. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 12 (PTAB May 13, 2020) (informative) (“We decline to infer, based on actions taken in different cases with different facts, how the District Court would rule should a stay be requested by the parties in the parallel case here.”). Thus, we find this factor is neutral.

*ii. Proximity of the Trial Date in the Waco Litigation*

Patent Owner asserts that “[a] jury trial in the parallel district court proceeding is currently estimated to begin November 8, 2021.” Prelim. Resp. 10. Patent Owner observes, “trial in the parallel district court proceeding is currently scheduled to conclude three and a half months before a final written decision would be due in this proceeding,” *Id.* at 12 (emphasis omitted). We understand that a trial date of November 8, 2021, has now been set.

However, even with the November 8, 2021, trial date, there would be only a three-and-a-half month difference between the district court trial date and the due date for the final written decision. As the Board observed in *Micron Tech., Inc. v. Godo Kaisha IP Bridge 1*, IPR2020-01008, Paper 10 (PTAB Dec. 7, 2020): “This factor looks at the *proximity* of the trial date to the date of our final written decision to assess the weight to be accorded a

trial date set earlier than the expected final written decision date.” *Micron*, Paper 10 at 14. In *Micron*, the Board concluded: “[E]ven if we consider the Texas court to have set a formal trial date for a few months before the final written decision, due to the uncertainty as to this trial date, this factor is, at most, neutral to whether we should exercise our discretion to deny the Petition.” *Id.*

We are mindful also of the argument raised by Petitioner that the rise of COVID-19 cases in Texas may cause further uncertainty in the trial date. Reply 3. Patent Owner responds: “WDTX has already shown that it can successfully hold a patent jury trial during the pandemic.” Sur-reply 4. We disagree with Patent Owner’s blanket assertion that “there is no strong evidence on which to second guess the Court’s estimated trial date.” *Id.* at 3. In that regard, we refer to Judge Albright’s recent grant of a joint request for postponement of a trial date due to the COVID-19 pandemic. Ex. 3001 (Order postponing February 21, 2021, trial date to mid-April 2021). Moreover, other district courts in Texas have continued jury trial dates due to the COVID-19 pandemic. *See, e.g.*, Ex. 3002.

If we weigh this factor most favorably to Patent Owner’s arguments, it would, at best, be neutral, because of the proximity of the trial date to the final decision’s due date and its uncertainty, and therefore would not persuade us to deny institution under *Fintiv* for the reasons given.

*iii. Investment by the Court and the Parties  
in the Waco Litigation*

Petitioner contends that “[t]he district court has invested no time in the merits of the [Waco] Litigation.” Pet. 18. Patent Owner contends that by the time our institution decision is due, the parties will have invested “substantial resources” in the parallel district court proceeding. Prelim.

Resp. 13. In support, Patent Owner identifies a number of tasks that will precede the institution decision, including several tasks related to the February 11, 2021, *Markman* Hearing and Petitioner’s motions to dismiss and transfer to another venue. *Id.* at 13–14.

Petitioner responds that the Waco case “is in its infancy.” Reply 4. Petitioner argues that “[n]o merits-based fact or expert discovery has taken place, and absent leave of court, such discovery (except for claim construction) is stayed until after the *Markman* hearing.” *Id.*

Having considered the record, we agree with Petitioner that most of the activity in the case that has taken place or is about to take place (with the exception of the *Markman* Hearing) appears not to relate to validity issues and therefore does not weigh in our consideration of this issue. A similar issue was addressed by the Board in *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 (PTAB June 16, 2020) (informative). In *Sand Revolution II*, the Board found that “aside from the district court’s *Markman* Order, much of the district court’s investment relates to ancillary matters untethered to the validity issue itself.” Paper 24 at 10. The Board in *Sand Revolution II* further observed that “much work remains in the district court case as it relates to invalidity: fact discovery is still ongoing, expert reports are not yet due, and substantive motion practice is yet to come.” *Id.* at 11. The facts of this proceeding are similar in all of those respects.

Moreover, we find that Petitioner diligently filed the Petition six weeks after the complaint was filed in the Waco litigation.<sup>3</sup> Reply 3. This

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<sup>3</sup> We are not persuaded by Patent Owner’s argument based on a September 2018 letter to SanDisk (*see infra*), or the alternative argument (Prelim. Resp.

diligence is another factor favoring exercising our discretion not to deny institution. *Fintiv*, Paper 11 at 11 n.21.

We determine that this factor weighs against exercising our discretion to deny institution.

*iv. Overlap of the Issues*

Patent Owner contends the overlap in issues between the Petition and the Waco Litigation is substantial. Prelim. Resp. 15. Petitioner identified all but one of the references relied on in this proceeding (Hiller) in its invalidity contentions in the Waco Litigation. *Id.* at 16–17.

In addition, Patent Owner argues that the claims asserted in the Waco Litigation “substantially overlap” with the claims challenged in this proceeding. Prelim. Resp. 19. Patent Owner asserts that the Petition challenges the same three independent claims (claims 1, 10, and 11) and the same dependent claims as in the Waco Litigation, with the addition of several dependent claims. *Id.* Patent Owner asserts that resolving Petitioner’s challenges to independent claims 1, 10, and 11 in the Waco Litigation “will necessarily resolve key issues” with respect to the additional dependent claims challenged in the Petition. *Id.* at 19.

Petitioner responds by referring to a stipulation, proffered in the Petition, “not to pursue invalidity on the same grounds in the parallel litigation if IPR is instituted.” Reply 5–6; Pet. 18. Petitioner also asserts “the Board will resolve claims which the district court will not address, while the opposite is not true.” Pet. 19. Patent Owner responds that this “narrow stipulation does not extend to grounds it reasonably could have

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1 & n.1) based on the earlier filing date of the Dallas Litigation, which Patent Owner dismissed without prejudice. Reply 3–4.

raised, and thus does not avoid concerns regarding duplicative efforts and potentially conflicting decisions.” Sur-reply 6.

We agree with Patent Owner, and find that there is a substantial overlap of issues with the Waco Litigation. Prelim. Resp. 15–24. However, we also find that Petitioner’s proposed stipulation, while narrower than the stipulation considered by the Board in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12, 18–19 (PTAB Dec. 1, 2020) (precedential in relevant part), does potentially eliminate duplication of effort with the district court, at least with respect to the six overlapping references (Hsiao, He, Cheng, Sun, Chen, and Wan), and therefore would simplify the district court case. *Cf. Sand Revolution II*, Paper 24 at 12 (A similar “stipulation, however, mitigate[d] to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.”). For this reason, taking into consideration the stipulation and the additional claims challenged in the Petition, we find that this factor weighs slightly against exercising our discretion to deny institution.

*v. Whether Petitioner is Unrelated to the Defendants in the Waco Litigation*

“If a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion.” *Fintiv*, Paper 11 at 13–14. Only one of the three petitioners, namely, WDT, is also a defendant in the Waco Litigation. Pet. 19. Petitioners WDC and SanDisk are not. However, as Petitioner acknowledges, there are “corporate relationships” among the petitioners. *Id.*

We find that the overlap between the defendants in the Waco Litigation and petitioners this proceeding favors exercising our discretion to deny institution.

*vi. Other Considerations*

The final *Fintiv* factor takes into account any other relevant circumstances. Petitioner contends its grounds of challenge in the Petition are “strong,” thus favoring institution. Pet. 19 (citing *Fintiv*, Paper 11 at 14–15); Reply 6. Patent Owner responds “the merits of the grounds asserted in the instant Petition are weak and likely will fail.” Prelim. Resp. 25.

Patent Owner also refers to Petitioner’s “unreasonable delay in bringing the Petition.” Prelim. Resp. 25. Patent Owner refers to a letter dated September 21, 2018, that “put Petitioners on notice of their infringement.” *Id.* Petitioner replies that they filed their Petition “promptly, only six weeks after the Complaint was filed.” Reply 3 (emphasis omitted).

Patent Owner further alleges that Petitioner’s “key” reference (Hsiao) had been considered during prosecution of the ’206 patent and during examination of foreign counterparts in the European Patent Office. Prelim. Resp. 25–26.; Sur-reply 7. We address this contention *infra*, in Section III.F.

Having considered Petitioner’s and Patent Owner’s arguments, and based on the limited record before us, we find that these “other” factors weigh against exercising our discretion to deny institution. As discussed in detail *infra*, we determine, on this record, that Petitioner has demonstrated a reasonably strong case of prevailing on its challenges to the ’206 patent. This factor weighs against exercising our discretion to deny institution. *See Sand Revolution II*, Paper 24 at 13 (“We determine, on this preliminary record, that Petitioner has set forth a reasonably strong case for the

obviousness of most challenged claims. Thus, this factor weighs in favor of not exercising discretion to deny institution under 35 U.S.C. § 314(a).”).

*E. Conclusion*

The decision whether to exercise discretion to deny institution under § 314(a) is based on “a balanced assessment of all relevant circumstances in the case, including the merits.” Patent Trial and Appeal Board Consolidated Trial Practice Guide 58 (Nov. 2019) (available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>). We consider the above factors and take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Fintiv*, Paper 11 at 6.

The record presented at this stage establishes that (1) the trial in the Waco Litigation may occur in close proximity (within four months) to the time as a Final Written Decision would be issued here, a date which is uncertain due to pending motions, the COVID-19 pandemic, and other factors; (2) the district court and the parties have not invested substantial time and effort on validity issues in the Waco Litigation; and (3) while there is an overlap of issues and parties with this proceeding and the Waco Litigation, the stipulation proffered by Petitioner mitigates the possible effects on efficiency and consistency of parallel proceedings. Other factors weighing against exercising our discretion to deny institution include the strength of Petitioner’s challenges and Petitioner’s diligence in filing the Petition. Thus, based on the facts and circumstances of this case, we decline to exercise our discretion under § 314(a) to deny *inter partes* review.

*F. Request for Denial of Institution Under 35 U.S.C. § 325(d)*

Patent Owner contends that the Petition should be denied under 35 U.S.C. § 325(d) because “the Examiner previously considered Hsiao during

prosecution and allowed the challenged claims over Hsiao.” Prelim. Resp. 34 (emphasis omitted).<sup>4</sup>

In evaluating arguments under § 325(d), we use a two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). We must also consider the non-exclusive factors set forth in *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential in relevant part), which “provide useful insight into how to apply the framework” under § 325(d). *Advanced Bionics*, Paper 6 at 9. Those non-exclusive factors include:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;

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<sup>4</sup> We are not persuaded by Patent Owner’s argument that Hsiao was also “considered” by the European Patent Office. Prelim. Resp. 25–26, 33–34. As Petitioner points out, Patent Owner’s evidence does not show that Hsiao itself was cited, but an alleged “equivalent” that is missing the embodiment relied on by Patent Owner. Reply 7. More fundamentally, Patent Owner does not show that the prosecution history of European counterparts is relevant under § 325(d).



- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

*Becton, Dickinson*, Paper 8 at 17–18. “If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.”

*Advanced Bionics*, Paper 6 at 10.

For the reasons given below, we are not persuaded to exercise our discretion to deny the Petition based on § 325(d).

*G. § 325(d) Analysis*

Under the first part of the § 325(d) framework, *Becton, Dickinson* factors (a), (b), and (d) are considered in the evaluation of whether the same or substantially the same art and arguments were previously before the Office. *See Advanced Bionics*, Paper 6 at 10. The challenges before us rely on three principal references, He, Hsiao, and Chen, in various combinations with Cheng, Hiller, and Sun. Pet. 4. In addition, for two claims of the ’206 patent (claims 11 and 12) the challenge is based on Hsiao alone. *Id.*

Patent Owner asserts that “the Examiner previously considered Hsiao during prosecution [of the ’206 patent] and allowed the challenged claims over Hsiao.” Prelim. Resp. 34 (emphasis omitted). On this basis, Patent Owner contends “denial under § 325(d) is appropriate.” *Id.*

Petitioner responds that “Patent Owner ignores Petitioners’ showing of unpatentability of all claims of the ’206 based entirely on uncited art, and

ignores that Hsiao is applied to only 2 of the 19 challenged claims.” Reply 6 (citing Pet. 14, 25–28, 30–69, 81–100). In addition, Petitioner contends “the Office materially erred by overlooking specific teachings of Hsiao that impact patentability of claims 11 and 12.” *Id.* at 6–7 (citing Hsiao, Ex. 1009, Figs. 9, 10 and accompanying disclosure).

Patent Owner’s argument relies on Hsiao only, one of three principal references relied on by Petitioner. Moreover, Patent Owner provides no evidence that any of the combinations of these principal references with Cheng, Hiller, or Sun presented in the Petition were previously before the Office, or are cumulative of the art that was before the Examiner. *Cf.* Pet. 14 (pointing to the combinations that were not before the Examiner during prosecution of the ’206 patent).

We are, therefore, not persuaded that there is sufficient overlap between the art and arguments before the Board and those previously presented to the Office to meet the threshold criteria of *Advanced Bionics*. *See Opticon Medical AB v. Cochlear Limited*, IPR2019-00975, Paper 15 at 20 (PTAB Oct. 16, 2019) (precedential) (declining to exercise discretion to deny institution under §325(d) where “new, noncumulative prior art [is] asserted in the Petition.”) We therefore decline to exercise our discretion under § 325(d) to deny institution. Because the threshold criteria of *Advanced Bionics* are not met, we do not reach Petitioner’s allegation of material error by the Office in its consideration of Hsiao.<sup>5</sup>

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<sup>5</sup> Under recent changes, the Board lacks authority to partially institute a trial that would exclude challenges based on Hsiao alone, nor does Patent Owner request such a partial institution. *See* 37 C.F.R. § 42.208(a) (2021).

#### IV. OTHER PRELIMINARY MATTERS

##### *A. Level of Ordinary Skill*

Petitioner describes the '206 patent as “directed to a simple mechanical modification of external storage device connectors.” Pet. 23. Petitioner provides the following description of the person of ordinary skill in the art: “[The person of ordinary skill] would have had (1) a Bachelor’s degree in EE, CompE, or ME, and (2) at least one year of experience with USB and other computer interface protocols.” *Id.* (citing Baker Decl. ¶¶ 43–48).

At this stage, Patent Owner does not dispute Petitioner’s description of a person of ordinary skill in the art or provide its own description.

We regard Petitioner’s description as consistent with the prior art before us. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (prior art itself may reflect an appropriate level of skill). Thus, for the purpose of our decision, we adopt Petitioner’s proposal.

##### *B. Claim Construction*

For this *inter partes* review, the Board applies the same claim construction standard as that applied in federal courts. *See* 37 C.F.R. § 42.100(b) (2019). In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citations omitted). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317 (citation omitted).

Petitioner provides constructions for several claim terms: “mounted on”; “embedded to be exposed upon”; “memory die stack.” Pet. 20–21. Petitioner also contends that “Patent Owner’s Litigation Complaint” shows Patent Owner’s constructions for the following terms: “portions,” “connection fingers,” “contact bar,” “contact bar cover,” and first and second distances. *Id.* at 22–23,

Petitioner’s proposed constructions are presented in the following table.

<b>Claim Term</b>	<b>Claims</b>	<b>Petitioner’s Construction Contentions</b>
“mounted on”	All challenged claims.	“securely attached, affixed or fastened to.” Pet. 20.
“embedded to be exposed upon”	All challenged claims.	“set firmly into a mass or material.” Pet. 21.
“memory die stack”	All challenged claims.	The “stack” may have only one memory die. Pet. 21.

In addition, Petitioner provides a series of annotated graphics, excerpted from Patent Owner’s complaint in the district court, that it contends “show Patent Owner’s construction of ‘portions,’ ‘connection fingers,’ ‘contact bar,’ ‘contact bar cover,’ and first and second distances.” Pet. 22–23.

At this stage, Patent Owner does not contest these claim constructions or present its own proposed constructions for any claim terms.

In view of the issues we address below, we determine that it is not necessary to provide an express interpretation of any claim terms at this

junction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

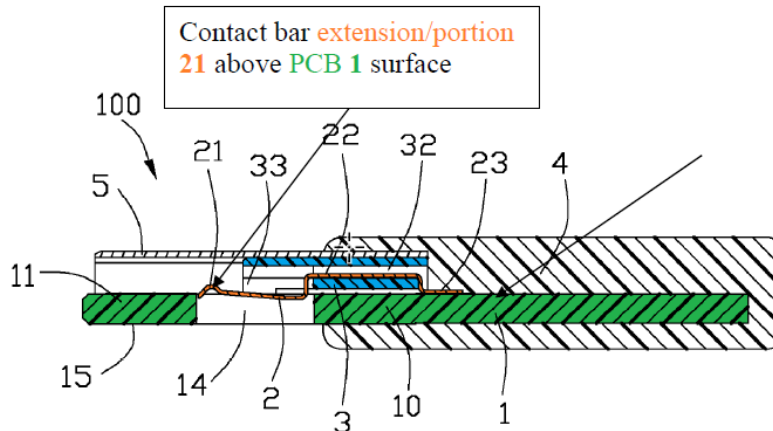
### C. Description of Principal Prior Art References

Petitioner’s challenges rely on He, Hsiao, and Chen as its principal references. *See supra*.

#### 1. He (Ex. 1011)

He is a patent titled “Plug Connector Having An Improved Shell.” Ex. 1011, (54). He discloses a USB plug connector compatible with USB 2.0 and 3.0 receptacles. *Id.* at 1:35–43, 3:9–12.

Figure 6 of He (annotated by Petitioner) follows:



Pet. 28. Figure 6 of He shows a cross-sectional view of a USB plug connector. Ex. 1011, 1:66–67. The plug connector substrate (PCB 1) has base portion 10, tongue portion 11, and opposed upper and lower surfaces. *Id.* at 1:27–29; *see also id.*, 2:16–25. The PCB has contacting pads formed

by “golden fingers” of PCB 1 that are adapted for the USB 2.0 protocol. *Id.* at 2:34–35, 3:9–10.

He’s plug connector also has resilient contacts 2, including “two pairs of differential contacts and a grounding contact” for the USB 3.0 interface. *Id.* at 3:7–12. Resilient contacts 2 have portions 21 that extend above the PCB surface and are thus a greater height above the PCB’s surface than the golden fingers formed on the PCB surface. *Id.* at 2:48–55, Figs. 3, 6 (annotated) 5.

## 2. Hsiao (Ex. 1009)

Hsiao is a patent titled “USB Connector.” Ex. 1009, (54). Hsiao discloses COB flash memory devices having both USB 2.0 and 3.0 interfaces. Ex. 1009, 1:36–39, 6:51–55, 7:30–38.

Figure 10 of Hsiao (annotated by Petitioner) follows:

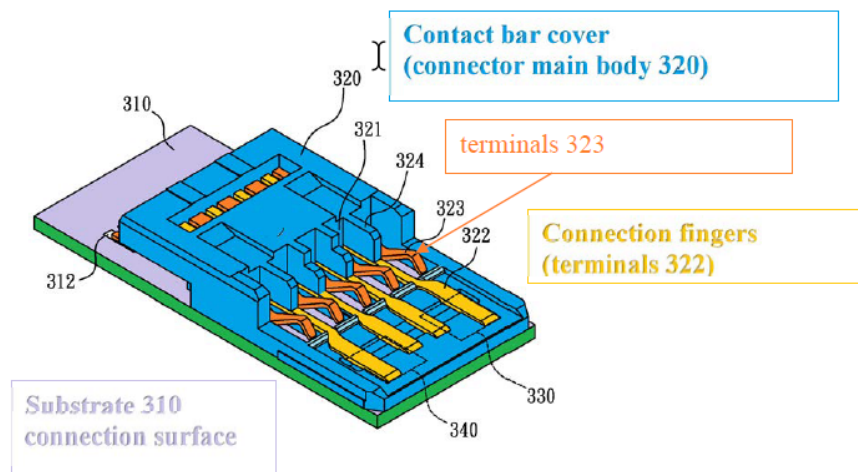


FIG. 10

Pet. 29. Figure 10 of Hsiao is a schematic view of an assembled USB connector. Ex. 1009. 3:4–6. Hsiao discloses an external storage device where a contact bar having a cover (connector main body 320) and terminals 323 is mounted on the connection surface of COB substrate 310. *Id.* at 7:3–

6. Connection fingers (terminals 322) are embedded to be exposed upon the contact bar cover (connector main body 320). *Id.* at 6:38–55, 7:4–38, Figs. 9–10.

Substrate 310 has a connection surface that includes contact pads 311 (for USB 2.0 connections) and 312 (for USB 3.0 connections). *Id.* at 6:47–51, 6:59–7:3, Figs. 9, 10. Terminals 322 (USB 2.0 interface) and 323 (USB 3.0 interface) are “integrally formed” with connector main body 320, which is made of insulation material such as plastic. *Id.* at 7:4–5, 7:39–42, 7:47–51. The terminals’ tails are welded to contact pads 311 and 312. *Id.* at 7:42–47.

USB controller 330 and flash memory 340 are installed on substrate 310 through a means of a COB package, which Hsiao states “is a conventional art.” *Id.* at 7:34–36. Hsiao states that the disclosed USB connector “has a smaller volume and lower production cost compared to conventional USB connectors.” *Id.* at 7:52–54.

### 3. *Chen (Exhibit 1010)*

Chen is a patent titled “Extension to Version 2.0 Universal Serial Bus Connector with Improved Contact Arrangement.” Ex. 1010, (54). Chen discloses a connector plug with conductive contacts adapted for “USB 2.0 protocol” and “non-USB 2.0 protocol.” Ex. 1010, (57, Abstract).

Figures 2 and 3 of Chen (annotated by Petitioner) follow:

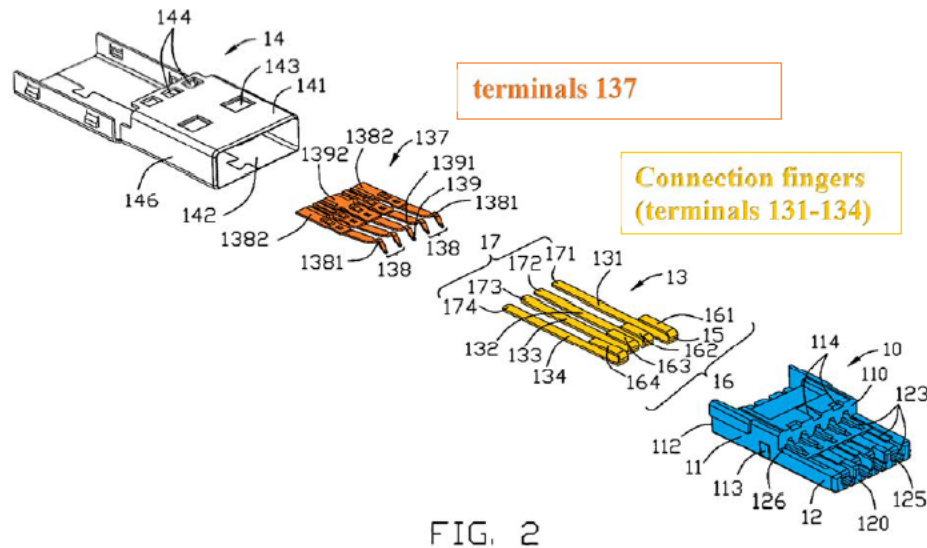


FIG. 2

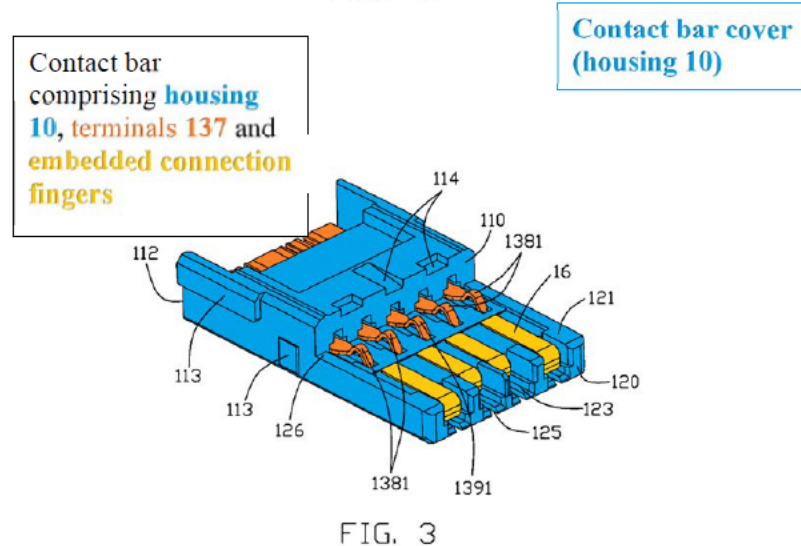


FIG. 3

Pet. 32. Figures 2 and 3 are, respectively, an exploded perspective view and a perspective view of a USB plug with the metal shell removed. Ex. 1010, 4:43–48. The plug has a two-tier contact arrangement installed in insulative housing 10. *Id.* at 5:47–54, Fig. 2. Plug contacts 13 include four “plug conductive” contacts 131–134 and a plurality of additional plug contacts 137 located behind the conductive contacts. *Id.* at 6:31–34, 6:46–49. Housing 10 includes passageways 123 for receiving the contacts. *Id.* at 6:28–41.



Contacts 131–134 carry USB 2.0 signals. *Id.* at 7:59–64. Each comprises a plug contact portion 16 that is flat and nonelastic. *Id.* at 6:50–53, 6:57–58. When contacts 131–34 are inserted into corresponding passageways 123, flat, non-elastic contact portion 16 is substantially coplanar with the supporting surface 121. *Id.* at 6:58–62, Figs. 3–4.

Plug contacts 137 include two pairs of differential plug contacts 138 for transferring/receiving high-speed signals and grounding plug contact 139. *Id.* at 7:15–19, Fig. 2. These contacts each have an elastic contact portion designated 1381 and 1391, respectively. *Id.* at 7:21–30. “[E]ach contact portion 1381, 1391 is cantileveredly received in the passageways 123 and protruding upwardly beyond the supporting surface 121 so that the contact portion 1381, 1391 is elastic and deformable when engaging with corresponding contacts of the extension to USB receptacle 200.” *Id.* at 7:43–48, Figs. 2–3.

Housing 10 has base and tongue portions 11, 12 that are “integrally . . . molded” as one piece. *Id.* at 5:49–52, 6:12–14. The plug tongue portion 12 has substantially the same dimensions as a standard USB 2.0 plug, and plug contacts 137 each have portions 1381 or 1391 that are a greater height above the substrate surface than the fingers. *Id.* at 7:55–57, Fig. 4.

Chen discloses an embodiment in which “the extension to USB is a memory device,” that includes a PCB with a memory unit. *Id.* at 11:43–12:22. The USB plug has the configuration described above, and is physically and electrically connected to the PCB. *Id.*; *see also id.*, claim 3.

## V. ANALYSIS OF THE CHALLENGED CLAIMS

### *A. Anticipation and Obviousness*

The Federal Circuit addressed the legal standard for anticipation in *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331 (Fed. Cir. 2016):

Under 35 U.S.C. § 102(b), a prior art reference will anticipate if it “disclose[s] each and every element of the claimed invention . . . arranged or combined in the same way as in the claim.”

815 F.3d at 1341 (citation omitted). The Federal Circuit went on to explain:

“However, a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.”

*Id.* (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015)).

A claim is unpatentable as obvious 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) where in evidence, so-called “secondary considerations,” including commercial success, long-felt but unsolved needs, failure of others, and unexpected results. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). At this stage, neither party has presented any evidence on the fourth *Graham* factor.

*B. Motivation to Combine the References*

Patent Owner challenges the sufficiency of Petitioner’s showing of a motivation to combine the references. Prelim. Resp. 27–33. According to Patent Owner, “Petitioners fail to answer the essential question of why or how a person of ordinary skill in the art—without the benefit of the disclosure of the ’206 Patent—would combine the teachings of the references in the ways Petitioners allege.” *Id.* at. 28 (emphasis omitted). Patent Owner continues: “Each and every one of Petitioners’ alleged motivations to combine is based on a conclusory, hindsight-guided statement that the combination would have provided certain improvements.” *Id.*

We are not persuaded by these arguments. “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). As discussed *infra*, the preliminary record at this stage demonstrates such a need or problem in the field of USB connectors.

As explained by Petitioner, Patent Owner’s alleged invention is largely a product of the existing USB 2.0 and 3.0 standards. Pet. 1–2. As Petitioner’s expert, Dr. Baker, explains, the USB 3.0 standard requires backward compatibility with USB 2.0 devices as a “key” design area. Baker Decl. ¶ 63. The USB 3.0 specification thus requires the standard USB 3.0-compliant plug to fit both USB 2.0 and USB 3.0 receptacles. *Id.* ¶ 64. This, in turn, dictates the arrangement of the contacts and the physical dimensions of the plugs. *Id.* ¶¶ 65–68. As Petitioner argues persuasively: “The ’206’s alleged ‘innovation,’ involves nothing more than providing the two tiers of connector contacts required by the USB 3.0 standard, and arranging them exactly as taught by the standard and a host of other prior art references.”

Pet. 1. Petitioner explains further: “The ’206 does not teach anything new about the device’s dimensions, electronics, or manufacturing. . . . This is underscored by He, Chen and Hsiao prior art references disclosing USB drives having connectors identical to those claimed in the ’206, in addition to the other references cited herein.” *Id.* at 1–2 (citations omitted).

Discussing the question of non-obviousness of claimed subject matter involving a combination of known elements to meet “design incentives,” the Supreme Court, in *KSR*, expressed skepticism:

When a work is available in one field of endeavor, *design incentives and other market forces* can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.

*KSR*, 550 U.S. at 417 (emphasis added). Furthermore, in the context of combining references, *KSR* explains that merely filling a “design need” is not likely to result in a patentable invention:

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

*KSR*, 550 U.S. at 421 (emphasis added).

In determining whether Petitioner has at this stage presented an adequate motivation to combine references, we consider also the fact that “this invention falls into a very predictable field. In the predictable arts, a trial record may more readily show a motivation to combine known elements to yield a predictable result, thus rendering a claimed invention obvious.”

*Rothman v. Target Corp.*, 556 F.3d 1310, 1319 (Fed. Cir. 2009). For the

foregoing reasons, we do not agree with Patent Owner’s blanket assertion that “Petitioners fail to answer the essential question of why or how a person of ordinary skill in the art—without the benefit of the disclosure of the ’206 Patent—would combine the teachings of the references in the ways Petitioners allege.” Prelim. Resp. 28 (emphasis omitted). Petitioner has answered that question by referring to design needs for USB connectors. Furthermore, Petitioner provides additional details in its discussions of specific challenges. *See* discussion of specific claim elements, *infra*.

Similarly, we are not persuaded by Patent Owner’s contention that “Dr. Baker’s testimony is itself largely unsupported, conclusory testimony, which generally does nothing more than parrot the language of the Petition.” Prelim. Resp. 30. To the contrary, we found Dr. Baker’s testimony describing the state of the art in USB connectors to be helpful and supported by the documents referenced in his testimony. Baker Decl. ¶¶ 49–72.

### *C. Challenges Based on He*

#### *1. He and Chang*

Petitioner contends that claims 1–5, 8–11, 13–15, 18, and 19 would have been obvious in light of He and Chang. Pet. 36–59.

##### *a. Claim 1*

On the current record, Petitioner shows that each element of claim 1 is disclosed in He and Chang. Pet. 36–45. For example, Petitioner shows that the preamble of claim 1 (element 1a) is met by He’s “USB flash disk.” *Id.* at 36. The substrate (element 1b) is met by He’s PCB 1. *Id.* at 38. The “memory die stack” (element 1c) is disclosed by He’s USB “flash disk”: “[T]he very definition of a USB flash disk is that it includes flash memory.” *Id.* at 39 (emphasis omitted). For the controller (element 1d) Petitioner asserts a person of ordinary skill “would have known that this controller is

necessarily present in a USB flash disk.” *Id.* In any event, “Cheng discloses that conventional flash drives have controllers that are disposed on a printed circuit board.” *Id.* at 40 (internal quotation marks and alterations omitted) (citing Ex. 1012 ¶ 4). As Petitioner explains, “[i]t would have been obvious to [a person of ordinary skill] to mount a controller on He’s PCB as is ‘conventional’ in USB flash drives. [A person of ordinary skill] would have been motivated to do so to provide a USB standard compatible interface between the USB bus and the flash memory.” *Id.* at 40 (citing Baker Decl. ¶¶ 166–167)

Petitioner demonstrates that the claimed contact bar (element 1e) is shown in annotated Figure 3 of He, reproduced *supra*, and is comprised of insulator 3 and resilient contacts 2. Pet. 40–42. The plurality of connection fingers (element 1f) is met by contacting pads 13 in He. *Id.* at 44 (citing Ex. 1011, 2:34–35). The “wherein” clause, reciting two interfaces (element 1g), is met by the USB 2.0 interface (contacting pads 13) and the USB 3.0 interface (contacting pads 13 and resilient contacts 2) in He. *Id.* at 44–45.

At this stage, Patent Owner does not contest Petitioner’s element-by-element analysis of this claim, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See discussion supra.*

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to claim 1.

*b. Claims 10 and 11*

Petitioner’s analysis of these independent claims follows its analysis of claim 1, *supra*. Pet. 50–55. For claim 10, Petitioner relies on its analysis of claim 1 for the common elements. *Id.* at 50. For the additional element

(element 10h) in claim 10, specifically requiring the device to support the USB 2.0 and USB 3.0 standards, Petitioner relies on He. *Id.* at 51.

For claim 11, Petitioner relies on its analysis of claim 1 for common elements. For the additional elements (11e, f, and g), Petitioner relies on He. *Id.* at 51–55.

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to claims 10 and 11.

*c. Claims 2–5, 8, 9, 13–15, 18, and 19*

Petitioner provides an element-by-element analysis for each of these dependent claims. Pet. 45–50 (claims 2, 4, 8), 55–56 (claims 13, 19), 56–59 (claims 3, 5, 9, 14, 15, 18).

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

*2. He, Cheng, and Hiller*

Petitioner contends that dependent claims 6, 7, 16, and 17 would have been obvious in light of He, Cheng, and Hiller. Pet. 59. Petitioner provides an analysis of these claims that relies, in part, on its analysis of the claims from which they depend. *Id.* at 59–61. Petitioner relies also on Hiller for its teaching of “stacking” memory dies. *Id.* at 60–61. Petitioner provides a

motivation to combine Hiller with the other the references: “It would have been obvious to [a person of ordinary skill] to utilize this conventional approach to memory die stacking in He’s device, and [a person of ordinary skill] would have been motivated to do so because using stacks having multiple dies allows for a memory device with greater storage capacity contained in a smaller space.” *Id.* at 63 (citing Baker Decl. ¶¶ 210–213).

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

### 3. *He and Sun*

Petitioner contends that claims 1–11 and 13–19 would have been obvious in light of He and Sun. Pet. 61. Petitioner provides an element-by-element analysis of these claims in light of He and Sun. *Id.* at 61–69.

Petitioner relies on Sun’s disclosure of flash drives that are USB 2.0 and USB 3.0 compatible, that have at least one memory die stack, and a controller configured to access that memory. Pet. 62. Petitioner contends that it would have been obvious to include flash memory and a USB controller in He’s USB flash disk, and to configure the controller to access memory in order to effectuate data transfer to and from memory in compliance with the USB specifications as taught by Sun. *Id.* at 62–63 (citing Baker Decl. ¶¶ 214–216).

Petitioner also relies on Sun’s disclosure of mounting the die stack on the same surface as the USB connector (*id.* at 63) and stacking the dies in an overlapping arrangement (*id.* at 66).



Petitioner explains the motivation for combining the teachings of He and Sun. Pet. 68–69. For example, Petitioner contends that a person of ordinary skill “would have been motivated to mount memory on the ‘connection’ surface (on which the contact bar is mounted) of He’s flash memory device as . . . disclosed in Sun where [the person of ordinary skill] desired to minimize device thickness. Pet. 68 (citing Baker Decl. ¶ 223). Likewise, a person of ordinary skill “would have been motivated to mount memory on both surfaces of He’s flash memory device as . . . disclosed in Sun where [the person of ordinary skill] desired to increase memory capacity without substantially increasing the overall length of He’s device.” *Id.* (citation omitted) (citing Ex. Baker Decl. ¶ 224).

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

#### *D. Challenges Based on Hsiao*

##### *1. Hsiao Anticipation*

Petitioner first contends that claims 11 and 12 are anticipated by Hsiao. Pet. 69–79. On the current record, Petitioner shows that each element of claim 11 is disclosed in Hsiao. Pet. 69–76. For example, Petitioner shows that the preamble (element 11a) is met by Hsiao’s disclosure of a USB COB flash memory device. *Id.* at 69 (citing Ex. 1009, 7:30–36). The substrate element (element 11b) is met by COB substrate 310. *Id.* at 70 (citing Ex. 1009, 6:51–55). The memory die stack (element 11c) is met by Hsiao’s disclosure of a flash memory. *Id.* at 71. As

Petitioner explains, a person of ordinary skill “would have known that flash memory 340 necessarily has at least one memory die.” *Id.* (citing Baker Decl. ¶¶ 243-235).

Petitioner identifies the claimed controller (element 11d) with Hsiao’s USB controller 330. *Id.* at 72. For the claimed contact bar (element 11e), Petitioner identifies Hsiao’s connector main body 320 with second terminals 323 installed. *Id.* (citing Ex. 1009, 7:39–42). *See also* annotated Figure 10 of Hsiao, at Pet. 74 and reproduced *supra*. For the “plurality of connection fingers” (element 11f), Petitioner relies on terminals 322 in Hsiao, which are “electrically coupled” with substrate 310 by welding one end of terminals 322 to contact pads 311. *Id.* at 74 (citing Ex. 1009, 7:19–47).

Finally, to meet the “wherein” clause (element 11g), Petitioner identifies the four first terminals 322 of the USB connector in Hsiao as the USB 2.0 connector and the five second terminals 323 of Hsiao as the USB 3.0 connector. Pet 74–75 (citing Baker Decl. ¶ 247).

Claim 12 depends from claim 11, and further specifies that “the contact bar comprises a cover and wherein the plurality of connection fingers are embedded to be exposed upon the cover of the contact bar.” Ex. 1001, 11:20–23. Petitioner contends that Hsiao discloses this element: “Hsiao’s contact bar cover is connector main body 320 and ‘connection fingers’ (terminals 322) ‘are embedded to be exposed upon’ the contact bar cover.” Pet. 76 (citing Ex. 1009, Figs. 9–10 (annotated)).

Patent Owner challenges this analysis of dependent claim 12: “For example, Hsiao does not disclose at least the limitation of ‘the plurality of connection fingers are embedded to be exposed upon the cover of the contact bar.’” Prelim. Resp. 35 (emphasis omitted). Referring to annotated Figure 10 of Hsiao, reproduced *supra*, Patent Owner contends that Petitioner

“misconstrue[s] the claimed ‘connection fingers’ as being the entirety of Hsiao’s elements 322.” *Id.* at 36. Still referring to annotated Figure 10, Patent Owner contends that “Hsiao does not teach that ‘the front portions of terminals 322’ are embedded within the cover of element 320.” *Id.* at 36–37.

At this stage, we do not find these arguments persuasive. In our discussion of claim construction, *supra*, Section IV.B, we discuss the fact that Petitioner refers to a number of graphic illustrations of USB connectors from Patent Owner’s district court complaint to illustrate Patent Owner’s construction of certain claim terms. Pet. 22–23. Petitioner relies on these illustrations to show Patent Owner’s construction of the terms “portions,” “connection fingers,” “contact bar,” “contact bar cover,” and first and second distances. *Id.* at 22. These illustrations do not appear to support Patent Owner’s arguments directed to claim 12. In addition, relying on a dictionary definition, Petitioner proposes that “embedded” be construed as “set firmly into a mass or material.” *Id.* at 21. This construction, which at this stage is not disputed by Patent Owner, and the graphic illustrations provided by Petitioner do not support Patent Owner’s arguments that the connection fingers in Hsiao are not connection fingers and are not embedded.

Patent Owner has not commented on those illustrations or disputed Petitioner’s arguments on claim construction. At this stage, and on this record, we are persuaded that based on the evidence given, there is a reasonable likelihood that Petitioner will prevail on this anticipation challenge to claims 11 and 12 based on Hsiao.

## 2. *Hsiao Obviousness*

Alternatively, Petitioner contends claims 11 and 12 would have been obvious over Hsiao. Pet. 79–80. Petitioner contends: “It would have been obvious to [a person of ordinary skill] that the entire ‘forwardly extended’ contact portion of terminals 322 could be embedded in the front portion of connector main body 320.” *Id.* at 79. Petitioner further contends there would have been a motivation to do this, with a reasonable expectation of success. *Id.* at 79–80.

Patent Owner challenges this as a “hindsight-driven, conclusory statement.” Prelim. Resp. 37. Patent Owner also argues that “the Examiner previously considered Hsiao during prosecution and allowed the challenged claims over Hsiao.” *Id.* at 37–38 (emphasis omitted). We have addressed similar arguments on motivation to combine *infra*, in Section V.B. We address the prosecution argument in Section III.F. For the reasons stated there, we do not find these arguments persuasive.

At this stage, and on this record, we are persuaded that based on the evidence given, there is a reasonable likelihood that Petitioner will prevail on this obviousness challenge to claims 11 and 12 based on Hsiao.

## 3. *Hsiao and Sun*

Petitioner’s obviousness challenge to claims 11 and 12 based on Hsiao and Sun is presented as an alternative: “To the extent the Board determines that Hsiao does not expressly disclose that Hsiao’s ‘controller’ is ‘configured to access memory,’ Sun discloses this limitation.” Pet. 80. Petitioner contends that would have been obvious to configure Hsiao’s USB controller 330 to access Hsiao’s flash memory 340 “in order to effect data transfer to and from memory in compliance with the USB specifications as taught by Sun.” Pet. 81 (citing Baker Decl. ¶¶ 255–257).

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these claims.

### *E. Challenges Based on Chen*

#### *1. Chen and Cheng*

Petitioner contends that claims 11, 12, 14, 15, and 18 would have been obvious in light of Chen and Cheng. Pet. 81. Petitioner shows that each element of these claims is met by Chen and Cheng. *Id.* at 81–94.

##### *a. Claim 11*

Petitioner shows that the preamble (element 11a) is met by Chen’s memory device 300. Pet. 81–82. Petitioner shows that the substrate (element 11b) is met by the PCB in Chen, which has two opposite surfaces. *Id.* at 82. Petitioner further explains that in Chen, “the ‘tail portions’ of the connector plug contacts 33 are physically and electrically connected to the printed circuit board.” *Id.* at 81–82 (citing Ex. 1010.11:55–58).

Petitioner identifies Chen’s memory device 300 as the “memory die stack” of element 11c. *Id.* at 83. Petitioner asserts a person of ordinary skill “would have known that this memory unit’ necessarily includes at least one memory die.” *Id.* (citing Baker Decl. ¶¶ 265–266).

For the controller (element 11d), Petitioner asserts a person of ordinary skill “would have known that memory device 300 has a controller that accesses memory.” *Id.* at 84 (citing Baker Decl. ¶¶ 267–269). In addition, Cheng discloses a controller, and “[i]t would have been obvious to [a person of ordinary skill] to include a controller in Chen’s memory device

300 mounted on the PCB as Cheng teaches.” *Id.* at 85 (citing Baker Decl. ¶¶ 270–271).

Petitioner identifies the contact bar (element 11e) by referring to Figures 2 and 3 of Chen, reproduced *supra*. Pet. 86–87; Baker Decl. ¶ 274. The contact bar in Chen is housing 10, which includes “a plurality of portions that are electrically coupled with the substrate,” with additional contacts 137 installed in passageways 123. *Id.* at 87 (citing Baker Decl. ¶ 275).

For the “plurality of connection fingers” (element 11f), Petitioner identifies contacts 131–134 in Chen. *Id.* at 89. Finally, for the “wherein clause” (element 11g), Petitioner identifies contacts 131–134 in Chen as the first (USB) interface and contact bar “portions” 1381/1391 as the second (non-USB) interface. *Id.* at 90 (citing Baker Decl. ¶¶ 285–287).

At this stage, Patent Owner does not contest Petitioner’s element-by-element analysis of this claim, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See discussion supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

*b. Claims 12, 14, 15, and 18*

These claims all depend from claim 11. Petitioner presents an element-by-element analysis demonstrating that each additional element is present in Chen and Cheng. Pet. 90–94.

At this stage, Patent Owner does not contest Petitioner’s analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See discussion supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

*2. Chen, Cheng, and Hiller*

Petitioner contends that dependent claims 16 and 17 would have been obvious in light of Chen, Cheng, and Hiller. Pet. 94. These claims depend from claim 15. Petitioner provides an analysis that relies on Cheng for its disclosure of mounting a memory on a die stack on both PCB surfaces, and Hiller for its disclosure of memory dies stacks using multiple dies. *Id.* at 94–95. Petitioner asserts that it would have been obvious to utilize this conventional approach to memory die stacking in Chen’s device, and that a [person of ordinary skill] would have “been motivated to do so because using stacks having multiple dies allows for a memory device with greater storage capacity contained in a smaller space.” *Id.* at 96 (citing Baker Decl. ¶¶ 296–299).

At this stage, Patent Owner does not contest Petitioner’s element-by-element analysis of these claims, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to these dependent claims.

*3. Chen, Cheng, and Wan*

Petitioner contends that claim 19 would have been obvious in light of Chen, Cheng, and Wan. Pet. 96. Claim 19 depends from claim 11. Petitioner’s analysis relies on Wan for the additional element requiring the external storage device to be “configured to support Universal Serial Bus

(‘USB’) 2.0 and USB 3.0 standards in effect as of Jan. 31, 2011.” Pet. 96–97. Petitioner explains: “It would have been obvious to [a person of ordinary skill] in view of Wan’s disclosure to configure Chen’s memory device 300 to support USB 2.0 and 3.0 standards.” *Id.* at 98. Further, a person of ordinary skill would have “been motivated to do so to meet market demand for a faster device (one that implements USB 3.0’s SuperSpeed protocol) but that retains the USB 2.0 plug’s smaller form factor, and [a person of ordinary skill] would have had a reasonable expectation of success in doing so.” Pet. 98 (citing Baker Decl. ¶¶ 300–302).

At this stage, Patent Owner does not contest Petitioner’s analysis of this claim, relying instead on its blanket assertion of lack of motivation to combine, which we do not find persuasive. *See* discussion *supra*.

On the current record, we are, therefore, persuaded that for the reasons given, Petitioner has demonstrated a reasonable likelihood of prevailing on this challenge to this claim.

#### *F. Conclusion*

For the foregoing reasons, we have determined that there is a reasonable likelihood that the Petitioner would prevail with respect to at least one of the claims challenged in the Petition. We therefore institute trial as to all challenged claims on all grounds stated in the Petition.

#### VII. ORDER

In view of the foregoing, it is

ORDERED that *inter partes* review of claims 1–19 of the ’206 patent is hereby instituted on all grounds stated in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.



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