

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SMIC, AMERICAS,
Petitioner,

v.

INNOVATIVE FOUNDRY TECHNOLOGIES, LLC,
Patent Owner.

IPR2020-01003
Patent 6,580,122 B1

Before JON B. TORNQUIST, CHRISTOPHER M. KAISER, and
SCOTT E. BAIN, *Administrative Patent Judges*.

BAIN, *Administrative Patent Judge*.

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

INTRODUCTION

SMIC, Americas (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–3, 5–14, 16–25, and 27–34 of U.S. Patent No. 6,580,122 B1 (Ex. 1001, “the ’122 patent”). On September 15, 2020, Innovative Foundry Technologies, LLC (“Patent Owner”) disclaimed claims 1–3, 6–14, 17–25, and 28–34 of the ’122 patent. Ex. 2001; *see also* 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”). Subsequently, Patent Owner filed a Preliminary Response to the Petition (Paper 6, “Prelim. Resp.”) addressing the remaining challenged claims, i.e., claims 5, 16, and 27 of the ’122 patent. With our authorization, Petitioner filed a Reply (Paper 8, “Reply”) and Patent Owner filed a Sur-reply (Paper 9, “Sur-reply”) addressing the issue of discretionary denial under 35 U.S.C. § 314.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless “there is a reasonable likelihood that the [P]etitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Applying this standard, we determine that the information presented on the record before us meets the threshold for institution. Accordingly, we grant Petitioner’s request and institute an *inter partes* review of claims 5, 16, and 27 of the ’122 patent.

A. Real Parties in Interest

Petitioner identifies the following entities as real parties in interest: Semiconductor Manufacturing International Corporation; Semiconductor Manufacturing International (Shanghai) Corporation; Semiconductor Manufacturing International (Beijing) Corporation; Semiconductor Manufacturing International (Tianjin) Corporation; Semiconductor

Manufacturing International (BVI) Corporation; Semiconductor Manufacturing International (Shenzhen) Corporation; Semiconductor Manufacturing North China (Beijing) Corporation; Semiconductor Manufacturing South China Corporation; Cypress Semiconductor Corporation; Broadcom Corporation; and Broadcom Incorporated. Pet. 1–2.

Patent Owner identifies Innovative Foundry Technologies LLC as the real party in interest. Paper 4.

B. Related Matters

The parties identify *Innovative Foundry Technologies LLC v. Semiconductor Manufacturing International Corporation, et al.*, Case No.: 6:19-cv-00719-ADA, United States District Court for the Western District of Texas (filed on December 20, 2019) (“parallel proceeding”) and *SMIC, Americas, et al. v. Innovative Foundry Technologies LLC*, Case No.: 4:20-cv-02256-JSW, United States District Court for the Northern District of California (filed on April 2, 2020) as related matters. Paper 4, 1; Pet. 3.

C. The '122 Patent

The '122 patent is directed to a “semiconductor device having an enhanced width dimension.” Ex. 1001, 1:10–11. The '122 patent explains the significance of width dimension in a semiconductor device (transistor) as follows.

According to the '122 patent, the “demand for increased speed has resulted in a continual reduction in the size of semiconductor devices.” *Id.* at 1:18–20. A “particular[ly] important” transistor parameter is the “drive current,” which is “the amount of current flowing from the drain region to the source region of the transistor.” *Id.* at 1:62–66. The '122 patent explains that drive current, in turn, depends on the transistor’s channel length (L) and

width (W), such that reducing L or increasing W results in increased drive current. *Id.* at 2:5–20. It is “desirable that transistors have as large a drive current as possible without otherwise adversely impacting the performance of the transistor,” such as “generating excessive heat or excessive off-state leakage currents.” *Id.* at 1:66–2:4.

The '122 patent further explains that off-state leakage current increases exponentially as L decreases and, in contrast, the leakage current increases at a lower rate as W increases. *Id.* at 2:5–20. Thus, “it would be desirable to have a transistor in which the width dimension of a substrate can be maximized in a given plot space of semiconducting substrate.” *Id.* at 2:35–38.

Figures 3–7C of the '122 patent illustrate an embodiment of the invention shown at various stages of its fabrication process. Figures 6B and 7A, as reproduced below, illustrate relevant device elements visible at different stages or views.

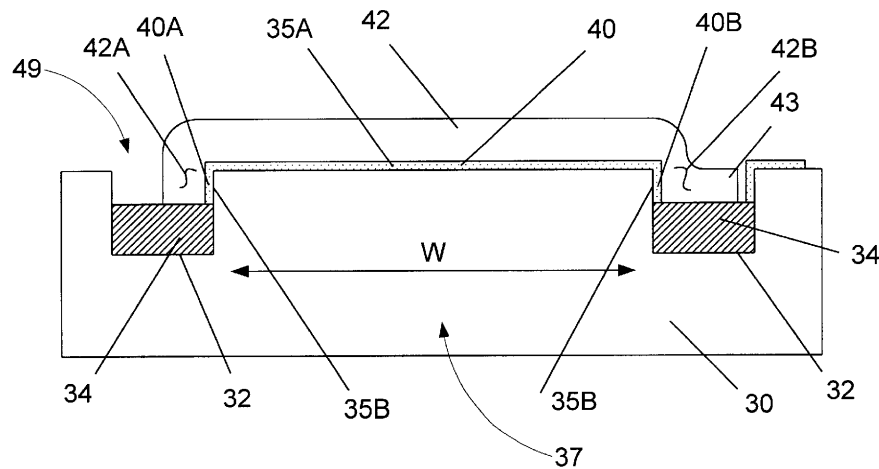


Figure 6B

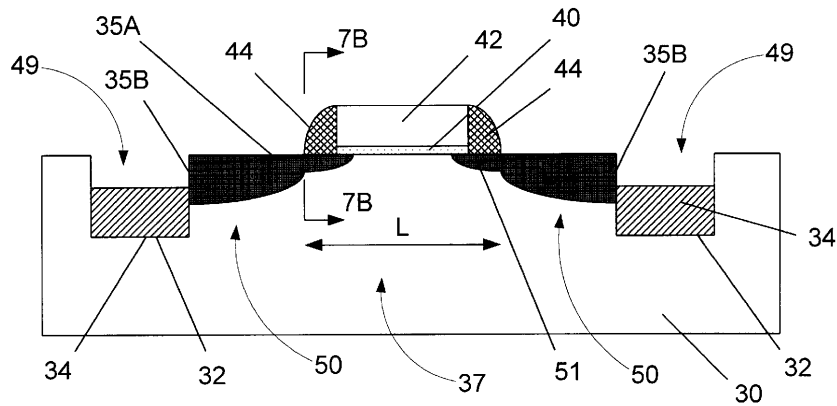


Figure 7A

Figure 6B is a “cross-sectional side view of [an embodiment] in the transistor width dimension ‘W,’” after a “gate electrode has been patterned from a layer of polysilicon.” Ex. 1001, 3:24–29, 5:39–45. The device includes “active island 37 of substrate material” and “substrate 30,” with “gate electrode 42” and “gate insulation layer 40” formed on the substrate. *Id.* at 4:49–54, 6:62–7:3. “Recessed isolation portion 34” (shaded) is formed by a layer of insulating material in the “trench 32,” and defines a “recess 49.” *Id.* at 4:21–56, 5:58–63, 7:13–14; 7:45–55.

Figure 7A is a “cross-sectional front view” of the same embodiment, along the transistor gate length (L) dimension, “after source/drain regions have been formed on the device.” *Id.* at 3:30–32, 5:58–65. Figure 7A, like Figure 6B, illustrates substrate 30, recessed isolation structure 34, gate insulation layer 40, gate electrode 42, and also shows source and drain regions 50 formed in the substrate. *Id.* at 4:49–54, 5:58–63, 6:62–7:3, 7:45–55. According to the ’122 patent, after “the formation of the gate electrode 42, additional insulating material (not shown) . . . may be blanket deposited above the device” shown in Figure 7A. *Id.* at 7:19–22.

D. Challenged Claims

Challenged claims 5, 16, and 27 are reproduced below:

5. The transistor of claim 1, wherein said recessed isolation structure is formed in a trench having a width ranging from approximately 2000–3000 Å and a depth ranging from approximately 4000–5000 Å.

Ex. 1001, 8:20–23.

16. The transistor of claim 13, wherein said recessed isolation structure is formed in a trench having a width ranging from approximately 2000–3000 Å and a depth ranging from approximately 4000–5000 Å.

Id. at 8:59–62.

27. The transistor of claim 23, wherein said recessed isolation structure is formed in a trench having a width ranging from approximately 2000–3000 Å and a depth ranging from approximately 4000–5000 Å.

Id. at 10:4–7.

E. Asserted Grounds of Unpatentability

Petitioner contends claims 5, 16, and 27 of the '122 patent are unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
5, 27	103(a) ¹	Yun, ² Wada ³
16	103(a)	Yun, Wada, Lu ⁴
5, 16, 27	103(a)	Saki, ⁵ Wada

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application from which the '122 patent issued was filed before this date, the pre-AIA version of § 103 applies.

² Yun, KR1998-074469, published Nov. 5, 1998 (Ex. 1003) (“Yun”).

³ Wada, US 5,859,466, issued Jan. 12, 1999 (Ex. 1004) (“Wada”).

⁴ Lu et al., US 6,009,023, issued Dec. 28, 1999 (Ex. 1005) (“Lu”).

⁵ Saki, US 5,960,297, issued Sept. 28, 1999 (Ex. 1006) (“Saki”).

Petitioner relies on the declaration testimony of Dr. Sayfe Kiaei in support of its unpatentability arguments. Ex. 1002.

ANALYSIS

A. Claim Construction

In this proceeding, the claims of the '122 patent are construed “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b).” 37 C.F.R. § 42.100(b). Under that standard, the words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have had to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Neither party proposes construction of any claim terms at this stage of the proceeding. Upon review of the parties’ arguments and supporting evidence, we determine that no claim terms require construction for purposes of this decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *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.”)).

B. Level of Ordinary Skill in the Art

Relying on the testimony of its declarant, Dr. Kiaei, Petitioner asserts that a person of ordinary skill in the art at the time of the invention would have had “at least a Bachelor of Science degree in electrical engineering, physics, chemistry, chemical engineering, material science, or a closely related field and at least 3 years of experience in semiconductor process,

design, or fabrication.” Pet. 6–7 (citing Ex. 1002 ¶ 38). Petitioner explains that “[a]n individual with an advanced degree in a relevant field would require less experience in semiconductor devices.” *Id.* Further, Petitioner asserts a person of ordinary skill “would have been familiar with the general structure of semiconductor devices, the fabrication process, isolation structures such as shallow trench isolation (STI), gate insulation layers, implant regions, and methods to improve the performance of semiconductor devices and CMOS integrated circuits.” *Id.* at 7 (citing Ex. 1002 ¶ 39).

Patent Owner does not dispute Petitioner’s characterization of the level of ordinary skill in the art, at this stage of the proceeding.

On this record, we determine that the level of ordinary skill proposed by Petitioner is consistent with the challenged patent and the asserted prior art. We, therefore, adopt that level for the purposes of this decision.

C. Claims 5 and 27

Petitioner contends the subject matter of claims 5 and 27 would have been obvious over the combined disclosures of Yun and Wada, and alternatively, would have been obvious over the combined disclosures of Saki and Wada. Pet. 39–45, 77–79.

1. Overview of Yun

Yun is directed to increasing the drive current of a transistor by increasing the channel width. Ex. 1003, 1-5, 2-5. Specifically, Yun discloses “when the channel width *W* is increased to increase the current-driving amount of a transistor, it immediately results in an increase in the size of the area.” *Id.* at 1-5. To address the problem of increasing area, Yun discloses a transistor in which “channel width is raised by a predetermined

height relative to the isolation region . . . and for a curve by as much as the height, thereby increasing the channel width.” *Id.* at 2-5.

2. *Overview of Wada*

Wada discloses techniques for isolating transistors, and specifically, field-shield device isolation (FSDI) methods, involving forming an isolation structure between two active regions of an integrated circuit to isolate the two devices from one another. Ex. 1004, 1:29–38. Wada further discloses forming the isolation structure in a “trench cavity” with dimensions tailored to the device parameters, thereby increasing “effective isolation dimension.” *Id.* at 2:1–27.

3. *Overview of Saki*

Saki is directed to an “isolation structure for [semiconductor devices] and the methods for forming the isolation structure.” Ex. 1006, 1:8–12. Specifically, Saki discloses improved “shallow trench isolation,” which is “particularly advantageous for circuits having a high integration density,” and illustrates configurations of trenches formed in silicon substrate. *Id.* at 1:14–24, Figs. 1(a)–1(f).

4. *Analysis*

We begin with claim 5. Petitioner identifies Wada’s disclosure of each element recited in claim 5, including a “recessed isolation structure” formed in a trench having a “width ranging from approximately 2000–3000 Å,” and a “depth ranging from approximately 4000–5000 Å.” Pet. 42 (citing Ex. 1004, 4:41–51, 7:54–62, 13:64–14:6). Further, Petitioner identifies where Yun discloses each element of claim 1 (from which claim 5 depends). Pet. 26–29. Specifically, Petitioner identifies Yun’s disclosure of a substrate, a recessed isolation structure, a gate electrode, and a gate

insulation layer as recited in claim 1. *Id.* Citing the supporting testimony of Dr. Kiaei, as well as disclosures in Wada and Yun, Petitioner explains that a person of ordinary skill in the art would have found it “obvious to form the depth and width of Yun’s recessed isolation structures to the thickness ranges as taught by Wada, to arrive, with a reasonable expectation of success, at the subject matter of” claim 5. *Id.* at 43–45.

Patent Owner does not, at this stage of the proceeding, contest Petitioner’s analysis regarding the teachings of Wada and the teachings of Yun. Patent Owner, however, argues that the Petition “identifies no rationale or evidence” supporting the proposed combination of Wada with Yun. Prelim. Resp. 30–32. Patent Owner argues that Yun concerns “conventional” isolation regions and shallow trench isolation, while Wada “is directed to a more complex and specialized area of field-shield device isolation.” *Id.* at 31 (emphasis omitted). Patent Owner contends Wada’s field-shield isolation structure is “materially different from and more complex than” conventional isolation structures, and utilizes “electrodes buried within an isolation region to provide a reference potential between active regions.” *Id.* at 31, 33 (citing Ex. 1004, 2:5–10). Patent Owner argues that the buried electrodes “add complexity and difficulty to the manufacturing process that would not be necessary or desirable except when used in a field-shield [as opposed to conventional] isolation application.” *Id.* at 34. Patent Owner does not present any declaration testimony in support of its arguments or in rebuttal of Dr. Kiaei’s testimony.

We are persuaded that Petitioner has presented sufficient evidence at this stage of the proceeding, including Dr. Kiaei’s testimony, that a person of ordinary skill in the art would have combined Wada and Yun. As Dr. Kaiei

testifies, both Wada and Yun are directed to improvements to techniques for isolating transistors on the same substrate, and we find credible, at this stage of the proceeding, Dr. Kiaei's unrebutted testimony that it was "well recognized in the art that isolating transistors on the same substrate from one another, particularly as transistors continued to shrink in size, was critical to transistor and overall device operation." Ex. 1002 ¶ 122; *see also* Ex. 1004, 1:63–67.

As Petitioner asserts, Wada describes forming a trench to a depth of approximately 5000 to 15000 Å and a width of approximately 2000 to 5000 Å, which are within the parameters recited in claim 5. Ex. 1004, 4:41–51; Ex. 1002 ¶ 124. Dr. Kiaei testifies that a person of ordinary skill reading Yun would have been able to select appropriate parameters for the trench (such as the depth and width) based on the device design and any relevant constraints. Ex. 1002 ¶ 124. Thus, Dr. Kiaei testifies, a person of ordinary skill in the art would have been motivated to form Yun's recessed isolation structures to the thickness ranges as taught by Wada, to improve transistor isolation, better protect against potential leakage issues, and increase overall device functioning. *Id.*; Ex. 1003, 2-5. Patent Owner does not explain why this testimony is flawed and presents no evidence rebutting Dr. Kiaei's testimony.

Petitioner also presents evidence that Wada and Yun share the common objective of simplifying transistor design without increasing the integrated circuit area. Pet. 44–45 (citing Ex. 1004, Abstract; Ex. 1003, 2-5); Ex. 1002 ¶ 125. Given these objectives as described in the references themselves, Dr. Kiaei testifies that a person of ordinary skill "would have every reason to believe that applying Wada's teachings [regarding trench

depth and width] to the semiconductor device of Yun would succeed.”

Ex. 1002 ¶ 126. Again, Patent Owner does not explain why this testimony is flawed or otherwise present any evidence rebutting Dr. Kiaei’s testimony.

In view of the foregoing, and upon review of the parties’ arguments and supporting evidence, we determine that Petitioner has identified sufficiently for purposes of institution where Yun and Wada teach or suggest every limitation of claim 5 of the ’122 patent. Petitioner has also set forth sufficient reasoning supported by rational underpinnings to support its proposed combination of references. Accordingly, Petitioner has demonstrated a reasonable likelihood that claim 5 would have been obvious over Yun and Wada.

Claim 27 recites the same substantive limitations as claim 5, and the parties’ arguments are the same. For the foregoing reasons, Petitioner has demonstrated a reasonable likelihood that claim 27 would have been obvious over Yun and Wada.

Petitioner’s alternative contention is that Saki may be used as the primary reference in place of Yun, i.e., that claims 5 and 27 are obvious over the combination of Saki and Wada. Similar to the discussion above, Petitioner shows where Saki discloses each of the elements of claim 1 (from which claim 5 depends). Pet. 62–67. Petitioner relies upon Wada for the same disclosures as discussed above, and Petitioner relies on the testimony of Dr. Kiaei, as well as the references themselves, to support the argument that it would have been obvious to combine the references. *Id.* at 78–79.

Patent Owner, at this stage of the proceeding, contests only the rationale for combining Saki and Wada, for reasons “similar” to the arguments Patent Owner made against the combination of Yun and Wada.

Prelim. Resp. 37. Specifically, Patent Owner argues that Saki (like Yun) is directed to “conventional shallow trench isolation structures.” *Id.* at 38.

For the same reasons as discussed above, we determine that Petitioner has demonstrated a reasonable likelihood that claim 5 would have been obvious over Saki and Wada. Similarly, Petitioner also has demonstrated a reasonable likelihood that claim 27 (which recites the same substantive limitations as claim 5) would have been obvious over Yun and Wada.

D. Claim 16

Petitioner contends the subject matter of claim 16 would have been obvious over the combined disclosures of Yun, Wada and Lu, and alternatively, would have been obvious over the combined disclosures of Saki and Wada. Pet. 57–58, 77–79.

1. Overview of Lu

Lu is directed to semiconductor “fabrication processes that will enhance performance,” particularly in dynamic random access memory applications. Ex. 1005, 1:6–10. Lu discloses forming transistors having either a “thinner” or “thicker” gate insulation layer in order to improve transistor performance and reliability. *Id.* at 2:33–41. Specifically, Lu discloses various embodiments with gate insulation layers of varying thickness. *Id.* at 7:2–21.

2. Analysis

Claim 16 recites identical limitations to claims 5 and 27, and differs only in that it depends from claim 13, which recites a “silicon” substrate and a “polysilicon” gate electrode. Ex. 1001, 8:43, 8:46. Petitioner’s arguments and evidence are the same for claim 16 as the prior claims, except Petitioner also shows where Yun discloses a “silicon” substrate and Lu discloses a

“polysilicon” gate electrode. Pet. 57–58. Patent Owner does not present any separate arguments or evidence regarding claim 16 (other than the arguments regarding claims 5 and 27, discussed above).

For the same reasons as discussed above, we determine that Petitioner has identified sufficiently for purposes of institution where Yun, Wada, and Lu teach or suggest every limitation of claim 16 of the ’122 patent, and has provided sufficient reasoning supported by rational underpinnings to support its proposed combination of references. Accordingly, Petitioner has demonstrated a reasonable likelihood that claim 16 would have been obvious over Yun, Wada and Lu. For the same reasons, Petitioner has demonstrated a reasonable likelihood regarding its alternative contention that claim 16 would have been obvious over Saki and Wada.

E. 35 U.S.C. § 314(a)

Patent Owner contends we should deny institution under 35 U.S.C. § 314, in view of a parallel district court proceeding involving the ’122 patent in the Western District of Texas (*see supra* at 3). Prelim. Resp. 5–21; Sur-reply 1–4. Petitioner disagrees. Reply 1–4.

Under 35 U.S.C. § 314(a), the Director has discretion to deny institution. In determining whether to exercise discretion to deny on behalf of the Director, we look to the guidance provided in *NHK Spring Co. v. Intri-Plex Technologies, Inc.*, IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018) (precedential), and *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”).

Fintiv sets forth six non-exclusive factors for determining “whether efficiency, fairness, and the merits support the exercise of authority to deny

institution in view of an earlier trial date” in a parallel proceeding. *Fintiv*, Paper 11 at 6. The factors are:

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.

Fintiv recognizes that there is some overlap between the identified factors, and that some facts may be relevant to more than one factor. *Id.* “Therefore, in evaluating the factors, the Board takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

1. *whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted*

No stay has been granted in the parallel district court proceeding. Prelim. Resp. 11; Reply 1–2. Petitioner asserts that there is “potential for a stay,” because a stay would not unduly prejudice Patent Owner and because Petitioner “presents a strong, targeted challenge to all claims of the ’122 Patent asserted” in the parallel proceeding. Reply 1–2. Patent Owner responds that the evidence suggests there will not be a stay even if requested, because the district court judge presiding over the parallel proceeding “has denied every opposed motion to stay pending proceedings

in his court pending resolution of an instituted IPR.” Prelim. Resp. 12–13; Sur-reply 1.

As the parties acknowledge, the district court has not granted a stay in the parallel proceeding. Notwithstanding Patent Owner’s assertion regarding other cases, there is no specific evidence that a stay will or will not be granted in this case. In the absence of specific evidence, we will not attempt to predict how the district court will proceed, because the court’s determination will be based on a variety of circumstances and facts “beyond our control and to which the Board is not privy.” *Sand Revolution II, LLC v. Cont’l Intermodal Grp.-Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative). Therefore, this factor does not weigh in favor of exercising or not exercising discretion to deny institution under 35 U.S.C. § 314(a).

2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision

According to the parties, trial is scheduled to begin in the parallel proceeding on August 30, 2021. Reply 2; Sur-reply 2. The latest date a final written decision could be rendered in this proceeding (absent an extension for good cause) is December 16, 2021.

Petitioner contends this factor does not support the Board exercising discretion to deny because the current trial date is “inherently unpredictable,” the presiding district court judge has “repeatedly extended trial dates” in other cases, and the district court judge has “by far the busiest patent docket in the country.” Reply 2. Patent Owner, in contrast, argues that the approximate three-month delay between trial and a final written decision in this case is sufficient reason to weigh in favor of exercising

discretion to deny institution. Sur-reply 2. Patent Owner further argues that in the cases cited by Petitioner, the trial was postponed “in the early onset of the pandemic” or “delayed because of the health problems, or by agreement of the parties,” and in no case cited by Petitioner was trial postponed due to the Court’s busy patent docket. *Id.*

This factor examines the *proximity* of the trial date to the date of our final decision, to assess the weight to be accorded a trial date set earlier than the expected final written decision date. This proximity inquiry is a proxy for the likelihood that the trial court will reach a decision on validity issues before the Board reaches a final written decision. A trial set to occur soon after the institution decision is reasonably likely to happen prior to the Board’s final decision, even if the trial date were postponed due to intervening circumstances. Here, however, where the trial is not scheduled to begin until nearly nine months after institution (and about three months before the deadline for a final written decision), the efficiency and system integrity concerns that animate the discretionary denial analysis are not as strong, all other things being equal.

In a slightly earlier proceeding involving these same parties, same district court trial, and similar arguments regarding discretionary denial, we determined that this factor did not weigh in favor of exercising or not exercising discretion to deny. *SMIC, Americas v. Innovative Foundry Techs.*, IPR2020-00786, Paper 10 (PTAB October 5, 2020) (finding that the trial was scheduled for only one month before the final decision). Although we are a few months closer to the trial date at this time, we discern no meaningful difference here that would merit the same parties, in the same parallel proceeding, being subject to a different result as to factor two.

Moreover, because we have instituted trial in that earlier case, the efficiency concerns that would guide discretionary denial in this case are, again, not as strong.

Accordingly, this factor does not weigh in favor of exercising or not exercising discretion to deny institution under 35 U.S.C. § 314(a). *See Fintiv*, Paper 11 at 9 (noting that when the court’s trial date is at or around the same time as the projected statutory deadline, “the decision whether to institute will likely implicate other factors,” such as “the resources that have been invested in the parallel proceeding”).

3. *investment in the parallel proceeding
by the court and the parties*

Petitioner contends the parties in the parallel proceeding “have not invested substantially in the merits of the invalidity positions,” and any investment by the district court thus far relates only to “ancillary matters.” Reply 3. Further, Petitioner asserts that it “diligently prepared and filed the Petition [one of four petitions arising from the parallel proceeding] just two months after receiving Patent Owner’s Preliminary Infringement Contentions.” *Id.*

Patent Owner argues that the district court already issued its claim construction order, and the parties are well into discovery. Sur-reply 3. Moreover, Patent Owner asserts that “before any Final Written Decision” is issued, “the parties will have already expended the time, money, and resources necessary to completely litigate and conduct a jury trial.” Prelim. Resp. 17.

This factor generally focuses on the investment by the district court and the parties at the time of the institution decision, not the expected

expenditure of time and effort throughout the district court trial. *See Fintiv*, Paper 11 at 9 (“The Board also has considered the amount and type of work already completed in the parallel litigation by the court and the parties *at the time of the institution decision.*”) (emphasis added); *Sand Revolution*, Paper 24 at 10–11 (analyzing the district court’s investment of time and resources prior to the institution decision). Most, if not all, district court proceedings will require significant expenditures of time and resources to complete. The question is whether the district court has already invested such a significant amount of time and resources at the time of the institution decision that a stay is less likely and the duplicative costs of both a district court trial and Board proceeding are more likely. *See Fintiv*, Paper 11 at 10.

Our precedent also stresses that this factor primarily is focused on the level of effort expended by the court and the parties “related to the patent at issue in the petition,” not on ancillary matters untethered to the relevant invalidity issues, such as procedural motions. *Id.* at 9–10; *Sand Revolution*, Paper 24 at 10 (“But 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.”).

The district court has issued its Claim Construction Order (Ex. 2026), which addresses three other patents in addition to the ’122 patent. The order is a single page, and includes two short entries relevant to terms in the ’122 patent, each addressed in a single sentence. *Id.* Patent Owner also cites Petitioner’s filing of its invalidity contentions, but Patent Owner does not explain how much effort, even qualitatively, Petitioner spent preparing its contentions, nor how much discovery related to invalidity issues has occurred. Sur-reply 3. The current record does not support a conclusion that

the district court and parties in the parallel proceeding have invested “significant resources” towards resolving invalidity issues related to the ’122 patent.

We further note that in analyzing this factor, *Fintiv* recognizes that “it is often reasonable for a petitioner to wait to file its petition until it learns which claims are being asserted against it in the parallel proceeding.” *Fintiv*, Paper 11 at 11. Petitioner filed the Petition two months after receiving Patent Owner’s Preliminary Infringement Contentions. *See supra*. Such relatively expeditious action, in combination with the investment analysis discussed above, weighs against exercising our discretion under 35 U.S.C. § 314. *See Fintiv*, Paper 11 at 11.

4. *overlap between issues raised in the petition
and in the parallel proceeding*

Patent Owner contends “there is almost complete overlap” between the invalidity issues raised in the Petition and in the parallel proceeding. Prelim. Resp. 17; Sur-reply 3–4. Petitioner does not disagree, but stipulates that “if an IPR proceeding is instituted, it will not pursue the invalidity grounds to be tried in the instituted IPR proceeding.” Reply 3.

The stipulation offered by Petitioner has the potential to mitigate “to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sand Revolution*, Paper 24 at 12. Petitioner does not assert, however, that it has the authority to make such a stipulation as to all of the defendants in the parallel proceeding. Sur-reply 3–4; Pet. 2–3. Thus, it is not evident that the proposed stipulation would in fact mitigate the possibility of duplicative efforts or conflicting decisions between the district court and the Board.

Therefore, we find this factor weighs in favor of exercising our discretion to deny institution pursuant to § 314(a).

5. *whether the petitioner and the defendant in the parallel proceeding are the same party*

“If a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion to deny institution under *NHK*.” *Fintiv*, Paper 11 at 13–14. Petitioner contends it is not a defendant in the parallel proceeding and Patent Owner has “refused to foreclose the possibility of separately pursuing claims against Petitioner” in another action. Reply 4. In response, Patent Owner argues that the real parties in interest identified by Petitioner are all defendants in the parallel proceeding. Sur-reply 4.

A real party in interest is a party that “has a preexisting, established relationship with the petitioner” and is a “clear beneficiary” of the IPR proceeding. *Applications in Internet Time, LLC v. RPX Corp.*, 897 F.3d 1336, 1351 (Fed. Cir. 2018). A real party in interest is also a party for whom it can be said that Petitioner is representing its interest in the IPR. *Id.* at 1353. In this case, as Patent Owner argues, multiple defendants in the parallel litigation are identified as real parties in interest in the Petition. *See* Ex. 2017; Pet. 1–3. Given the relationship implied by their identification as real parties in interest, we find that the defendants in the parallel proceeding are not “unrelated” to Petitioner.

In any event, “[e]ven when a petitioner is unrelated to a defendant . . . if the issues are the same as, or substantially similar to, those already or about to be litigated, or other circumstances weigh against redoing the work of another tribunal, the Board may, nonetheless, exercise the authority to

deny institution.” *Fintiv*, Paper 11 at 14. Petitioner does not contest that the same issues set forth in the Petition are being litigated in the parallel proceeding. *Id.* Accordingly, we determine that this factor weighs in favor of exercising our discretion to deny institution pursuant to 35 U.S.C. § 314(a).

6. other circumstances that impact the Board’s exercise of discretion, including the merits

Petitioner contends the fact that Patent Owner disclaimed 28 of the 31 challenged claims in the Petition demonstrates the strong merits of the Petition. Reply 4. Further, with regard to the three remaining challenged claims, Petitioner argues that Patent Owner only contests the rationale for combining references. *Id.* Patent Owner disputes Petitioner’s contentions. Sur-reply 4.

For the reasons discussed in our analysis above, we determine that the merits of Petitioner’s case are particularly strong. In particular, at this stage of the proceeding, Patent Owner only contests Petitioner’s grounds for combining references, and its arguments are not supported by any testimony rebutting Petitioner’s declaration testimony of Dr. Kiaei. Therefore, this factor weighs in favor of not exercising discretion to deny institution under 35 U.S.C. § 314(a).

7. Weighing the Factors

We agree with Petitioner that the *Fintiv* factors, considered as a whole, do not favor discretionary denial. Although the same parties and arguments are before the district court and the Board, and the district court is currently scheduled to resolve those issues first, the district court’s trial date is relatively soon before the statutory date for issuing a final written decision

in this case, and the evidence of record does not suggest that the district court has expended a significant amount of time and resources on the issue of validity. Moreover, Petitioner did not unreasonably delay in filing the Petition, filing it within two months of receiving Patent Owner's Preliminary Infringement Contentions (and shortly after filing petitions regarding the three other patents in suit in the district court litigation). Petitioner also has presented a strong case on the merits.

Taking a holistic view of the relevant circumstances, we determine that the efficiency and integrity of the system are best served by instituting review in this case. *Fintiv*, Paper 11 at 6.

ORDER

It is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 5, 16, and 27 (i.e., all challenged claims that have not been disclaimed) on the grounds identified in the Petition; and

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

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