

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

CARBYNE BIOMETRICS, LLC,
Patent Owner

Case No. IPR2024-00332
Patent No. 10,929,512 B1

PATENT OWNER'S REQUEST FOR REHEARING BY THE DIRECTOR

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	STANDARD.....	2
III.	BACKGROUND	2
	A. Carbyne Reasonably Presumed the '512 Patent Was Valid after the Samsung IPR Was Denied Institution in 2022.....	2
	B. The Samsung IPR Art Is Materially Identical to the Art Here.	2
	C. The Board's FWD Is at Odds with the Samsung IPR Decision.	3
IV.	Argument	6
	A. The Board's Decision Undercut Its Previous Denial of Institution for the '512 Patent and Wasted Patent Owner's Time and Resources.....	6
	B. The Board Erred in Ignoring All of the Teachings of the Prior Art, which Illustrated What a POSITA Would Have Done When Presented with Petitioner's References.	9
	C. The Board Erred in Finding the Art Disclosed a Second Processor Configured to Perform a Secure Backup.....	13
V.	CONCLUSION.....	15

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC</i> , 825 F.3d 1373 (Fed. Cir. 2016).....	9
<i>Apple Inc. v. Samsung Elecs. Co.</i> , 839 F.3d 1034 (Fed. Cir. 2016)	11, 12
<i>Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.</i> , 876 F.3d 1350 (Fed. Cir. 2017)	10
<i>Axonics, Inc. v. Medtronic, Inc.</i> , 73 F.4th 950 (Fed. Cir. 2023)	10
<i>BASF Corp. v. Enthone, Inc.</i> , 749 F. App'x 978 (Fed. Cir. 2018)	8, 9
<i>Fanduel, Inc. v. Interactive Games LLC</i> , 966 F.3d 1334 (Fed. Cir. 2020)	9
<i>KSR Int'l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	11
<i>Pfizer, Inc. v. Apotex, Inc.</i> , 480 F.3d 1348 (Fed. Cir. 2007)	9, 10
<i>Samsung Electronics Co., Ltd. et al v. RightQuestion, LLC</i> , IPR2022-00251, Paper 17 (PTAB June 9, 2022)	passim
<i>Sanofi-Synthelabo v. Apotex, Inc.</i> , 550 F.3d 1075 (Fed. Cir. 2008)	10
<i>Vicor Corp. v. SynQor, Inc.</i> , 869 F.3d 1309 (Fed. Cir. 2017)	8, 9
STATUTES	
35 U.S.C. § 103	11

I. INTRODUCTION

Carbyne seeks Director Review of the Board’s Final Written Decision (FWD) in IPR2024-00332, which found all challenged claims of U.S. Patent No. 9,123,512 (’512 Patent) unpatentable as obvious—even though the Board previously denied institution (over similar art) in a request made by Samsung in 2022. The Board’s FWD contradicts its prior denial of institution in the Samsung IPR, where it found that similar references failed to disclose the two-processor architecture and secure backup functionality central to the ’512 Patent’s claims. Besides this abrupt about-face, the Board’s FWD is wrong on the merits—particularly regarding the motivation to combine and the disclosure of key claim limitations.

Apple’s present challenge rests on largely the same prior art the Board already rejected in the Samsung IPR. Yet, the Board now found a motivation to combine these prior art references and concluded that the art discloses a second processor performing a secure backup. In doing so, the Board ignored Carbyne’s unrebutted expert testimony and evidence showing that these references solve different problems and would not have been combined by a POSITA.

The Board’s finding that the prior art discloses a second processor performing a secure backup is baseless. The cited references describe secure processors isolated from external communications, incapable of the claimed backup. By conflating “facilitating” with “performing,” the Board rewrote the claim language and erased a

critical distinction.

II. STANDARD

Requests for Director Review of a Board’s final written decision are limited to: (a) an abuse of discretion; (b) important issues of law or policy; (c) erroneous findings of material fact; or (d) erroneous conclusions of law.

III. BACKGROUND

A. Carbyne Reasonably Presumed the ’512 Patent Was Valid after the Samsung IPR Was Denied Institution in 2022.

The Board previously affirmed the novelty of the ’512 Patent. *See Samsung Electronics Co., Ltd. et al v. RightQuestion, LLC*, IPR2022-00251, Paper 17 (PTAB June 9, 2022) (“Samsung IPR”) (institution denial on the merits); Paper 7 (PO Preliminary Response) at 7. In that proceeding, Samsung failed to demonstrate that prior art related to the primary reference at-issue here, combined with a Trusted Platform Module (TPM), disclosed multiple claim limitations related to the two-processor architecture of the ’512 Patent. *RightQuestion*, IPR2022-00251, Paper 17 (Institution Decision) at 23-26 (explaining that the art failed to show the claimed restricted interface); *id* at 36-40 (explaining how the Petition failed to demonstrate a second processor performing a secure backup); Paper 7 (PO Preliminary Response) at 7-10, 29-33 (discussing the similarities between the references here and the references in the Samsung IPR).

B. The Samsung IPR Art Is Materially Identical to the Art Here.

The main references relied upon here—Kesanupalli (Ex. 1006) and Challenger (Ex. 1007)—are cumulative of prior art already considered by both the Board and the Patent Office. Paper 7 (PO Preliminary Response) at 29-33. In fact, the Kesanupalli reference Apple relied on here is largely indistinguishable from the Kesanupalli reference previously addressed in the Samsung IPR, with the same figures and disclosures being relied upon in both cases, and the same primary author. *Id.* Similarly, Challenger—which discloses a TPM—is no different in substance from other generic TPM references, like the Shah reference asserted in the Samsung IPR. *Id.*; see Paper 2 (Pet.) at 13 (relying on Challenger for its “well known” TPM).

C. The Board’s FWD Is at Odds with the Samsung IPR Decision.

Apple filed a petition challenging claims 1-6, 10-16, and 20-21 of the ’512 Patent. *See* Paper 2 (Pet.) at 1. Apple repackaged the related Kesanupalli reference with an additional TPM-related reference (Challenger), arguing that a POSITA would have been motivated to combine the two to address both social engineering and hardware-based security threats.

In response to the Petition, Carbyne argued that a POSITA would not have been motivated to combine the prior art references cited by Apple because they were directed to distinct computer security issues. Paper 13 (PO Resp.) at 16-29. Carbyne argued that the Kesanupalli reference was designed to address social engineering attacks, such as phishing, where users are tricked into providing their credentials to

imposters—which is not related to hardware security. *Id.* Carbyne emphasized that Kesanupalli’s goal was to improve user authentication by binding credentials to biometrics and legitimate websites, thereby preventing credentials from being spoofed or released to illegitimate sites. *Id.*

Because social engineering is *different* from hardware-based attacks, combining with TPMs does not address the problem solved by Kesanupalli. Carbyne argued that adding hardware-based features, as disclosed in Challener, would not address the problem of social engineering attacks. Paper 13 (PO Resp.) at 28-29. These features are aimed at device physical security—protecting data on the device from unauthorized access—rather than preventing users from being tricked into giving away their credentials. *Id.* Once a user is deceived and releases their credentials, using a TPM does not mitigate the harm. *Id.* Nor does having a TPM reduce the risk of a user being deceived.

Carbyne further argued that POSITAs, like the inventors of the Kesanupalli reference, were aware of TPMs (having helped develop them)¹ but deliberately chose not to include them in the Kesanupalli reference. *See, e.g., id.* at 29. This is strong evidence that a POSITA at the time would not have been motivated to

¹ The record even shows that the Kesanupalli authors were part of the group that developed TPMs. Paper 13 (PO Response) at 9-10.

combine these features with the Kesanupalli system to address social engineering. *Id.* Carbyne also highlighted practical drawbacks to TPM adoption at the relevant time, such as compatibility issues, lack of default enablement, and the need for user configuration and the resulting hassle, which would have discouraged their use in the context of the Kesanupalli system. *Id.* at 29-31. Ultimately, Carbyne maintained that there are real-world reasons and evidence that demonstrate why the combination would not have been made and these reasons need to be properly weighed in the obviousness analysis.

Carbyne also argued that prior art, including the combination of Kesanupalli and Challenger does not disclose or suggest a system where the second processor—such as a TPM or fingerprint sensor processor—is configured to perform a secure backup to a storage service as required by the '512 Patent. Paper 13 (PO Resp.) at 31-35. Instead, these secure processors are intentionally isolated and only communicate with the general processor, which is the component that would actually perform any backup operation. Paper 13 (PO Resp.) at 32-33. Arguments that the second processor “performs” the backup by merely facilitating or handing off the process are inconsistent with the claim language and established claim construction principles. *Id.* at 33-35. Simply put, there is no teaching in the prior art that overcomes the architectural and security limitations that prevent the secure/second processor from directly performing such a backup.

The Board rejected Carbyne's arguments and found all challenged claims of the '512 Patent unpatentable as obvious over the cited prior art. *See* Paper 26 (FWD). *First*, the Board found that a POSITA would have been motivated to combine the social engineering attack prevention teachings of Kesanupalli with Challener's hardware-based TPM (or restricted interface), reasoning that these features would provide additional protection for sensitive data, such as biometrics and credentials, in the event the device was lost or stolen. *Id.*

Second, contrary to its findings in the Samsung IPR, the Board found that the art disclosed a second processor configured to perform a secure backup and the restricted interface limitations. *See* Paper 26 (FWD); *but see RightQuestion*, IPR2022-00251, Paper 17 (Institution Decision) at 23-26 (explaining that the art failed to show the claimed restricted interface); *id.* at 36-40 (explaining how the Petition failed to demonstrate a second processor performing a secure backup).

IV. ARGUMENT

The FWD should be vacated because it disrupts Carbyne's reliance on the prior PTAB denial involving similar prior art. The Board also failed to properly consider Carbyne's evidence and expert testimony on motivation to combine, and incorrectly found that the prior art disclosed a second processor for secure backup despite clear architectural differences.

A. The Board's Decision Undercut Its Previous Denial of Institution

for the '512 Patent and Wasted Patent Owner's Time and Resources.

The Board's FWD should be vacated because it conflicts with the PTAB's prior denial of institution in the Samsung IPR, which was based on materially identical art. This reversal not only flouts fundamental principles of administrative consistency but also prejudiced Carbyne, which justifiably relied on the Board's Samsung denial when it chose to file a second, costly lawsuit against Apple. *See* Paper 7 (PO Prelim. Resp.) at 7-11, 26-33. In 2022, the Board denied institution in the Samsung IPR after determining that the same core references—Kesanupalli and a TPM reference—did not disclose the two-processor architecture or secure backup functionality of the '512 Patent. *See RightQuestion*, IPR2022-00251, Paper 17 at 23–26, 36–40. That decision was not procedural; it was a merit-based determination that these references failed to teach key claim limitations. Carbyne reasonably relied on this denial in deciding to invest substantial resources into asserting this same patent against Apple.

The Board's abrupt reversal in its recent FWD—without acknowledging or explaining its departure from the Samsung decision—has deprived Carbyne of the ability to rely on prior PTAB adjudications. This lack of predictability is prejudicial because Carbyne would not have filed a costly second litigation had it known that the Board would disregard its own earlier conclusion on materially identical art. This

is not merely a matter of “settled expectations” in the abstract; it is detrimental reliance grounded in concrete litigation strategy and expenditures.

The Federal Circuit has repeatedly vacated PTAB decisions where the Board failed to reconcile inconsistent outcomes on the same or similar art. *See, e.g., BASF Corp. v. Enthone, Inc.*, 749 F. App’x 978, 986 (Fed. Cir. 2018) (vacating PTAB decision where it “fail[ed] to provide a reasoned explanation for reaching an inconsistent finding” across related IPRs); *Vicor Corp. v. SynQor, Inc.*, 869 F.3d 1309, 1322 (Fed. Cir. 2017) (vacating Board decision where “on the same day” it reached opposite conclusions “on essentially the same record” without explanation).

Here, as in the cases just cited, the Board offered no reasoned explanation for reversing its earlier conclusions regarding the materially identical Samsung prior art references. That failure renders the FWD arbitrary and capricious. The USPTO’s March 26, 2025, memorandum on bifurcation of discretionary and merits considerations expressly recognizes that briefing on discretionary factors may include “whether the PTAB or another forum has already adjudicated the validity or patentability of the challenged patent claims.” Although the Board purported to analyze this case on the merits, it was required to address the Samsung denial or at least explain why it reached the opposite conclusion here. Its failure to do so defies the policy reflected in the Director’s memo and further underscores the need for review.

While it is true, as the Federal Circuit recognized in *Fanduel, Inc. v. Interactive Games LLC*, 966 F.3d 1334, 1340 (Fed. Cir. 2020), that institution and a final written decision involve “two very different analyses,” the principle in *Fanduel* cuts against the Board’s decision here. The Board’s Samsung denial was not a mere preliminary finding—it was a merits-based decision on the same art and the same claim limitations. By disregarding that decision, the Board created exactly the unexplained inconsistency condemned in *BASF* and *Vicor*.

B. The Board Erred in Ignoring All of the Teachings of the Prior Art, which Illustrated What a POSITA Would Have Done When Presented with Petitioner’s References.

The Board’s FWD regarding motivation to combine the prior art references is clearly erroneous because it failed to properly weigh the evidence submitted by Carbyne or account for its contrary conclusion in the Samsung IPR. When an obviousness challenge asserts a combination of identified prior art, the motivation-to-combine portion of the inquiry is “whether ‘a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention.’” *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (internal citations omitted); *see also Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007). “The inquiry is not whether a relevant artisan would combine a first reference’s feature with a second reference’s feature to meet requirements of the first reference that are not requirements of the

claims at issue.” *Axonics, Inc. v. Medtronic, Inc.*, 73 F.4th 950, 957 (Fed. Cir. 2023). Rather, as the Federal Circuit has stated, “[t]he real question is ‘why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does.’” *Id.* at 957.

In answering that question, the Board is required to consider all evidence of record, including evidence and arguments presented by the Patent Owner that may undermine or contradict the Petitioner’s asserted motivation to combine. *See, e.g., Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1363 (Fed. Cir. 2017) (“Evidence suggesting reasons to combine cannot be viewed in a vacuum apart from evidence suggesting reasons not to combine.”). This obligation is rooted in both statute and Federal Circuit precedent, which establish that obviousness is a fact-intensive analysis that must account for the full context of the prior art and the perspectives of a POSITA. *Pfizer, Inc.*, 480 F.3d at 1366; *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075, 1089 (Fed. Cir. 2008) (“The determination of obviousness is dependent on the facts of each case.”)

In this case, Carbyne presented substantial evidence and arguments that a POSITA would not have been motivated to combine the references in the way Apple suggests. Specifically, Carbyne highlighted the design goals, architectural choices, and operational context of the Kesanupalli anti-phishing reference, arguing that the addition of hardware-based features such as Challenger’s TPM would not have

furthered Kesanupalli's primary objective of thwarting social engineering attacks. Paper 13 (PO Resp.) at 28-29. Carbyne's expert explained that such additions would have been superfluous—or worse, counterproductive—and that the real-world choices made by Kesanupalli and the other inventors, who were themselves skilled in the art and aware of TPMs, demonstrate a conscious decision not to include these features in the Kesanupalli reference. *Id.* at 24-25.

The Board's decision ignored this evidence and instead focused on the Petitioner's assertions. *See generally* Paper 26 (FWD). But the Board's position that it should not consider what a POSITA actually did—such as the real-world choices made by inventors like Ramesh Kesanupalli himself—is problematic, not because those choices are definitive evidence of non-obviousness, but because it goes against common sense in that what a POSITA *actually did* is critical and should be weighed as part of the obviousness analysis. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007); *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1058 (Fed. Cir. 2016) (“Common sense and real world indicators indicate that to conclude otherwise would be to give in to hindsight, to allow the exact ex post reasoning against which the Supreme Court cautioned in *Graham* and *KSR*.”).

Here, the Board found that prior art references are relevant for any ideas they may teach, regardless of the problems they explicitly address. *See generally* Paper 26 (FWD). Ignoring the actual use case of a prior art reference in a § 103 obviousness

combination *and using a theoretical-use case as the basis for a motivation to combine* is textbook hindsight bias that improperly broadens obviousness combinations. *Apple*, 839 F.3d at 1058 (“Common sense and real world indicators indicate that to conclude otherwise would be to give in to hindsight.”).

In this case, the actual decisions of skilled practitioners at the time—what they chose to include or exclude in their designs, with full knowledge of the potential combinations relied upon by the Board—is critical for determining what a POSITA would have understood at the time of the invention. These real-world choices provide vital context for understanding what would have been obvious to a POSITA, especially when the inventors were fully aware of the available technologies, such as TPMs, and deliberately chose not to incorporate them.

The actual decisions made in the relevant prior art timeframe is objective evidence of the state of the art and the motivations, constraints, and trade-offs that were present as of the priority date. If a leading expert like Kesanupalli—intimately familiar with both the problem and the available solutions—saw no reason to combine these features, that fact should weigh heavily against any finding of obviousness. Kesanupalli’s decision not to combine his social engineering research with a TPM is powerful evidence that a skilled artisan in the prior art timeframe lacked any motivation to make the Board’s proposed combination.

Just as the Board looks to the full scope of what a reference teaches, regardless

of the inventor's stated goals, it should also look to the full context of what skilled practitioners *actually did or did not do* in the prior art timeframe. While the actual inventor's choices are not the end of the inquiry, they are a meaningful part of the evidentiary landscape and should be weighed accordingly. Ignoring this evidence leads to an abstract, artificial analysis divorced from the realities of innovation and invites hindsight bias.

In sum, the Board's FWD is wrong because it failed to properly assess and weigh Carbyne's evidence regarding motivation to combine and failed to account for its polar-opposite conclusion in the Samsung IPR. By overlooking or minimizing real-world evidence and expert testimony that contradicted the Petitioner's theory (and was inconsistent with its Samsung IPR determinations), the Board failed its duty to conduct a thorough and balanced obviousness analysis. Real-world evidence, while not dispositive, is a critical part of the record and must be considered in determining whether a POSITA would have been motivated to combine the references in the manner claimed in the prior art timeframe. The Board's failure to do so undermines the integrity of the obviousness determination and is contrary to established law and USPTO policy.

C. The Board Erred in Finding the Art Disclosed a Second Processor Configured to Perform a Secure Backup.

The prior art, including the combination of Kesanupalli, Challenger, and

Cheng, does not disclose a second processor that is capable of performing a secure backup to a storage service as required by the claims of the '512 Patent. In the architectures described by Kesanupalli and Challener, the so-called “second processor”—typically a secure processor such as a Trusted Platform Module (TPM) or a fingerprint sensor processor—is intentionally isolated from the rest of the system to protect sensitive data. Paper 13 (PO Resp.) at 33-34. This secure processor is designed to communicate only with the general-purpose processor (the “first processor”) through a restricted interface, such as a secure API, and is not connected to any external storage service or cloud. *Id.* Its role is to securely store and process biometric data and credentials, not to initiate or perform external communications, including backups. *Id.*

As a result, any operation that involves sending data to an external storage service, such as a secure backup, would necessarily be performed by the general processor, not the secure processor. *Id.* The secure processor can only release data to the general processor, which then could carry out the backup operation. *Id.* This is a critical distinction because the claims of the '512 Patent require that the second processor itself be configured to perform the secure backup, not merely to assist or facilitate the process. *Id.* at 34-35.

Apple’s attempts to argue that the second processor “performs” the backup by handing off the process to the first processor, or by facilitating the backup, are both

legally and technically flawed. The claims of the patent clearly distinguish between “facilitating” and “performing,” with the latter requiring the processor to carry out the backup task. *Id.* Interpreting “perform” so broadly as to include mere facilitation erases the meaningful distinction between these terms, which is contrary to established principles of claim construction. *Id.*

Even when considering Cheng, which describes a method for secure backup and restoration using a two-tier encryption structure, there is no teaching or suggestion that overcomes the architectural limitations of the Kesanupalli/Challener system. *Id.* at 35-36. Cheng presumes a device capable of communicating with a storage service, but does not address how a secure, isolated processor like a TPM would directly perform such a backup. *Id.* at 36-37. The combination of these references does not result in a system where the second processor is configured to perform a secure backup to a storage service, because the TPM’s restricted interface and isolation remain in place. *Id.*

V. CONCLUSION

The Board’s decision should be vacated.

Dated: July 31, 2025

Respectfully submitted,

/s/Richard A. Kamprath

Richard A. Kamprath

Reg. No. 65,320

rkamprath@mckoolsmith.com

McKool Smith, P.C.

300 Crescent Court, Suite 1500

Dallas, Texas 75201

Telephone: (214) 978-4000

Facsimile: (214) 978-4044

George Fishback

Reg. No. 76,345

gfishback@mckoolsmith.com

McKool Smith, P.C.

303 Colorado Street, Suite 2100

Austin, Texas 78701

Telephone: (512) 692-8700

Facsimile: (512) 692-8744

Counsel for Patent Owner, Carbyne
Biometrics, LLC

CERTIFICATION OF SERVICE

The undersigned hereby certifies that the above-captioned **PATENT OWNER'S REQUEST FOR REHEARING BY THE DIRECTOR** is being served on counsel for petitioner via electronic mail on, in its entirety on the following counsel of record for Petitioner:

Andrew M. Mason
Andrew.mason@klarquist.com

Sarah Jelsema
Sarah.jelsema@klarquist.com

Samuel B. Thacker
Samuel.thacker@klarquist.com

Frank Morton-Park
Frank.morton-park@klarquist.com

Msft-Interdigital@klarquist.com.

Dated: July 31, 2025

Respectfully submitted,

/s/Richard A. Kamprath
Richard A. Kamprath
Reg. No. 65,320