

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BMW OF NORTH AMERICA, LLC, ROBERT BOSCH LLC, VALEO SE and  
VALEO SCHALTER UND SENSOREN GMBH

Petitioners,

v.

FORAS TECHNOLOGIES LTD.,

Patent Owner.

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Case IPR2023-01373  
Patent 7,502,958

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**PATENT OWNER’S REQUEST FOR DIRECTOR REVIEW<sup>1</sup>**

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

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<sup>1</sup> Valeo SE and Valeo Schalter und Sensoren GmbH filed a motion for joinder and a petition in IPR2024-00823 and have been joined as petitioners. Paper 33, 45-46; IPR2024-00823, Paper 9.

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## I. INTRODUCTION

Patent Owner Foras Technologies Ltd. (“Patent Owner”) requests, pursuant to 37 C.F.R. § 42.71(d), Director Review of the Final Written Decision (Paper 34, “FWD”) that claims 1-8 and 13-22 of U.S. Patent No. 7,502,958 (“the ’958 patent”) are unpatentable. The Board’s unpatentability decision rests on an erroneous finding of material fact because the Board only considered whether one of the two asserted references, published patent application serial number 2004/0123201 A1 (Ex. 1006, “Nguyen”), disclosed the claim limitation of “determining if the lockstep is recoverable for the pair of lockstep processors” without determining whether the proposed combination of Nguyen and the second reference, published patent application serial number 2003/0126498A1 (Ex. 1005, “Bigbee”), could or would meet this claim limitation.

As discussed below, Patent Owner established that this claim limitation (identified as [19a]) is not satisfied by the combination proposed by Petitioners because the proposed combination would never reach the step of determining if a loss of lockstep was non-recoverable.<sup>2</sup> Because the Board’s determination was

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<sup>2</sup> Petitioners and the Board applied the same arguments and reasoning to corresponding limitations in independent claims 1 and 13 and dependent claim 8.

based whether this limitation was disclosed in Nguyen, but not in the combination of Bigbee and Nguyen, Paper 34, FWD, at 27, the Board erroneously concluded that this limitation would have been satisfied by Petitioners' proposed combination of Bigbee and Nguyen. In fact, the proposed combination of Bigbee and Nguyen would not satisfy this limitation, nullifying any motivation to combine these references to achieve unachievable benefits with an essentially inoperable combination.

## **II. LEGAL STANDARDS**

In accordance with the USPTO's Director Review process, Director Review of a Board's final decision is warranted if the decision presents "(a) an abuse of discretion, (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law." USPTO Website, Director Review Process.<sup>3</sup> A Request for Director Review is timely if filed within thirty days of the entry of a final written decision. 37 C.F.R. § 42.71(d).

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<sup>3</sup> <https://www.uspto.gov/patents/ptab/decisions/director-review-process#:~:text=Specifically%2C%20a%20party%20to%20a%20Board%20decision%20may%20now%20request,the%20requirements%20set%20forth%20below>

accessed on April 16, 2025.

The absence of evidence of any benefit of an asserted combination of references is strong evidence against obviousness. As the Court explained in *KSR*, “[a]lthough common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, *it can be important to identify a **reason** that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.* This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007) ; *see also id.* at 424 (“The proper question to have asked was whether a [POSITA] . . . would have seen a **benefit** to upgrading Asano with a sensor.”); *Ex Parte Debates*, Appeal No. 2020-006536, 2022 WL 263587, at \*4 (PTAB Jan. 27, 2022) (reversing examiner’s obviousness rejection because it was “too general and [was] not tailored to explaining why one skilled in the art would have seen the **benefit** of modifying Lerner’s electronic device and tag reading method to include the specific overlay features of Detlefsen”); *Duo Sec. Inc. v. Strikeforce Techs., Inc.*, IPR2017-01041, 2017 WL 4677235, at \*9 (PTAB Oct. 16, 2017) (finding no motivation to combine where “Petitioner never identifies or explains adequately any **benefit or**

*improvement* gained by adding Falk, and specifically, Falk’s relevant message, to the proposed combination of Feigen and Bulfer”); *Ex Parte Brillowska-Dabrowska*, Appeal No. 2016-006485, 2016 WL 4525004, at \*4 (PTAB Aug. 24, 2016) (reversing rejection based on a combination of references where it was “unclear why” the combination “would be particularly useful”).

As the Federal Circuit has recognized, it is not sufficient to show that two references could be combined. *See Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017) (it is not enough to show that “a skilled artisan, once presented with the two references, would have understood that they *could* be combined”); *Apple, Inc. v. Realtime Data LLC*, IPR2016-01737, 2018 WL 1326656, at \*25 (PTAB Mar. 13, 2018) (granting motion to amend because petitioner did not adequately “articulate a *reason why* a person of ordinary skill in the art would combine the prior art references”) (citing and quoting *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combination or modifications of prior art to arrive at the claimed invention”) (emphases in original)).

“To be clear, an obviousness determination requires finding that a person of ordinary skill in the art would have had a reasonable expectation of success.” *Elektro*

*Ltd. v. ZAP Surgical Sys., Inc.*, 81 F.4th 1368, 1375 (Fed. Cir. 2023) (citing *Regents of Univ. of Cal. v. Broad, Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018)). “Reasonable expectation of success refers to the likelihood of success in combining references to meet the limitations of the claimed invention.” *Id.* at 1375-76, citing *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016)).

The Federal Circuit has held that “[i]f references taken in combination would produce a ‘seemingly inoperative device,’ ... such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) (citing *In re Spinnoble*, 405 F.2d 578, 587, 56 C.C.P.A. 823 (1969)). See also *In re Gordon*, 733 F.2d 900, 902 (Fed.Cir.1984) (inoperable modification teaches away).

### III. ARGUMENT

The Board’s Final Written Decision erred regarding findings of material fact by finding that claim limitation [19a] “firmware code, responsive to detection of loss of lockstep between the pair of lockstep processors, for determining if the lockstep is recoverable for the pair of lockstep processors” is taught or suggested by the Bigbee/Nguyen combination. Paper 34, FWD at 30. The Board’s determination

was premised on their determination that “Nguyen discloses ‘determining if the lockstep is recoverable for the pair of lockstep processors,’ as recited in claim 19.”

*Id.*, FWD at 27.

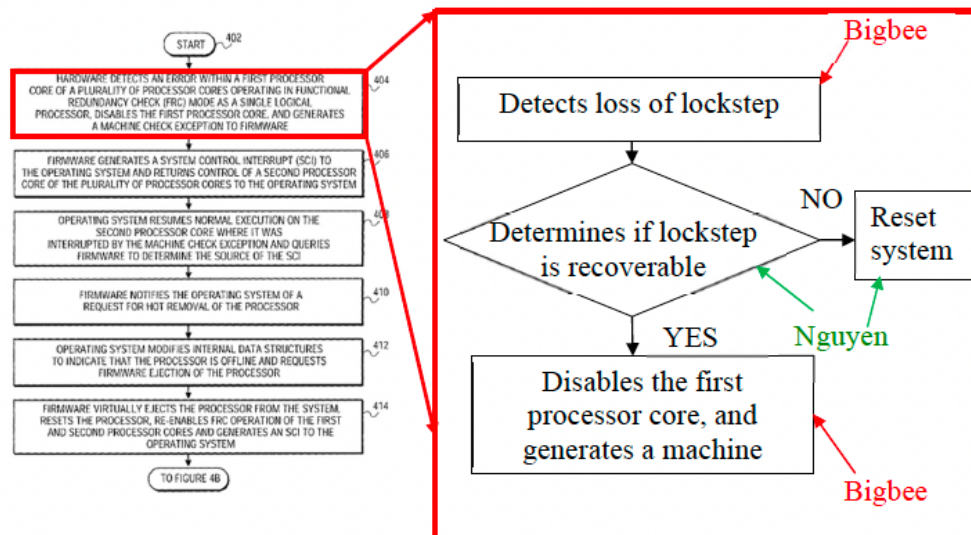
The Board’s decision is fatally flawed because it failed to address that the combination, as proposed by Petitioners, does not and will not determine if the lockstep is recoverable or non-recoverable.

As Patent Owner argued in the Patent Owner Response, Petitioner’s obviousness theory is based on its contention that a POSITA would have recognized that “[b]ecause different responsive actions should be taken to handle each of nonrecoverable and recoverable errors, determining whether the error is recoverable or non-recoverable is critical to reduce the impact of the errors on the system” and that “it is critical to handle recoverable errors differently from non-recoverable errors.” Paper 18, POR, at 9 (quoting Paper 1, Pet. at 30-31).

Because the Bigbee-Nguyen combination could not distinguish between recoverable and non-recoverable errors and was therefore inoperable, Petitioners failed to establish a motivation to combine these references. In the combination proposed by Petitioners, the step of detecting loss of lockstep would be performed in accordance with Bigbee’s teaching and it was only after that step that Nguyen’s

teaching of determining if lockstep is recoverable would be performed. Paper 18, POR at 9-12.

Petitioners relied on annotated and modified figures from Bigbee reproduced below.



Paper 18, POPR at 10, Paper 1, Pet at 29, Paper 34, FWD at 21.

As testified to (albeit with errors) by Petitioners' expert, "Bigbee-Nguyen system" operates by "[t]aking step 404 of Bigbee's Figure 2, and adding Nguyen's step of determining whether lockstep is recoverable after Bigbee detects loss of lockstep." Ex. 1002, Brogioli Decl., at ¶¶84-86.<sup>4</sup> See also Ex. 2009 (Brogioli Dep.

<sup>4</sup> Dr. Brogioli confirmed during deposition that "Figure 2" was a typographical error and that he meant to reference Figure 4A of Bigbee. Ex. 2009, Brogioli Dep.

Tr. at 74:14-76:8 (“So here in block 404 of Figure 4a of Bigbee is where Bigbee’s hardware detects an error within the first processor core...And this is the step in which I incorporate the – determining if that lockstep is recoverable using the portion from the Nguyen reference.”) *see also id.* at 78:11-21.

As described in the POPR, and as acknowledged by Petitioners’ expert, Dr. Brogioli, the recovery process begins after Bigbee has detected an “error within a first processor.” Ex. 1005, Bigbee at Fig. 4A (block 404); Ex. 2009, Brogioli Dep. Tr., 74:14-76:8. This means that Nguyen in combination with Bigbee will never determine that lockstep is non-recoverable. Every error processed by Nguyen’s “determines if lockstep is recoverable” routine will be handled the same way, i.e., it will follow the “YES” path shown in Petitioner’s annotations to Figure 4A and proceed through the remainder of Bigbee’s routing for attempting to recover from recoverable individual processor errors. Paper 18, POR at 12, citing Ex. 2007, Jones Decl., ¶¶ 29-30.

As a result, the Nguyen-Bigbee “combined system” proposed by Petitioners is a system without any mechanism for handling recoverable errors differently from non-recoverable errors. Nguyen’s alleged “determination” technique would not, as

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Tr. at 74:14-75:9.

combined with Bigbee, have any capability to distinguish recoverable from non-recoverable errors. It would provide none of the “critical” benefits of handling recoverable and non-recoverable errors differently that Petitioners says a POSITA would recognize and therefore be motivated to combine Bigbee and Nguyen. Paper 18, POR at 14.

Patent Owner argued that the Bigbee-Nguyen “combined system” does not achieve the supposed benefits because, for the reasons set forth above and in Patent Owner’s submissions, the Bigbee-Nguyen combination cannot make any distinction between a recoverable and non-recoverable error. Paper 25, PO Sur-reply, at 6.

In other words, Petitioners proposed an inoperative combination that, rather than providing a motivation to combine Bigbee and Nguyen to achieve certain results, actually teaches away from Petitioners’ combination because it is inoperable to achieve the desired results.

The Board applied the same flawed reasoning to dependent claim 8 (reciting ““if determined that a lockstep mismatch has occurred between the lockstep pair of processors, then determining that the loss of lockstep is not recoverable”) and independent claims 1 and 13. Paper 34, FWD, at 33-34. Accordingly, the Board’s determination with respect to claims 1, 8 and 13 rests on the same erroneous findings of material fact.

#### **IV. CONCLUSION**

Patent Owner respectfully requests that the Director grant review of the final written decision because of the aforementioned erroneous findings of material fact.

Date: April 17 2025

Respectfully submitted,

/Brett Cooper/

Brett Cooper, Reg. No. 55,085  
Lead counsel for Patent Owner

**CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))**

The undersigned hereby certifies that the above document was served on April 17, 2025, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioners:

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