

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY GROUP CORPORATION,
Petitioner

v.

VISIONX TECHNOLOGIES, LLC,
Patent Owner

IPR2023-00296
U.S. Patent No. 7,867,808

**PATENT OWNER'S SUR-REPLY TO
PETITIONER'S REPLY TO PATENT OWNER'S
PRELIMINARY RESPONSE**

This filing was authorized by the Board in a conference call
on May 24, 2023 (transcript at Exhibit 1049)

TABLE OF CONTENTS

TABLE OF AUTHORITIES	ii
I. Step [1.e] Is Required to be Performed Prior to Step [1.f]	1

TABLE OF AUTHORITIES

CASES

<i>Mformation Techs., Inc. v. Research in Motion Ltd.</i> , 764 F.3d 1392 (Fed. Cir. 2014)	3
---	---

I. Step [1.e] Is Required to be Performed Prior to Step [1.f]

Petitioner has not responded to POPR’s discussion of the claim language itself (POPR, 4). Petitioner refers to Iwabuchi as using a purported “conventional industry practice”—with no evidence, and, regardless, with no relevance to the meaning of the plain claim language at issue. Further, citing Iwabuchi is completely circular, since the Petition hinges upon the proposition that Iwabuchi discloses the order of steps that are being advocated in the Reply itself.

The grammar, language, and logic of claim 1 result in a conclusion that steps [1.e] and [1.f] are to be performed in the order listed in the claim and explicitly taught in the specification. Step [1.f] claims “removing a lower portion” of the second substrate. If the order of steps [1.e] and [1.f] were reversed and “a lower portion” of the second substrate were removed before bonding, the bonding step would have claimed bonding the first substrate to a “*portion of*” or an “*upper portion of*” the second substrate, since the patentee knew how to specify “a lower portion” in the removal step. However, step [1.e] claims “bonding the first substrate to the second substrate” and not to a “portion of” or an “upper portion of” the second substrate. Moreover, a reversed order of steps would read:

removing a lower portion of the second substrate to <i>expose the photodiode</i> ; and
bonding the first substrate to the second substrate to <i>connect the photodiode to the metal interconnection</i> ;

This order of steps implies that the photodiode is connectable from the

exposed side, or at least from both the exposed side and the unexposed side. This result is non-sensical. If the patentee wanted to preserve an interchangeable order of steps, the bonding step would have read:

bonding the first substrate to *an upper portion of [or a portion of]* the second substrate to connect *an unexposed side of the* photodiode to the metal interconnection;

Likewise, the specification never mentions or remotely suggests bonding after removing a “portion of” the second substrate. Rather, the specification directly and explicitly teaches that second substrate (200) is always treated as a fully intact substrate during the bonding action. *See, e.g.*, ‘808 patent, 4:27-29, 4:31-33, 4:36-46. The specification explicitly teaches that “P-Epitaxial layer, which may be at an upper portion of second substrate 200, may be removed by performing a cleaving or backside thinning process ***after bonding*** the first ***and second substrates.***” *Id.*, 4:47-50. Moreover, the specification ***contradicts*** removal of the second substrate (or a portion thereof) prior to bonding. For example, the specification states that “bonding may be performed by contacting first substrate 100 and second substrate 200 with each other and then performing activation by plasma... . [H]ydrogen ion implantation layer, which may be formed in second substrate 200, may be changed into a hydrogen gas layer ... this may be done by performing heat treatment to second substrate 200. ... [A] portion of second substrate 200 may ***then*** be removed.... [P]hotodiode 210 may remain under a

hydrogen gas layer. This may expose photodiode 210.... [S]econd substrate 200 may be removed using a cutting apparatus, such as a blade.” *Id.*, 4:31-46. Thus, bonding the two substrates and the heat treatment result in generation of a hydrogen gas layer from the hydrogen layer of an *intact substrate 200 which is necessary* for the *subsequent action* of second substrate removal and exposing the photodiode. In sum, the “specification directly or implicitly requires an order of steps.” *Mformation*, at 1398 (Fed. Cir. 2014).

Furthermore, consistently applying Petitioner’s own position that step [1.g.1] is performed *before* step [1.g.2] (Pet. 6, 8-10, 27) strongly supports a finding of the same temporal order for steps [1.e] and [1.f]. Petitioner relies on the claim term “over” in [1.g.2] to mean that a specific temporal order is required. However, the term “over” can and often does relate to a spatial arrangement between two layers; that is, the term “over” may simply mean that one layer is situated “over” the other layer. Moreover, unlike steps [1.e] and [1.f] that are supported by sequential Figures 7 and 8 that require a specific order of events (POPR, 4-6), steps [1.g.1] and [1.g.2] are not illustrated by a sequence of drawings. Both layers 212 and 214 appear together in Figure 2. Requiring steps [1.e] and [1.f] to be performed in that order is as logical and as well-supported, if not more logical and better-supported, as Petitioner’s own position regarding steps [1.g.1] and [1.g.2].

Respectfully submitted, Patent Owner VisionX

Date: June 14, 2023 /michael farjami/ Michael Farjami, Reg. No. 38,135

CERTIFICATE OF SERVICE

I hereby certify that on June 14, 2023, copies of the foregoing Sur-Reply and all documents filed with it were served via electronic mail, as agreed to by counsel, upon the following counsel for the Petitioner:

Michael N. Rader: MRader-PTAB@wolfgreenfield.com
Adam R. Watchman: AWichman-PTAB@wolfgreenfield.com
Jie Xiang: Jie.Xiang@wolfgreenfield.com

/Michael Farjami/
Michael Farjami
Reg. No. 38,135