

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD, MICRON TECHNOLOGY, INC.,
MICRON SEMICONDUCTOR PRODUCTS, INC., and MICRON
TECHNOLOGY TEXAS LLC,

Petitioners.

v.

Netlist, Inc.,
Patent Owner.

Case IPR2023-00454¹
Patent No. 11,093,417

**PATENT OWNER'S OPPOSITION TO
PETITIONER'S MOTION TO EXCLUDE**

¹ Micron Technology, Inc., Micron Semiconductor Products, Inc., and Micron Technology Texas LLC filed a motion for joinder and a petition in IPR2023-01141 and have been joined as petitioners in this proceeding.

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I. EX2003 is admissible.

Petitioner seeks to exclude EX2003, 43:12-20 and 202:8-204:10—and only those specific passages—from the record. EX2003 is the deposition transcript of Petitioner’s expert, Dr. Wolfe (the same expert as in this proceeding), in IPR2022-00615. The Board should deny Petitioner’s attempt to selectively exclude testimony by its own expert that it dislikes while also relying on other portions of the transcript in its Reply. *See* Reply 17 (citing EX2003, 204:12-21, 79:17-82:3, 82:14-84:13).

A. EX2003, 43:12-20 and 202:8-204:10, is admissible under Rule 106

Indeed, Petitioner’s reliance on a portion of the exhibit makes it appropriate to admit the entire transcript for completeness and context. *See* Fed. R. Evid. 106 (“If a party introduces all or part of a statement, an adverse party may require the introduction, at that time, of any other part — or any other statement — that in fairness ought to be considered at the same time. *The adverse party may do so over a hearsay objection.*”).

Rule 106 permits admission of the testimony “over a hearsay objection” such as the one raised by Petitioner. For example, Petitioner relies on EX2003, 204:12-21, which appears immediately after the testimony at 202:8-204:10 it seeks to exclude. Petitioner dislikes the testimony at 202:8-204:10 because it undermines its theory that Perego discloses a rank or rank selection. *See* EX2003, 202:8-204:10.

Given that the two portions of the statements appear right after one another, they ought to be considered together.

Likewise, the testimony at EX2003, 43:12-20 undermines Petitioner's theory that Perego suggests a JEDEC-style memory module to a POSITA, and Petitioner cites 81:18-82:3 in part for that purpose. Thus, for completeness and fairness, testimony at 43:12-20 should also be admitted. This testimony at 43:12-20 is also consistent with 82:4-10, which Petitioner expressly skipped in its own citations. *See* Reply 17; EX2003, 82:4-10 (Dr. Wolfe testifying that "A JEDEC-style memory system is more than -- in this context, is more than just something that uses a JEDEC compliant chip").

Although Rule 106 alone makes the testimony at 43:12-20 and 202:8-204:10 admissible, the evidence is also admissible under Rules 801-802 and 401-403.

B. EX2003 is admissible under Rules 801-802

First, the statements are not offered for the matter of the truth asserted, but only to show how Dr. Wolfe believes a POSITA would have understood certain disclosures of Perego. As such, the statements are not hearsay.

Second, in both proceedings, Dr. Wolfe was questioned about the same Perego passage in column 15:43-45. EX2033, 71:5-73:7. Petitioner relies on Perego's reference to "independent banks" as disclosure for ranks. *E.g.*, Petition 67. In IPR2022-00615, Dr. Wolfe testified in a portion of the transcript that Petitioner

seeks to exclude that “independent banks” “would mean the number of page registers which can be activated corresponding to different addresses,” a concept that has nothing to do with ranks, including under Petitioner’s own proposed construction for “rank.” EX2003, 203:11-25; EX1003, ¶ 126 (defining “rank” as “an independent set of one or more memory devices on a memory module that act together in response to command signals, including chip-select signals, to read or write the full bit-width of the memory module”). In this proceeding, however, Dr. Wolfe changed his tune, implying that the disclosure does have to do with ranks. EX2033, 71:5-73:7. Given the inconsistent testimony, the testimony that Petitioner seeks to exclude is not hearsay under Rule 801(d)(1)(A), which provides that when “[t]he declarant testifies and is subject to cross-examination about a prior statement, and the statement: (A) is inconsistent with the declarant’s testimony and was given under penalty of perjury at a trial, hearing, or other proceeding or in a deposition.”

Third, the statements are also admissible under Rule 801(d)(2)(C)-(D) because Samsung authorized Dr. Wolfe to make those statements on the subjects as part of his engagement as its technical expert in IPR2022-00615, and Dr. Wolfe made those statements on matters within the scope of his engagement with Samsung as its expert in IPR2022-00615 and while the relationship existed (when Samsung offered him to appear for cross examination).

Additionally, admitting this testimony would consistent with Rule

42.51(b)(1)(iii) and the duty of candor. Dr. Wolfe and Samsung should not be allowed to take one position in one proceeding and an inconsistent position in another proceeding. Samsung should have informed the Board of such inconsistency in the first place.

C. EX2003 is admissible under Rules 401-403

Contrary to Petitioner's assertion, EX2003 is both relevant and not prejudicial to Petitioner. For instance, the Board is tasked with assessing the credibility of witnesses, and a witness's changed position after speaking with counsel is a highly relevant factor in assessing the witness's credibility. One example is provided below to show why the conflicting testimony is relevant:

Testimony in EX2003	Testimony in EX2033
Q. Okay. <i>But by selecting a subset of secondary channel signals, are you selecting a particular group of devices to respond to a single read or write request?</i> MR. CHANDLER: Objection. Form. THE WITNESS: <i>I don't think so.</i> Not in that situation. I think that that's specific to channel signal lines. 05:31 Q. So you don't think this is describing grouping devices into independent	Q. So I'm specifically interested in the last sentence of that paragraph, Column 15, lines 43 to 45. It talks about "...grouping memory devices into multiple independent target subsets (i.e. more independent banks)." Do you see that? A. Yes. ... Q. So your understanding is that

target subsets? MR. CHANDLER: Objection. Form. Q. So why don't you read a few lines down, <i>column 7 [15], lines 40 to 45.</i> A. Again, I don't think it has to do with enabling or disabling devices. I think it simply has to do with being able to impact the number of independent banks that are open at a time. Q. When you say <i>"independent banks,"</i> which -- what do you mean? A. <i>It would mean the number of page registers which can be activated corresponding to different addresses.</i> ... Q. <i>So you don't think this paragraph has anything to do with grouping devices into different ranks?</i> MR. CHANDLER: Objection. Form. THE WITNESS: <i>I do not think that this paragraph specifies how ranks are selected or enabled.</i> EX2003 at 202-203.	grouping --<i>the reference to "grouping memory devices into multiple independent target subsets," is, in fact, grouping memory devices into "ranks," under your understanding of that term?</i> MR. CHANDLER: Object to form. THE WITNESS: <i>Yes.</i> Under some conditions, that would be true. It's important to understand that -- that this entire paragraph is both conditional and permissive. But I do believe that he's discussing the possibility of, in some cases, increasing the number of ranks. ... Q. <i>Is Perego referencing a rank, in your view, when it says "independent banks"?</i> A. <i>I think broadly he is -- is talking about the same general concept.</i> EX2033 at 71:19-73:7.
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D. EX2003 is not deficient under 37 C.F.R. § 42.53(f)(5)–(6)

Petitioner complains that Netlist did not submit a transcript with errata and a

signature page. Motion 3. Notably, Petitioner does not contend that any portion of the testimony that it seeks to exclude was corrected in the errata, because it cannot. *See* EX2003-new (signed version of EX2003 with errata, IPR2022-00615, EX2103) at 2, 8 (43:2-10 and 202:8-204:10 not among the portions referenced on the errata).

42:10–:13	But I can go to a number of different memory <u>model</u> manufacturers and get Rambus compliant memory modules in the 2000 to 2005 time period.	But I can go to a number of different memory <u>module</u> manufacturers and get Rambus compliant memory modules in the 2000 to 2005 time period.	Typographical error
44:5–:6	What's the bit width of JEDEC compliant memory modules at the time? <u>564</u> ?	What's the bit width of JEDEC compliant memory modules at the time? <u>x64</u> ?	Typographical error

196:10	would <u>score</u>	would <u>store</u>	Typographical error
205:16–:17	for a read operation all the devices in a rank are <u>deselected</u>	for a read operation all the devices in a rank are <u>selected</u>	Typographical error

Should the Board think it necessary, Netlist requests that the Board replace EX2003 with the version as shown in IPR2022-00615, EX2103 (also uploaded as EX2003-replacement, concurrent with this opposition).

II. EX2010 is admissible.

A. EX2010 is admissible under Rules 401-403

EX2010 is a white paper jointly published by Samsung (the primary

Petitioner) and its data buffer supplier, IDT (now part of Renesas).



DDR4 LRDIMMs

Unprecedented Memory Bandwidth on Samsung DDR4 LRDIMM Enabled by IDT's Register and Data Buffer

EX2010 at 1.

Petitioner first objects to EX2010 on the ground that it post-dates the priority date of the '417 patent and therefore cannot be relevant or have sufficient probative value that is not substantially outweighed by potential prejudice. Motion 4. Documents postdating the priority date may be probative of the state of the art: Petitioner itself, for example, relies on Jacob's textbook, which was not published until 2008, after the priority date of the '417 patent. EX1070 at p.vi.

EX2010 provides support for the fact that significant structural differences would exist between Ellsberry's architecture with data buffers spread out across the module, each buffering data for 1-2 devices per rank, and Perego's architecture with a central buffer that buffers data (as well as command/address signals) for all devices on a memory module. Such differences would exist at the time of the invention, had those architectures had indeed been implemented; and EX2010 merely describes this fact that would be apparent to a POSA.

The exhibit also refutes Petitioner’s presumption that a data buffer would obviously or necessarily introduce additional delay such that the overall CAS latency of the memory module would be greater than that of the actual operation CAS latency of the memory devices. EX2010, at 6.

LRDIMM Server Platform	LRDIMM rank awareness	Latency relative to RDIMM
Gen1 DDR3		More latency
Gen2 DDR3	√	More latency
Gen1 DDR4	√	Comparable latency

For example, as shown above, DDR4 LRDIMMs with distributed buffers have comparable latency to that of RDIMMs that do not have data buffers on the data path. This fact suggests that it is not obvious, a priori, that additional latency is introduced because “data transfers through the circuitry [data buffer] is registered for an amount of delay” as opposed to command processing and decoding by the logic circuitry (RCD) common to RDIMMs and LRDIMMs. Hence, introducing Ellsberry’s distributed buffer architecture into Perego would not suggest the last limitation of the ’417 patent. The evidence is therefore highly probative.

B. EX2010 is admissible under Rules 801-802 and 901.

Petitioner also seeks to exclude the reference as hearsay. But hearsay exception 807 applies. First, the exhibit has sufficient guarantees of trustworthiness.

Rule 807(a)(1). EX2010 is a joint paper by Samsung and IDT downloaded from Renesas's web site (Renesas acquired IDT), <https://www.renesas.com/us/en/document/whp/ddr4-lrdimms-both-memorycapacity-and-speed>. Netlist has provided the link in the exhibit table, and Samsung does not contest its authenticity or trustworthiness. And by including the table of exhibits as part of the POR (page vi), the signature of counsel attests the authenticity of the document as downloaded from the web site.

Second, it is more probative on the point for which it is offered than any other evidence that the proponent can obtain through reasonable efforts, to show for example why a POSITA would not have combined Perego's central buffer architecture with Ellsberry's distributed buffer architecture to arrive at the last limitation of claim 1. Rule 807(a)(2).

Third, Netlist has given Samsung reasonable notice of its intent to offer the evidence: these exhibits were provided with the POPR and Samsung has had an opportunity to consider them and respond to them. But Samsung does not dispute any of the facts demonstrated by the exhibit.

Fourth, as explained above, these exhibits are offered as evidence of material facts, including that there are significant differences between the JEDEC-style central buffer architecture and a distributed buffer architecture as far as the delay through the data buffer is concerned and their effect on the last limitation of

challenged claim 1. This goes to whether there would was a reasonable expectation of success in the proposed modification and a reason to combine. *See* discussion on page 8 above.

III. Conclusion

EX2003 and EX2010 are admissible.

Dated: April 17, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify, pursuant to 37 C.F.R. section 42.6, that on April 17, 2024, a complete copy of **PATENT OWNER'S OPPOSITION TO PETITIONER'S MOTION TO EXCLUDE** was served upon the following, by ELECTRONIC MAIL:

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