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571–272–7822

Paper 8
Entered: April 21, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICRON TECHNOLOGY, INC.,
Petitioner,

v.

LIMESTONE MEMORY SYSTEMS LLC,
Patent Owner.

Case IPR2016-00096
Patent 6,233,181 B1

Before BART A. GERSTENBLITH, BARBARA A. PARVIS, and ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Micron Technology, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1–7 of U.S. Patent No. 6,233,181 B1 (Ex. 1001, "the '181 patent"). Limestone Memory Systems LLC ("Patent Owner") filed a Preliminary Response (Paper 6, "Prelim. Resp.") to the Petition. An *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a).

For the reasons set forth below, Petitioner demonstrates a reasonable likelihood of prevailing in showing the unpatentability of claims 1, 2, 4, 6, and 7 of the '181 patent, but does not demonstrate a reasonable likelihood of prevailing in showing the unpatentability of claims 3 and 5 of the '181 patent. Accordingly, we institute an *inter partes* review as to claims 1, 2, 4, 6, and 7 of the '181 patent on the grounds specified below.

A. *Related Proceedings*

The parties indicate that the '181 patent is the subject of several cases in the United States District Court for the Central District of California. Pet. 2–3; Paper 5, 2–3. The parties also indicate that the following petitions for *inter partes* review are related to this case:

Case No.	**Involved U.S. Patent No.**
IPR2016-00093	U.S. Patent No. 5,805,504
IPR2016-00094	U.S. Patent No. 5,894,441
IPR2016-00095	U.S. Patent No. 5,943,260
IPR2016-00097	U.S. Patent No. 6,697,296

Pet. 3; Paper 5, 2.

B. *The '181 Patent*

The '181 patent relates to repairing defective memory cells in a semiconductor memory device. Ex. 1001, col. 1, ll. 9–13. The '181 patent explains that, when a memory cell becomes defective, it can be replaced with a spare memory cell. *Id.* at col. 1, ll. 15–18. According to the '181 patent, prior semiconductor memory devices contained an array of spare memory cells for each memory block in the device, and, as a result, the spare memory cells were not used efficiently. *Id.* at col. 3, l. 58–col. 4, l. 8. To address this problem, the '181 patent describes a semiconductor memory device with an array of spare memory cells that can be shared among a plurality of memory blocks. *Id.* at col. 16, ll. 31–39.

C. *Illustrative Claim*

Claim 1 is independent and is reproduced below.

> 1. A semiconductor memory device, comprising:
>
> a plurality of first memory blocks each having a plurality of first normal memory cells arranged in a matrix of rows and columns, each of said plurality of first memory blocks including word lines provided corresponding to said rows, respectively, and the first memory blocks aligned in the column direction; and
>
> a plurality of first spare memory cells arranged in a matrix of rows and columns in a particular one of said plurality of first memory blocks, each row of said plurality of first spare memory cells being capable of replacing a defective row including a defective first normal memory cell in said plurality of first memory blocks.

Ex. 1001, col. 45, l. 55–col. 46, l. 8.

D. *Evidence of Record*

Petitioner relies on the following references and declaration (*see* Pet. 4–5):

Reference or Declaration	Exhibit No.
U.S. Patent No. 5,487,040 (issued Jan. 23, 1996) ("Sukegawa")	Ex. 1005
U.S. Patent No. 4,967,397 (issued Oct. 30, 1990) ("Walck")	Ex. 1006
Declaration of R. Jacob Baker, Ph.D. ("Baker Declaration")	Ex. 1007
Betty Prince, *Semiconductor Memories: A Handbook of Design, Manufacture, and Application* (2d ed. 1992) ("Prince")	Ex. 1009
U.S. Patent No. 5,355,339 (issued Oct. 11, 1994) ("Oh")	Ex. 1010

E. *Asserted Grounds of Unpatentability*

Petitioner asserts that the challenged claims are unpatentable on the following grounds (*see* Pet. 4–5):

Claim(s)	Basis	Reference(s)
1, 2, and 6	35 U.S.C. § 103(a)	Sukegawa
3	35 U.S.C. § 103(a)	Sukegawa and Prince
4	35 U.S.C. § 103(a)	Sukegawa and Prince
5	35 U.S.C. § 103(a)	Sukegawa and Walck
7	35 U.S.C. § 103(a)	Sukegawa and Oh

II. ANALYSIS

A. *Claim Construction*

The claims of an unexpired patent are interpreted using the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). Petitioner proposes construing the following claim terms: "word lines," "spare memory cells," and "sense amplifier bands." Pet. 12–15. Patent Owner argues that there is no controversy regarding those claims terms, and, thus, no construction is necessary at this stage of the proceeding. Prelim. Resp. 7–12. On this record and for purposes of this decision, we agree with Patent Owner and

determine that no claim terms require express construction. *See 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. *Asserted Grounds of Unpatentability*

1. *Level of Ordinary Skill in the Art*

Petitioner's declarant, Dr. R. Jacob Baker, testifies that a person of ordinary skill in the art at the time of the '181 patent "would have had a bachelor's degree in computer engineering, electrical engineering, computer science, or a closely related field, along with at least 2–3 years of experience in the development and use of memory devices and systems." Ex. 1007 ¶ 17. Dr. Baker also explains that "[a]n individual with an advanced degree in a relevant field, such as computer or electrical engineering, would require less experience in the development and use of memory devices and systems." *Id.* Patent Owner argues that Dr. Baker has substantially more experience than a person of ordinary skill in the art. Prelim. Resp. 5. Patent Owner, however, does not identify any precedent indicating that Dr. Baker cannot testify about the level of ordinary skill in the art simply because he may possess a higher level of skill in the art. *Id.* Therefore, on this record and for purposes of this decision, we credit Dr. Baker's testimony regarding the level of ordinary skill in the art.

2. *Obviousness of Claims 1, 2, and 6 over Sukegawa*

Petitioner argues that claims 1, 2, and 6 would have been obvious over Sukegawa. Pet. 4. We have reviewed Petitioner's assertions and supporting evidence, and, for the reasons discussed below, Petitioner demonstrates a

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