

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

LIMESTONE MEMORY SYSTEMS LLC,
Patent Owner.

Case IPR2016-01561
U.S. Patent No. 6,233,181

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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1001*	Declaration of Dr. Pinaki Mazumder
1002*	Curriculum Vitae of Dr. Pinaki Mazumder
1003*	U.S. Patent No. 6,233,181
1004*	File History for U.S. Patent No. 6,233,181
1005*	U.S. Patent No. 5,487,040 to Sukegawa
1006*	U.S. Patent No. 5,267,214 to Fujishima
1007*	U.S. Patent No. 4,967,397 to Walck
1008*	U.S. Patent No. 5,956,285 to Watanabe
1009*	Masashi Horiguchi et al., <i>A Flexible Redundancy Technique for High-Density DRAM's</i> , IEEE JOURNAL OF SOLID-STATE CIRCUITS, VOL. 26, NO. 1, Jan. 1991, at 12-17
1010*	Kazutami Arimoto et al., <i>A 60-ns 3.3-V-Only 16 Mbit DRAM with Multipurpose Register</i> , IEEE JOURNAL OF SOLID-STATE CIRCUITS, VOL. 24, NO. 5, Oct. 1989, at 1184-90
1011*	U.S. Patent No. 5,687,123 to Hidaka
1012*	U.S. Patent No. 5,726,946 to Yamagata
1013*	U.S. Patent No. 6,003,148 to Yamauchi
1014*	U.S. Patent No. 6,075,743 to Barth
1015*	<i>Inter Partes</i> Review No. IPR2016-00096, Decision Granting Institution filed April 21, 2016
1016*	<i>Inter Partes</i> Review No. IPR2016-00096, Judgment Granting Request for Adverse Judgment filed August 3, 2016

1017*	Affidavit of Michael N. Zachary in Support of Motion for <i>Pro Hac Vice</i> Admission
1018*	Affidavit of Rose Cordero Prey in Support of Motion for <i>Pro Hac Vice</i> Admission
1019	Transcript of July 28, 2017 Deposition of Dr. Sunil Khatri
1020	European Patent Application Publication No. 0 499 131 A1 to Sukegawa

* Previously filed.

I. INTRODUCTION

With respect to claim 3, the Response (Paper 13, "Resp.") of Patent Owner Limestone Memory Systems LLC ("Limestone") attacks only the motivation to combine the amplifiers of U.S. Patent No. 5,267,214 to Fujishima et al.

("Fujishima") with the dynamic random access memory ("DRAM") of U.S. Patent No. 5,487,040 to Sukegawa et al. ("Sukegawa"). Limestone does not dispute that:

- Sukegawa discloses each of the limitations found in claims 1 and 2 of U.S. Patent No. 6,233,181 ("the '181 patent").
- Fujishima discloses each of the additional sense amplifier limitations found in claim 3 of the '181 patent.
- The alternate shared sense amplifiers claimed in claim 3 in fact have the known benefits set forth in Fujishima.

By admitting that the alternate shared sense amplifier arrangement of Fujishima possesses the benefits described therein (Paper 13, at 27-28), Limestone has effectively conceded that claim 3 of the '181 patent represents the incorporation of a known sense amplifier scheme having known benefits into the any-to-any redundant DRAM of Sukegawa to achieve the expected result. This is the epitome of an obvious combination. *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) ("If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability"). Fujishima itself provides the motivation to use the alternate shared sense amplifiers claimed in claim 3.

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