

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SK HYNIX INC., SK HYNIX AMERICA INC., and
SK HYNIX MEMORY SOLUTIONS INC.,
Petitioners,

v.

NETLIST, INC.
Patent Owner.

IPR2017-00587
Patent 8,671,243 B2

Before STEPHEN C. SIU, MATTHEW R. CLEMENTS, and
SHEILA F. McSHANE, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

SK hynix Inc., SK hynix America Inc. and SK hynix memory solutions Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–30 (“the challenged claims”) of U.S. Patent No. 8,671,243 B2 (Ex. 1001, “the ’243 patent”) pursuant to 35 U.S.C. §§ 311–319. Paper 1 (“Pet.”). Netlist, Inc. (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review as to claims 1–30 of the ’243 patent on June 22, 2017, but we did not institute on all of the asserted grounds. Paper 7 (“Dec.” or “Institution Decision”), 10–39. On April 24, 2018, the Supreme Court held that a decision to institute under 35 U.S.C. § 314 may not institute on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S.Ct. 1348, 1358 (2018). Pursuant to *SAS*, we issued an Order modifying the Institution Decision to include a review of all challenged claims and all grounds. Paper 33, 2. Accordingly, the following grounds have been instituted:

Ground	Claim(s)	Prior Art
§ 102 ¹	1–3, 5–15, 17–30	Shimada ²
§ 103	4, 16	Shimada and Oh ³
§ 103	1, 3, 13, 15, 25	Shimada and Bonella ⁴
§ 103	6, 18	Shimada

¹ Petitioner asserts that Shimada is prior art to the ’243 patent under §§ 102(a), (b), and (e). Pet. 13.

² U.S. Patent No. 6,693,840 B2 (issued February 17, 2004) (Ex. 1005).

³ U.S. Patent No. 7,486,104 B2 (issued February 3, 2009) (Ex. 1012).

⁴ U.S. Publication No. 2007/0136523 A1 (issued June 14, 2007) (Ex. 1009).

Ground	Claim(s)	Prior Art
§ 103	9, 21, 28	Shimada and Goodwin ⁵
§ 103	10, 22, 29	Shimada and Sasaki ⁶
§ 103	11, 12, 23, 24, 30	Shimada and Tsunoda ⁷

Pet. 3.

During the course of trial, Patent Owner filed a Patent Owner Response (Paper 12, “PO Resp.”), and Petitioner filed a Reply to the Patent Owner Response (Paper 16, “Pet. Reply”). Petitioner submitted the Declaration of Ron Maltiel (Ex. 1003). Patent Owner submitted the Declaration of R. Jacob Baker, Ph.D., P.E. (Ex. 2016).

Petitioner filed a Motion to Exclude Evidence (Paper 19, “Pet. Mot. Ex.”), with Patent Owner filing an Opposition the Motion to Exclude (Paper 26, “PO Mot. Ex. Opp.”), and Petitioner filing a Reply thereto (Paper 28, “Pet. Mot. Ex. Reply”). Patent Owner filed a Motion to Exclude Evidence (Paper 21, “PO Mot. Ex.”), with Petitioner filing an Opposition the Motion to Exclude (Paper 24, “Pet. Mot. Ex. Opp.”), and Patent Owner filing a Reply thereto (Paper 29, “PO Mot. Ex. Reply”). Patent Owner also filed a Listing of New Arguments and Evidence in Petitioner’s Reply (Paper 25, “PO Obj.”), with Petitioner filing a Response (Paper 27, “Pet. Resp. Obj.”).

We held a consolidated oral hearing on February 14, 2018, in relation to this proceeding and other proceedings involving the same parties. A transcript (Paper 32, “Tr.”), of the oral hearing has been entered into the record.

⁵ U.S. Patent No. 4,658,204 (issued April 14, 1987) (Ex. 1015).

⁶ U.S. Patent No. 6,721,212 B2 (issued April 13, 2004) (Ex. 1017).

⁷ U.S. Publication No. 2003/0028733 A1 (published February 6, 2003) (Ex. 1019).

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We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6, and this Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–30 of the '243 patent are unpatentable. We grant-in-part and deny-in-part Petitioner's Motion to Exclude and deny Patent Owner's Motion to Exclude as moot.

B. Related Proceedings

Patent Owner indicates related matters are: *Netlist, Inc. v. Smart Modular Technologies, Inc.*, Case No. 3:13-cv-05889-YGR (N.D. Cal.); *Netlist, Inc. v. Smart Modular Technologies, Inc.*, Case No. 2:13-cv-02613-TLN (E.D. Cal.); *SanDisk Corp. v. Netlist, Inc.*, Case No. IPR2014-00982 (PTAB); *SanDisk Corp. v. Netlist, Inc.*, Case No. IPR2014-00994 (PTAB), *Smart Modular Technologies, Inc. v. Netlist, Inc.*, Case No. IPR2014-01371 (PTAB); *Smart Modular Technologies, Inc. v. Netlist, Inc.*, Case No. IPR2014-01370 (PTAB); *SK hynix Inc., et al. v. Netlist, Inc.*, Case No. IPR2017-00649 (PTAB); and *SK hynix Inc., et al. v. Netlist, Inc.*, Case No. IPR2017-00561 (PTAB). Paper 4, 2–3. Patent Owner also indicates that related U.S. Patent Application Nos. 15/000,834, 14/489,281, and 14/840,865 are pending. *Id.* at 4.

C. The '243 Patent

The '243 patent is entitled "Isolation Switching For Backup Memory," and issued on March 11, 2014, from an application filed on May 29, 2013. Ex. 1001, [22], [45], [54]. The '243 patent claims priority to (1) U.S. Patent Application No. 13/536,173, filed on June 28, 2012 (now U.S. Patent No. 8,516,187); (2) U.S. Application No. 12/240,916, filed on

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September 29, 2008 (now U.S. Patent No. 8,301,833); (3) U.S. Application No. 12/131,873, filed on June 2, 2008; and (4) U.S. Provisional Application No. 60/941,586, filed on June 1, 2007. *Id.* at [60].

The '243 patent is directed to a memory module system that has a volatile memory subsystem, non-volatile memory subsystem, and controller. Ex. 1001, Abstract, 3:21–24. The memory module system may switch between two states of operation. *Id.* at 7:49–50. In the first state, a circuit couples the volatile memory subsystem to the host system while isolating the volatile memory subsystem from the non-volatile memory subsystem. *Id.*, Abstract, 7:50–54. In a second state, a circuit allows data to be communicated between the volatile and non-volatile memory subsystems by coupling the respective subsystems and isolating the volatile memory system from the host system. *Id.*, Abstract, 7:54–58. The memory system uses the volatile memory subsystem under normal conditions, but provides back-up functions using the non-volatile memory subsystem. *Id.* at 3:24–27, 6:23–34, 7:49–62. In the event of a trigger condition, which may include a power failure or power reduction, the controller backs up the system by transferring data from a volatile memory system to a non-volatile memory system. *Id.* at 3:24–28. The configuration is directed to protecting the operation of the volatile memory in the two modes of operation while providing backup and restore capability in the event of a trigger condition. *Id.* at 3:32–36, 3:41–45, 8:17–30.

Claims 1, 13, and 24 are independent claims, and the other claims at issue are dependent claims, depending directly or indirectly from claims 1, 13, and 24. Ex. 1001, 20:30–23:20. Claim 1, reproduced below, is illustrative of the challenged claims of the '243 patent.

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