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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.*

DECISION
Instituting *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

SK hynix Inc., SK hynix America Inc. and SK hynix memory solutions Inc. ("Petitioners") 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.").

We have authority under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the Petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

We determine that Petitioners have demonstrated that there is a reasonable likelihood that they would prevail with respect to at least one of the challenged claims. For the reasons described below, we institute an *inter partes* review of claims 1–30 of the '243 patent.

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 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.

Claim 1, reproduced below, is illustrative of the challenged claims of the '243 patent.

> 1. A memory system comprising:
>
> a volatile memory subsystem;
>
> a non-volatile memory subsystem;
>
> a controller coupled to the non-volatile memory subsystem; and
>
> a circuit coupled to the volatile memory subsystem, to the controller, and to a host system, wherein:
>
> in a first mode of operation, the circuit is operable to selectively isolate the controller from the volatile memory subsystem, and to selectively couple the volatile memory subsystem to the host system to allow data to be communicated between the volatile memory subsystem and the host system, and
>
> in a second mode of operation, the circuit is operable to selectively couple the controller to the volatile memory subsystem to allow data to be communicated between the volatile memory subsystem and the nonvolatile memory subsystem using the controller, and the circuit is operable to selectively isolate the volatile memory subsystem from the host system.

Ex. 1001, 20:30–49.

D. Asserted Grounds of Unpatentability

Petitioners assert the following grounds of unpatentability:

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
§ 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.

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as they would be

[1] Petitioners assert 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).
[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 Al (published February 6, 2003) (Ex. 1019).

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