

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,  
MICRON TECHNOLOGY, INC., and SK HYNIX, INC.,  
Petitioner,

v.

ELM 3DS INNOVATIONS, LLC,  
Patent Owner.

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Case IPR2016-00386 Patent 8,653,672 B2  
Case IPR2016-00387 Patent 8,841,778 B2  
Case IPR2016-00388 Patent 7,193,239 B2

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Before GLENN J. PERRY, BARBARA A. BENOIT, and  
FRANCES L. IPPOLITO, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge*.

DECISION  
Final Written Decision  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

These *inter partes* reviews, instituted pursuant to 35 U.S.C. § 314, challenge the patentability of certain claims of U.S. Patent Nos. 8,653,672 B2 (“the ’672 patent”), 8,841,778 B2 (“the ’778 patent”), and 7,193,239 B2 (“the ’239 patent”),<sup>1</sup> each of which shares the same written description. All of the challenged patents are owned by Elm 3DS Innovations, LLC (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. This Decision is issued concurrently with a Final Written Decision in IPR2016-00393, which also challenges the patentability of claims 10–12, 18–20, 60–63, 67, 70–73, and 77 of the ’239 patent.

For the reasons discussed herein, Petitioner has *not* shown by a preponderance of the evidence that the challenged claims in any of the challenged patents are unpatentable.

### *A. Procedural History*

In IPR2016-00386, Petitioner filed a Petition seeking *inter partes* review of certain claims of the ’672 patent and we instituted a review. IPR386-Paper 1 (“IPR386-Petition” or “IPR386-Pet.”); IPR386-Paper 14 (“IPR386-Institution Decision” or “IPR386-Inst. Dec.”). In IPR2016-00387, Petitioner filed a Petition seeking *inter partes* review of certain claims of the ’778 patent, and we instituted a review. IPR387-Paper 1 (“IPR387-Petition”

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<sup>1</sup> The challenged patent is Exhibit 1001 in each proceeding. Citations may be preceded by “IPR386” to designate IPR2016-00386, “IPR387” to designate IPR2016-00387, or “IPR388” to designate IPR2016-00388.

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or “IPR387-Pet.”); IPR387-Paper 13 (“IPR387-Institution Decision” or “IPR387-Inst. Dec.”). In IPR2016-00388, Petitioner filed a Petition seeking *inter partes* review of certain claims of the ’239 patent, and we instituted a review. IPR388-Paper 4 (“IPR388-Petition” or “IPR388-Pet.”); IPR388-Paper 11 (“IPR388-Institution Decision” or “IPR388-Inst. Dec.”). In our Decisions to Institute, we did not agree with Patent Owner that the Petitions were barred under 35 U.S.C. § 315(b) because, according to Patent Owner, the Office lacked authority to treat certain days on which the Office experienced an emergency situation, such that many of its online and information technology systems were shut down, as federal holidays. IPR386-Inst. Dec. 4–5; IPR387-Inst. Dec. 3–4; IPR388-Inst. Dec. 4–5. Patent Owner has not raised this issue subsequent to institution in any of the three proceedings.

In response to an order to clarify the claim construction standard to be applied in each proceeding (IPR386-Paper 18; IPR387-Paper 16; IPR388-Paper 14), Patent Owner certified that each of the challenged patents in these three proceedings would expire prior to the deadline for issuing a final written decision and, therefore, contended that the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), should be applied (IPR386-Paper 23; IPR387-Paper 21; IPR388-Paper 19). Petitioner concurred with Patent Owner’s contention. IPR386-Paper 25; IPR387-Paper 23; IPR388-Paper 21. We agreed with the parties and issued an order indicating that the *Phillips* claim construction standard should be

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applied in each of these three proceedings. IPR386-Paper 28; IPR387-Paper 26; IPR388-Paper 24.

Subsequent to institution, Patent Owner filed a Patent Owner Response to the Petition in each case. IPR386-Paper 55 (“IPR386-PO Resp.”); IPR387-Paper 50 (“IPR387-PO Resp.”); IPR388-Paper 47 (“IPR388-PO Resp.”). Petitioner filed a Reply to Patent Owner’s Response to the Petition in each case. IPR386-Paper 61 (“IPR386-Pet. Reply”); IPR387-Paper 56 (“IPR387-Pet. Reply”); IPR388-Paper 53 (“IPR388-Pet. Reply”).

We held a consolidated hearing for the *inter partes* reviews. A transcript of the oral hearing is included in the record of each proceeding. IPR386-Paper 67; IPR387-Paper 62; IPR388-Paper 59 (collectively “Tr.”).

#### *B. Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), each party identifies various judicial or administrative matters that would affect or be affected by a decision in this proceeding. IPR386-Pet. 1–2; IPR386-Paper 9 (Patent Owner’s Mandatory Notices); IPR387-Pet. 1–2; IPR387-Paper 8 (Patent Owner’s Mandatory Notices); IPR388-Pet. 1–2; IPR388-Paper 7 (Patent Owner’s Mandatory Notices). Petitioner indicates that the challenged patents are involved in the following United States District Court proceedings: *Elm 3DS Innovations, LLC v. Samsung Elecs. Co.*, No. 1:14-cv-01430 (D. Del.); *Elm 3DS Innovations, LLC v. Micron Tech., Inc.*, No. 1:14-cv-01431 (D. Del.); and *Elm 3DS Innovations, LLC v. SK Hynix Inc.*, No. 1:14-cv-01432 (D. Del.).

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The '239 patent, which is challenged in IPR2016-00388, also is the subject of *inter partes* review IPR2016-00393. Additionally, patents related to the challenged patent are the subjects of petitions filed in IPR2016-00389 (U.S. Patent No. 8,035,233); IPR2016-00390 (U.S. Patent No. 8,629,542); IPR2016-00391 (U.S. Patent No. 8,796,862); IPR2016-00394 (U.S. Patent No. 8,410,617); IPR2016-00395 (US Patent No. 7,504,732); IPR2016-00687 (U.S. Patent No. 8,928,119); IPR2016-00691 (U.S. Patent No. 7,474,004); IPR2016-00708 (U.S. Patent No. 8,907,499); IPR2016-00770 (U.S. Patent No. 8,907,499); and IPR2016-00786 (U.S. Patent No. 8,933,570). We also note that Petitioner filed two additional petitions requesting *inter partes* review of U.S. Patent No. 8,791,581 (IPR2016-00703 and IPR2016-00706) for which we did not institute a review.

### C. *The Written Description of the Challenged Patents*<sup>2</sup>

The challenged patents identify Glenn J. Leedy as sole inventor of the claimed subject matter. The patents each claim the benefit of the filing date of April 4, 1997 through a series of continuation or divisional applications. Accordingly, the patents share a common written description.

The patents generally relate to a three-dimensional structure (3DS) for integrated circuits that allows for physical separation of memory circuits and control logic circuits on different layers. Ex. 1001, Abstract. Figure 1a is reproduced below.

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<sup>2</sup> For brevity, citations to the written description refer to the '672 patent at issue in IPR2016-00386.

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