

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION, GLOBALFOUNDRIES U.S., INC.,
MICRON TECHNOLOGY, INC. and
SAMSUNG ELECTRONICS COMPANY, LTD.¹,
Petitioner,

v.

DANIEL L. FLAMM,
Patent Owner.

Case IPR2017-00280
Patent RE40,264 E

Before CHRISTOPHER L. CRUMBLEY, JO-ANNE M. KOKOSKI, and
KIMBERLY McGRAW, *Administrative Patent Judges*.

McGRAW, *Administrative Patent Judge*.

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

¹ Samsung Electronics Company, Ltd. was joined as a party to this proceeding via a Motion for Joinder in IPR2017-01750.

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Intel Corporation, GLOBALFOUNDRIES U.S., Inc., Micron Technology, Inc., and Samsung Electronics Company, Ltd., (collectively “Petitioner”) challenge the patentability of claims 27–36, 51–55, 66, 68, and 69 of U.S. Patent No. RE40,264 E (Ex. 1001, “the ’264 patent”), owned by Daniel L. Flamm (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision, issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73, addresses issues and arguments raised during trial. For the reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 27–36, 51–55, 66, 68, and 69 of the ’264 patent are unpatentable.

A. Procedural History

On December 2, 2016, Intel Corporation, GLOBALFOUNDRIES U.S., Inc., and Micron Technology, Inc. (collectively, “Initial Petitioners”) filed a Petition requesting an *inter partes* review of claims 27–36, 51–55, 66, 68, and 69 of the ’264 patent. Paper 2 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 8. On June 13, 2017, we instituted an *inter partes* review of the challenged claims. Paper 9 (“Decision on Institution” or “Dec. on Inst.”). Subsequent to institution, Samsung Electronics Company, Ltd. (“Samsung”) filed a petition and motion for joinder with the instant proceeding. *Samsung Electronics Company, Ltd. v. Daniel L. Flamm*, Case IPR2017-01750, Papers 1, 3. On September 15, 2017, we granted

Samsung's petition and motion for joinder, joining Samsung as a petitioner in this *inter partes* review. Paper 12, 7.

Thereafter, Patent Owner filed a Patent Owner Response (Paper 13, "PO Resp.") and Petitioner filed a Reply (Paper 14, "Reply"). In support of their respective arguments, Petitioner relies upon the declaration testimony of Dr. John Bravman (Exs. 1006 and 1023) and Patent Owner relies upon the declaration testimony of Dr. Daniel L. Flamm² (Ex. 2001).

Oral hearing was requested by both parties. Papers 15, 16. A consolidated oral hearing for this proceeding and Cases IPR2017-00279, IPR2017-00281, and IPR2017-000282, involving the same parties and the '264 patent, and Cases IPR2017-00391, IPR2017-00392, and IPR2017-00406, involving the same parties and unrelated patents, was held on March 7, 2018. A transcript of the consolidated hearing has been entered into the record. Paper 28 ("Tr.").

B. Related Proceedings

Petitioner reports that the Patent Owner has asserted the '264 patent in five proceedings in the Northern District of California (Case Nos. 5:16-cv-01578-BLF, 5:16-cv-1579-BLF, 5:16-cv-1580-BLF, 5:16-cv-1581-BLF, and 5:16-cv-02252-BLF) and that Lam Research Corporation has filed a declaratory judgment action against Patent Owner on the '264 patent, also in the Northern District of California (Case No. 5:15-cv-01277-BLF). Pet. 2.

² Daniel L. Flamm is both the Patent Owner and Patent Owner's declarant in this proceeding.

IPR2017-00280
Patent RE40,264 E

Petitioner also challenges certain claims of the '264 patent in IPR2017-00279, IPR2017-00281, and IPR2017-00282, which were filed concurrently with the Petition in this proceeding. The parties also identified nine other IPR petitions for review of the '264 patent, filed by Lam Research Corporation or Samsung, none of which are currently pending. *See* Pet. 2; Prelim. Resp. 1–2 (identifying IPR2015-01759 (institution denied); IPR2015-01764 (terminated-settled); IPR2015-01766 (institution denied); IPR2015-01768 (terminated-settled); IPR2016-00468 (institution denied); IPR2016-00469 (institution denied); and IPR2016-00470 (institution denied); IPR2016-01510 (institution denied) and; IPR2016-01512 (Final Written Decision – challenged claims unpatentable)).

C. The '264 Patent

The '264 patent, titled “Multi-Temperature Processing,” relates generally to methods and systems for controlling the heating and cooling time of a substrate (e.g., wafer) during plasma processing in a single processing chamber. *See, e.g.*, Ex. 1001, 1:18–21. A “plasma etching apparatus according to the present invention” is shown in Figure 1 of the '264 patent, reproduced below. *Id.* at 2:66–67.

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