

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.,
Petitioners,

v.

DANIEL L. FLAMM,
Patent Owner.

PTAB Case No. IPR2017-00282¹

Patent No. RE40,264 E

**REPLY DECLARATION OF DR. JOHN BRAVMAN IN SUPPORT OF PE-
TITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. RE40,264
AND REPLY TO PATENT OWNER'S RESPONSE
(Claims 56-63 and 70-71)**

¹ Samsung Electronics Company, Ltd. was joined as a party to this proceeding via a Motion for Joinder in IPR2017-01752.

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I. Introduction

1. My name is John Bravman. I have been retained in the above-referenced *inter partes* review proceeding by Petitioners to evaluate United States Patent No. RE40,264 (the “’264 patent”) against certain prior art references, including U.S. Patent Nos. 6,063,710, 5,151,871, 5,226,056, 5,605,600, and 4,992,391, as well as the knowledge of a person of ordinary skill in the art at the time of the purported invention, including as demonstrated by various state of the art references. I submitted the Declaration of Dr. John Bravman in Support of Petition for *Inter Partes* Review of U.S. Patent No. RE40,264 in this matter (“Opening Declaration,” Ex. 1006) in connection with Petitioners’ Petition for *Inter Partes* Review of U.S. Patent No. RE40,264 (“Petition”) seeking review of claims 56-63 and 70-71 of the ’264 patent. Since then, the Patent Trial and Appeal Board (“PTAB” or “Board”) has instituted review of all challenged claims.

2. Patent Owner Daniel L. Flamm (“Dr. Flamm”) recently filed a Patent Owner’s Response to the Petition (“Response,” Paper No. 13). I have reviewed the Response and its exhibits. I have also reviewed documents relating to IPR2016-01510, IPR2016-01512, and IPR2017-01072, which concern claims in the ’264 patent. I now submit this Reply Declaration in support of Petitioners’ Reply to address arguments raised by Dr. Flamm in the Response and in the Declaration of Daniel L. Flamm in Support of Patent Owner’s Response (“Flamm Declaration,”

Ex. 2001). As described below, it remains my opinion that each of the challenged claims is rendered obvious by prior art references that predate the priority date of the '264 patent. I am prepared to testify about my opinions expressed in my Opening Declaration and in this Reply Declaration.

3. My Opening Declaration describes my qualifications, materials I reviewed for this matter, and my opinions on issues such as background relating to the '264 patent and the challenged claims, the level of ordinary skill in the relevant technical art at the time of the alleged invention, the priority date of the '264 patent, the state of the prior art at the time of the alleged invention, and claim construction issues relating to the '264 patent. (Opening Declaration at ¶¶ 2-54 (Ex. 1006)) It is my understanding that the Response does not challenge my qualifications or my opinions relating to the level of ordinary skill in the relevant technical art at the time of the alleged invention and the priority date of the '264 patent. I also discussed in my Opening Declaration my understanding of the legal standards relating to invalidity, background relating to prior art references, how the prior art disclosed what is claimed in the '264 patent, and why a person of ordinary skill in the art at the time of the alleged invention would have combined different prior art references. (Opening Declaration at ¶¶ 55-274 (Ex. 1006))

4. I note that the claims of the '264 patent are lengthy and recite numerous conventional elements that existed in the prior art and that Dr. Flamm does not

purport to have invented. The number of references used in combination to challenge the validity of claims of the '264 patent is a consequence of Flamm's decision to seek claims that recite numerous conventional prior art elements that were well known at the time of the alleged invention.

II. Responses to Arguments Raised by Dr. Flamm

A. The '264 patent

5. As noted in my Opening Declaration, the '264 patent relates to methods for semiconductor processing where a substrate is processed at two temperatures. (Opening Declaration at ¶ 43 (Ex. 1006)) The '264 patent purports to describe a novel method for employing a sequence of wafer processing steps at different temperatures where the temperature is changed while the wafer remains on the same substrate holder during the processing steps. ('264 patent at Fig. 10, 18:22-26, 18:54-57 (Ex. 1001); Opening Declaration at ¶ 45 (Ex. 1006))

6. Dr. Flamm acknowledges that methods involving the use of various temperatures for manufacturing semiconductors were known in the prior art that predates the '264 patent. (Response at 3 (Paper No. 13); Flamm Declaration at ¶ 10 (Ex. 2001)) The Response characterizes the supposed innovation of the '264 patent as describing temperature changes within a preselected time period in a manner not previously disclosed in the prior art. (Response at 1-3 (Paper No. 13); Flamm Declaration at ¶¶ 9-10 (Ex. 2001)) As explained in my Opening Declara-

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