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Paper No. 9
Filed: June 13, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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INTEL CORPORATION, GLOBALFOUNDRIES U.S., INC.,
and MICRON TECHNOLOGY, INC.
Petitioner,

v.

DANIEL L. FLAMM,
Patent Owner.

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Case IPR2017-00280
Patent RE40,264 E

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

McGRAW, *Administrative Patent Judge*.

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

# I. INTRODUCTION

Intel Corporation, GLOBALFOUNDRIES U.S., Inc., and Micron Technology, Inc. (collectively "Petitioner"), filed a Petition requesting an *inter partes* review of claims 27–36, 51–55, 66, 68, and 69 (**"**the challenged claims") of U.S. Patent No. RE40,264 E (Ex. 1001, "the '264 patent"). Paper 1 ("Pet."). Daniel L. Flamm ("Patent Owner"), filed a Preliminary Response. Paper 8 ("Prelim. Resp.").

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Taking into account the arguments presented in Patent Owner's Preliminary Response, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in challenging claims 27–36, 51–55, 66, 68, and 69 as unpatentable under 35 U.S.C. § 103(a). Pursuant to § 314, we hereby institute an *inter partes* review as to these claims of the '264 patent.

## *A. Related Matters*

Petitioner reports that the Patent Owner has asserted the '264 patent against Petitioner and other defendants 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. Pet. 2. The parties also state that Lam Research Corporation has filed a declaratory judgment action against Patent Owner on the '264 patent (N.D. Cal. Case No. 5:15-cv-01277-BLF) and has filed seven IPR petitions on the '264 patent: IPR2015-01759; IPR2015-01764; IPR2015-01766; IPR2015-01768;

IPR2016-00468; IPR2016-00469; and IPR2016-00470. Pet. 2; Prelim. Resp. 1.[1] The parties also represent that Samsung Electronics, Co., Ltd. has filed two IPR petitions on the '264 patent: IPR2016-01510 and IPR2016-01512. *Id.* In addition, we note that Petitioner also filed three other petitions challenging the patentability of certain claims of the '264 patent: IPR2017-00279 (claims 13–26, 64, and 65); IPR2017–00281 (claims 37–50 and 67); and IPR2017–00282 (claims 57–63 and 70–71).

*B. The '264 Patent*

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The '264 patent, titled "Multi-Temperature Processing," reissued on April 29, 2008 from U.S. Patent Application No. 10/439,245 ("the '245 application"), filed on May 14, 2003. Ex. 1001, at [54], [45], [21], [22]. The '264 patent is a reissue of U.S. Patent No. 6,231,776 B1 ("the '776 patent"), which issued on May 15, 2001, from U.S. Patent Application No. 09/151,163 ("the '163 application") filed September 10, 1998. *Id*. at [64]. The '264 patent is directed to a method "for etching a substrate in the manufacture of a device," where the method "provide[s] different processing temperatures during an etching process or the like." *Id.* at Abstract. The apparatus used in the method is shown in Figure 1, reproduced below.

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[1] Although Patent Owner notes the prior challenges to the claims of the '264 patent, it does not argue that we should exercise our discretion to deny institution of the instant Petition on the basis that the same or substantially the same art or arguments previously were presented to the Office. *See* 35 U.S.C. § 325(d).

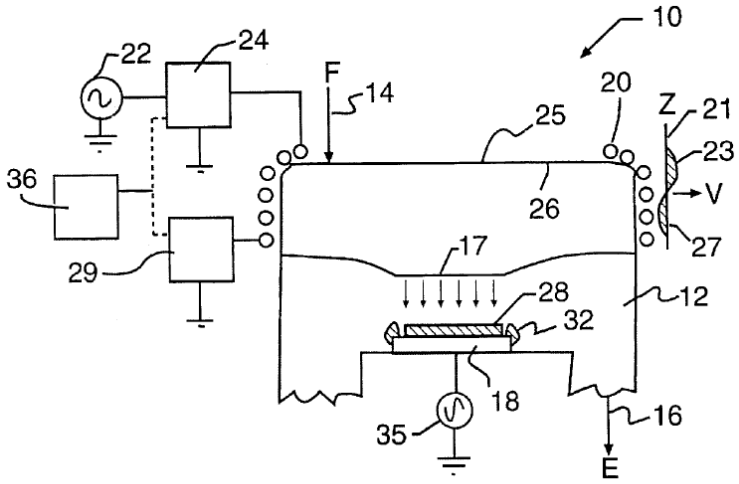



FIG. 1

Figure 1 depicts a substrate (product 28, such as a wafer to be etched) on a substrate holder (product support chuck or pedestal 18) in a chamber (chamber 12 of plasma etch apparatus 10). *Id.* at 3:24–25, 3:32–33, 3:40–41.

Figures 6 and 7, reproduced below, depict a temperature-controlled substrate holder and temperature control systems.

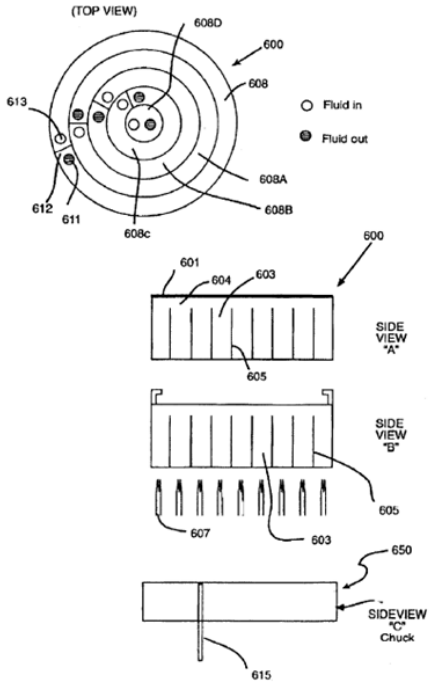



FIG. 6

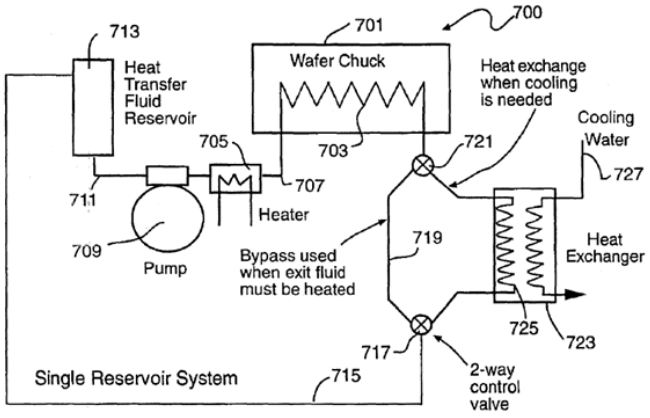


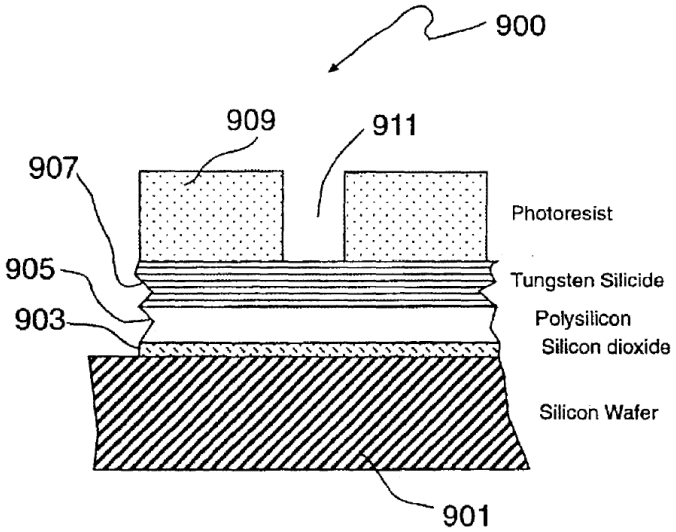

Fig. 7

Figures 6 and 7 depict temperature-controlled fluid flowing through substrate holder (600, 701), guided by baffles 605, where "[t]he fluid [is] used to heat or cool the upper surface of the substrate holder." Ex. 1001, 14:28–63, 16:5–67. Figure 6 also depicts heating elements 607 underneath the substrate holder, where "[t]he heating elements can selectively heat one or more zones in a desirable manner." *Id.* at 15:10–26. Referring to Figure 7, the operation of the temperature control system is described as follows:

> The desired fluid temperature is determined by comparing the desired wafer or wafer chuck set point temperature to a measured wafer or wafer chuck temperature . . . . The heat exchanger, fluid flow rate, coolant-side fluid temperature, heater power, chuck, etc. should be designed using conventional means to permit the heater to bring the fluid to a setpoint temperature and bring the temperature of the chuck and wafer to predetermined temperatures within specified time intervals and within specified uniformity limits.

*Id.* at 16:36–39, 16:50–67.

An example of a semiconductor substrate to be patterned is shown in Figure 9, reproduced below.



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