UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FUJITSU SEMICONDUCTOR LIMITED, FUJITSU SEMICONDUCTOR AMERICA, INC., ADVANCED MICRO DEVICES, INC., RENESAS ELECTRONICS CORPORATION, RENESAS ELECTRONICS AMERICA, INC., GLOBALFOUNDRIES U.S., INC., GLOBALFOUNDRIES DRESDEN MODULE ONE LLC & CO. KG, GLOBALFOUNDRIES DRESDEN MODULE TWO LLC & CO. KG, TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC., TOSHIBA AMERICA INC., TOSHIBA AMERICA INFORMATION SYSTEMS, INC., TOSHIBA CORPORATION, and THE GILLETTE COMPANY, Petitioners,

v.

ZOND, LLC, Patent Owner

IPR2014-00829<sup>1</sup> Patent 6,085,779 B2

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

Claims 16, 28, 41, 42, 45 and 46

<sup>1</sup> Cases IPR2014-00828, IPR2014-00917, IPR2014-01073, and IPR2014-01076 have been joined with the instant proceeding.

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| I.  | IN  | TRODUCTION   |
| II. | ZO  | ND'S FLAWED INTERPRETATIONS OF THE PRIOR ART FAIL1   |
|     | A.  | Zond's interpretation of a "plasma" in Iwamura contradicts both<br>Iwamura and the '779 Patent's teachings 1   |
|     | B.  | Zond mischaracterizes the teachings of Pinsley and Angelbeck   |
|     | C.  | A person of ordinary skill in the art would have combined Iwamura<br>with Pinsley and Angelbeck  |
|     |     | AIMS 16, 28, 41, 42, 45, AND 46 ARE UNPATENTABLE OVER<br>ITED PRIOR ART  |
|     | A.  | Iwamura in view of Pinsley and Angelbeck teaches an<br>excited/metastable atom source including a magnetic field that<br>substantially traps electrons proximate to ground state atoms as claimed<br>by claims 1, 18, and 41 |
|     | B.  | Iwamura in view of Pinsley and Angelbeck teaches an energy source<br>that is coupled to the excited/metastable atoms and generates a plasma<br>with a multi-step ionization process as claimed by claims 1, 18, and 4115     |
|     | C.  | Iwamura in view of Pinsley and Angelbeck teaches "a plasma chamber<br>that is coupled to the [excited / metastable] atom source" recited in<br>claims 1, and "a metastable atom source" recited in claim 18                  |

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| D. Iwamura in view of Pinsley and Angelbeck teaches "an electron/ion   |      |
|--|------|
| absorber trapping electrons and ions" as recited by claims 16, 28, 42, |      |
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#### **TABLE OF AUTHORITIES**

Cases

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EWP Corp. v. Reliance Universal, Inc., 755 F.2d 898, 907 (Fed. Cir. 1985)......4

#### **PETITIONER'S EXHIBIT LIST**

## April 27, 2015

| Exhibit | Description  |
|---------|--|
| 1301    | U.S. Patent No. 6,805,779 ("'779 Patent")  |
| 1302    | Kortshagen Declaration ("Kortshagen Decl.")  |
| 1303    | D.V. Mozgrin, <i>et al</i> , <u>High-Current Low-Pressure Quasi-Stationary</u><br><u>Discharge in a Magnetic Field: Experimental Research</u> , Plasma Physics<br>Reports, Vol. 21, No. 5, 1995 ("Mozgrin")                  |
| 1304    | A. A. Kudryavtsev and V.N. Skerbov, Ionization relaxation in a plasma produced by a pulsed inert-gas discharge, Sov. Phys. Tech. Phys. 28(1), pp. 30-35, January 1983 ("Kudryavtsev")  |
| 1305    | U.S. Patent No. 3,761,836 ("Pinsley")  |
| 1306    | U.S. Patent No. 3,514,714 ("Angelbeck")  |
| 1307    | U.S. Patent No. 5,753,886 ("Iwamura")  |
| 1308    | File History for U.S. Patent No. 6,805,779, Office Action dated<br>February 11, 2004 ("02/11/04 Office Action")  |
| 1309    | File History for U.S. Patent No. 6,805,779, Response dated May 6, 2004 ("05/06/04 Response")   |
| 1310    | European Patent Application No. 1614136, Response dated July 24, 2007 (07/24/07 Response in EP 1614136)  |
| 1311    | J. Vlček, A collisional-radiative model applicable to argon discharges<br>over a wide range of conditions. I: Formulation and basic data, J. Phys.<br>D: Appl. Phys. 22 (1989) pp. 623-631                                   |
| 1312    | J. Vlček, A collisional-radiative model applicable to argon discharges<br>over a wide range of conditions. II: Application to low-pressure, hollow-<br>cathode arc and low-pressure glow discharges, J. Phys. D: Appl. Phys. |

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