

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GlobalFoundries, Inc.

Petitioner

v.

Godo Kaisha IP Bridge 1

Patent Owner

CASE IPR: *To be assigned*

**PETITION FOR INTER PARTES REVIEW
OF UNITED STATES PATENT NO. 6,538,324**

Table of Contents

I.	PRELIMINARY STATEMENT	1
II.	THE ‘324 PATENT.....	4
	A. Overview of the ‘324 Patent	4
	B. Prosecution History.....	6
III.	Level of Ordinary Skill.....	8
IV.	Claim Construction.....	9
V.	CLAIMS 1-3, 5-7, AND 9 OF THE ‘324 PATENT ARE UNPATENTABLE OVER THE PRIOR ART	9
	A. Overview of the Prior Art	9
	1. Zhang	13
	2. Ding.....	13
	3. Sun	14
	B. The combined teachings of <i>Zhang</i> in view of <i>Ding</i> render claims 1-3, 5-7, and 9 obvious	14
	1. Claim 1	14
	2. Claim 2.....	30
	3. Claim 3.....	32
	4. Claim 5.....	34
	5. Claim 6.....	35
	6. Claim 7.....	35
	7. Claim 9.....	36
	C. The combined teachings of <i>Zhang</i> and <i>Ding</i> further in view of <i>Sun</i> render claims 1-3, 5-7, and 9 obvious.....	37
VI.	MANDATORY NOTICES.....	40
	A. Real Party-in-Interest	40
	B. Related Matters	40
	C. Lead and Back-Up Counsel	42
	D. Service Information	42

VII. CERTIFICATION UNDER 37 C.F.R. § 42.24(d).....42

VIII. GROUNDS FOR STANDING43

**IX. STATEMENT OF PRECISE RELIEF REQUESTED FOR EACH CLAIM
CHALLENGED43**

X. CONCLUSION43

LIST OF EXHIBITS

- Exhibit 1001: U.S. Patent No. 6,538,324 to Tagami et al.
- Exhibit 1002: File History of U.S. Patent No. 6,538,324.
- Exhibit 1003: Expert Declaration of Dr. Sanjay Kumar Banerjee.
- Exhibit 1004: U.S. Patent No. 5,893,752 to Zhang et al.
- Exhibit 1005: U.S. Patent No. 6,887,353 to Ding et al.
- Exhibit 1006: Holloway et al., "Tantalum as a diffusion barrier between copper and silicon: Failure mechanism and effect of nitrogen additions," *Journal of Applied Physics*, 71(11), 5433-5444 (1992).
- Exhibit 1007: Sun et al., "Properties of reactively sputter-deposited Ta-N thin films," *Thin Solid Films*, 236 (1993) 347-351.
- Exhibit 1008: U.S. Patent No. 5,858,873 to Vitkavage et al.
- Exhibit 1009: U.S. Patent No. 5,668,411 to Hong et al.
- Exhibit 1010: Excerpt of El-Kareh, "Fundamentals of Semiconductor Processing Technologies," Kluwer Academic Publishers (1995).
- Exhibit 1011: Declaration of Dr. Li Jiang.
- Exhibit 1012: Library of Congress Catalog Record of Holloway et al., "Tantalum as a diffusion barrier between copper and silicon: Failure mechanism and effect of nitrogen additions," *Journal of Applied Physics*, 71(11), 5433-5444 (1992).
- Exhibit 1013: Library of Congress Catalog Record of Sun et al., "Properties of reactively sputter-deposited Ta-N thin films," *Thin Solid Films*, 236 (1993) 347-351.
- Exhibit 1014: Library of Congress Catalog Record of El-Kareh, "Fundamentals of Semiconductor Processing Technologies," Kluwer Academic Publishers (1995).
- Exhibit 1015: Stavrev et al., "Crystallographic and morphological characterization of reactively sputtered Ta, Ta-N and Ta-N-O thin films," *Thin Solid Films*, 307 (1997) 79-88.
- Exhibit 1016: Library of Congress Catalog Record of Stavrev et al., "Crystallographic and morphological characterization of reactively sputtered Ta, Ta-N and Ta-N-O thin films," *Thin Solid Films*, 307

(1997) 79-88.

- Exhibit 1017: Duan et al., "Magnetic Property and Microstructure Dependence of CoCrTa/Cr Media on Substrate Temperature and Bias," IEEE Transactions on Magnetics, Vol. 28, No. 5 (September 1992).
- Exhibit 1018: Library of Congress Catalog Record of Duan et al., "Magnetic Property and Microstructure Dependence of CoCrTa/Cr Media on Substrate Temperature and Bias," IEEE Transactions on Magnetics, Vol. 28, No. 5 (September 1992).
- Exhibit 1019: Moussavi et al., "Comparison of Barrier Materials and Deposition Processes for Copper Integration," Proceedings of the IEEE 1998 International Interconnect Technology Conference, pp. 295-97 (1998).
- Exhibit 1020: Library of Congress Catalog Record of Moussavi et al., "Comparison of Barrier Materials and Deposition Processes for Copper Integration," Proceedings of the IEEE 1998 International Interconnect Technology Conference, pp. 295-97 (1998).
- Exhibit 1021: Wijekoon et al., "Development of a Production Worthy Copper CMP Process," 1998 IEEE/SEMI Advanced Semiconductor Manufacturing Conference, pp. 354-63 (1998).
- Exhibit 1022: Library of Congress Catalog Record of Wijekoon et al., "Development of a Production Worthy Copper CMP Process," 1998 IEEE/SEMI Advanced Semiconductor Manufacturing Conference, pp. 354-63 (1998).
- Exhibit 1023: Wang et al., "Barrier Properties of Very Thin Ta and TaN layers Against Copper Diffusion," J. Electrochem. Soc., Vol. 145, No. 7, pp. 2538-45.
- Exhibit 1024: Library of Congress Catalog Record of Wang et al., "Barrier Properties of Very Thin Ta and TaN layers Against Copper Diffusion," J. Electrochem. Soc., Vol. 145, No. 7, pp. 2538-45.

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.