UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GlobalFoundries U.S. Inc.

Petitioner

v.

Godo Kaisha IP Bridge 1

Patent Owner

CASE IPR: *IPR2017-00920*

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

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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.

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