UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICRON TECHNOLOGY, INC., AND MICRON MEMORY JAPAN, INC.,
Petitioners

v.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Patent Owner

Case: IPR2015-01087
U.S. Patent No. 6,057,221

DECLARATION OF DR. MICHAEL THOMAS IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW

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3. Lou 34

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C. Koyou anticipates Claims 3-4, 6-8, 23, 25-26, and 28 of the '221 patent 38

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D. Wada and either of Lou or Billig, combined with general knowledge in the art, render Claims 14-15 and 29 of the '221 patent obvious 56

1. Independent Claim 14 57

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4. Patent Owner's reexamination arguments do not overcome unpatentability over Wada and either of Lou or Billig, and the general knowledge in the art 68

E. Koyou and Wada, combined with general knowledge in the art, render claims 3-4, 6-8, 23, 25-26 and 28 of the '221 patent obvious 71

1. Koyou and Wada, combined with general knowledge in the art, disclose every limitation of claims 3-4, 6-8, 23, 25-26 and 28 72

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F. Koyou and either of Lou or Billig render claims 13, 17-18, 21-22, 24, 27, and 30 of the '221 patent obvious 87

G. Koyou, Wada and either of Lou or Billig, combined with general knowledge in the art, render claims 13, 17-18, 21-22, 24, 27, and 30 of the '221 patent obvious 89

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EXHIBITS

Exhibit #	Exhibit Description
1001	Declaration of Dr. Michael Thomas
1002	Curriculum Vitae of Dr. Michael Thomas
1003	U.S. Patent No. 6,057,221
1004	File History for U.S. Patent No. 6,057,221
1005	*The New IEEE Standard Dictionary of Electrical and Electronic Terms, Fifth Ed.*, Institute of Electrical and Electronics Engineers, Inc., New York (1993)
1006	Japan Pat. Appl. Publ. No. 8-213465 to Koyou (including English translation and supporting declaration)
1007	Japan Pat. Appl. Publ. No. 6-244285 to Wada, et al. (including English translation and supporting declaration)
1008	U.S. Patent No. 5,729,042 to Lou et al.
1009	U.S. Patent Application No. 514,800 filed August 14, 1995 (to which U.S. Pat. No. 5,729,042 claims priority)
1010	U.S. Patent No. 5,025,300 to Billig et al.
1011	*Ex Parte* Reexamination Application No. 90/011,607, Request for *Ex Parte* Reexamination filed March 30, 2011
1012	*Ex Parte* Reexamination Application No. 90/011,607, Corrected Pre-amendment under 35 C.F.R. 1.530 filed April 14, 2011
1013	*Ex Parte* Reexamination Application No. 90/011,607, Order Granting Request for *Ex Parte* Reexamination filed June 23, 2011
1014	*Ex Parte* Reexamination Application No. 90/011,607, Non-Final Office Action of January 26, 2012
1015	*Ex Parte* Reexamination Application No. 90/011,607, Request for Reconsideration filed March 26, 2012

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1016	*Ex Parte* Reexamination Application No. 90/011,607, Declaration of Dr. Bernstein filed March 26, 2012 (including exhibits)
1017	*Ex Parte* Reexamination Application No. 90/011,607, Notice of Intent to Issue Ex Parte Reexamination Certificate of July 11, 2012
1018	"Thermal Conductivity of Metals," The Engineering ToolBox, http://www.engineeringtoolbox.com/thermal-conductivity-metals-d_858.html (last visited April 1, 2015)
1019	Pierson, *Handbook of Refractory Carbides and Nitrides: Properties, Characteristics, Processing, and Applications*, Noyes Publications (1996)
1020	U.S. Patent No. 5,872,389 to Nishimura et al.
1021	U.S. Patent No. 5,675,174 to Nakajima
1022	U.S. Patent No. 5,538,924 to Chen
1023	U.S. Patent No. 5,300,461 to Ting
1024	U.S. Patent No. 5,729,041 to Yoo
1025	U.S. Patent No. 5,747,869 to Prall
1026	Wilson et al., *Handbook of Multilevel Metallization For Integrated Circuits: Materials, Technology, and Applications*, Noyes Publications (1993)
1027	Wolf, *Silicon Processing for the VLSI ERA Volume 2: Process Integration*, Lattice Press, Sunset CA (1990)
1028	Construction Analyses of the Samsung KM44C4000J-7 16 Megabit DRAM, published by Integrated Circuit Engineering, Scottsdale AZ, Report No. SCA 9311-3001 (available at http://smithsonianchips.si.edu/ice/cd/9311_300.pdf)
1029	Construction Analyses of the Lattice ispLSI2032-180L CPLD, published by Integrated Circuit Engineering, Scottsdale AZ, Report No. SCA 9712-573 (available at http://smithsonianchips.si.edu/ice/cd/9712_573.pdf)

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