

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.,
Petitioner,

v.

ADVANCED INTEGRATED CIRCUIT PROCESS LLC,
Patent Owner.

IPR2025-01302
U.S. Patent 8,884,373

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT 8,884,373**

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EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent 8,884,373 to Sato et al. (“the ’373 patent”)
1002	File History of U.S. Patent 8,884,373 (“’373 File History”)
1003	Declaration of Dr. Jack Lee in Support of IPR Petition
1004	CV of Dr. Jack Lee
1005	Translated Excerpts from File History of Japanese Patent No. 5857225 to Sato et al. (“JP ’225 patent”) (Japanese counterpart of the ’373 Patent)
1006	U.S. Publication 2008/0036010 to Tamaki, et al. (“Tamaki”)
1007	U.S. Publication 2008/0042218 to Igarashi, et al. (“Igarashi”)
1008	Japanese Patent No. 9181194 to Sumi (“Sumi”)
1009	Certified Translation of Japanese Patent No. 9181194 to Sumi
1010	U.S. Publication 2009/0096031 to Ekbote, et al. (“Ekbote”)
1011	Plummer, J., et al., “Silicon VLSI Technology: Fundamentals, Practice and Modeling” (Prentice Hall 2000) (“Plummer”)
1012	Weste, “CMOS VLSI Design: A Circuits and Systems Perspective” (Third Edition, 2005) (“Weste”)
1013	Wolf, “Silicon Processing for the VLSI Era, Volume 4 – DeepSubmicron Process Technology” (2002) (“Wolf-4”)
1014	Van Zant, “Microchip Fabrication” (Fifth Edition, 2004) (“Van Zant”)
1015	“International Technology Roadmap for Semiconductors: Process Integration, Devices, and Structures” (2007 Edition) (“ITRS”)
1016	U.S. Patent No. 8,355,269 to Zampaglione (“Zampaglione”)

Exhibit	Description
1017	Sze, “Semiconductor Devices: Physics and Technology” (2nd Edition) (2002) (“Sze”)
1018	U.S. Patent 5,208,184 to Bayraktaroglu (“Bayraktaroglu”)

I. Introduction

Taiwan Semiconductor Manufacturing Company, Limited petitions for *inter partes* review of claims 1-14 of U.S. Patent 8,883,373 (“’373 patent”; TSMC-1001).

II. Grounds for Standing

Petitioner certifies the ’373 patent is available for IPR and it is not barred or estopped from requesting IPR.

III. Identification of Challenge

A. Prior Art

The ’373 patent, filed October 31, 2012, is a continuation of PCT/JP2011/006167 which claims priority to JP2011-068131, filed March 25, 2011. Petitioner does not acquiesce the ’373 patent is entitled to the benefit of the filing date of either application. Regardless, each applied reference was filed or published before March 25, 2011.

1. **U.S. Publication 2008/0036010 to Tamaki et al.** (“Tamaki”; TSMC-1006), published February 14, 2008, is prior art under 35 U.S.C. §102(b).¹

2. **U.S. Publication 2008/0042218 to Igarashi et al.** (“Igarashi”; TSMC-1007), published February 21, 2008, is prior art under 35 U.S.C. §102(b).

¹ Pre-AIA 35 U.S.C. §102 applies.

3. **Japanese Patent 9181194 to Sumi** (“Sumi”; TSMC-1008), published July 11, 1997, is prior art under 35 U.S.C. §102(b).

B. Grounds for Challenge

Ground		Claims	Prior Art
1	103	1-4, 8-9, 11-14	Tamaki
2	103	5, 7	Tamaki+Sumi
3	103	1-4, 6, 8-14	Igarashi
4	103	1-14	Igarashi+Sumi
5	103	2	Igarashi+Tamaki
6	103	2	Igarashi+Sumi+Tamaki

IV. ’373 Patent

The ’373 patent relates “to a semiconductor device having a complementary metal insulator semiconductor (CMIS)² dual-gate structure.” (TSMC-1001, 1:15-20.) The ’373 patent admits such dual-gate CMIS structures were known.

² A “CMIS” (“Complementary Metal-Insulator-Semiconductor”) is also referred to as “CMOS” (“Complementary Metal-**O**xide-Semiconductor”) when the insulator is an oxide. (TSMC-1003, ¶50 n1.)

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XI. Conclusion

IPR is respectfully requested.

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(a), Petitioner hereby certifies that portions of the above-captioned **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT 8,884,373**, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 13,980. Pursuant to 37 C.F.R. §42.24(a), this word count is in compliance and excludes the table of contents, table of authorities, mandatory notices under §42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing. This word count was prepared using Microsoft Word.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies, in accordance with 37 C.F.R. § 42.105,
that the foregoing **PETITION FOR *INTER PARTES* REVIEW OF U.S.
PATENT NO. 8,884,373**, TSMC's Power of Attorney, and all supporting exhibits
were served via FedEx Next Business Day Delivery, in their entirety on the Patent
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