

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

Case IPR2025-01305

Patent No. 8,329,572

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,329,572**

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LIST OF EXHIBITS

EX1001	U.S. Patent No. 8,329,572 (the “’572 patent”)
EX1002	Declaration of Dr. Banerjee in support of Petition for <i>inter partes</i> Review of U.S. Patent No. 8,329,572
EX1003	File history of the ’572 Patent
EX1004	US Patent Publication No. 2003/0148618 (“Parikh”)
EX1005	Japan Patent No. JP20020289689 (“Komada”)
EX1006	Japan Patent Publication No. JPH1116906A (“Maeda”)
EX1007	U.S. Patent No. 6,461,914 (“Roberts”)
EX1008- EX1010	Reserved.
EX1011	Chang <i>et al.</i> , “ULSI Technology,” (1996)
EX1012	Wolf, “Silicon Processing for the VLSI Era” (1986)
EX1013	S. K. Ghandi, VLSI Fabrication Principles (2nd, 1994)
EX1014	K. Kamoshida, <i>et al.</i> , “Self-aligned TiN Formation by Nz Plasma Bias Treatment of TiSi, Deposited by Selective Chemical Vapor Deposition” <i>36 Jpn. J. Appl. Phys.</i> (1997)
EX1015	T. Ohba, “Advanced multilevel metallization technology” 1995 Applied Surface Science 91 (1995)
EX1016	L. E. Griffiths, “Low temperature electrochemical synthesis of titanium nitride,” <i>2001 The Royal Society of Chemistry</i> (2001)

EX1017	J.S. Colligon, “Composition and chemical state of titanium nitride films obtained by different methods” <i>1994 Elsevier Science S.A.</i> (1994)
EX1018	H. Hamamura, “Composition and chemical state of titanium nitride films obtained by different methods,” <i>2001 The Japan Society of Applied Physics</i> (2001)
EX1019	S.M. Sze, <i>et al.</i> , <i>Semiconductor Devices: Physics and Technology</i> , (2nd ed. 2002)
EX1020	Curriculum Vitae of Dr. Sanjay Banerjee.

I. RELIEF REQUESTED

Claims 1-7 (“Challenged Claims”) should be canceled as unpatentable based on the following grounds:

Primary Reference	Ground	Claim(s) Challenged	35 U.S.C. §	Secondary Reference(s)
Parikh	1A	1-3	103	\
	1B	1-7	103	Komada
	2	2	103	Komada, Maeda
Roberts	3A	1-3	103	\
	3B	1-3	103	Parikh
	4	2	103	Parikh, Maeda
	5	4-7	103	Parikh, Komada

II. STATE OF THE ART

A. Semiconductor manufacturing

By the early 2000s, semiconductor manufacturing was a process that formed electronic components, primarily transistors, on a silicon substrate. EX1011, xv-xxi; EX1002, ¶34. The process began with wafer preparation, producing a high-purity, single-crystal silicon substrate that served as the foundation for all subsequent device fabrication. EX1011, 107. Then, an active device layer was formed by selectively doping regions to create transistors, diodes, and other components, with additional structures such as wells (n-well, p-well, or twin-well) in a CMOS structure. EX1011, 474-475; EX1012, 109-110, Fig. 1.

VII. MANDATORY NOTICES

Real Parties-in-Interest: Petitioner identifies the following as the real party-in-interest: Taiwan Semiconductor Manufacturing Company Ltd.

Related Matters: The '572 patent is asserted in the ongoing litigation, *Advanced Integrated Circuit Process LLC v. Taiwan Semiconductor Manufacturing Company Limited*, No. 2:25-cv-00324 (E.D.Tex.).

Counsel and Service Information:

Petitioner identifies the following lead and backup counsel and Petitioner consents and requests that all service and correspondence to them respectively and/or collectively in this matter be electronically provided at the below-provided e-mail addresses.

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VIII. PAYMENT OF FEES

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 02-0384.

IX. GROUNDS FOR STANDING

Petitioner certifies that the '572 patent is available for review, and Petitioners are not barred/estopped from requesting review on the grounds identified herein.

X. CONCLUSION

For the reasons given above, Petitioner requests IPR be instituted for the challenged claims.

Respectfully submitted,

Date: July 15, 2025

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Petition for *Inter Partes* Review
Patent No. 8,329,572

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that the foregoing Petition, exclusive of the exempted portions as provided in 37 C.F.R. §42.24(a), contains no more than 13,959 words and therefore complies with the type-volume limitations of 37 C.F.R. §42.24(a). The word count was calculated by starting with Microsoft Word's total document word count and subtracting the words for the Table of Contents, the Exhibit List, the Mandatory Notices, the Certificate of Compliance, and the Certificate of Service.

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CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. §§42.6(e) and 42.105, the undersigned certifies that on the July 15, 2025, a complete and entire copy of this **Petition for *Inter Partes* Review OF U.S. PATENT NO. 8,329,572** and all supporting exhibits were provided via Federal Express, postage prepaid, to the Patent Owner and its known representatives by serving the correspondence address of record for the ‘572 Patent holder and the patent holder’s counsel:

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