#### UNITED STATES PATENT AND TRADEMARK OFFICE

### BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICRON TECHNOLOGY, INC., INTEL CORPORATION, AND GLOBALFOUNDRIES U.S., INC.,

Petitioners

v.

DANIEL L. FLAMM,

Patent Owner

Case IPR No. Unassigned U.S. Patent No. 6,017,221 Issued: January 25, 2000 Named Inventor: Daniel L. Flamm

Title: PROCESS DEPENDING ON PLASMA DISCHARGES SUSTAINED BY INDUCTIVE COUPLING

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 6,017,221 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.1-.80, 42.100-.123

Mail Stop "PATENT BOARD"

Patent Trial and Appeal Board United States Patent and Trademark Office P.O. Box 1450 Alexandria, Virginia 22313-1450



## TABLE OF CONTENTS

				Page		
I.	INT	RODU	CTION	1		
II.	REQUIREMENTS FOR PETITION FOR INTER PARTES REVIEW					
	A.	Grounds for Standing (37 C.F.R. § 42.104(a))				
	B.	Notio	tice of Real Party-In-Interest (37 C.F.R. § 42.8(b)(1))			
	C.	Notio	Notice of Related Matters (37 C.F.R. § 42.8(b)(2))3			
	D.	Designation of Lead and Back-up Counsel (37 C.F.R. § 42.8(b)(3)) and Service Information (37 C.F.R. § 42.8(b)(4))				
	E.	Payment of Fees (37 C.F.R. § 42.103)6				
	F.		f of Service			
III.	IDE	IDENTIFICATION OF CLAIMS BEING CHALLENGED6				
	A.	Specific Art and Statutory Grounds on Which the Challenges to the Claims are Based				
IV.	OVE	OVERVIEW OF THE 221 Patent9				
	A.	The 2	221 Patent Disclosure	9		
		1.	Inductively-Coupled Plasma Source	9		
		2.	Capactively Coupled Currents	10		
		3.	Phase and Anti-Phase Portions of the Capacitively Coupled Currents			
		4.	Wave Adjustment Circuit	14		
V.	PER	SON F	HAVING ORDINARY SKILL IN THE ART	16		
VI.	CLA	CLAIM CONSTRUCTION16				
	A. "selectively balanced"					
		1.	Correct Construction: "selectively balanced" means "chosen to be made substantially equally distributed"			
		2.	Flamm's Construction: "selectively balanced covers a range, per one's selection, between 100% balanced to various lesser percentages"			
VII.	SUM	IMAR <sup>®</sup>	Y OF PRIOR ART REFERENCES	21		



	A.	Liebe	rman		21	
	B.	Dible			23	
	C.	Qian	• • • • • • • • • • • • • • • • • • • •		24	
	D.	Hana	wa		26	
	E.	Collin	ns		27	
VIII.				SONABLE LIKELIHOOD THAT AT LEAST THE 221 PATENT IS UNPATENTABLE	27	
	A.			Claims 1 and 5-7 Are Rendered Obvious by Under 35 U.S.C. § 103(a)	27	
		1.	Liebe	rman: Claim 1	28	
			a)	[1.P] A process for fabricating a product using a plasma source.	28	
			b)	[1.1] subjecting a substrate to entities, at least one of said entities emanating from a gaseous discharge excited by a high frequency field from an inductive coupling structure	28	
			c)	[1.2] in which a phase portion and an anti-phase portion of capacitive currents coupled from the inductive coupling structure are selectively balanced	30	
			d)	[1.3] wherein said inductive coupling structure is adjusted using a wave adjustment circuit, said wave adjustment circuit adjusting the phase portion and the anti-phase portion of the capacitively coupled currents.	36	
			2.		rman discloses all limitations of dependent claims	38
			a)	Claim 5: The process of claim 1 wherein said process is provided in a chamber	38	
			b)	Claim 6: The process of claim 5 wherein the chamber is provided for a process selected from etching, deposition, sputtering, or implantation	39	
			c)	Claim 7: The process of claim 1 wherein said inductive coupling structure provides a wave		



			multiple selected from a one-sixteenth wave, a one-eighth-wave, a quarter-wave, a half-wave, a three-quarter wave, and a full-wave	.39	
B.	Ground 2: Claims 1 and 5-7 Are Rendered Obvious by Lieberman In View of Dible Under 35 U.S.C. § 103(a)				
	1.	Lieberman in view of Dible: Claim 141			
		a)	[1.P] A process for fabricating a product using a plasma source	.41	
		b)	[1.1] subjecting a substrate to entities, at least one of said entities emanating from a gaseous discharge excited by a high frequency field from an inductive coupling structure	.41	
		c)	[1.2] in which a phase portion and an anti-phase portion of capacitive currents coupled from the inductive coupling structure are selectively balanced	.42	
		d)	[1.3] wherein said inductive coupling structure is adjusted using a wave adjustment circuit, said wave adjustment circuit adjusting the phase portion and the anti-phase portion of the capacitively coupled currents.	.44	
	2.		erman in view of Dible discloses all limitations of ndent claims 5-7	.45	
		a)	Claim 5: The process of claim 1 wherein said process is provided in a chamber	.45	
		b)	Claim 6: wherein the chamber is provided for a process selected from etching, deposition, sputtering, or implantation.	.46	
		c)	Claim 7: wherein said inductive coupling structure provides a wave multiple selected from a one-sixteenth wave, a one-eighth-wave, a quarter-wave, a half-wave, a three-quarter wave, and a full-wave.	.46	
	3.	Reas	ons to Combine Lieberman and Dible	.46	



C.	Ground 3: Claims 2-3 Are Rendered Obvious by Lieberman (Ground 1), or Lieberman in view of Dible (Ground 2 Combination), in View of Hanawa Under 35 U.S.C. § 103(a)49			
	1.	Lieberman (Ground 1), or Lieberman in view of Dible (Ground 2 Combination), in view of Hanawa teaches all limitations of claims 2 and 3		
		a)	Claim 2: The process of claim 1 wherein the wave adjustment circuit selectively adjusts a frequency of an rf power supply	49
		b)	Claim 3: The process of claim 1 wherein the high frequency field is adjusted using a variable frequency power supply	51
	2.	Reas	ons to Combine Lieberman and Hanawa	51
D.	Ground 4: Claim 4 is Rendered Obvious by Lieberman in View of Collins, or Alternatively in view of Dible and Collins, Under 35 U.S.C. § 103(a)			
	1.		erman in View of Collins teaches all limitations of m 4	56
		a)	Claim 4: The process of claim 1 wherein the wave adjustment circuit comprises a transmission line	56
	2.	Reas	ons to Combine Lieberman and Collins	57
E.	Ground 5: Claims 1, 5-7 Are Rendered Obvious By Qian Under 35 U.S.C. § 103(a)			
	1.	Qian	: Claim 1	59
		a)	[1.P] A process for fabricating a product using a plasma source	59
		b)	[1.1] Subjecting a substrate to entities, at least one of said entities emanating from a gaseous discharge excited by a high frequency field from an inductive coupling structure	59
		c)	[1.2] in which a phase portion and an anti-phase portion of capacitive currents coupled from the inductive coupling structure are selectively balanced	60



# DOCKET

# 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.

