### 505793544 11/26/2019

### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5840373

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
ROBERT CLARK	04/15/2019
KANDABARA TAPILY	10/30/2019
JEFFREY SMITH	11/26/2019
ANGELIQUE RALEY	11/12/2019
QIANG ZHAO	04/03/2019

#### **RECEIVING PARTY DATA**

Name:	TOKYO ELECTRON LIMITED	
Street Address:	AKASAKA BIZ TOWER	
Internal Address:	3-1 AKASAKA 5-CHOME, MINATO-KU	
City:	TOKYO	
State/Country:	JAPAN	
Postal Code:	107-6325	

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16356372

#### **CORRESPONDENCE DATA**

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

**Phone:** 512.424.1000

Email: TEHIPDocket@us.tel.com

Correspondent Name: TOKYO ELECTRON U.S. HOLDINGS, INC.

Address Line 1: 2400 GROVE BLVD.

Address Line 4: AUSTIN, TEXAS 78741

ATTORNEY DOCKET NUMBER:	180487US08
NAME OF SUBMITTER:	JORDAN GREGGERSEN
SIGNATURE:	/Jordan Greggersen/
DATE SIGNED:	11/26/2019
	This document serves as an Oath/Declaration (37 CFR 1.63).

PATENT REEL: 051121 FRAME: 0278

505793544

### **Total Attachments: 15** source=180487US08\_signed\_Tapily#page1.tif source=180487US08\_signed\_Tapily#page2.tif source=180487US08\_signed\_Tapily#page3.tif source=180487US08\_signed\_Tapily#page4.tif source=180487US08\_signed\_Tapily#page5.tif source=180487US08\_signed\_Tapily#page6.tif source=180487US08\_signed\_Tapily#page7.tif source=180487US08\_signed\_Tapily#page8.tif source=180487US08\_signed\_Tapily#page9.tif source=180487US08\_signed\_Tapily#page10.tif source=180487US08\_signed\_Tapily#page11.tif source=180487US08\_signed\_Tapily#page12.tif source=180487US08\_signed\_Tapily#page13.tif source=180487US08\_signed\_Tapily#page14.tif source=180487US08\_signed\_Tapily#page15.tif

PATENT REEL: 051121 FRAME: 0279

As a below named inventor, I hereby declare that:

the claims.

# SELF-AWARE AND CORRECTING HETEROGENOUS PLATFORM INCORPORATING INTEGRATED SEMICONDUCTOR PROCESSING MODULES AND METHOD FOR USING SAME

This	declaration and assignment is directed to:
	The attached application having a docket number and title identified above, or United States application number or PCT international application number filed on
The	above-identified application was made or authorized to be made by me.
	lieve that I am the original inventor or an original joint inventor of a claimed invention in dentified application.
l hav	ve reviewed and understand the contents of the above-identified application, including

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**Assignor(s)**: The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

Assignee: The Assignee is Tokyo Electron Limited, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the

Page 1 of 3

(1) Legal name of Inventor:	Robert Clark
Inventor's Signature:	Date: 4/15/2019
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	
(2) Legal name of Inventor:	Kandabara Tapily
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(3) Legal name of Inventor:	Jeffrey Smith
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	

(4) Legal name of inventor:	Angelique Raley
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(5) Legal name of Inventor:	Qiang Zhao
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	

## SELF-AWARE AND CORRECTING HETEROGENOUS PLATFORM INCORPORATING INTEGRATED SEMICONDUCTOR PROCESSING MODULES AND METHOD FOR USING SAME

	As a below named inventor, I hereby declare that:
	This declaration and assignment is directed to:
	The attached application having a docket number and title identified above, or United States application number or PCT international application number filed on
	The above-identified application was made or authorized to be made by me.
the ab	I believe that I am the original inventor or an original joint inventor of a claimed invention in over-identified application.
the cla	I have reviewed and understand the contents of the above-identified application, including aims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**Assignor(s)**: The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

**Assignee**: The Assignee is **Tokyo Electron Limited**, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filling of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the

Page 1 of 3

(1) Legal name of Inventor:	Robert Clark
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	
(2) Legal name of Inventor:	Kandabara Tapily
Inventor's Signature:	Date: 10/30/2013
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(3) Legal name of Inventor:	Jeffrey Smith
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	

(4) Legal name of inventor:	Angelique Raley
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(5) Legal name of Inventor:	Qiang Zhao
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	

# SELF-AWARE AND CORRECTING HETEROGENOUS PLATFORM INCORPORATING INTEGRATED SEMICONDUCTOR PROCESSING MODULES AND METHOD FOR USING SAME

As a below named inventor, I hereby declare that:
This declaration and assignment is directed to:
The attached application having a docket number and title identified above, or X United States application number or PCT international application number filed on
The above-identified application was made or authorized to be made by me.
I believe that I am the original inventor or an original joint inventor of a claimed invention in above-identified application.
I have reviewed and understand the contents of the above-identified application, including

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

the

the claims.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**Assignor(s)**: The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

**Assignee**: The Assignee is **Tokyo Electron Limited**, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the

(1) Legal name of Inventor:	Robert Clark
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	
(2) Legal name of Inventor:	Kandabara Tapily
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
8	
(3) Legal name of Inventor:	Jeffrey Smith
Inventor's Signature:	Jale: 11-26-2019
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	

(4) Legal name of Inventor:	Angelique Raley
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(5) Legal name of Inventor:	Qiang Zhao
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	

# SELF-AWARE AND CORRECTING HETEROGENOUS PLATFORM INCORPORATING INTEGRATED SEMICONDUCTOR PROCESSING MODULES AND METHOD FOR USING SAME

As a below named inventor, I hereby declare that:	
This declaration and assignment is directed to:	
The attached application having a docket number and title identified above, or X United States application number or PCT international application number filed on	
The above-identified application was made or authorized to be made by me.	

I believe that I am the original inventor or an original joint inventor of a claimed invention in the above-identified application.

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**Assignor(s)**: The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

Assignee: The Assignee is Tokyo Electron Limited, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the

(1) Legal name of Inventor:	Robert Clark
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	
(2) Legal name of Inventor:	Kandabara Tapily
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	A A AMERICAN CO.
(3) Legal name of Inventor:	Jeffrey Smith
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	

(4) Legal name of Inventor:	Angelique Raley
Inventor's Signature:	cheiligular Date: 11/12/2010
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	FR
(5) Legal name of Inventor:	Qiang Zhao
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	

# SELF-AWARE AND CORRECTING HETEROGENOUS PLATFORM INCORPORATING INTEGRATED SEMICONDUCTOR PROCESSING MODULES AND METHOD FOR USING SAME

As a below named inventor, I hereby declare that:	
This declaration and assignment is directed to:	
The attached application having a docket number and title identified above, or X United States application number or PCT international application number filed on	
The above-identified application was made or authorized to be made by me.	

I believe that I am the original inventor or an original joint inventor of a claimed invention in the above-identified application.

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**Assignor(s)**: The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

Assignee: The Assignee is Tokyo Electron Limited, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the

(1) Legal name of Inventor:	Robert Clark
Inventor's Signature:	Date:
Residence City/State/Country:	Fremont, CA, US
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	
(2) Legal name of Inventor:	Kandabara Tapily
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(3) Legal name of inventor:	Jeffrey Smith
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	

(4) Legal name of Inventor:	Angelique Raley
Inventor's Signature:	Date:
Residence City/State/Country:	Albany, NY, US
Mailing Address:	NanoFab 300 South
Mailing Address:	255 Fuller Road, Suite 214, Albany, NY 12203, US
Citizenship:	
(5) Legal name of Inventor:	Qiang Zhao
Inventor's Signature:	Date: 04/03/2019
Residence City/State/Country:	Frement, CA, US Milpitas, CA, USA
Mailing Address:	2859 Bayview Drive, Fremont, CA 94538, US
Mailing Address:	
Citizenship:	USA