To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copies therefrom.

1. Name of conveying party(ies):
   1. CHUNG, Seung-pil
   2. CHI, Kyeong-koo
   3. KIM, Ji-soo
   4. CHU, Chang-woong

   Additional names(s) of conveying party(ies)  ☐ Yes  ☒ No

2. Name and address of receiving party(ies):
   Name: SAMSUNG ELECTRONICS CO., LTD.
   Address: 416, Maetan-dong, Paldal-gu, Suwon-city, Kyungki-do

   City: Suwon-city, Kyungki-do  State/Prov.: Republic of Korea  ZIP:

   Additional name(s) & address(es)  ☐ Yes  ☒ No

Execution Date: October 16, 2001

4. Application number(s) or patent numbers(s):
   If this document is being filed together with a new application, the execution date of the application is: Oct. 16, 2001

   Patent Application No. 3259
   Filing date OCT. 25, 2001

   Additional numbers ☐ Yes  ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:
   Name: ADAM C. VOLENTINE
   Registration No. 33289
   Address: VOLCENTINE FRANCOS, PLLC
   12200 SUNRISE VALLEY DRIVE, SUITE 150
   City: RESTON  State/Prov.: VA
   Country: U.S.A.  ZIP: 20191

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41): $ 40.00
   ☒ Enclosed - Any excess or insufficiency should be credited or debited to deposit account
   ☐ Authorized to be charged to deposit account

8. Deposit account number: 50-0238
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   To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

   ADAM C. VOLENTINE
   Name of Person Signing
   Signature OCT. 25, 2001

   Total number of pages including cover sheet, attachments, and
   (Attach duplicate copy of this page if paying by deposit account)
ASSIGNMENT

In consideration of the sum of One Dollar ($1.00) and other good and valuable consideration paid to each of the undersigned

CHUNG, Seung-pil

CHI, Kyeong-koo

KIM, Ji-soo

CHU, Chang-won

SEO, Sang-hun

the undersigned hereby sell(s) and assign(s) to

SAMSUNG ELECTRONICS CO., LTD.

of 416, Maetan-dong, Paldal-gu, Suwon-city, Kyungki-do, Republic of Korea

(hereinafter designated as the Assignee) the entire right, title and interest for the United States as defined in 35 USC 100, in the invention known as

METHOD OF MANUFACTURING A CONTACT OF A SEMICONDUCTOR DEVICE USING

CLUSTER APPARATUS HAVING AT LEAST ONE PLASMA PRETREATMENT MODULE

for which an application for patent in the United States of America has been executed by the undersigned on October 14, 2001

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division or reissue thereof and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

The undersigned agree(s) to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the Assignee.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patents of the United States resulting from said application or any division or divisions or continuing or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.
The undersigned hereby grant(s) to Adam C. Volantine, Reg. No. 33,289, and the firm of JONES VOLENTINE, P.L.L.C. the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent Office for recordation of this document.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date OCT 16, 2001, Name of Inventor Seung-pil Chung  
Date OCT 16, 2001, Name of Inventor Kyeong-choo Chi  
Date OCT 16, 2001, Name of Inventor Ji-soo Kim  
Date OCT 16, 2001, Name of Inventor Chang-woong Cho  
Date OCT 16, 2001, Name of Inventor Sang-hun Seo

(Note regarding Witnessing and/or Acknowledgment: Acknowledgment before a United States Consul is preferred but not required. If not acknowledged, then it is recommended that the execution by the Inventor(s) be witnessed by at least two witnesses who sign here. However, the current practice of the U.S. Patent and Trademark Office is to record an Assignment even if it has not been acknowledged and/or witnessed.)

Witness ________________________________
Witness ________________________________

ACKNOWLEDGMENT

This ______________ day of ______________, 19__, before me personally came the above-named ___________________________, to me personally known as the individual(s) who executed the foregoing assignment, who did acknowledge to me that he (they) executed the same of his (their) own free will for the purposes therein set forth.

Official Signature ____________________________

SEAL ________________________________

Official Title ________________________________

Applicant Reference No.: SS-15258-US  Atty Docket No.: SEC.877

Serial No.: ____________________________ Filing Date: ____________________________

RECORDED: 10/25/2001