PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5407972

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HYEJUNG JUNG	02/18/2019
PRATEEK BASU MALLICK	03/04/2019
JOACHIM LOEHR	02/14/2019
VIJAY NANGIA	02/14/2019
RAVI KUCHIBHOTLA	02/14/2019

RECEIVING PARTY DATA

Name:	LENOVO (SINGAPORE) PTE. LTD.
Street Address:	151 LORONG CHUAN
Internal Address:	# 02-01
City:	NEW TECH PARK
State/Country:	SINGAPORE
Postal Code:	556741

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16278613

CORRESPONDENCE DATA

Fax Number: (801)531-1929

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: (801) 994-4646
Email: heather@kunzlerlaw.com
Correspondent Name: BRIAN C. KUNZLER
Address Line 1: 50 W. BROADWAY, 10TH FLOOR
Address Line 4: SALT LAKE CITY, UTAH 84101

ATTORNEY DOCKET NUMBER:	SMM920170206-US-NP
NAME OF SUBMITTER:	BRIAN C. KUNZLER
SIGNATURE:	/Brian C. Kunzler/
DATE SIGNED:	03/06/2019

Total Attachments: 15

source=Assignment_SMM920170206-US-NP#page1.tif
source=Assignment_SMM920170206-US-NP#page2.tif
source=Assignment_SMM920170206-US-NP#page3.tif
source=Assignment_SMM920170206-US-NP#page4.tif
source=Assignment_SMM920170206-US-NP#page5.tif
source=Assignment_SMM920170206-US-NP#page6.tif
source=Assignment_SMM920170206-US-NP#page7.tif
source=Assignment_SMM920170206-US-NP#page8.tif
source=Assignment_SMM920170206-US-NP#page9.tif
source=Assignment_SMM920170206-US-NP#page10.tif
source=Assignment_SMM920170206-US-NP#page11.tif
source=Assignment_SMM920170206-US-NP#page12.tif
source=Assignment_SMM920170206-US-NP#page13.tif
source=Assignment_SMM920170206-US-NP#page14.tif
source=Assignment_SMM920170206-US-NP#page15.tif

DOCKET NUMBER: **SMM920170206-US-NP**

ASSIGNMENT AND AGREEMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, **Hyejung Jung, Northbrook, Illinois; Prateek Basu Mallick, Langen, Germany; Joachim Loehr, Wiesbaden, Germany; Vijay Nangia, Woodridge, Illinois**; and **Ravi Kuchibhotla, Clarendon Hills, Illinois**; have sold, assigned and transferred, and do hereby sell, assign and transfer, unto **Lenovo (Singapore) Pte. Ltd.**, a corporation of Singapore, having a place of business at 151, Lorong Chuan #02-01, New Tech Park, Singapore 556741, and its successors, assigns, and legal representatives, the entire right, title and interest for the United States of America in and to certain inventions entitled **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"** as described, illustrated in **SMM920170206-US-NP** and as described, illustrated and claimed in the following applications:

U.S. Application filed herewith and entitled: **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"**

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to the invention and in and to applications for Letters Patent therefor in all countries foreign to the United States of America, including all rights under any and all international conventions and treaties in respect of the invention and the applications for Letters Patent in foreign countries, and I further authorize Assignee to apply for Letters Patent in foreign countries directly in its own name, and to claim priority of the filing date of the application for Letters Patent of the United States of America under the provisions of any and all international conventions and treaties.

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to other applications for Letters Patent on the inventions referenced in this Assignment and Agreement, and all rights, title and interest in and to all applications for Letters Patent in respect of the invention filed under any and all international conventions and treaties together with the entire right, title and interest in and to Letters Patent which may be issued upon the application(s) or any application(s) otherwise claiming priority thereto, and upon any divisions, extensions, continuations, reissues and/or re-examinations of such application(s).

I further authorize Assignee to apply for Letters Patent directly in its own name where applicable, and to claim priority of the filing date of the application for Letters

Patent filed under the laws of the applicable country and under the provisions of any and all international conventions and treaties.

I hereby authorize Assignee to request the Commissioner of Patents of the United States of America to issue any Letters Patents upon the aforesaid application, divisions, extensions, continuations, reissues or re-examinations, to Assignee, for the sole use and benefit of Assignee, to the full end of the term for which Letters Patent may be granted, the same as they would have been held and enjoyed by me had this assignment not been made, and I hereby authorize Assignee to request the equivalent authorities in foreign countries to issue the patents of their respective countries to Assignee.

I agree that, when requested, I will, without charge to Assignee, but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing, maintaining and enforcing patents for the inventions in any and all countries and for vesting title thereto in Assignee.

I covenant with Assignee that the interest and property hereby conveyed is free from all prior assignment, grant, mortgage, license or other encumbrance.

(1) Legal Name of Inventor: **Hyejung Jung**

Signature:____________________ Date: 2/18/2019

(2) Legal Name of Inventor: **Prateek Basu Mallick**

Signature:____________________ Date:__________

(3) Legal Name of Inventor: **Joachim Loehr**

Signature:____________________ Date:__________

(4) Legal Name of Inventor: **Vijay Nangia**

Signature:____ Date:______________

(5) Legal Name of Inventor: **Ravi Kuchibhotla**

Signature:____ Date:______________

ASSIGNMENT AND AGREEMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, **Hyejung Jung, Northbrook, Illinois**; **Prateek Basu Mallick, Langen, Germany**; **Joachim Loehr, Wiesbaden, Germany**; **Vijay Nangia, Woodridge, Illinois**; and **Ravi Kuchibhotla, Clarendon Hills, Illinois**; have sold, assigned and transferred, and do hereby sell, assign and transfer, unto **Lenovo (Singapore) Pte. Ltd.**, a corporation of Singapore, having a place of business at 151, Lorong Chuan #02-01, New Tech Park, Singapore 556741, and its successors, assigns, and legal representatives, the entire right, title and interest for the United States of America in and to certain inventions entitled **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"** as described, illustrated in **SMM920170206-US-NP** and as described, illustrated and claimed in the following applications:

> U.S. Application filed herewith and entitled: **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"**

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to the invention and in and to applications for Letters Patent therefor in all countries foreign to the United States of America, including all rights under any and all international conventions and treaties in respect of the invention and the applications for Letters Patent in foreign countries, and I further authorize Assignee to apply for Letters Patent in foreign countries directly in its own name, and to claim priority of the filing date of the application for Letters Patent of the United States of America under the provisions of any and all international conventions and treaties.

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to other applications for Letters Patent on the inventions referenced in this Assignment and Agreement, and all rights, title and interest in and to all applications for Letters Patent in respect of the invention filed under any and all international conventions and treaties together with the entire right, title and interest in and to Letters Patent which may be issued upon the application(s) or any application(s) otherwise claiming priority thereto, and upon any divisions, extensions, continuations, reissues and/or re-examinations of such application(s).

I further authorize Assignee to apply for Letters Patent directly in its own name where applicable, and to claim priority of the filing date of the application for Letters

Patent filed under the laws of the applicable country and under the provisions of any and all international conventions and treaties.

I hereby authorize Assignee to request the Commissioner of Patents of the United States of America to issue any Letters Patents upon the aforesaid application, divisions, extensions, continuations, reissues or re-examinations, to Assignee, for the sole use and benefit of Assignee, to the full end of the term for which Letters Patent may be granted, the same as they would have been held and enjoyed by me had this assignment not been made, and I hereby authorize Assignee to request the equivalent authorities in foreign countries to issue the patents of their respective countries to Assignee.

I agree that, when requested, I will, without charge to Assignee, but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing, maintaining and enforcing patents for the inventions in any and all countries and for vesting title thereto in Assignee.

I covenant with Assignee that the interest and property hereby conveyed is free from all prior assignment, grant, mortgage, license or other encumbrance.

(1) Legal Name of Inventor: **Hyejung Jung**

Signature:____________________________________ Date:____________

(2) Legal Name of Inventor: **Prateek Basu Mallick**

Signature:____________________________________ Date: March 04, 2019

(3) Legal Name of Inventor: **Joachim Loehr**

Signature:____________________________________ Date:____________

(4) Legal Name of Inventor: **Vijay Nangia**

Signature:____ Date:_______________

(5) Legal Name of Inventor: **Ravi Kuchibhotla**

Signature:____ Date:_______________

DOCKET NUMBER: **SMM920170206-US-NP**

ASSIGNMENT AND AGREEMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, **Hyejung Jung, Northbrook, Illinois**; **Prateek Basu Mallick, Langen, Germany**; **Joachim Loehr, Wiesbaden, Germany**; **Vijay Nangia, Woodridge, Illinois**; and **Ravi Kuchibhotla, Clarendon Hills, Illinois**; have sold, assigned and transferred, and do hereby sell, assign and transfer, unto **Lenovo (Singapore) Pte. Ltd.**, a corporation of Singapore, having a place of business at 151, Lorong Chuan #02-01, New Tech Park, Singapore 556741, and its successors, assigns, and legal representatives, the entire right, title and interest for the United States of America in and to certain inventions entitled "**RESOURCES CORRESPONDING TO BANDWIDTH PARTS**" as described, illustrated in **SMM920170206-US-NP** and as described, illustrated and claimed in the following applications:

U.S. Application filed herewith and entitled: "**RESOURCES CORRESPONDING TO BANDWIDTH PARTS**"

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to the invention and in and to applications for Letters Patent therefor in all countries foreign to the United States of America, including all rights under any and all international conventions and treaties in respect of the invention and the applications for Letters Patent in foreign countries, and I further authorize Assignee to apply for Letters Patent in foreign countries directly in its own name, and to claim priority of the filing date of the application for Letters Patent of the United States of America under the provisions of any and all international conventions and treaties.

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to other applications for Letters Patent on the inventions referenced in this Assignment and Agreement, and all rights, title and interest in and to all applications for Letters Patent in respect of the invention filed under any and all international conventions and treaties together with the entire right, title and interest in and to Letters Patent which may be issued upon the application(s) or any application(s) otherwise claiming priority thereto, and upon any divisions, extensions, continuations, reissues and/or re-examinations of such application(s).

I further authorize Assignee to apply for Letters Patent directly in its own name where applicable, and to claim priority of the filing date of the application for Letters

Patent filed under the laws of the applicable country and under the provisions of any and all international conventions and treaties.

I hereby authorize Assignee to request the Commissioner of Patents of the United States of America to issue any Letters Patents upon the aforesaid application, divisions, extensions, continuations, reissues or re-examinations, to Assignee, for the sole use and benefit of Assignee, to the full end of the term for which Letters Patent may be granted, the same as they would have been held and enjoyed by me had this assignment not been made, and I hereby authorize Assignee to request the equivalent authorities in foreign countries to issue the patents of their respective countries to Assignee.

I agree that, when requested, I will, without charge to Assignee, but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing, maintaining and enforcing patents for the inventions in any and all countries and for vesting title thereto in Assignee.

I covenant with Assignee that the interest and property hereby conveyed is free from all prior assignment, grant, mortgage, license or other encumbrance.

(1) Legal Name of Inventor: **Hyejung Jung**

Signature:______________________________ Date:______________

(2) Legal Name of Inventor: **Prateek Basu Mallick**

Signature:______________________________ Date:______________

(3) Legal Name of Inventor: **Joachim Loehr**

Signature:______________________________ Date: Feb 14th, 2019

(4) Legal Name of Inventor: **Vijay Nangia**

Signature:____ Date:______________

(5) Legal Name of Inventor: **Ravi Kuchibhotla**

Signature:____ Date:______________

DOCKET NUMBER: **SMM920170206-US-NP**

ASSIGNMENT AND AGREEMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, **Hyejung Jung, Northbrook, Illinois**; **Prateek Basu Mallick, Langen, Germany**; **Joachim Loehr**, **Wiesbaden, Germany**; **Vijay Nangia, Woodridge, Illinois**; and **Ravi Kuchibhotla**, **Clarendon Hills, Illinois**; have sold, assigned and transferred, and do hereby sell, assign and transfer, unto **Lenovo (Singapore) Pte. Ltd.**, a corporation of Singapore, having a place of business at 151, Lorong Chuan #02-01, New Tech Park, Singapore 556741, and its successors, assigns, and legal representatives, the entire right, title and interest for the United States of America in and to certain inventions entitled **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"** as described, illustrated in **SMM920170206-US-NP** and as described, illustrated and claimed in the following applications:

> U.S. Application filed herewith and entitled: **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"**

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to the invention and in and to applications for Letters Patent therefor in all countries foreign to the United States of America, including all rights under any and all international conventions and treaties in respect of the invention and the applications for Letters Patent in foreign countries, and I further authorize Assignee to apply for Letters Patent in foreign countries directly in its own name, and to claim priority of the filing date of the application for Letters Patent of the United States of America under the provisions of any and all international conventions and treaties.

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to other applications for Letters Patent on the inventions referenced in this Assignment and Agreement, and all rights, title and interest in and to all applications for Letters Patent in respect of the invention filed under any and all international conventions and treaties together with the entire right, title and interest in and to Letters Patent which may be issued upon the application(s) or any application(s) otherwise claiming priority thereto, and upon any divisions, extensions, continuations, reissues and/or re-examinations of such application(s).

I further authorize Assignee to apply for Letters Patent directly in its own name where applicable, and to claim priority of the filing date of the application for Letters

Patent filed under the laws of the applicable country and under the provisions of any and all international conventions and treaties.

I hereby authorize Assignee to request the Commissioner of Patents of the United States of America to issue any Letters Patents upon the aforesaid application, divisions, extensions, continuations, reissues or re-examinations, to Assignee, for the sole use and benefit of Assignee, to the full end of the term for which Letters Patent may be granted, the same as they would have been held and enjoyed by me had this assignment not been made, and I hereby authorize Assignee to request the equivalent authorities in foreign countries to issue the patents of their respective countries to Assignee.

I agree that, when requested, I will, without charge to Assignee, but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing, maintaining and enforcing patents for the inventions in any and all countries and for vesting title thereto in Assignee.

I covenant with Assignee that the interest and property hereby conveyed is free from all prior assignment, grant, mortgage, license or other encumbrance.

(1) Legal Name of Inventor: **Hyejung Jung**

Signature:______________________________ Date:______________

(2) Legal Name of Inventor: **Prateek Basu Mallick**

Signature:______________________________ Date:______________

(3) Legal Name of Inventor: **Joachim Loehr**

Signature:______________________________ Date:______________

(4) Legal Name of Inventor: **Vijay Nangia**

Signature: Vijay Nangia Date: February 14, 2019

(5) Legal Name of Inventor: **Ravi Kuchibhotla**

Signature:______________________ Date:__________

ASSIGNMENT AND AGREEMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, we, **Hyejung Jung, Northbrook, Illinois**; **Prateek Basu Mallick, Langen, Germany**; **Joachim Loehr, Wiesbaden, Germany**; **Vijay Nangia, Woodridge, Illinois**; and **Ravi Kuchibhotla, Clarendon Hills, Illinois**; have sold, assigned and transferred, and do hereby sell, assign and transfer, unto **Lenovo (Singapore) Pte. Ltd.**, a corporation of Singapore, having a place of business at 151, Lorong Chuan #02-01, New Tech Park, Singapore 556741, and its successors, assigns, and legal representatives, the entire right, title and interest for the United States of America in and to certain inventions entitled **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"** as described, illustrated in **SMM920170206-US-NP** and as described, illustrated and claimed in the following applications:

> U.S. Application filed herewith and entitled: **"RESOURCES CORRESPONDING TO BANDWIDTH PARTS"**

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to the invention and in and to applications for Letters Patent therefor in all countries foreign to the United States of America, including all rights under any and all international conventions and treaties in respect of the invention and the applications for Letters Patent in foreign countries, and I further authorize Assignee to apply for Letters Patent in foreign countries directly in its own name, and to claim priority of the filing date of the application for Letters Patent of the United States of America under the provisions of any and all international conventions and treaties.

I hereby also sell, assign and transfer unto Assignee, the entire right, title and interest in and to other applications for Letters Patent on the inventions referenced in this Assignment and Agreement, and all rights, title and interest in and to all applications for Letters Patent in respect of the invention filed under any and all international conventions and treaties together with the entire right, title and interest in and to Letters Patent which may be issued upon the application(s) or any application(s) otherwise claiming priority thereto, and upon any divisions, extensions, continuations, reissues and/or re-examinations of such application(s).

I further authorize Assignee to apply for Letters Patent directly in its own name where applicable, and to claim priority of the filing date of the application for Letters

Patent filed under the laws of the applicable country and under the provisions of any and all international conventions and treaties.

I hereby authorize Assignee to request the Commissioner of Patents of the United States of America to issue any Letters Patents upon the aforesaid application, divisions, extensions, continuations, reissues or re-examinations, to Assignee, for the sole use and benefit of Assignee, to the full end of the term for which Letters Patent may be granted, the same as they would have been held and enjoyed by me had this assignment not been made, and I hereby authorize Assignee to request the equivalent authorities in foreign countries to issue the patents of their respective countries to Assignee.

I agree that, when requested, I will, without charge to Assignee, but at its expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing, maintaining and enforcing patents for the inventions in any and all countries and for vesting title thereto in Assignee.

I covenant with Assignee that the interest and property hereby conveyed is free from all prior assignment, grant, mortgage, license or other encumbrance.

(1) Legal Name of Inventor: **Hyejung Jung**

Signature:____________________________________ Date:____________

(2) Legal Name of Inventor: **Prateek Basu Mallick**

Signature:____________________________________ Date:____________

(3) Legal Name of Inventor: **Joachim Loehr**

Signature:____________________________________ Date:____________

(4) Legal Name of Inventor: **Vijay Nangia**

Signature:____ Date:________________

(5) Legal Name of Inventor: **Ravi Kuchibhotla**

Signature:____ Date: February 14, 2019