

07-20-1999



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hereof.

To the Commissioner of Patents and Trademarks. Please record

1. Name of conveying party(ies):  
Oren Arad  
Avi Gal  
Boaz Efroni

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No

3. Nature of Conveyance:

☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other

Execution Date: 5/25/99, 5/31/99 & 5/31/99

2. Name and address of receiving party(ies):

Name: NATIONAL SEMICONDUCTOR CORPORATION

Internal Address: M/S D3-579

Street Address: 2900 Semiconductor Drive

City, State and Zip: Santa Clara, CA 95051-8090

Additional Name(s) & address(es) attached?

☐ Yes ☒ No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)  
09/333,763

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Heath W. Hoglund

Internal Address: Limbach & Limbach L.L.P.  
Street Address: 2001 Ferry Building  
City, State, ZIP: San Francisco, California 94111  
Telephone: (415) 433-4150  
Facsimile: (415) 433-8716

Attorney Docket No. NSC1-E5300 [P04104]

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41):.....\$ 40.00

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☒ Charge any deficiencies in the enclosed fee to  
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9. Statement and signature.

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.

Heath W. Hoglund, Reg. No. 41,076  
Name of Person Signing

Signature

Date

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Washington, DC 20231 on

Dated:

Name

Revised: 4/21/97

ASSIGNMENT

WHEREAS, WE, Oren Arad, Avi Gal, and Boaz Efroni, hereinafter referred to as "ASSIGNORS", have invented certain new and useful improvements as described and set forth in the below-identified application for United States Letters Patent:

Title of Invention: METHOD FOR FAST OFF-LINE TRAINING FOR DISCRETE MULTITONE TRANSMISSIONS

Application Execution Date: \_\_\_\_\_ Filing Date: Herewith

Appln. No.: New;

WHEREAS, NATIONAL SEMICONDUCTOR CORPORATION, a corporation of the State of Delaware, 2900 Semiconductor Drive, M/S D3-579, Santa Clara, California 95051-8090, hereinafter referred to as "ASSIGNEE", is desirous of acquiring the entire right, title and interest in the said invention and application and in any Letters Patent which may be granted on the same;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for and in consideration of the sum of One Dollar (\$1.00) lawful money paid to Assignors by Assignee, receipt of which is hereby acknowledged, Assignors has sold, assigned and transferred, and by these presents do sell, assign and transfer unto said Assignee, and Assignee's successors and assigns, all right, title and interest in and to the said invention, said application for United States Letters Patent, and any Letters Patent which may hereafter be granted on the same in the United States and all countries throughout the world including any divisions, renewals, continuations in whole or in part, substitutions, conversions, reissues, prolongations or extensions thereof, the said interest to be held and enjoyed by said Assignee as fully and exclusively as it would have been held and enjoyed by said Assignors had this assignment and transfer not been made, to the full end and term of any Letters Patent.

Assignors further agree that they will, without charge to said Assignee, but at Assignee's expense, cooperate with Assignee in the prosecution of said application and/or applications, execute, verify, acknowledge and deliver all such further papers, including applications for Letters Patent and for the reissue thereof, and instruments of assignment and transfer thereof, and will perform such other acts as Assignee lawfully may request, to obtain or maintain Letters Patent for said invention and improvement in any and all countries, and to vest title thereto in said Assignee, or Assignee's successors and assigns.

We hereby authorize and request our attorney, Heath W. Hoglund, of Limbach & Limbach L.L.P., 2001 Ferry Building, San Francisco, California 94111-4262, to insert here in parentheses (application number 09/333,763, filed 06/15/99) the filing date and application number of said application when known.

IN TESTIMONY WHEREOF, Assignor has hereunto signed his/her name to this assignment on the dates indicated below.

Dated: 25 5 99

  
Oren Arad

State of \_\_\_\_\_

County of \_\_\_\_\_

On 25.5.99 before me, \_\_\_\_\_,

personally appeared \_\_\_\_\_, personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
Signature of Notary

SEAL

IN TESTIMONY WHEREOF, Assignor has hereunto signed his/her name to this assignment on the dates indicated below.

Dated: 31.5.99

Avi Gal

State of \_\_\_\_\_

County of \_\_\_\_\_

On 31.5.99 before me, \_\_\_\_\_,

personally appeared \_\_\_\_\_, personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature of Notary

SEAL

IN TESTIMONY WHEREOF, Assignor has hereunto signed his/her name to this assignment on the dates indicated below.

Dated: 31.5.99

Boaz Efroni

State of \_\_\_\_\_

County of \_\_\_\_\_

On 31.5.99 before me, \_\_\_\_\_,

personally appeared \_\_\_\_\_, personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature of Notary

SEAL

# AUTHENTICATION OF SIGNATURE

I the undersigned, David Sherm  
Notary at 5, Sokolov St. Herzelia  
hereby certify that on 25.5.99  
there appeared before me in my office:

1) Oren Arad  
whose identity was proved to me by  
identity booklet no. 0-2483387-3  
issued by Ministry of Interior  
at Ramat-Gan on 9/3/99

2) Avraham (avi) Dov Gal  
whose identity was proved to me by  
identity booklet no. 0-5770142-7  
issued by Ministry of Interior  
at Tel-Aviv on 17/7/90

3) Boaz Efroni Rotman  
whose identity was proved to me by  
identity booklet no. 0-2409135-7  
issued by Ministry of Interior  
at Natania on 22/4/96

and signed of their own free will on  
the annexed document (the attached  
document lettered "A" (the document  
overleaf) drawn up in the  
English language.

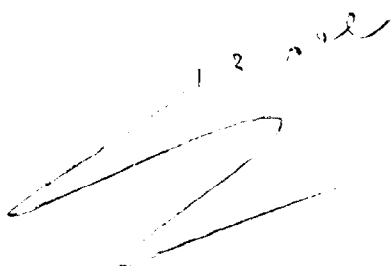
In witness whereof I authenticate  
the signature of

- 1) Mr. Oren Arad
- 2) Mr. Avraham (Avi) Dov Gal
- 3) Mr. Boaz Efroni Rotman

by my signature and seal today  
May 31st, 1999

I.S. 218.- fees paid.

חותם הנוטריון  
Notary's Seal



אני הח"מ דוד שרם  
נוטריון ברח' סוקולוב 5 הרצליה  
מאשר כי ביום 25.5.99 ניצבו  
לפני במשרדי

1) אורן ארד  
שזהותו הוכחה לי על פי ת.ז. מס'  
0-2483387-3 שניתן מאת מ. הפנים  
ב- רמת-גן ביום 9.3.99

וביום 31.5.99 ניצבו לפני:

2) אברהם (אבי) דב גל  
שזהותו הוכחה לי על פי ת.ז. מס'  
0-5770142-7 שניתן מאת מ. הפנים  
ב- תל-אביב ביום 17.7.90

3) בועז אפרוני רוטמן  
שזהותו הוכחה לי על פי ת.ז. מס'  
0-2409135-7 שניתן מאת מ. הפנים  
ב- נתניה ביום 22.4.96

וחתמו מרצונם החופשי על המסמך  
שלעיל (המצורף והמסומן באות  
"A" (שמעבר לדף) והערוך בשפה  
האנגלית

ולדאיה הנני מאמת את חתימתם של

- 1) מר אורן ארד
- 2) מר אברהם (אבי) דב גל
- 3) מר בועז אפרוני רוטמן

בחתימת ידי ובחותמי היום  
31.5.1999

שכר בסך 218 ש"ח שולם

חתימה  
Signature

