PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT4248803

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ANA SEMICONDUCTOR	07/07/2003

RECEIVING PARTY DATA

Name:	BANG J YOON
Street Address:	JAYOU 2-CHA APARTMENT
City:	NAM-GU, BUSAN CITY, SOUTH KOREA
State/Country:	KOREA, REPUBLIC OF
Postal Code:	608-774
Name:	YEOL YOUNG KIM
Street Address:	DONGBU APARTMENT
Internal Address:	115-DONG 1108-HO DONGBU-DONG
City:	DONG-GU, ULSAN CITY, SOUTH KOREA
State/Country:	KOREA, REPUBLIC OF

PROPERTY NUMBERS Total: 13

Property Type	Number
Patent Number:	7304460
Patent Number:	7271645
Patent Number:	7248121
Patent Number:	7242254
Patent Number:	7224233
Patent Number:	7215209
Patent Number:	7190231
Patent Number:	7148730
Patent Number:	7132869
Patent Number:	7129684
Patent Number:	7057377
Patent Number:	7436246
Patent Number:	7515003

CORRESPONDENCE DATA

Fax Number: (302)353-4251

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: 3023534251

Email: correspondence@devlinlawfirm.com

Correspondent Name: TIMOTHY DEVLIN

Address Line 1: 1306 N.BROOM STREET, FIRST FLOOR

Address Line 4: WILMINGTON, DELAWARE 19806

NAME OF SUBMITTER:	TIMOTHY DEVLIN
SIGNATURE:	/TIMOTHY DEVLIN/
DATE SIGNED:	01/30/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 10

source=Assignment 1 - 013017#page1.tif
source=Assignment 1 - 013017#page2.tif
source=Assignment 1 - 013017#page3.tif
source=Assignment 1 - 013017#page4.tif
source=Assignment 1 - 013017#page5.tif
source=Assignment 1 - 013017#page6.tif
source=Assignment 1 - 013017#page7.tif
source=Assignment 1 - 013017#page8.tif
source=Assignment 1 - 013017#page9.tif
source=Assignment 1 - 013017#page10.tif

INVENTION ASSIGMENT, JOINT OWNERSHIP AGREEMENT, AND AGREEMENTS

Section 1. Amendment of Assignment of Inventions
In consideration of my employment with ANA semiconductor, its subsidiaries, affiliates, successors or assigns (together the Company) and a portion of patent and invention expenses paid by a group of individual investors residing in South Korea (i.e., Republic of Korea) (collectively its individual investors shall be referred to as the Investor), I agree as follows:

1(a) Assignment of Inventions I agree that I will promptly make full written disclosure to the Company, will hold in trust for the sole right and benefit of the Company, and hereby assign to the Company, all my right, title, and interest in and to any and all inventions, original works of authorship, developments, concepts, improvements, designs, discoveries, ideas, trademarks or trade secrets, whether or not patentable or registrable under copyright or similar laws, which I may solely or jointly conceive or develop or reduce to practice, or cause to be conceived or developed or reduced to practice, during the period of time I am in the employ of the Company, except as provided in Section 1(b) below.

1(b) Exception to Assignment Since a group of individual investors residing in South Korea agrees to share patent and invention expenses with the Company, I hereby assign to the Company and Investor (hereinafter ASIGNEE) 100% of the following: (A) my right, title, and interest in and to the invention specified in Table II shown in Section 2 invented by me; (B) the applications for United States patent therefore, signed by me; (C) any patents or reissues of any patents that may be granted thereon; and (D) any applications which are continuations, continuations-in-part, substitutes, or divisions of said applications. I hereby further assigns to the Company and Investor my right, title, and interest in and to said invention in each and every country foreign to the United States.

1(c) Arbitration Any controversy dispute between ASIGNEE and me arising out of, relating to, or concerning any interpretation, construction, performance or breach of this agreement shall be settled by binding arbitration (at the instance of either ASIGNEE or myself) in accordance with the arbitration procedures of the Commercial Rules of the American Arbitration Association. This means that there will be no court or jury trial of disputes between ASIGNEE and me which arise out of this agreement or in connection with the invention or patent application. While this agreement to arbitrate is intended to be broad (and covers, e.g. claims under the state and federal laws prohibiting discrimination on the basis of race, sex, age, disability, family leave, etc.), it is not applicable to my rights under the California Workers' Compensation Law, which are governed under the special provisions of that law. This agreement to arbitrate may not be changed or modified in any respect unless specifically agreed in a written agreement signed by the president of the Company and me.

1(d) Severability If any part of this agreement is held to be unenforceable that part shall be severed from the agreement and the rest of the agreement shall remain unchanged.

Signature: Sangbeom Park
Date: July 9, 2003
Name: Sangbeom Park

ANA SEMICONDUCTOR
Signature: Kieun Park
Date: 07-07-03
Name: Kieun Park
Title: President

Section 2. Joint Ownership Agreement

This Joint ownership Agreement (the Agreement) is entered into as of the 7 th day of July, 2003, by and between ANA SEMICONDUCTOR, having its place of business at 2151 O' toole Avenue suite I, San Jose, CA 95131, USA (collectively ANA SEMICONDUCTOR and its agents shall be referred to as the Company) and Bang Ja Yoon representing a group of individual investors, having its place of business at JaYou 2-Cha Apartment 104-Dong 1203-Ho, Uam 1-Dong, Nam-Gu, Busan City, South Korea 608-774 (collectively Bang Ja Yoon and all individual investors shall be referred to as the Investor), who, by separate assignment or as joint applicants, own the following respective shares of the inventions identified in Table II:

ANA SEMICONDUCTOR of San Jose, CA, 80%,
Investor of Busan, South Korea, 20%

The above patent application data is to be filled in as soon as it becomes available. The Company and Investor desire to stipulate the terms under which they will exploit this invention and patent application and therefore agree as follows:

2(a) Definition of the Company's Confidential Information For purposes of this Agreement, Confidential Information shall mean information disclosed by the Company to the Investor as part of the Company's inventions which relate to the Analog/Mixed-Signal integrated chip.

2(b) Non-Disclosure and Non-Use of the Company's Confidential Information The Investor shall use and disclose the Company's Confidential Information to solely for the purposes of spending patent and invention expenses including substantial efforts to license, use, make, or sell the inventions and for no other purpose. The Investor shall maintain the Confidential Information in the strictest of confidence, and shall carefully restrict access to the Confidential Information to those of its representatives and agents who clearly need such access in order to participate on behalf of the Investor in the analysis and negotiation of a business relationship or any contract or agreement, or the advisability thereof.

2(c) Action without Everyone's Consent The Company shall license, use, make, or sell the inventions, applications, or patents, or take any other action without the written consent and cooperation of the Investor, as provided in Section 2(d).

2(d) Proxy The Investor designates and appoints the Company as its proxy. Said proxy is authorized to act on behalf of the Investor. Said proxy shall make, use, or sell the inventions, applications, or patents without the consent of the Investor. Based on works and services provided by any consulting firm, said proxy shall hereby appoint a third party as its exclusive agent to make, use, or sell the inventions, applications, or patents without the consent of the Investor. Said proxy shall decide a commission rate without the consent of the Investor. The commission rate will be a percentage of gross proceeds resulting from the sale of the inventions, applications, patent rights, or patent license.

2(e) Proportionate Sharing The Company and Investor to this agreement shall share, in the percentages indicated above, in all cash derived from sales of patent rights or patent license, which excludes brokerage fee, cost, and commission rate. No party shall be entitled to reimbursement or credit for any labor unless agreed to in advance by the Company and Investor hereto.

2(f) Any Parties Desire to Manufacture If any parties who do not constitute the Company and Investor to this agreement desire to manufacture, distribute, or sell any product or service embodying the above inventions, they may do so with the written consent of the Company under Sections 2(c) and 2(d) above. Such royalty shall be determined as if a valid patent on the inventions had been licensed to an unrelated

exclusive licensee (or a nonexclusive licensee if the patent is licensed to others) in an arm's-length transaction. Such royalty shall be distributed to the Company and Investor hereto according to their proportionate shares and on a quarterly basis, accompanied by a written royalty report and sent within one month after the close of each calendar quarter.

2(g) Expense Share Since the Investor much prefers executing its funds to transferring the funds to the Company directly, the Company and Investor to this agreement shall share patent and invention expenses including substantial efforts to license, use, make, or sell the inventions. While the Company will spend USPTO fees, technical research expenses, and other expenses, the Investor will spend expenses, as shown in Table I below.

Table I. Patent and invention expenses that the Investor pays

Details of expenses	Amount (US Dollar)
Drafting and application attorney fee for 13 US patent applications	$130,000.
Prosecution attorney fee for 13 US patent applications	$65,000
English editing fee for 13 US patent applications	$13,000
Cost for making models, experimental and test for the inventions identified in Table II	$200,000
Cost for patent valuation for 5 US patents and making substantial efforts to license, use, make, or sell 5 US patents	$20,000
Cost for searching for agents or service companies which are able to license, use, or make the patents	$20,000
Cost for searching for patent brokerage companies which are able to sell the patents	$20,000
	Total expense: $468,000

2(h) Inventions Identified The parties to this agreement shall identify the inventions below.

Table II. List of inventions identified

Attorney docket numbers	Title
ana01ac001	Zero idle time Z-state circuit for phase-locked loops, delay-locked loops, and switching regulators
ana01ac002	Controllable idle time current mirror circuit for switching regulators, phase-locked loops, and delay-locked loops
ana01ac003	Z-state circuit for switching regulators
ana01ac004	Z-state circuit for phase-locked loops
ana01ac005	Z-state circuit for delay-locked loops
ana01ac006	Variable start-up circuit for switching regulators
ana01ac007	Variable lock-in circuit for phase-locked loops
ana01ac008	Smart lock-in circuit for phase-locked loops
ana01ac009	Smart start-up circuit for switching regulators
ana01ac010	Adjustable start-up circuit for switching regulators
ana01ac011	Adjustable lock-in circuit for phase-locked loops
ana01ac012	High-performance charge-pump circuit for phase-locked loops
ana01ac013	Smart charge-pump circuit for phase-locked loops

2(j) Binding on Successors The rights and liabilities of the parties hereto or this Agreement and every covenant, term and condition hereof will bind and inure to the benefit of their respective successors.

2(j) Arbitration Any controversy or dispute between the Company and Investor (including any agents of the Company) arising out of, relating to, or concerning any interpretation, construction, performance or breach of this agreement shall be settled by arbitration to be held at the civil case arbitration committee or the civil case arbitrator judge of Busan District Court locating in Busan, South Korea. This means that any controversy or dispute is to be resolved by binding arbitration. The civil case arbitration committee or the civil case arbitrator judge may grant injunctions or other relief in such dispute or controversy. The decision of the arbitrator shall be final, conclusive and binding on the parties to the arbitration. Judgment may be entered on the arbitrator's decision in any court having jurisdiction. The Company and Investor shall each pay one half of the costs and expenses of such arbitration.

2(k) Entire Agreement This Agreement constitutes the sole understanding of the parties with respect to the subject matter hereof and may not be amended or modified except in writing signed by each of the parties hereto. Each party shall act in good faith and engage in fair dealing when taking any action under or related to this Agreement. Unless explicitly specified, this Agreement constitutes the entire agreement between the parties, and supersedes all prior oral or written communications between the parties with respect to the subject matter hereof.

2(l) Rights to the Results and Action Items Rights in the results of the works, services, and deliverables provided by any third party shall belong to the Company. All rights of the works, services, and deliverables therein remain the sole property of the Company. Action items that will be handled by the Investor are listed with additional details of agreements in Sections 3, 4, and 5.

2(m) Address Change The Investor shall notify the Company of the Investor's new address within ten (10) days of the address change and the Company shall notify the Investor of the Company's new address within ten (10) days of the address change.

Section 3. Agreement between Law Firm and Investor
In consideration of disclosures of the inventions identified in Table II (hereinafter the Invention Disclosures) delivered to the Investor in South Korea (i.e., Republic of Korea) and an action item regarding drafting, English editing, patent applications, and prosecution, the Investor agrees as follows:

3(a) Law Firm The Investor shall choose a Law Firm based on quote and quality, have the Law Firm sign a Nondisclosure Agreement, and provide the Invention Disclosures so that the Law Firm draft and prepare standard US patent applications. The Investor shall have English editor review each US patent application and send it to the Company by mail, or deliver it personally or by other electronic means including facsimile or electronic mail.

3(b) Standard US Patent Application Standard US patent application means non-provisional, utility patent application which includes a 30-page English specification, a 10-page drawing, and 20 claims. However, the number of pages in the specification less than 30 and the number of drawing less than ten (10) are preferred as far as the patent application includes all points of substance of the invention and makes its description clear and understandable. The Investor understands and recognizes that the Company will not file PCT applications (i.e., Patent Cooperation Treaty applications).

3(c) Patent Application and Legal Representation Since the Investor prefers choosing a Law Firm in South Korea, the Law Firm in South Korea drafts and prepares standard US patent applications and the Company will directly file US patent applications before the USPTO. The Investor understands and acknowledges that any Law Firm in South Korea is not allowed to act as the Company's legal representative in the processing of the Company's application with the USPTO and is not allowed to file US patent applications on behalf of the Company before the USPTO according to the Company's policy.

3(d) Patent Prosecution, Legal Representation, and Delivery Patent Prosecution here means the interaction between the Company and the USPTO with regard to a patent after the Company filed the patent applications with the USPTO. Since the Investor prefers choosing a Law Firm in South Korea, the Company recommends the Investor to choose the Law Firm in South Korea which must have associate Law Firm or branch Law Firm, or US patent attorney in US. The Investor understands and acknowledges that any Law Firm in South Korea is not allowed to act as the Company's legal representative with the USPTO. The Investor will require the Law Firm to deliver a reply to an office action to the Investor within one (1) month from the Company's request date. Likewise, the Investor will require the Law Firm to deliver to the Investor all documents, continuation, or a statement for appeal pertaining to any patent prosecution within one (1) month from the Company's request date. The Investor will send them to the Company by DHL express mail or EMS express mail, or deliver them personally or by other electronic means including facsimile or electronic mail within two (2) days of receipt from the law firm so that the Company can review and evaluate them and respond within a certain time period to an office action.

3(f) Rights to the Results Rights in the results of the services provided by any Law Firms shall belong to the Company. All rights of the services therein remain the sole property of the Company.

3(g) Compensation to Law Firm Payment will be made by the Investor after completion of service. No payment shall be made by the Company directly or indirectly to Law Firm for services of any nature. Any payment or transfer of funds for such services shall be between the Law Firm and the Investor. If the Law Firm fails to fulfill in a timely and proper manner its obligation, the Company shall request the Investor to withhold payments in excess of fair compensation for work completed.

Section 4. Agreement between IC Chip Service Vendor and Investor
In consideration of the Invention Disclosures delivered to the Investor in South Korea (i.e., Republic of Korea) and an action item regarding model, experimental and test, the Investor agrees as follows:

4(a) Background
The Investor desires that a third party vendor in South Korea implements the inventions identified in Table II (hereinafter the Invention) the Invention in a standard CMOS 0.18um process and simulates, layout, tape out all integrated circuits shown in the Invention Disclosures in order to model, experiment and test the Inventions.

4(b) IC Chip Service Vendor in South Korea The Investor shall choose a IC Chip service Vendor (collectively IC Chip Service Vendors shall be referred to as the Vendor) based on quote and quality, have the Vendor sign a Nondisclosure Agreement, and provide the Invention Disclosures so that the Vendor make model, simulate, experiment, and test the Invention. The Investor shall provide results of deliverables to the Company by mail, or deliver them personally or by other electronic means including facsimile or electronic mail.

4(c) Deliverables from the Vendor and Due Dates

(a) The Vendor will make all the necessary models within three (3) months of receipt of the Invention Disclosures from the Investor.
(b) The Vendor will deliver to the Investor all simulation plots, including, but not limited to, ac, dc, and transient simulation plots, within three (3) months after the date the Vendor finished all the models.
(c) The Vendor will complete laying out all the integrated circuits and deliver the GDSII file to a Foundry that the Vendor chooses within three (3) months after the date the Vendor finished all the simulation plots.
(d) The Vendor will deliver test results to the Investor within 3 months of receipt of chip samples from the Foundry.

4(d) Deliverables and Rejection Process
The Investor will send the required deliverables to the Company by DHL express mail or EMS express mail, or deliver personally or by other electronic means including facsimile or electronic mail within two (2) days of receipt from the Vendor so that the Company can review and evaluate them. Within ten (10) days of receipt of each deliverable, the Company will notify the Investor, orally either in person or by telephone or in writing, of the rejection of said deliverables using ordinary skill in the art and proven theories. No response from the Company shall indicate acceptance. Any rejection will include a description of the defects of the deliverable. Within two (2) days of receipt of each notification from the Company, the Investor will notify the Vendor, orally either in person or by telephone or in writing, of the rejection and defects of said deliverables. The Vendor will, upon receipt of such rejection, act diligently to correct the specified defects and deliver an updated version of the deliverables to the Investor.

4(e) Rights to the Results Rights in the results of the deliverables and services provided by any Vendor shall belong to the Company. All rights of the deliverables and services therein remain the sole property of the Company.

4(f) Compensation to the Vendor Payment will be made by the Investor after completion of deliverables. No payment shall be made by the Company directly or indirectly to the Vendor for deliverables of any nature. Any payment or transfer of funds for such deliverables shall be between the Vendor and the Investor. If the Vendor fails to fulfill in a timely and proper manner its obligation, the Company shall request the Investor to withhold payments in excess of fair compensation for deliverables completed.

Section 5. Agreement between Consulting Firm and Investor
In consideration of patents that will be granted for the Invention and an action item regarding licensing, using, making, or selling patents after patents are granted, the Investor agrees as follows:

5(a) Background
The Investor desires that a third party consulting firm or consultant in South Korea will make substantial efforts to license, use, make, or sell the patents as soon as any patents are issued on the Inventions. The steps involved in the substantial efforts are necessary to conduct the following elements:

(a) Patent valuation
(b) Making substantial efforts to license, use, make, or sell US patents
(c) Searching for agents or service companies which are able to license, use, or make the patents if (b) fails
(d) Searching for patent searching for patent brokerage companies which are able to sell the patents if (c) fails

5(b) Consulting firm in South Korea The Investor shall choose a consulting firm or a consultant (collectively consulting firms or consultants shall be referred to as the Consulting Firm) based on quote and quality, have the Consulting Firm sign a Nondisclosure Agreement, and provide patent number once any patents are issued on the Inventions so that the Consulting Firm can complete said steps. The Investor shall provide results of services and works to the Company by mail, or deliver them personally or by other electronic means including facsimile or electronic mail.

5(c) Services and Works from the Consulting Firm and Due Dates

(a) The Consulting Firm will deliver each patent valuation work within three (3) weeks of receipt of each patent number from the Investor.
(b) The Consulting Firm will make substantial efforts to license, use, make, or sell 5 US patents within three (3) months after the date the Consulting Firm delivered the fifth patent valuation.
(c) If (b) fails, the Consulting Firm will deliver within two (2) months to the Investor a list of ten (10) agents or service companies which are able to license, use, or make the patents.
(d) If (c) fails, the Consulting Firm will deliver within two (2) months to the Investor a list of ten (10) patent brokerage companies which are able to sell the patents after the date the Consulting Firm delivered the list of ten (10) agents or service companies.

5(d) Services, Works, and Rejection Process
The Investor will send the required services and works to the Company by DHL express mail or EMS express mail, or deliver personally or by other electronic means including facsimile or electronic mail within two (2) days of receipt from the Consulting Firm so that the Company can review and evaluate them. Within ten (10) days of receipt of each service and work, the Company will notify the Investor, orally either in person or by telephone or in writing, of the rejection of said service and work using reliability, validity, meta-analysis. No response from the Company shall indicate acceptance. Any rejection will include a description of the defects of the service and work. Within two (2) days of receipt of each notification from the Company, the Investor will notify the Consulting Firm, orally either in person or by telephone or in writing, of the rejection and defects of said service and work. The Consulting Firm will, upon receipt of such rejection, act diligently to correct the specified defects and deliver an updated version of the service and work to the Investor.

5(e) Rights to the Results Rights in the results of the services and works provided by any Consulting Firm shall belong to the Company. All rights of the services and works therein remain the sole property of the Company.

5(f) Compensation to the Consulting Firm Payment will be made by the Investor after completion of services and works. No payment shall be made by the Company directly or indirectly to the Consulting Firm for services and works of any nature. Any payment or transfer of funds for such services and works shall be between the Consulting Firm and the Investor. If the Consulting Firm fails to fulfill in a timely and proper manner its obligation, the Company shall request the Investor to withhold payments in excess of fair compensation for works completed.

The parties hereto have caused this Agreement to be executed by their duly authorized officer and proxy on the date set forth above.

ANA SEMICONDUCTOR	INVESTOR
Signature: Kieun Park	Signature or seal:
Date: 07-07-03	Date: 07-19-2007
Name: Kieun Park	Name: Bang Ja Yoon
Title: President	Title: Proxy

Section 6. Agreement among Individual Investors
All individual investors, citizens and residents of South Korea, residing in South Korea agree to pay at least USD 0.468 Million for a portion of patent and invention expenses. Since all the individual investors much prefer executing its funds to transferring the funds to the Company directly, all the individual investors agree to execute at least USD 0.468 Million on behalf of the Company. This agreement is entered into as of the 7 th day of July, 2003, by and between the following individual investors who, by separate assignment or as joint applicants, own the following respective shares of the inventions identified in Table II:

Bang Ja Yoon residing at JaYou 2-Cha Apartment 104-Dong 1203-Ho
Uam 1-Dong, Nam-Gu, Busan City, South Korea 608-774, 17%

Yeol Young Kim residing at DongBu Apartment 115-Dong 1108-Ho, DongBu-Dong, Dong-Gu, Ulsan City, South Korea, 3%

All the individual investors desire to stipulate the terms under which they will exploit this invention and patent application and therefore agree as follows:

6(a) Unexpected Expense Patent and invention expenses (or expenditures) are related to the patent application, including appealing from an adverse decision in the USPTO, any efforts to license, sell, make, or use the Inventions. In case the total expenditures exceeds a total of USD 0.468 Million specified in Table I, the individual investors to this agreement shall share, in the percentages indicated above, in all unexpected expenditures. However, all the individual investors shall not claim more ownership. All the individual investors shall abide by the agreement and shall cooperate fully by whatever means are necessary to implement and give full force to such agreement.

6(b) Proportionate Sharing All the individual investors to this agreement shall share, in the percentages indicated above, in all cash derived from sales of patent rights or patent license or royalty. No party shall be entitled to reimbursement or credit for any labor.

6(c) Proxy All the individual investors designate and appoint Ms Bang Ja Yoon as their proxy. Said proxy is authorized to act on behalf of all the individual investors. Said proxy shall receive 20% of all cash derived from sales of patent rights or patent license or royalty. Said proxy shall hereby provide perspective shares of cash to the other individual investors, respectively, within 2 weeks of receipt of any cash.

6(d) Address Change Any individual investor shall notify the proxy of his new address within ten (10) days of the address change.

6(e) No Refund In case any individual investor demands to return his or her expenditure or money spent for patent and invention expenses, then no refund will be available. No individual investor shall be entitled to reimbursement or refund for any expenditure or money spent.

6(f) Arbitration Any controversy or dispute between or among individual investors arising out of, relating to, or concerning any interpretation, construction, performance or breach of this agreement shall be settled by arbitration to be held in the civil case arbitration committee or the civil case arbitrator judge of Busan District Court in Busan, South Korea. This means that any controversy or dispute is to be resolved by binding arbitration. The civil case arbitration committee or the civil case arbitrator judge may grant injunctions or other relief in such dispute or controversy. The decision of the arbitrator shall

be final, conclusive and binding on the parties to the arbitration. Judgment may be entered on the arbitrator's decision in any court having jurisdiction. All the individual investors shall each pay one third of the costs and expenses of such arbitration.

Date: 09-19-2003

Signature or seal: _____

Name: Bang Ja Yoon

Signature or seal: _____

Name: Yeol Young Kim