Docket No.: SEC.856 04-02-2003 FORM PTO-1595 (Modified) ET U.S. DEPARTMENT OF COMMERCE (Rev. 03-01) Patent and Trademark Office OMB No. 0651-0027 (exp.5/31/2002) P08A/REV03 Tab settings → → 102407453 Value original documents or copy thereof. To the Honorable Commissioner of Pat-1. Name of conveying party(ies): 2. Name and address of receiving party(ies): Gyu-hong KIM Name: Samsung Electronics Co., Ltd. MAR 2 8 2003 Address: 416 Maetan-dong, Paldal-gu 328.03 Additional names(s) of conveying party(led RADEN Yes 🛛 No 3. Nature of conveyance: Assignment Merger City: Suwon-city, Kyungki-do Security Agreement ☐ Change of Name State/Prov.: Country: Republic of Korea Other ZIP: Execution Date: November 19, 2001 ☐ Yes Additional name(s) & address(es) ⊠ No 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: Patent Application No. Filing date B. Patent No.(s) 09/993,770 November 27, 2001 Yes X No Additional numbers 5. Name and address of party to whom correspondence 6. Total number of applications and patents involved: concerning document should be mailed: Name: Kenneth D. Springer 7. Total fee (37 CFR 3.41):....\$ 40.00 39,843 Registration No. Enclosed - Any excess or insufficiency should be credited or debited to deposit account Address: VOLENTINE FRANCOS, P.L.L.C. Authorized to be charged to deposit account 12200 Sunrise Valley Drive, Suite 150 8. Deposit account number: City: Reston 50-0238 State/Prov.: VA Country: U.S.A. ZIP: 20191 (Attach duplicate copy of this page if paying by deposit account) 00000112 09993770 DO NOT USE THIS SPACE 40.00 DP 19F0s4026 ment 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. KENNETH D. SPRINGER 28 MARCH 2003 Name of Person Signing Signature Date Total number of pages including cover sheet, attachments, and

	Donket No.: SEC.856		
(CRM PTO-1595 (Modified) Rev. 03-01) OMB No. 0651-0027 (exp.5/31/2002)	SHEET U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office		
Tab settings → → → ▼ 101905700			
To the Honorable Commissioner of Patents and Trademarks: F	Please record the attached original documents or copy thereof.		
Name of conveying party(ies): Gyu-hong KIM	Name and address of receiving party(ies):		
	Name: Samsung Electric Co., Ltd.		
11/22/07	Address: 416 Maetan-dong, Paldal-gu		
Additional names(s) of conveying party(ies)	w L		
3. Nature of conveyance:	56		
☐ Security Agreement ☐ Change of Name	City: Suwon-city, Kyungki-do State/Prov.:		
□ Other	Country: Republic of Korea ZIP:		
Execution Date: November 19, 2001	Additional name(s) & address(es) ☐ Yes ☒ No		
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: November 19, 2001		
Patent Application No. Filing date	B. Patent No.(s)		
(NEW) November 27, 2001			
21/29/2001 ADSMAN1 00000015 09993770 22 FC:581 40.00 OP Additional numbers	☐ Yes ⊠ No		
Name and address of party to whom correspondence concerning document should be mailed:	6. Total number of applications and patents involved:		
Name: Kenneth D. Springer	7. Total fee (37 CFR 3.41):\$ 40.00		
Registration No. 39,843	☐ Enclosed - Any excess or insufficiency should be		
Address: VOLENTINE FRANCOS, P.L.L.C.	credited or debited to deposit account		
12200 Sunrise Valley Drive, Suite 150	☐ Authorized to be charged to deposit account		
	8. Deposit account number:		
City: Reston State/Prov.: VA	50-0238		
Country: U.S.A. ZIP: 20191	(Attach duplicate copy of this page if paying by deposit account)		
DO NOT	USE THIS SPACE		
9. Statement and signature. To the best of my knowledge and belief, the foregoing inform of the original document. Output Description:	nation is true and correct and any attached copy is a true copy		
KENNETH D. SPRINGER	27 NOVMEBER 2001		
Name of Person Signing	Signature Date		
Total number of pages including Mail documents to be recorded with	cover sheet, attachments, and threquired cover sheet information to:		

VOLENTINE FRANCOS P.L.L.C. (9/2001)

ASSIGNMENT

	In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned
Insert Name(s) of Inventor(s)	Gyu-hong KIM
	and
Insert Name(s) of Assignee(s)	the undersigned hereby sell(s) and assign(s) to
Address	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
Title of Invention	MEMORY DEVICE FOR REDUCING REFRESH NOISE
Date of Signing of Application	for which an application for patent in the United States of America has been executed by the undersigned
or Application	on November 19, 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.

Page 1 of 2

P.L.L.C. the power to insert on		Reg. No. 33,289, and the firm of VOLENTINE FRANCOS, cation which may be necessary or desirable in order to comply this document.
		e date(s) opposite the undersigned name(s).
	· · · · · · · · · · · · · · · · · · ·	
Date $Nov. / /. \rightarrow DO7$, Name of Inventor K	nong Kim
Date	, Name of Inventor	LAYA
		· · · · · · · · · · · · · · · · · · ·
least two witnesses whan Assignment even i	no sign here. However, the current f it has not been acknowledged and	
Witness		
	} ss	
This	day of	, 19, before me personally came the above-
named		
	e individual(s) who executed the for own free will for the purposes the	
SEAL		Official Signature
		Official Title
******	* * * * * * * * * * * * * * * * * *	**************************************
Applicant Reference No.:	SS-15335-US	Atty Docket No.: SEC.856
Serial No.:		Filing Date:
	n .	-5.2
	Page 2	01 2

PATENT REEL: 013898 FRAME: 0280 VOLENTINE FRANCOS PL.L.C. (9/2001)

ASSIGNMENT

	In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned
Insert Name(s) of Inventor(s)	Gyu-hong KIM
	and
Insert Name(s) of Assignee(s)	the undersigned hereby sell(s) and assign(s) to
Address	Samsung Electronics Co., Ltd.
	of 416, Maetan-dong, Paldal-gu, Suwon-city, Kyungki-do, Republic of Korea
Title of	(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
Invention	MEMORY DEVICE FOR REDUCING REFRESH NOISE
Date of Signing of Application	for which an application for patent in the United States of America has been executed by the undersigned
	onNovember 19, 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.
	Page 1 of 2

PATENT REEL: 013898 FRAME: 0281

	this assignment any further ide	entification which may be	d the firm of VOLENTINE FRANCOS, necessary or desirable in order to comply		
In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).					
Date Nov. 19. 2001	, Name of Inventor	ii-hong Kim			
Date	Gyu-ho _, Name of Inventor	ng KIM			
Date	_, Name of Inventor				
Date	_, Name of Inventor				
Date	_, Name of Inventor				
but not required. If no least two witnesses who an Assignment even if Witness	t acknowledged, then it is rec	ommended that the execurrent practice of the U.S. and/or witnessed.)			
	ACKNOW	LEDGMENT			
	ACKION	DEDGMENT			
This	day of	,* 19	_, before me personally came the above-		
			_, before the personally came are 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.					
SEAL		Official Signa	ture		
		Official Title			

Applicant Reference No.:	SS-15335-US	Atty Docket No.:	SEC.856		
Serial No.:		Filing Date:			
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PATENT REEL: 013898 FRAME: 0282

RECORDED: 03/28/2003