DBB bit: 051-001 (exp. 044)   03-24-2000   LY     Attention 1 tablement 0th   LY     To the Honorable Commissioner of Path:   10129999169:     To the Honorable Commissioner of Path:   10129999169:     Rajeth Chapta   10129999169:     Stinicht Yohnorable Commissioner of Path:   10129999169:     Rajeth Chapta   Name and address of receiving party(tes):     Rajeth Chapta   Name and address of receiving party(tes):     Street Address: 6 KANDA SURUGADAL 4CHOME   Street Address: 6 KANDA SURUGADAL 4CHOME     Basigner   Security Agreement □ Change of Name   Street Address: 6 KANDA SURUGADAL 4CHOME     © Security Agreement □ Change of Name   Street Address: 6 KANDA SURUGADAL 4CHOME     © Basigner   Additional name(s) & address(es) stached: □ Yes ID NO     Execution Date:   Innumber(s)     If this document is being filed together with a new application, the execution date of the application is:     A. Patent Application No.(a)   B. Patent No.(c)     09/410.505   Street Address: 1000 C     c. Name and address of party to whom correspondence   Street Address: 1000 C     concerning document Abould be mailed:   Street Address: 1000 C     Name: Alan R. Loudermilk   Roporet account number: <tr< th=""><th>Ferm PTO-15 5</th><th>REET U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office</th></tr<>	Ferm PTO-15 5	REET U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office
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To the Honorable Commissioner of Pates		
1. Name of conveying party(ies):   2. Name and address of receiving party(ies):     Rajeh Chopra   Name: HTACH LTD.     Mark. Debbage   Name: HTACH LTD.     Additional namely of conveying party(ies) attached? DYes D No   Street Address: 6 KANDA SURUGADAL 4-CHOME     D Additional namely of conveying party(ies) attached? DYes D No   Street Address: 6 KANDA SURUGADAL 4-CHOME     D Additional namely of conveying party(ies) attached? DYes D No   Street Address: 6 KANDA SURUGADAL 4-CHOME     D Additional name(s) & address(es) attached: DYes D No   Additional name(s) & address(es) attached: DYes D No     Execution Date:   Immunotify 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)   B. Patent No.(s)   B. Patent No.(s)     09/410,505   Additional numbers attached? Yes D No ED   Internal Address of party to whom correspondence concerving document should be mailed:     Name: Alar R. Loudermilk   7. Total fact (2 CFR 3.41)	To the Honorable Commissioner of Pateling and Traditional Pateling and Traditional Pateling and Traditional Pateling	309 Selection the attached original documents or copy thereof.
Kagesh Chopra Mark Debbage   Internal Address:     Additional name(s) & conveying partylise) stached?   IVes I No     3. Nature of conveying partylise) stached?   IVes I No     3. Nature of conveying partylise) stached?   IVes I No     3. Nature of conveying partylise) stached?   IVes I No     3. Nature of conveying partylise) stached?   IVes I No     Basignment   Marger   IVes I No     Bescurity Agreement I Change of Name   IVes I No     Other:   Additional name(s) & address (es) stached:   IVes IN No     Execution Date:   January 26, 2000   Additional name(s) & address(es) stached:   IVes IN No     4. Application number(s) or patent number(s):   If this document should be mailed:   IVes I No (es)   IVes I No (es)     09/410,505   B. Patent No.(es)   IVes I No (Es)   IVes I No (Es)   IVes I No (es)     1   Internal Address:   Suite B   IVes I No (es)   IVes I No (es)   IVes I No (es)     09/410,505   Additional numbers attached?   Yes I No (Es)   IVes I No (es)   IVes I No (es)     1   Internal Address:   Suite B   IVes I No (es)   IVes I No (es)   IVes I No (es)     5   Name: Al		
Shinchi Yoshinka Mark Debbage   Internal Address:     Additional name() of conveying party(tes) attached?   Yes D No     3. Nature of conveyance:   Street Address: & KANDA SURUGADAL 4-OHOME     B Assignment   Merger     City: CHIYODA-KU, TOKYO   Country: JAPANZIP:     Additional name(s) & address(es) attached:   Yes ID No     Execution Date:   Japuary 26, 2000     4. Application number(s):   It this document is being filed together with a new application, the execution date of the application is:     If this document is being filed together with a new application, the execution date of the application is:   I     A. Patent Application No.(s)   B. Patent No.(s)     09/410,505   Additional numbers attached? Yes D   No Ell     6. Name and address of party to whom correspondence concerning document should be mailed:   B. Total number of applications and patents involved:     Internal Address   1050 N   Enclosed   I     Street Address   10950 N. Blancy Avc.   Subposit account   Subposit account     Street Address   10950 N. Blancy Avc.   Subposit account number: 50-0251   Subposit account     Street Address   10950 N. Blancy Avc.   Subposit account   Subposit account     Statement and signature.<	Rajesh Chopra	Name:. HITACHI LTD.
3. Nature of conveyance:   Street Address: 6 KANDA SURUGADAI, 4-CHOME     B Assignment   Image: Security Agreement III Change of Name   City: CHIYODA-KU, TOKYO   Country: JAPANZIP:     Image: Other:   Additional name(s) & address(es) attached:   IYes EI No     Execution Date:   January 26, 2000   Additional name(s) & address(es) attached:   IYes EI 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.(a)   B. Patent No.(a)   B. Patent No.(a)     09/410,505   Image: Alan R. Loudermilk   No EI     Internal Address:   Street Address: 10050 N. Blancy Ave.   Street Address: 10050 N. Blancy Ave.   Street Address: 10050 N. Blancy Ave.   Street account number:     50-0251   City: Cupertine: State: CA   ZIP: 95014   Attach application core of this page if paying by deposit account     XZZ27000 URKMM 0000074 500551   DO NOT USE THIS SPACE   Date: January 31, 2000     1   Total number of pages including cover aheet: 4   Attorney Docket No: 10-9606     1   Mathematica cover aheet: 14   Attorney Docket No: 10-9606	Shinichi Yoshioka	Internal Address:
B Assignment   Merger     B Security Agreement C Change of Name   City: CHIYODA-KU, TOKYO Country: JAPANZIP:     Additional name(s) & address(es) attached:   I'Yes E No     Execution Date:   January 26, 2000     4. Application number(s) or patent number(s):   I     If this document is being filed together with a new application, the execution date of the application is:   I     A. Patent Application No.(s)   B. Patent No.(s)     09/410,505   B. Patent No.(s)     S. Name and address of party to whom correspondence concerning document holus do malled:   S. Total number of applications and patents involved:     Name: Alan R. Loudermilk   5. Total number of applications and patents involved:   I     Internal Address:   Suite Address:   Suite Country is application is involved:     Street Address:   10950 N. Blaney Ave.   Subtor of this page if paying by deposit account     SU22/2000 VBMM   0000074 50055   DO NOT USE THIS SPACE     9. Total anumber of pages in paying by deposit account   Subtorement and signal document.     SU22/2000 VBMM   0000074 50055   DO NOT USE THIS SPACE     9. Total funct doglicate copy of this page if paying by deposit account   Subtorement and signal document.     SU22/2000 VBMM   0000074 50055 <t< td=""><td>Additional name(s) of conveying party(ies) attached?</td><td></td></t<>	Additional name(s) of conveying party(ies) attached?	
□ Security Agreement □ Change of Name   City: CHIYODA-KU, TOKYO Country: JAPANZIP:     □ Other:   Additional name(s) & address(es) attached: □ Yes IB No     Execution Date:   January 26, 2000     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)   B. Patent No.(e)     09/410,505   B. Patent No.(e)     1   Additional numbers attached? Yes □   No IB     5. Name and address of party to whom correspondence concerning document should be mailed:   R. Total number of applications and patents involved:     Name: Alan R. Loudermilk   F. Total fee (37 CFR 3.41)	3. Nature of conveyance:	Street Address: 6 KANDA SURUGADAI, 4-CHOME
Content   Content   Additional name(s) & address(es) attached: If Yes ID No     Execution Date:   January 26, 2000   Additional name(s) & address(es) attached: If Yes ID No     A 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)   B. Patent No.(s)     09/410,505   B. Patent No.(s)     Image: Alan R. Loudermilk   6. Total number of applications and patents involved:     Internal Address:   Suite B     Internal Address:   1. Total fee (37 CFR 3.41)	🗵 Assignment 🛛 Merger	
Additional name(s) & address(e) attached: D Yes (D NO     Execution Date:   January 26, 2000     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)   B. Patent No.(s)     09/410,505   B. Patent No.(s)     1   Additional numbers attached? Yes D No E0     5. Name and address of party to whom correspondence concerning document should be mailed:   No E0     5. Name and address:   Suite B     1   Total number of applications and patents involved:     Name:   Alar R. Loudermilk     Internal Address:   Suite B     2   Total fee (37 CFR 3.41)	□ Security Agreement □ Change of Name	City: CHIYODA-KU, TOKYO Country: JAPANZIP:
	□ Other:	Additional name(s) & address(es) attached: 🛛 Yes 🗵 No
If this document is being filed together with a new application, the execution date of the application is:     A. Patent Application No.(s)   B. Patent No.(s)     09/410,505   B. Patent No.(s)     1   Additional numbers attached? Yes I No IS     5. Name and address of party to whom correspondence concerning document should be mailed:   Internal Address: Suite B     1   6. Total number of applications and patents involved:     Name: Alan R. Loudermilk   7. Total fee (37 CFR 3.41)	Execution Date: January 26, 2000	
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Additional numbers attached? Yes   No (3)     5. Name and address of party to whom correspondence concerning document should be mailed:   I     Name: Alan R. Loudermilk   6. Total number of applications and patents involved:     Internal Address: Suite B   7. Total fee (37 CFR 3.41)	A. Patent Application No.(s)	B. Patent No.(s)
5. Name and address of party to whom correspondence concerning document should be mailed:   I     S. Name and address of party to whom correspondence concerning document should be mailed:   I     Name: Alan R. Loudermilk   6. Total number of applications and patents involved:     Internal Address: Suite B   7. Total fee (37 CFR 3.41)	09/410,505	
5. Name and address of party to whom correspondence concerning document should be mailed:   I     1   6. Total number of applications and patents involved:     Name: Alan R. Loudermilk   6. Total number of applications and patents involved:     Internal Address: Suite B   7. Total fee (37 CFR 3.41)		
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Image: Control Contecont Control Control Control Control Contro	Name: Alan R. Loudermilk	
Image: Street Address: 10950 N. Blancy Ave.   Image: Street Address: 10950 N. Blancy Ave.     Street Address: 10950 N. Blancy Ave.   8. Deposit account number:     50-0251   (Attach duplicate copy of this page if paying by deposit account)     03/23/2000 VBROWN   00000074 500251   09410505     DO NOT USE THIS SPACE   Image:	Internal Address: Suite B	7. Total fee (37 CFR 3.41) \$40.00 E
Street Address: 10950 N. Blaney Ave.   8. Deposit account number: <u>50-0251</u> (Attach duplicate copy of this page if paying by deposit account)      03/23/2000 VBROWN   00000074 500251   09410505   DO NOT USE THIS SPACE     01 FC:581   40.00 CH   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.      Name of Person Signing: Alan R. Loudermilk   Signature:		Enclosed
50-0251     City: Cupertino: State: CA_ZIP: 95014     O3/23/2000 VBROWN_00000074_500251_09410505     DO NOT USE THIS SPACE     01 FC: 381     40.00 CH     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.     Name of Person Signing: Alan R. Loudermilk   Signature:     Mail documents to be recorded with required cover sheet information to: Commissioner of Patents & Trademarks, Box Assignments     Washington, D.C. 20231		Authorized to be charged to deposit account
City: Cupertino: State: CA_ZIP: 95014   (Attach duplicate copy of this page if paying by deposit account)     03/23/2000 VBRNM   00000074 500251   09410505   DO NOT USE THIS SPACE     01 FC:351   40.00 CH   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.     Name of Person Signing: Alan R. Loudermilk   Signature:   Dub Mail document:     Total number of pages including cover sheet:   4   Attorney Docket No: 10-9906     Mail documents to be recorded with required cover sheet information to: Commissioner of Patents & Trademarks, Box Assignments   Washington, D.C. 20231     10950 North Blaney Avenue - Suite B - Cupertino, California, 95014   State	Street Address: 10950 N. Blaney Ave.	8. Deposit account number:
03/23/2000 VBROWN 00000074 500251 09410505   DO NOT USE THIS SPACE     01 FC:581   40.00 CH     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.     Name of Person Signing: Alan R. Loudermilk   Signature:     Mail document of pages including cover sheet:   4     Mail documents to be recorded with required cover sheet information to:   Commissioner of Patents & Trademarks, Box Assignments     Washington, D.C. 20231   10950 North Blaney Avenue - Suite B - Cupertino, California, 95014		50-0251
01 FC:581   40.00 CH     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.     Name of Person Signing: Alan R. Loudermilk   Signature:     Mail document of pages including cover sheet:   4     Mail documents to be recorded with required cover sheet information to:   Commissioner of Patents & Trademarks, Box Assignments     Washington, D.C. 20231   10950 North Blaney Avenue - Suite B - Cupertino, California, 95014	City: Cupertino: State: CA ZIP: 95014	(Attach duplicate copy of this page if paying by deposit account)
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.     Name of Person Signing: Alan R. Loudermilk   Signature:   Signature:   Date: January 31, 2000     Total number of pages including cover sheet:   4   Attorney Docket No: 10-9906     Mail documents to be recorded with required cover sheet information to:   Commissioner of Patents & Trademarks, Box Assignments     Washington, D.C. 20231   10950 North Blaney Avenue - Suite B - Cupertino, California, 95014	03/23/2000 VBROWN 00000074 500251 09410505 DO NO	DT USE THIS SPACE
Total number of pages including cover sheet:   4   Attorney Docket No:   10-9906     Mail documents to be recorded with required cover sheet information to: Commissioner of Patents & Trademarks, Box Assignments Washington, D.C. 20231   4     10950 North Blaney Avenue - Suite B - Cupertino, California, 95014	9. Statement and signature. To the best of my knowledge and belief, the foregoing informat of the original document	
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	Mail documents to be recorded with required cover sheet information to: Commissioner of Patents & Trademarks, Box Assignments	

PATENT REEL: 010624 FRAME: 0296

## ASSIGNMENT

## Application Number: 09/410,505

## Filing Date: October 1, 1999

In consideration of One Dollar and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned inventor, or each inventor if more than one, hereby assigns to <u>HITACHI LTD</u>. having an address of <u>6 KANDA SURUGADAI</u>, <u>4-CHOME</u>, <u>CHIYODA-KU</u>, <u>TOKYO</u>, <u>JAPAN</u>, its successors and assigns (hereinafter called "said assignee"), the entire right, title and interest in the invention or improvements of the undersigned disclosed in the above-identified Application entitled <u>MICROPROCESSOR HAVING IMPROVED MEMORY MANAGEMENT UNIT AND CACHE</u> <u>MEMORY</u>, and in said applications and any and all other applications for patent or similar rights in any country, which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent or similar rights of the United States or any other country which may be obtained on any of said applications, and in any reissue or extension thereof.

The undersigned hereby authorizes and requests the Commissioner of Patents or other official of other countries to issue said Letters Patent or similar rights to said assignee.

The undersigned hereby authorizes and requests the attorneys of record in said application to insert in this assignment the date and serial number of said application.

For said consideration, the undersigned hereby agrees, upon the request and at the expense of said assignee, to execute any divisional, continuation or substitute application for said invention or improvements, and any oath, declaration or affidavit relating thereto, and any application for the reissue or extension of any Letters Patent or similar rights that may be granted upon said application, and, in the event of any application or Letters Patent or similar rights assigned herein becoming involved in interference or other proceedings relating thereto, to cooperate to the best of the ability of the undersigned in the matters of preparing and executing any preliminary statement or other documents as appropriate, and giving and producing evidence and/or testimony in support thereof. The undersigned agrees to perform, upon request, any affirmative acts to obtain, maintain, issue and enforce said Letters Patent or similar rights will be held and enjoyed by said assignee, to the full end of the term for which said Letters Patent or similar rights may be granted as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not be made.

The undersigned hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

And for said consideration, the undersigned hereby assigns to said assignee the entire right, title and interest in said invention or improvements in the United States and all foreign countries, including all priority rights under the International Convention, and agrees to execute, at the request of said assignee, all documents in connection with any application for foreign letters patent therefor.

Alan R. Loudermilk • 10950 North Blaney Avenue • Suite B • Cupertino, California 95014 • (408) 342-1866

Page 1 of 3

Atty. Doc. No. 10-9906 PATENT REEL: 010624 FRAME: 0297

	GNATURE(S) AND NOTARIZATION F SIGN <b>AU</b> RE(S) TO ASSIGNMENT
Signature of First Inventor:	fre
Name (printed) First Inventor:	Rajesh Chopra
Date of Signature/Execution:	01/26/00
STATE OF <u>California</u> )	
) SS. COUNTY OF <u>Santa Clara</u> )	
<b>Rajesh Chopra</b> , has proven to r instrument, appeared before me th said instrument as his/her free and	a Notary Public in and for said county and state, do hereby certify that ne to be the same person(s) whose name(s) is subscribed to the foregoing is day in person, and acknowledged that he/she signed and delivered the voluntary act, for the uses and purposes therein set forth. ial seal this loday of Tak., 2000. Mind Mark
Name (printed) Second Inventor:	Shinichi Yoshioka
Date of Signature/Execution:	1/26/00
STATE OF <u>California</u> )	
) SS. COUNTY OF <u>Santa Clara</u> )	
	a Notary Public in and for said county and state, do hereby certify that n to me to be the same person(s) whose name(s) is subscribed to the

I, <u>Maria Margaretich</u>, a Notary Public in and for said county and state, do hereby certify that <u>Shinichi Yoshioka</u>, has proven to me to be the same person(s) whose name(s) is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he/she signed and delivered the said instrument as his/her free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and notarial seal this day of Jan, 2000. MARIA MARGARETICH Commission # 1222605 Notary Public - California 5 Santa Clara County My Comm. Expires May 30, 2003

Alan R. Loudermilk • 10950 North Blaney Avenue • Suite B • Cupertino, California 95014 • (408) 342-1866

Page 2 of 3

Atty. Doc. No. <u>10-9906</u> PATENT REEL: 010624 FRAME: 0298

	NI OM
Signature of Third Inventor:	11.1/17
Name (printed) Third Inventor:	Mark Debbage
Date of Signature/Execution:	1/25/00

STATE OF <u>California</u>) ) SS. COUNTY OF Santa Clara)

I, <u>Maria Margaretich</u>, a Notary Public in and for said county and state, do hereby certify that <u>Mark</u> <u>Debbage</u>, has proven to me to be the same person(s) whose name(s) is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he/she signed and delivered the said instrument as his/her free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and mytari MARIA MARGAREIICH Commission # 1222605 Notary Public - California Santa Clara County My Comm. Expires May 30, 2003	ial seal this to day of <u>Jan</u> , 2000. <u>Aller langaschi</u> NOTARY PUBLIC
Signature of Fourth Inventor:	
Name (printed) Fourth Inventor:	
Date of Signature/Execution:	
STATE OF <u>California</u> ) ) SS.	

COUNTY OF Santa Clara )

I, <u>Maria Margaretich</u>, a Notary Public in and for said county and state, do hereby certify that has proven to me to be the same person(s) whose name(s) is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that he/she signed and delivered the said instrument as his/her free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and notarial seal this day of

NOTARY PUBLIC

Alan R. Loudermilk • 10950 North Blaney Avenue • Suite B • Cupertino, California 95014 • (408) 342-1866

Page 3 of 3

Atty. Doc. No. 10-9906 PATENT REEL: 010624 FRAME: 0299

**RECORDED: 02/04/2000**