H-1013 09-24-2003 MS Assignment Recordation Services PATENTS ONLY (ref OG 7/28/92) 102557512 To the Honorable Commissioner Please record the attached original accument or copy thereof. Name of Party(ies) conveying an Name and Address of Party(ies) 1. 2. interest: receiving an interest: Toru ISHIDA HITACHI, LTD. 6, Kanda Surugadai 4-chome Tetsuharu URAWA Fujio ITO Chiyoda-ku, Tokyo, JAPAN Tomoo MATSUZAWA HITACHI ULSI SYSTEMS, CO., LTD. Kazunari SUZUKI PADEMAP Akihiko KAMEOKA 22-1, Josuihoncho 5-chome Kodaira-shi, Tokyo, Japan Hiromichi SUZUKI Takuji IDE HITACHI HOKKAI SEMICONDUCTOR, LTD. 145, Azanakajima, Nanaecho, Kameda-gun, Hokkaido, Japan 3. Description of the interest conveyed: Assignment Application number(s) or patent number(s). Additional sheet attached? Yes XXX No If this document is being filed together with a new application, the execution date of the application is: DATE A. Patent Application No. (s) B. Patent No.(s) 09/964,484 Name and address of party to whom correspondence concerning document should 5. be mailed: John R. Mattingly Mattingly, Stanger & Malur, P.C. 1800 Diagonal Road, Suite 370 Alexandria, Virginia 22314 6. Number of applications and patents involved: One Amount of fee enclosed or authorized to be charged: \$40.00 7. The Commissioner is hereby authorized to charge Deposit Account No. 50-1417 8. if no check is attached. DO NOT USE THIS SPACE 09/18/2003 BABRAHA1 00000043 09964484 40.00 DP 01 FC:8021 Execution date of attached document: September 1, 3, 4 and 5, 2001 9. 10. To the best of my knowledge and belief, I declare under penalty of perjury under the laws of the United States of America that the foregoing information is true and correct and that any attached copy is a true copy of the original document. John R. Mattingly September 17, 2003 Name of Person Signing Signature Date Total number of pages being submitted: 2

> PATENT REEL: 014507 FRAME: 0522

As a below named inventor, I hereby declare that:

IN CONSIDERATION of the sum of One Dollar (\$1.00) or the equivalent thereof, and other good and valuable consideration paid to me citizen of Japan by HITACHI, LTD., Hitachi ULSI Systems Co., Ltd. and Hitachi Hokkai Semiconductor, Ltd., corporations organized under the laws of Japan, located at 6, Kanda Surugadai 4-chome, Chiyoda-ku, Tokyo, Japan ; 22-1, Josuihoncho 5-chome, Kodaira-shi, Tokyo, Japan and 145, Azanakajima, Nanaecho, Kameda-gun, Hokkaido, Japan, respectively, receipt of which is hereby acknowledged I do hereby sell and assign to said HITACHI, LTD., Hitachi ULSI Systems Co., Ltd. and Hitachi Hokkai Semiconductor, Ltd., their successors and assigns, all my right, title and interest, in and for the United States of America, in and to

A SEMICONDUCTOR DEVICE

invented by me (if only one is named below) or us (if plural inventors are named below) and described in the application for United States Letters Patent therefor, executed on even date herewith, and all United States Letters Patent which may be granted therefor, and all divisions, continuations and extensions thereof, the said interest being the entire owner ship of the said Letters Patent when granted, to be held and enjoyed by said HITACHI, LTD., Hitachi ULSI Systems Co., Ltd and Hitachi Hokkai Semiconductor, Ltd., their successors, assigns or other legal representatives, to the full end of term for which said Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by me or us if this assignment and sale had not been made;

And I hereby agree to sign and execute any further documents or instruments which may be necessary, lawful, and proper in the prosecution of the above-named application or in the preparation and prosecution of any continuing, continuation-in-part, substitute, divisional, renewal, reviewed or reissue applications or in any amendment, extension, or interference proceedings, or otherwise to secure the title thereto in said assignee;

And I do hereby authorize and request the Commissioner of Patents to issue said Letters Patent to said HITACHI, LTD., Hitachi ULSI Systems Co., Ltd. and Hitachi Hokkai Semiconductor, Ltd.

Signed on the date(s) indicated aside signatures:

INVENTOR(S) **Date Signed** (発明者フルネームサイン) (署名日) (Toru ISHIDA) etsuhan Urawa (Tetsuharu URAWA) 1ì0 (Fuijo JTO) 200 (Tomoo MATSUZAWA) (Kazunari SUZUKI) hiko Kameoka (Akihiko KAMEOKA) Suzu tiromichi (Hiromichi SUZUKI) 2001 (Takuji IDE) eptembe 9) 10)

RECORDED: 09/17/2003