PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : **H01L 21/98, 25/18**

A3

(11) International Publication Number: **WO 99/63527**

(43) International Publication Date: 9 December 1999 (09.12.99)

(21) International Application Number: PCT/NO99/00181

(22) International Filing Date: 2 June 1999 (02.06.99)

(30) Priority Data:
19982518 2 June 1998 (02.06.98) NO

(71) Applicant *(for all designated States except US)*: OPTICOM ASA [NO/NO]; P.O. Box 1872 Vika, N–0124 Oslo (NO).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: GUDESEN, Hans, Gude [NO/NO]; Tyrihansveien 5, N–1639 Gamle Fredrikstad (NO). NORDAL, Per–Erik [NO/NO]; Båstadryggen 19, N–1370 Asker (NO). LEISTAD, Geirr, I. [NO/NO]; Jongsstubben 19, N–1300 Sandvika (NO). CARLSSON, Johan [SE/SE]; Ekholmsvägen 219, S–589 29 Linköping (SE). GUSTAFSSON, Göran [SE/SE]; Trumslagaregatan 33, S–582 16 Linköping (SE).

(74) Agent: OPTICOM ASA; P.O. Box 1872 Vika, N–0124 Oslo (NO).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(88) Date of publication of the international search report:
17 February 2000 (17.02.00)

(54) Title: DATA STORAGE AND PROCESSING APPARATUS, AND METHOD FOR FABRICATING THE SAME

(57) Abstract

A data storage and processing apparatus comprising ROM and/or WORM and/or REWRITEABLE memory modules and/or processing modules on a substrate. The memory and/or processing modules are provided as a single main layer or multiple main layers on the top of the substrate. The apparatus comprises active components in the form of transistors and/or diodes for operating the apparatus. In one set of embodiments at least some and at most all the transistors and/or diodes for operating the apparatus are provided on or in the substrate. In another set of embodiments at least some and at most all of the layers on the top of the substrate comprise low–temperature compatible organic materials and/or low temperature compatible processed inorganic films, even without requiring transistors and/or diodes to be provided on or in the substrate. In a method for fabricating a data storage and processing apparatus of this kind, the memory and/or processing modules are provided on the substrate by depositing the layers in successive steps. The deposition and processing of the layers take place under thermal conditions that avoid subjecting an already deposited and processed underlying layer or layers to static or dynamic temperatures exceeding given stability limits, particularly in regard of organic materials.

