

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 September 2004 (02.09.2004)

PCT

(10) International Publication Number
WO 2004/075546 A3

(51) International Patent Classification⁷: **H04N 5/913**,
G11C 17/16

(21) International Application Number:
PCT/US2004/005121

(22) International Filing Date: 20 February 2004 (20.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/371,313 20 February 2003 (20.02.2003) US

(71) Applicant (for all designated States except US): **ZORAN CORPORATION** [US/US]; 1390 Kifer Road, Sunnyvale, CA 94086 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KUMAR, Nishit** [IN/US]; 2162 Ceynowa Lane, San Jose, CA 95121 (US). **AULD, David** [GB/US]; 5405 Beaumont Canyon Drive, San Jose, CA 95138 (US).

(74) Agents: **MALLIE, Michael, J.** et al.; Blakely, Sokoloff, Taylor & Zafman LLP, 7th floor, 12400 Wilshire Boulevard, Los Angeles, CA 90025 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, 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 receipt of amendments

(88) Date of publication of the international search report:
23 December 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: UNIQUE IDENTIFIER PER CHIP FOR DIGITAL AUDIO/VIDEO DATA ENCRYPTION/DECRYPTION IN PERSONAL VIDEO RECORDERS

(57) Abstract: The invention provides techniques to implement unique identifier for an integrated chip and how this ID can be employed to enhance the security of content in personal video recorder type systems. The storage device can be a hard disk, a removable storage medium or any other type of storage medium. An integrated circuit (IC) within the personal video recorder stores a unique identifier that is used in for encryption and decryption of data stored on the storage device. Several embodiments are disclosed herein that maintain the secrecy of the unique ID such that it is not easily accessible thereby defeating the security scheme.



WO 2004/075546 A3

INTERNATIONAL SEARCH REPORT

International Application No
T/US2004/005121

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/913 G11C17/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N G11B G07F G11C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 563 950 A (MERZ WILLIAM A ET AL) 8 October 1996 (1996-10-08) column 2, line 36 - line 43 -----	1-15
A	US 5 799 080 A (YEGNASHANKARAN VISVAMOHAN ET AL) 25 August 1998 (1998-08-25) the whole document -----	1-15
A	US 6 347 846 B1 (NAKAMURA SEIICHI) 19 February 2002 (2002-02-19) column 10 -----	1-15
A	US 5 881 155 A (RIGAL VINCENT) 9 March 1999 (1999-03-09) the whole document -----	1-15
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

8 November 2004

Date of mailing of the international search report

18/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Bertrand, F

INTERNATIONAL SEARCH REPORT

International Application No

/US2004/005121

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/102075 A (SCHIPPER ROBERT ; KONINKL PHILIPS ELECTRONICS NV (NL)) 19 December 2002 (2002-12-19) page 7 -----	1-15
A	MARIE: "ADSP-2141L Data Sheet" INFORMATION RESOURCE ENGINEERING, 20 January 2000 (2000-01-20), XP002174850 the whole document -----	1-15
A	US 5 784 459 A (ZUKOWSKI DEBORRA JEAN ET AL) 21 July 1998 (1998-07-21) column 3 - column 4 -----	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

Γ/US2004/005121

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5563950	A	08-10-1996	US 5559889 A JP 8278750 A	24-09-1996 22-10-1996
US 5799080	A	25-08-1998	NONE	
US 6347846	B1	19-02-2002	JP 3176030 B2 JP 9190667 A AU 686058 B2 AU 1109997 A CA 2199241 A1 CN 1176014 A ,B DE 69619654 D1 DE 69619654 T2 EP 0814474 A1 WO 9725711 A1 US 2002061105 A1	11-06-2001 22-07-1997 29-01-1998 01-08-1997 09-07-1997 11-03-1998 11-04-2002 07-11-2002 29-12-1997 17-07-1997 23-05-2002
US 5881155	A	09-03-1999	FR 2746962 A1 DE 69715282 D1 DE 69715282 T2 EP 0800209 A1 ES 2183095 T3 JP 10012820 A	03-10-1997 17-10-2002 18-06-2003 08-10-1997 16-03-2003 16-01-1998
WO 02102075	A	19-12-2002	EP 1400117 A1 WO 02102075 A1 JP 2004521428 T US 2004170278 A1	24-03-2004 19-12-2002 15-07-2004 02-09-2004
US 5784459	A	21-07-1998	NONE	