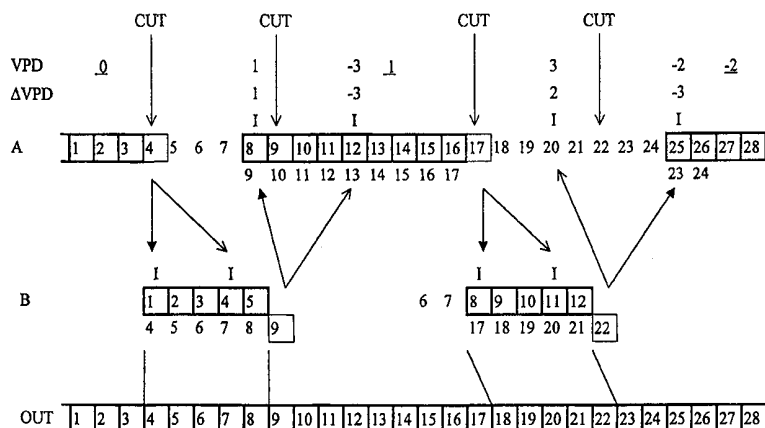




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7: H04N 7/24, 7/58		A3	(11) International Publication Number: WO 00/01160
			(43) International Publication Date: 6 January 2000 (06.01.00)
(21) International Application Number: PCT/SE99/01143 (22) International Filing Date: 24 June 1999 (24.06.99) (30) Priority Data: 9802316-1 29 June 1998 (29.06.98) SE (71) Applicant (for all designated States except US): LIMT TECHNOLOGY AB [SE/SE]; 556540-2954, Ortviksvägen 2, S-856 33 Sundsvall (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): ANDERSSON, Roger [SE/SE]; Bågevägen 69 B, S-856 52 Sundsvall (SE). FARM, Lars [SE/SE]; Krönvägen 33 B, S-856 44 Sundsvall (SE). (74) Agent: ALBIHNS PATENTBYRÅ MALMÖ AB; P.O. Box 4289, S-203 14 Malmö (SE).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, 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, 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 <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 10 February 2000 (10.02.00)	

(54) Title: METHOD AND APPARATUS FOR SPLICING DATA STREAMS



(57) Abstract

A method and apparatus for aligning in time, and subsequently splicing, first and second data streams representing first and second encoded signals, which streams have one or more in-points and out-points, meaning places in the streams at which it is safe to enter and leave without causing undesired loss of data. The method comprises the steps of receiving as input the first and the second data streams (1, 2), and initially transmitting as an output the first data stream (5); selecting an out-point in the first data stream (1) and an in-point in the second data stream (2); delaying or advancing the second data stream (2) in order to align the in-point and the out-point at a splice point in time; switching (6) to transmit as an output, said second data stream instead of said first data stream, at the time of said splice point. The invention is particularly suitable for the insertion of a second stream into a first stream, without requiring that the length of the second stream correspond to any distance between out-points and in-points of the first stream, by delaying or advancing the first stream when re-entering from the second stream. A variable delay is associated with the first stream, and is updated at the completion of every insertion cycle dependent on the delaying or advancing. Preferably the invention includes selecting an in-point in the first stream that will decrease the accumulated variable delay.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/01143

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04N 7/24, H04N 7/58

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)

IPC7: H04N

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

SE,DK,FI,NO classes as above

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9745965 A1 (SARNOFF CORPORATION), 4 December 1997 (04.12.97), see the whole document --	1-27
A	EP 0837609 A2 (NEXTLEVEL SYSTEMS, INC.), 22 April 1998 (22.04.98), page 2, line 43 - page 3, line 26, figure 4 --	1-27
A	WO 9617490 A2 (PHILIPS ELECTRONICS N.V.), 6 June 1996 (06.06.96), abstract, cited in the application --	1-27
A	US 5534944 A (REN EGAWA ET AL), 9 July 1996 (09.07.96), abstract, cited in the application --	1-27

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Date of the actual completion of the international search

16 December 1999

Date of mailing of the international search report

17 -12- 1999

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01143

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 9832281 A1 (SARNOFF CORPORATION), 23 July 1998 (23.07.98), abstract -- -----	1-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/SE 99/01143

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
WO	9745965	A1	04/12/97	EP	0901718	A	17/03/99
				WO	9746027	A	04/12/97

EP	0837609	A2	22/04/98	AU	4190197	A	23/04/98
				CA	2218160	A	18/04/98
				JP	10191325	A	21/07/98
				NO	974764	A	11/05/98
				NZ	328960	A	27/05/98
				US	5917830	A	29/06/99

WO	9617490	A2	06/06/96	BR	9506692	A	18/11/97
				CN	1144030	A	26/02/97
				EP	0742992	A	20/11/96
				GB	9424429	D	00/00/00
				JP	9509035	T	09/09/97
				US	5793431	A	11/08/98

US	5534944	A	09/07/96	EP	0755157	A	22/01/97
				JP	9139677	A	27/05/97
				EP	0692911	A	17/01/96
				JP	8084333	A	26/03/96

WO	9832281	A1	23/07/98	EP	0954924	A	10/11/99
