(19)

(12)





(11) **EP 2 790 403 A3**

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 19.11.2014 Bulletin 2014/47 (51) Int Cl.: *H04N 7/035* ^(2006.01)

(21) Application number: 14161691.2

15.10.2014 Bulletin 2014/42

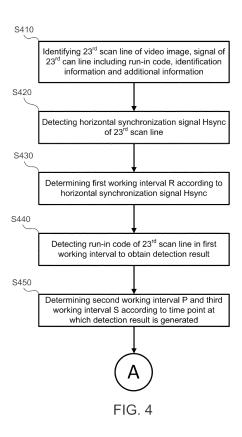
(22) Date of filing: 26.03.2014

(43) Date of publication A2:

(84) Designated Contracting States: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR Designated Extension States: BA ME
(30) Priority: 08.04.2013 US 201361809431 P
(30) Priority: 08.04.2013 US 201361809431 P
(31) Applicant: MStar Semiconductor, Inc. Chupei 302 (TW)
(72) Inventor: Wong, Wei-Shu 302 Chupei (TW)
(74) Representative: Mollekopf, Gerd Willi Kahler Käck Mollekopf Vorderer Anger 239 86899 Landsberg (DE)

(54) Video signal decoding apparatus and associated method

(57) A video signal decoding method for obtaining aspect ratio information of a video image includes: identifying (S410) a target scan line, whose signal includes a run-in code, identification information and additional information; detecting (S420) a synchronization signal of the target scan line and accordingly determining (S430) a first working interval (R); detecting (S440) the run-in code of the target scan line in the first working interval (R) and accordingly determining (S450) a second working interval (P) and a third working interval (S); in the second working interval (P), generating a sampling clock according to the signal of the of the target scan line; generating (S470) sampled data according to the sampled clock and the signal of the target scan line; in the third working interval (S), detecting (S480) the identification information according to the sampled data to generate a detection result of the identification result; and decoding (S490) the additional information according to the sampled data and the detection result of the identification information.



EP 2 790 403 A3



5

EUROPEAN SEARCH REPORT

Application Number EP 14 16 1691

Image: Control of relevant passages to taim APPLICATION (PC) A W0 96/13936 A1 (PHILIPS ELECTRONICS NV [NL]; PHILIPS NORDEN AB [SE]) 1-15 INV. 9 May 1996 (1996-05-09) * 1-15 INV. 4 US 2005/195326 A1 (KUDOU TAKASHI [JP]) 8 September 2005 (2005-09-08) 1-15 I-15 20 * * paragraph [0090]; figure 11 * * * paragraph [0104]; figure 18 * * 1-15 20 * * paragraph [0121]; figure 18 * * 20 * * paragraph [0121]; figure 18 * * 30 * * paragraph [0121]; figure 18 * * 30 * * * * 40 * * * * 41 * * * * * 42 * * * * * 33 * * * * * 46 * * * *			DOCUMENTS CONSIDE			
A W0 96/13936 A1 (PHILIPS ELECTRONICS NV [NJ]; PHILIPS NORDEN AB [SE]) 1-15 INV. H04N7/035 15 A WS 2005/159326 A1 (FUDOU TAKASHI [JP]) 8 September 2005 (2005-09-08) * paragraph [0040]; figure 14 * * paragraph [0040]; figure 14 * * paragraph [0140]; figure 18 * 1-15 20 * paragraph [0140]; figure 18 * 30 * paragraph [0121]; figure 18 * 30 31 32 The present search report has been drawn up for all claims 40 41 32 Date dramptor of the axes of The present search report has been drawn up for all claims 50 CATECORY OF OTED DOCUMENTS *: protocolly report 1 for bank order *: particularly diversent for bank order *: interview for the axes patient for ba	10	Category				CLASSIFICATION OF THE APPLICATION (IPC)
20 20 20 20 20 20 20 20 20 20 20 20 20 2	15	A	WO 96/13936 A1 (PHI [NL]; PHILIPS NORDE 9 May 1996 (1996-05 * page 4, line 6 -	LIPS ELECTRONICS NV N AB [SE]) -09) page 5, line 14 *		
30 33 40 45 50 40 50 40 50 40 50 40 50 40 50 40 50 50 50 50 50 50 50 50 50 5	20	A	8 September 2005 (2 * paragraph [0090]; * paragraph [0104];	005-09-08) figure 11 * figure 14 *	1-15	
30 36 37 40 45 50 40 50 40 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 45 50 40 50 40 50 50 50 50 50 50 50 50 50 5	25					
40 45 45 50 The present search report has been drawn up for all claims The present search report has been drawn up for all claims The present search report has been drawn up for all claims The Hague 10 October 2014 Beaudoin, Olivier CATEGORY OF CITED DOCUMENTS X: particularly relevant if token alone Y: particularly relevant if acken alone X: particularly acken X:	30					SEARCHED (IPC)
45 45 50 The present search report has been drawn up for all claims The present search report has been drawn up for all claims The Hague 50 CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: anter the same patent family, corresponding document	35					
The present search report has been drawn up for all claims The present search report has been drawn up for all claims Date of completion of the search Examiner The Hague 10 October 2014 Beaudoin, Olivier So CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date X : particularly relevant if taken alone T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date X : particularly relevant if taken alone T : document oited in the application D : document oited for other reasons X : cohnological background X : member of the same patent family, corresponding document X : member of the same patent family, corresponding document	40					
Image: Solution of the same of search Date of completion of the search Examiner 50 The Hague 10 October 2014 Beaudoin, Olivier 50 CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document of the same category L : document oited for other reasons A : technolical background & : member of the same patent family, corresponding document	45					
50 The Hague 10 October 2014 Beaudoin, Olivier 50 CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention X : particularly relevant if taken alone T : theory or principle underlying the invention Y : particularly relevant if combined with another document of the same category T : theory or principle underlying the invention A : technological background D : document cited in the application D : on-writhen disclosure & : member of the same patent family, corresponding document		ı 📃 🔤				
CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the invention X : particularly relevant if taken alone E : earlier patent document, but published on, or after the filing date Y : particularly relevant if combined with another document of the same category D : document of the application A : technological background U : on-written disclosure 9: intermediate document & : member of the same patent family, corresponding 55		(10)			Rea	
55	50	C X : part X : part V : part doc A : teol	CATEGORY OF CITED DOCUMENTS T : theory or principle underlying the i X : particularly relevant if taken alone after the filing date Y : particularly relevant if combined with another document of the same category L : document cited in the application A : technological background			nvention shed on, or
	55	P:inte			me patent ramily	, corresponding

55

EP 2 790 403 A3

5

ANNEX TO THE EUROPEAN SEARCH REPORT **ON EUROPEAN PATENT APPLICATION NO.**

EP 14 16 1691

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10

10-10-2014 Patent family Patent document Publication Publication cited in search report date member(s) date WO 9613936 A1 09-05-1996 194741 T 15-07-2000 AT 15 698995 B2 19-11-1998 AU 9506438 A 02-09-1997 BR СА 2180023 A1 09-05-1996 1141109 A 22-01-1997 CN 69517952 D1 69517952 T2 DE 17-08-2000 DE 15-03-2001 20 ЕΡ 0737402 A1 16-10-1996 FΙ 962666 A 23-08-1996 H09507637 A JP 29-07-1997 KR 100379347 B1 22-10-2003 29-12-1998 5854660 A US 9613936 A1 09-05-1996 WO 25 _ _ _ _ _ _ _ _ US 2005195326 A1 08-09-2005 JP 4353828 B2 28-10-2009 15-09-2005 JP 2005252713 A 08-09-2005 US 2005195326 A1 30 35 40 45 50 ORM P0459

55

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82