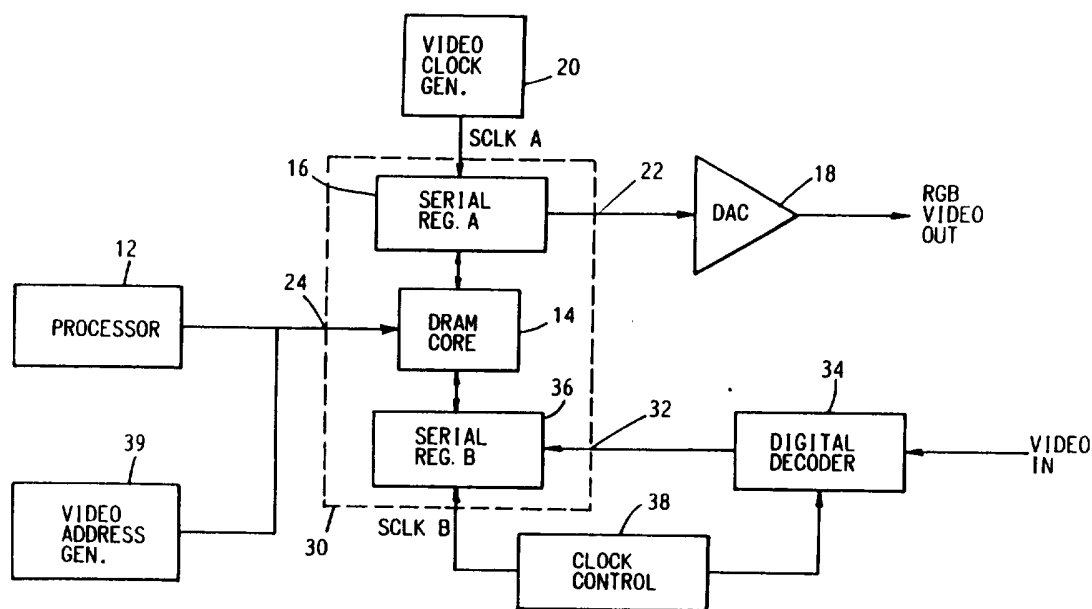




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : G09G 1/16, G11C 7/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 93/10518 (43) International Publication Date: 27 May 1993 (27.05.93)</p>
<p>(21) International Application Number: PCT/GB92/02164 (22) International Filing Date: 23 November 1992 (23.11.92) (30) Priority data: 9124787.4 21 November 1991 (21.11.91) GB 9206066.4 20 March 1992 (20.03.92) GB (71) Applicant (for all designated States except US): VIDEO-LOGIC LIMITED [GB/GB]; Unit 8, Home Park Industrial Estate, Kings Langley, Hertfordshire WD4 8LZ (GB). (72) Inventors; and (75) Inventors/Applicants (for US only) : YASSAIE, Hossein [GB/GB]; 26 Ashlyns Road, Berkhamstead, Hertfordshire HP4 3BN (GB). METCALFE, John, Anthony [GB/GB]; 227 Luton Road, Dunstable, Bedfordshire LU5 4LR (GB). DEACON, Graham [GB/GB]; ASHTON, Martin [GB/GB]; 4 Sanders Close, Hemel Hempstead, Hertfordshire HP3 9UA (GB).</p>		<p>(74) Agent: ABNETT, Richard, Charles; Reddie & Grose, 16 Theobalds Road, London WC1X 8PL (GB). (81) Designated States: GB, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE). 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: 8 July 1993 (08.07.93)</p>

(54) Title: VIDEO/GRAPHICS MEMORY SYSTEM



(57) Abstract

A video/graphics memory system includes a memory device (30) having a memory core (14) and first and serial registers (16, 36). The memory device thus has a random-access port (24) for graphics data, a first serial access port (22) for image output to a display, and an auxiliary or second serial port (32) for input and output of video signal data. A single memory thus stores both video and graphics data, while the processor still has access to the random access port of the memory. Two video outputs can be provided simultaneously, or the data withdrawn through the auxiliary port can be subject to processing and then written back into the memory. In alternative arrangements, instead of using triple-ported RAM, the auxiliary port is provided by the use of external multiplexing circuitry.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 92/02164

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶				
According to International Patent Classification (IPC) or to both National Classification and IPC				
Int.Cl.5	G 09 G 1/16	G 11 C 7/00		
II. FIELDS SEARCHED				
Minimum Documentation Searched ⁷				
Classification System	Classification Symbols			
Int.Cl.5	G 09 G	G 11 C H 04 N		
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸				
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹				
Category ^o	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³		
X	IRE WESCON CONVENTION RECORD vol. 34, November 1990, NORTH HOLLYWOOD US pages 18 - 23 , XP22781 J.MAILLOUX 'Multiport DRAM Trends' ---	1,3-6, 11,18		
Y	see page 20, right column, line 1 - page 21, left column, line 8; figures 2,4; page 22, left column, line 21 - right column, line 12 ---	7,14,15		
X	EP,A,0245564 (DIGITAL EQUIPMENT CO.) 19 November 1987	26-29		
Y	see abstract; column 2, line 1 - column 3, line 9; figures 1,2; column 5, line 16 - line 49; column 8, line 51 - column 9, line 7 --- -/-	7		
<p>^o Special categories of cited documents : ¹⁰</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 50%; border: none;"> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p>
<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p>			
IV. CERTIFICATION				
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report			
11-05-1993	18.06.93			
International Searching Authority	Signature of Authorized Officer			
EUROPEAN PATENT OFFICE	T. THOEN-DE JONG			

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,5027212 (MARLTON ET AL.) 25 June 1991 cited in the application see abstract; column 4, line 16 - line 20; figure 2 ---	1,3,5, 18
A	US,A,4825411 (HAMANO) 25 April 1989 see abstract; figure 3; column 3, line 17 - line 40 ---	12,13
Y	US,A,5001671 (KOO ET AL.) 19 March 1991 ---	14,15
A	see abstract; column 1, line 41 - line 50; figures 2,3 -----	17,30

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB92/02164

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

- 2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

- 3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

SEE ANNEXED SHEET

- 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

- 2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

- 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

- 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1, 3-7, 11-18, 26-30

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

1. Claims 1,3-7,11-18,26-30: Use of a 3-port memory for combining video and computer graphics signals, where the main serial port is used for outputting the combined signal and the auxiliary serial port for inputting the video signal.
2. Claims 2,21-25: Use of a 3-port memory for driving two display units where the serial ports are both used as an output of video signals.

The special technical feature of the 1st invention is the use of a three port memory for combining a digitized video signal with a computer graphics signal, using the random access port for inputting the computer graphics signal, the auxiliary serial port for inputting the video signal and the main serial port for outputting the combined signal.

Instead the 2nd invention is a system for outputting two video signals to two different units using to this purpose the two serial ports while the random access port is used as an input. The only technical link between the two inventions is the use of the same three port memory, which is per se well known in the state of the art, as stated by the cited document n.1. This is why a -priori non-unity has been invoked.

Incomplete search:

Claims not searched: 8-10, 19, 20 (See PCT Art. 6)

Subject matter of claims 8-10, 19,20 is not consistent with subject matter of claim 3, on which they depend.

The auxiliary serial port used as described in claim 3 cannot be used at the same time as described in claims 8-10, 19,20. Therefore these claims have not been searched.

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

GB 9202164
SA 66892

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 28/05/93. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0245564	19-11-87	None	
US-A- 5027212	25-06-91	None	
US-A- 4825411	25-04-89	JP-A- 63004493	09-01-88
US-A- 5001671	19-03-91	None	