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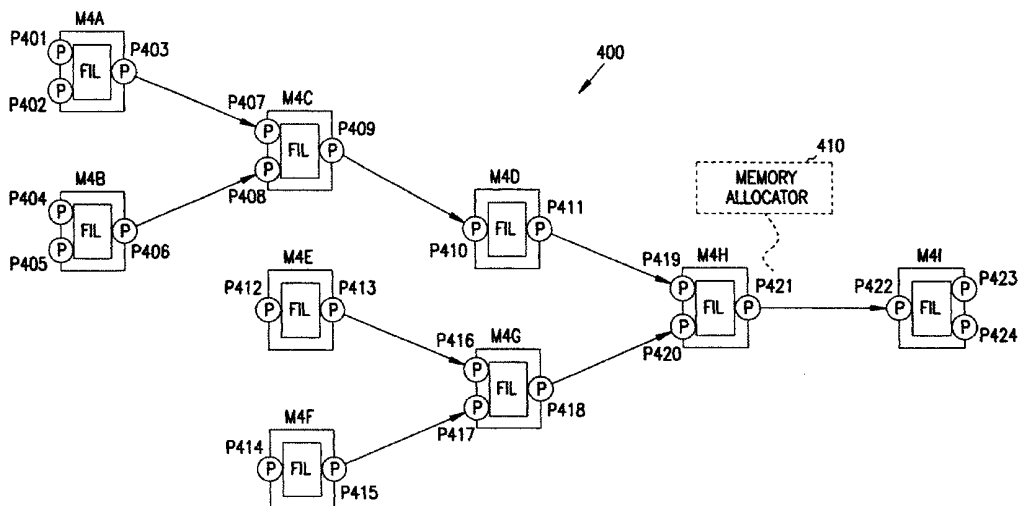
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(54) Title: SPLITTING AND MIXING STREAMING-DATA FRAMES



(57) Abstract: Streaming data is processed through one or more pipes of connected modules including mixers and/or splitters. The data is carried in composite physically allocated frames having virtual subframes associated with different ones of the splitters, mixers, and other transform modules. Nesting trees and pipe control tables represent the structure of the pipes. A frame allocator is assigned to a particular module in a pipe. Rather than issuing a control transaction to all modules when any one of them completes an operation upon its source data, a control manager requests a module to begin its operation only when all of its input subframes have become available. Frame control tables record when any module has completed an operation, and a pipe control table lists which modules provide data to which other modules.



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*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.*

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/11275

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 H04N5/00 G06F13/38

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 G06F

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, IBM-TDB, INSPEC, COMPENDEX

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 471 603 A (YOKOTE TIMOTHY A ET AL) 28 November 1995 (1995-11-28)  abstract column 1, line 1 -column 2, line 55 column 4, line 59 -column 5, line 5 claims 1-5,8-11  ---	1,11,21, 33,57, 69,80,81
A	US 5 818 954 A (IIDA MUNEO ET AL) 6 October 1998 (1998-10-06)  column 19, line 20 - line 43  ---	1,11,21, 33,57, 69,80,81
A	EP 0 550 196 A (IBM) 7 July 1993 (1993-07-07)  abstract column 21, line 51 -column 22, line 55  ---  -/--	1,11,21, 33,57, 69,80,81

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.
- "&" document member of the same patent family

Date of the actual completion of the international search

15 November 2000

Date of mailing of the international search report

11.06.2001

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/11275

**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	<p>EP 0 915 598 A (MATSUSHITA ELECTRIC IND CO LTD) 12 May 1999 (1999-05-12)</p> <p>abstract page 3, line 49 -page 4, line 6</p> <p style="text-align: center;">---</p>	<p>1,11,21, 33,57, 69,80,81</p>
P,A	<p>WO 99 45492 A (US NAVY) 10 September 1999 (1999-09-10)</p> <p>page 1, line 1 -page 3, line 13 page 4, line 11 -page 5, line 2 page 9, line 14 - line 19 page 25, line 6 - line 18 page 29, line 8 - line 11 figures 2,14</p> <p style="text-align: center;">-----</p>	<p>1,11,21, 33,57, 69,80,81</p>

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 00/11275

## 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 additional 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.:

1-42, 57-80

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10, 11-20, 21-32, 33-42, 57-68, 69-79, 80, 81

Processing frames of streaming data through modules in a digital computer.

2. Claims: 43-56

Data structure for processing streaming data through multiple processing modules.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/11275

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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