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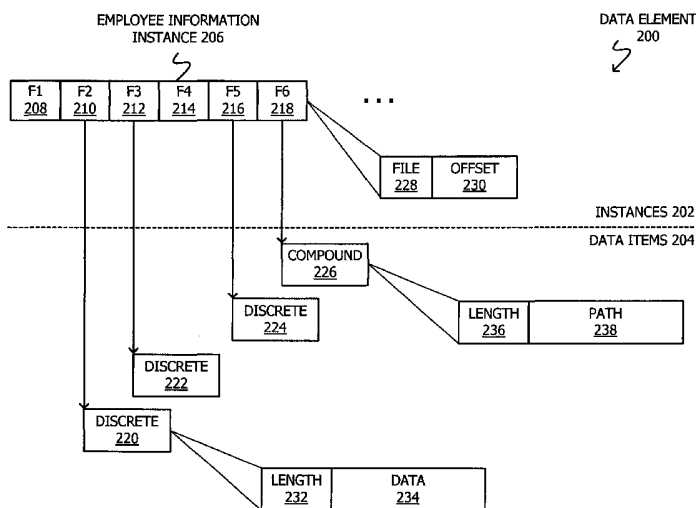
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BLOCKING TECHNIQUES FOR DATA STORAGE



(57) Abstract: Methods to store a first data structure having zero or more fixed-length data items (208, 214) and a reference (210, 212, 216, 218) to a second data structure are described. The second data structure having a variable-length data item (204) (indicated by the reference) may also be stored in the memory. In addition, methods to validate and repair a pointer element having a file identification portion (228) and a file offset portion (230) are described. The methods include determining (400) if the file identification portion indicates an allocated file and indicating an invalid pointer condition if the file identification portion indicates an unallocated file, else determining (404, 406) if the file offset portion indicates an allocated block in the allocated file, and indicating an invalid pointer condition if the file offset portion indicates an unallocated block. The described methods may be stored in any media that is readable and executable by a programmable control device.

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# INTERNATIONAL SEARCH REPORT

Internatic      plication No  
PCT/US 00/14225

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7    G06F12/00    G06F17/30    G06F11/00				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) IPC 7    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				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X  A   A  X	US 5 765 148 A (KIMURA YUTAKA) 9 June 1998 (1998-06-09) column 1, line 11 - line 14  column 8, line 39 - column 9, line 10 column 11, line 27 - line 31 ----- GB 1 290 889 A (INFORMATICS, INC.) 27 September 1972 (1972-09-27) ----- WO 91 01530 A (BELL COMMUNICATIONS RESEARCH, INC.) 7 February 1991 (1991-02-07) page 5, line 18 - page 6, line 32 page 7, line 5 - line 11 page 9, line 4 - page 12, line 16 ----- -/--	15,17  1,9-11, 18   20-27		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
* Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     *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                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     *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.                      *&amp;* document member of the same patent family                 </td> </tr> </table>			*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
*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  <p style="text-align: center; font-size: 1.2em;">26 November 2003</p>		Date of mailing of the international search report  <p style="text-align: center; font-size: 1.2em;">08. 12. 2003</p>		
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  <p style="text-align: center; font-size: 1.2em;">Behringer, L.V.</p>		

## INTERNATIONAL SEARCH REPORT

Internati      ublication No  
PCT/US 00/14225

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 659 739 A (LUBBERS CLARK E ET AL) 19 August 1997 (1997-08-19) column 4, line 16 - column 8, line 40 -----	28, 31
A	US 5 396 623 A (MCCALL ANNETTE B ET AL) 7 March 1995 (1995-03-07) column 5, line 1 - column 15, line 51 -----	28, 31

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 00/14225

## 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.:

### 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: 1-19

Apparatus and method for storing data for access by a software routine, comprising a fixed-length data item and a variable length data item.

2. claims: 20-27

Method and apparatus to validate a pointer element.

3. claims: 28-32

Method and apparatus to repair a pointer element.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internatic	Application No
PCT/US	US/14225

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5765148	A	09-06-1998	JP	9179759 A	11-07-1997
GB 1290889	A	27-09-1972	CA	937331 A1	20-11-1973
WO 9101530	A	07-02-1991	CA WO	2020711 A1 9101530 A2	12-01-1991 07-02-1991
US 5659739	A	19-08-1997	NONE		
US 5396623	A	07-03-1995	NONE		