Title: SYSTEMS AND METHODS FOR REPRESENTING AND DISPLAYING GRAPHICS

Abstract: Systems and methods for representing and displaying graphical images that tend to minimize the storage and processing requirements for representing such images on devices with limited storage capacity and processing power are provided. Graphical images may be represented and displayed using the following techniques: the use of vector shapes and bitmap brushes, primitive shape descriptions, hierarchical structures, shape property storage, and small or variable number representation. These techniques may be used independently or in combination in various embodiments, and may lead to small file sizes, fast view rendering, graphical capabilities similar to vector formats, and attribute storage capabilities.
(88) Date of publication of the international search report: 15 May 2003

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**

### A. CLASSIFICATION OF SUBJECT MATTER

| IPC 7  | G06F11/20 | G06F11/40 |

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  G06T

- **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)**
  
  INSPEC, WPI Data, EPO-Internal

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
</table>
| X        | "Precision graphics markup language"
          | W3C, ‘Online! XP000926395
          | Retrieved from the Internet: <URL:http://www.w3.org/TR/1998/NOTE-PGML-1
          | 998410.html> ‘retrieved on 2003-03-11!
          | the whole document                  | 1-18, 32-49 |
| Y        | "A new technology for interactive online mapping with vector m arkus and XML"
          | CARGARPHIC PERSPECTIVES, ‘Online!
          | XP000926396
          | Retrieved from the Internet: <URL:http://www.sdsc.edu/ajaslavsky/pubs/CP
          | _37_zaslavsky.pdf>
          | ‘retrieved on 2003-03-12!
          | the whole document                  | 19-31, 50-62 |

**X** Further documents are listed in the continuation of box C.  
** Y** Patent family members are listed in annex.

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**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**

13 March 2003

**Date of mailing of the international search report**

26/03/2003

**Name and mailing address of the ISA**

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HJ The Hague
Tlf. (+31-70) 342-3340, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

**Authorized officer**

González Arias, P
<table>
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