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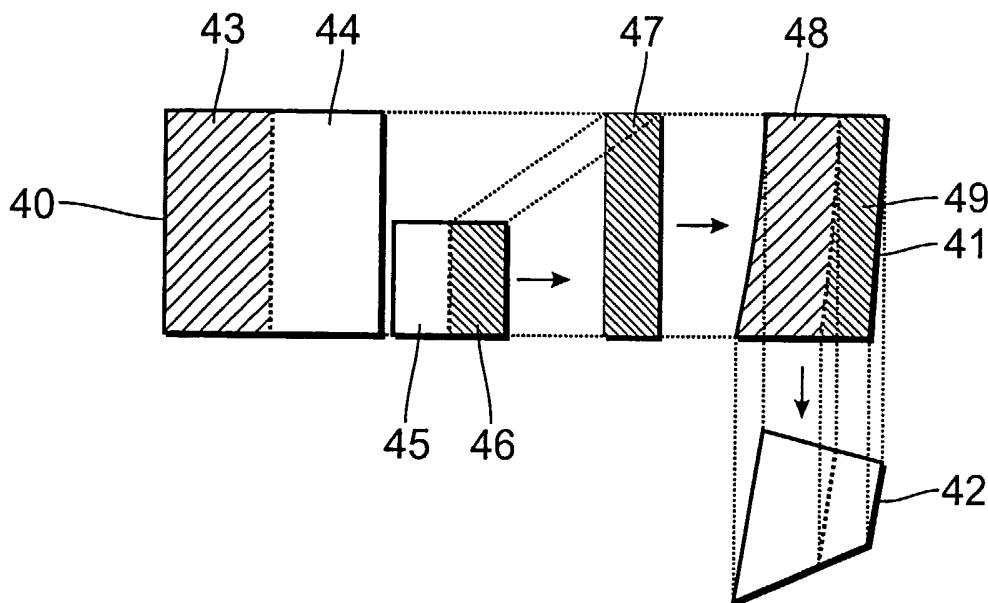
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(54) Title: IMAGE RENDERING APPARATUS AND METHOD USING MIPMAP TEXTURE MAPPING



(57) Abstract: The invention relates to a computer graphics systems and a method for rendering an image for display using texture mapping. A combination of the advantages of 3D mipmapping and 4D mipmapping is achieved according to the invention by: storing texture maps in 3D mipmap format, reconstructing at least part of a 4D mipmap from said 3D mipmap on-the-fly, and mapping texture data from said 4D mipmap to corresponding pixel data defining said display image.



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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB 02/05468

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06T15/20

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)

EPO-Internal, COMPENDEX, INSPEC, PAJ, IBM-TDB, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAUL S. HECKBERT: "Fundamentals of Texture Mapping and Image Warping" MASTER'S THESIS, DEPT. OF ELECTRICAL ENGINEERING AND COMPUTING SCIENCE, UNIVERSITY OF CALIFORNIA, BERKELEY, CA, TECHNICAL REPORT UCB/CSD 89/516, 17 June 1989 (1989-06-17), pages 1-85, XP002250390 Section 2.3.4 Scanning Textures and Image Warps, pages 24 - 25. page 60, line 17 -page 62, line 31 figures 3.21,3.22 --- -/--	1-9

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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## INTERNATIONAL SEARCH REPORT

Intern I Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EWINS J P ET AL: "Implementing an anisotropic texture filter" COMPUTERS AND GRAPHICS, PERGAMON PRESS LTD. OXFORD, GB, vol. 24, no. 2, April 2000 (2000-04), pages 253-267, XP004236371 ISSN: 0097-8493 abstract page 253, right-hand column, last paragraph -page 254, left-hand column, line 25 section 2. Texture filtering -----</p>	1,7-9
A	<p>SHIRMAN L ET AL: "A new look at mipmap level estimation techniques" COMPUTERS AND GRAPHICS, PERGAMON PRESS LTD. OXFORD, GB, vol. 23, no. 2, April 1999 (1999-04), pages 223-231, XP004165786 ISSN: 0097-8493 abstract page 223, left-hand column, line 1 -right-hand column, line 9 page 228, right-hand column, last paragraph -page 229, left-hand column, line 38 -----</p>	1,7-9
A	<p>EWINS J P ET AL: "MIP-MAP LEVEL SELECTION FOR TEXTURE MAPPING" IEEE TRANSACTIONS ON VISUALIZATION AND COMPUTER GRAPHICS, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 4, no. 4, October 1998 (1998-10), pages 317-329, XP000831199 ISSN: 1077-2626 abstract section 1.1 Texture filtering -----</p>	1,7-9
A	<p>US 6 040 837 A (WONG DANIEL ET AL) 21 March 2000 (2000-03-21) abstract column 1, line 36 -column 2, line 22 column 3, line 42 -column 4, line 50 -----</p>	1,8

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6040837	A	NONE	