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(54) **CYLINDRICAL WRAPPING USING SHADER HARDWARE**

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See application file for complete search history.

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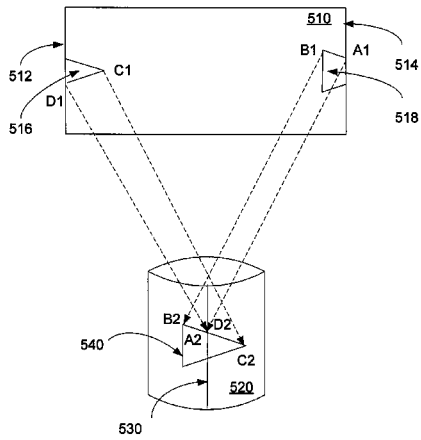
(57) **ABSTRACT**

Circuits, methods, and apparatus that perform cylindrical wrapping in software without the need for a dedicated hardware circuit. One example performs cylindrical wrapping in software running on shader hardware. In one specific example, the shader hardware is a unified shader that alternately processes geometry, vertex, and fragment information. This unified shader is formed using a number of single-instruction, multiple-data units. Another example provides a method of performing a cylindrical wrap that ensures that a correct texture portion is used for a triangle that is divided by a "seam" of the wrap. To achieve this, primitive vertices are sorted such that results are vertex order invariant. One vertex is selected as a reference. For the other vertices, a difference is found for each coordinate and a corresponding coordinate of the reference vertex. If the coordinates are near, no change is made. If the coordinates are distant, the coordinate is adjusted.

18 Claims, 8 Drawing Sheets