

METHOD AND APPARATUS FOR RENDERING CUBIC CURVES

ABSTRACT OF THE DISCLOSURE

5 A method and apparatus used to render cubic curves is disclosed. A cubic Bezier curve is rapidly decomposed into small segments piecewise by using two independent operation units in parallel for processing four control points of the cubic Bezier curve with the assistance of an arbitrator to
10 display the cubic curve on a monitor or output to a printer. A set of control point data of the cubic Bezier curve is obtained from an input device and serves as the original input data for a vertical division operation unit and a horizontal extension operation unit that generate four sets of control
15 points in parallel. The arbitrator makes two decisions from the four sets of control points. First, if there are sets of control points meeting the condition of rendering the curve, those sets are transferred to a segment generator to generate points for rendering the curve. Second, it determines which
20 set of control points is the next feedback input data for the parallel horizontal extension operation. Finally, the arbitrator also controls the termination of the rendering process. The method and apparatus is suitable for parallel processing in accordance with the geometrical property of the
25 Bezier curve with high rate and efficiency of rendering curves.

Fig. 1