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# United States Patent [19]

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Margolin

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## [54] ROW ADDRESSABLE GRAPHICS MEMORY WITH FLASH FILL

[76] Inventor: **Jed Margolin**, 3570 Pleasant Echo Dr., San Jose, Calif. 95148

[\*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,422,998.

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### Related U.S. Application Data

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[51] Int. Cl.<sup>6</sup> ..... **G06F 12/06**

[52] U.S. Cl. .... **395/166**; 395/410; 345/196; 345/200; 365/230.01; 365/230.08

[58] Field of Search ..... 395/162-166, 395/410, 411; 345/185, 196, 189, 200, 190; 365/189.01, 189.04, 189.05, 230.01, 230.03, 230.05, 230.08, 230.09, 230.12, 219

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Primary Examiner—Kee Mei Tung

Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman

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### [57] ABSTRACT

A single-chip semiconductor memory device optimized for high performance flat-shaded polygon video systems consists of a RAM with flash fill circuitry whereby the Start and End addresses are specified for a given row; the data within this range are read, modified, and written back to the memory in parallel thereby requiring a maximum of three memory cycles to fill a line segment independent of the length of the line. The data are modified according to a function between a color register and the data already present in the memory array, the functions being: AND, OR, EXCLUSIVE OR, or REPLACE.

19 Claims, 20 Drawing Sheets

