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Kelleher

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[54] PARALLEL-PROCESSOR GRAPHICS ARCHITECTURE

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[73] Assignee: **Dynamic Pictures, Inc.**, Palo Alto, Calif.

[21] Appl. No.: **570,088**

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[51] Int. Cl.⁶ **G06F 15/80**

[52] U.S. Cl. **395/505; 395/509; 395/497.04; 395/412**

[58] Field of Search 395/502, 505, 395/506, 507, 509, 401, 402, 497.01-497.04, 412-419, 515, 516; 382/303, 304

[56] References Cited

U.S. PATENT DOCUMENTS

| | | | |
|-----------|---------|----------------------|---------|
| 4,761,736 | 8/1988 | Di Orto | 395/402 |
| 4,949,280 | 8/1990 | Littlefield | 395/505 |
| 5,117,468 | 5/1992 | Hino et al. | 382/304 |
| 5,276,798 | 1/1994 | Peaslee et al. | 395/505 |
| 5,315,699 | 5/1994 | Imai et al. | 395/505 |
| 5,377,320 | 12/1994 | Abi-Ezzi et al. | 395/502 |
| 5,388,206 | 2/1995 | Poulton et al. | 395/505 |

| | | | |
|-----------|--------|------------------------|---------|
| 5,392,393 | 2/1995 | Deering et al. | 395/505 |
| 5,408,606 | 4/1995 | Eckart | 395/502 |
| 5,434,967 | 7/1995 | Tannenbaum et al. | 395/506 |
| 5,440,682 | 8/1995 | Deering | 395/503 |
| 5,493,643 | 2/1996 | Soderberg et al. | 395/505 |

OTHER PUBLICATIONS

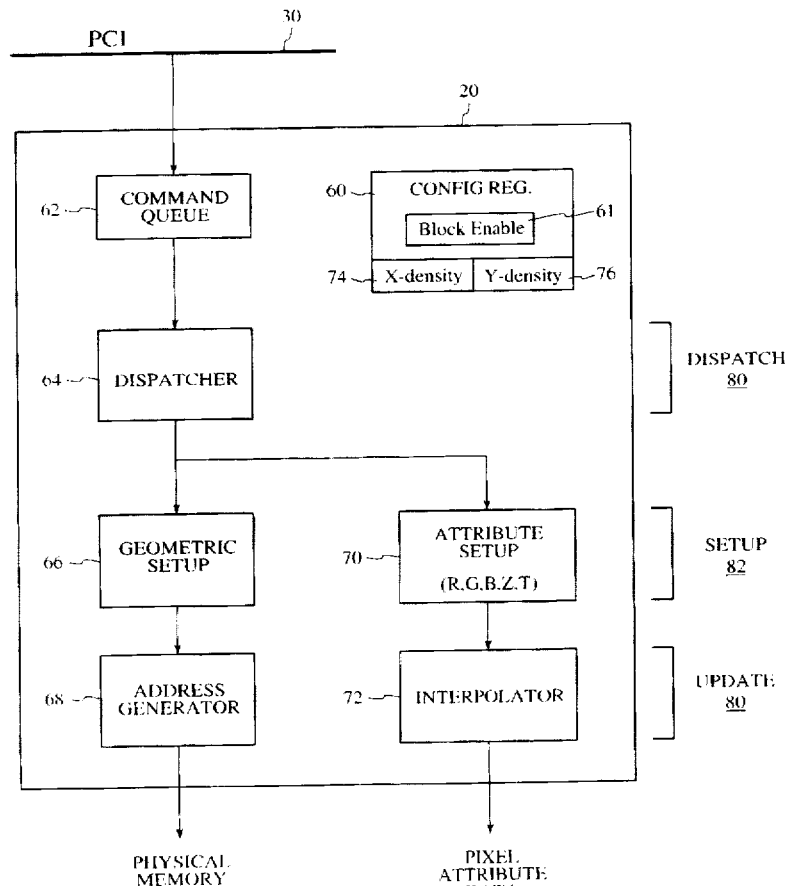
"Simulation and Expected Performance Analysis of Multiple Processor Z-Buffer Systems", Frederick I. Parke, Computer Graphics, vol. 14, No. 3, pp. 46-56 (Jul., 1980).
 "High-Performance Polygon Rendering", Kurt Akeley, Tom Jermoluk, Silicon Graphics, Inc., pp. 6-12, (1988).

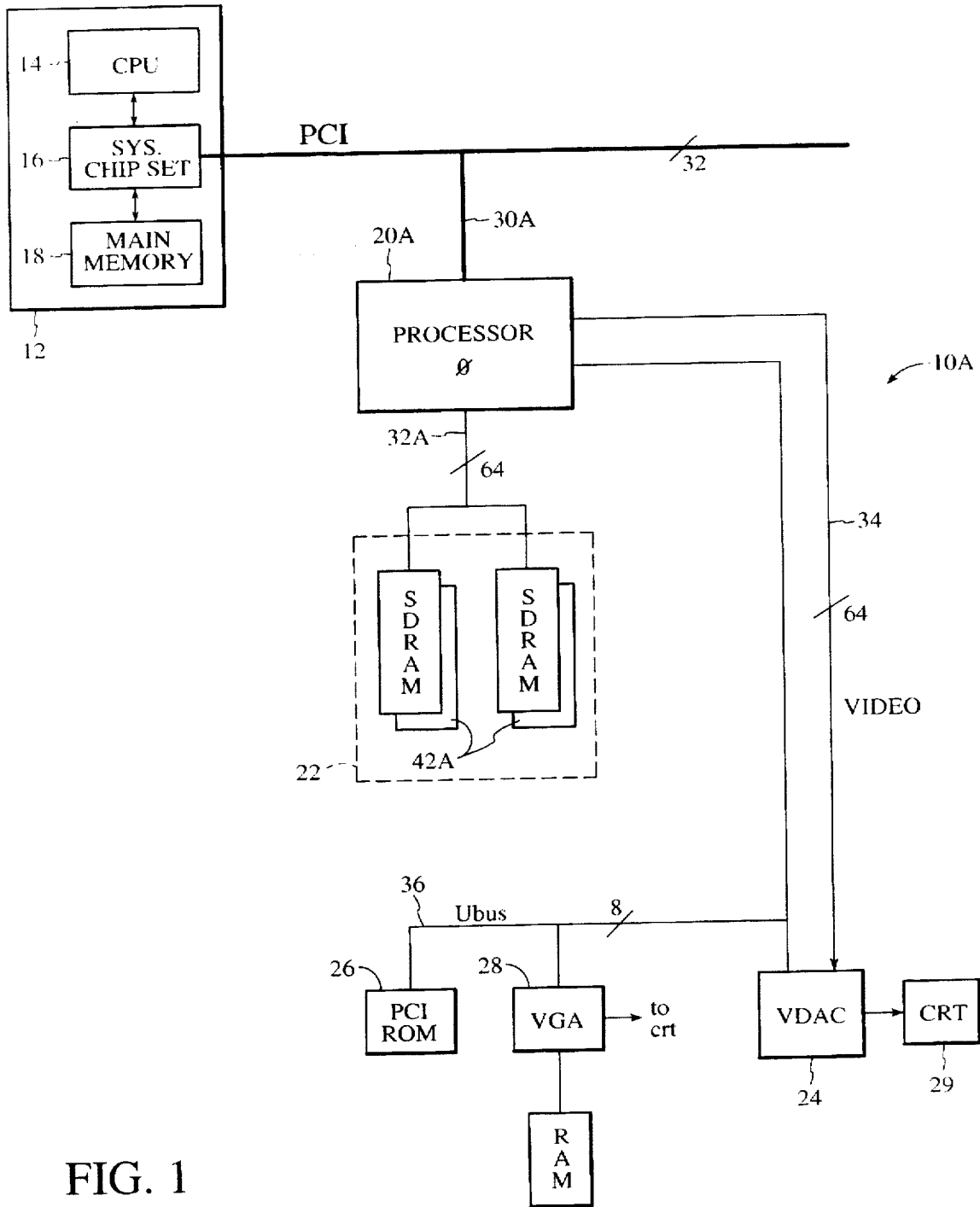
Primary Examiner—Kee M. Tung
 Attorney, Agent, or Firm—Sawyer & Associates

[57] ABSTRACT

A parallel-processor graphics architecture appropriate for multimedia graphics workstations that is scalable to the needs of a user. The graphics architecture includes one or more rendering processors and a graphics memory that is partitioned into blocks. Noncontiguous groups of the blocks are then assigned to different processors. The parallel-processor graphics architecture is scalable by the number of rendering processors utilized, and is configurable with respect to the allocation of the groups of the blocks to specific rendering processors.

10 Claims, 8 Drawing Sheets





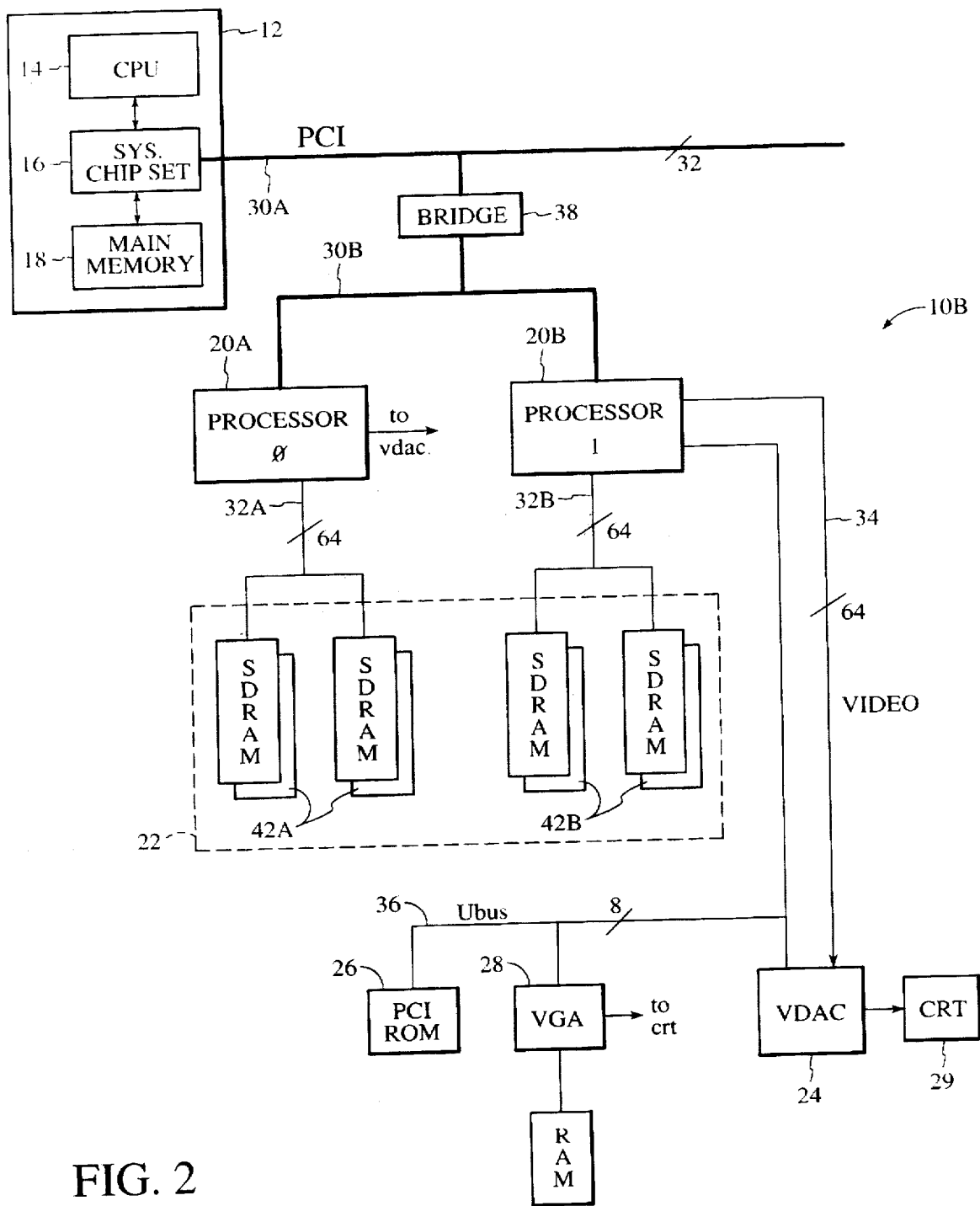


FIG. 2

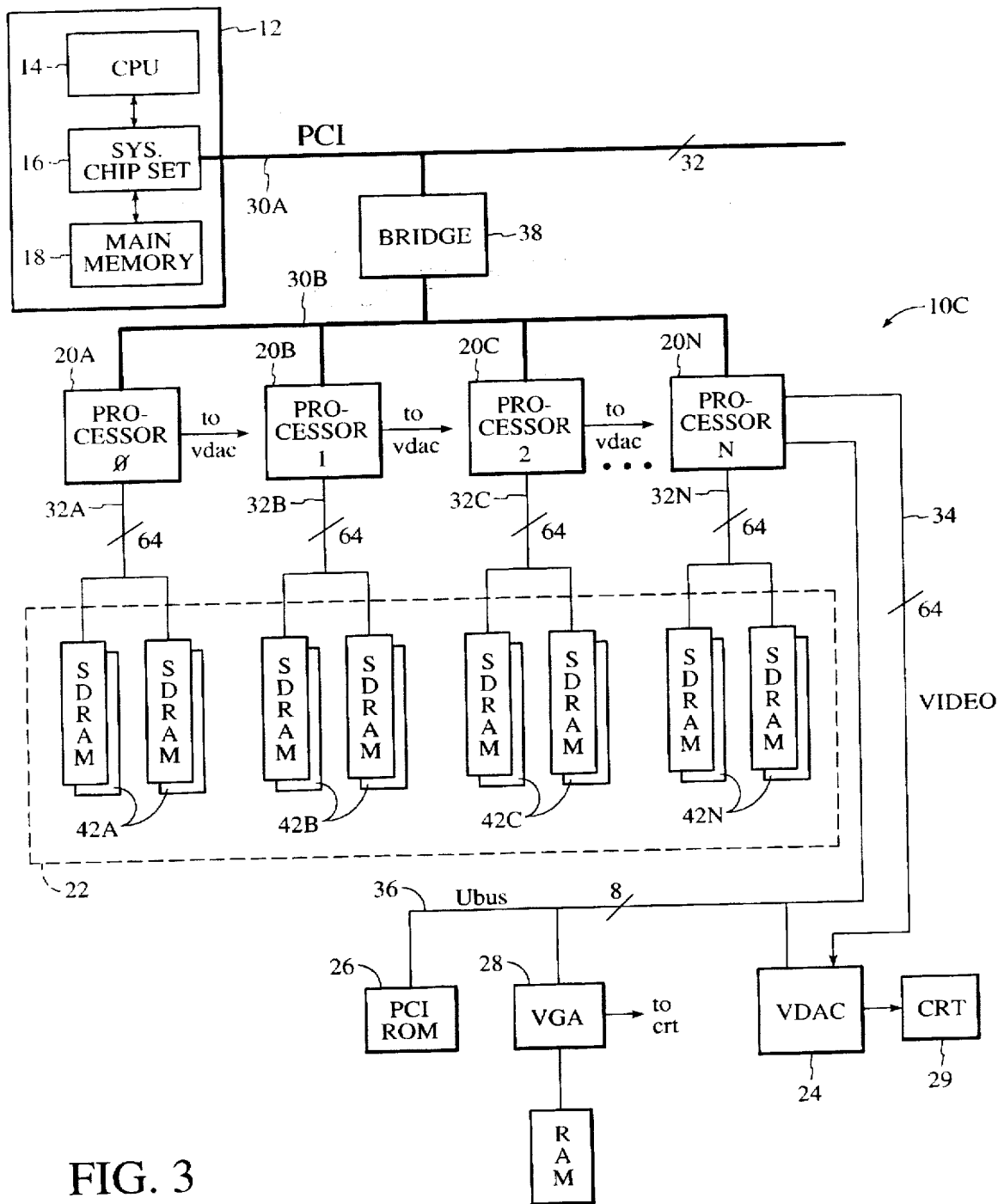


FIG. 3

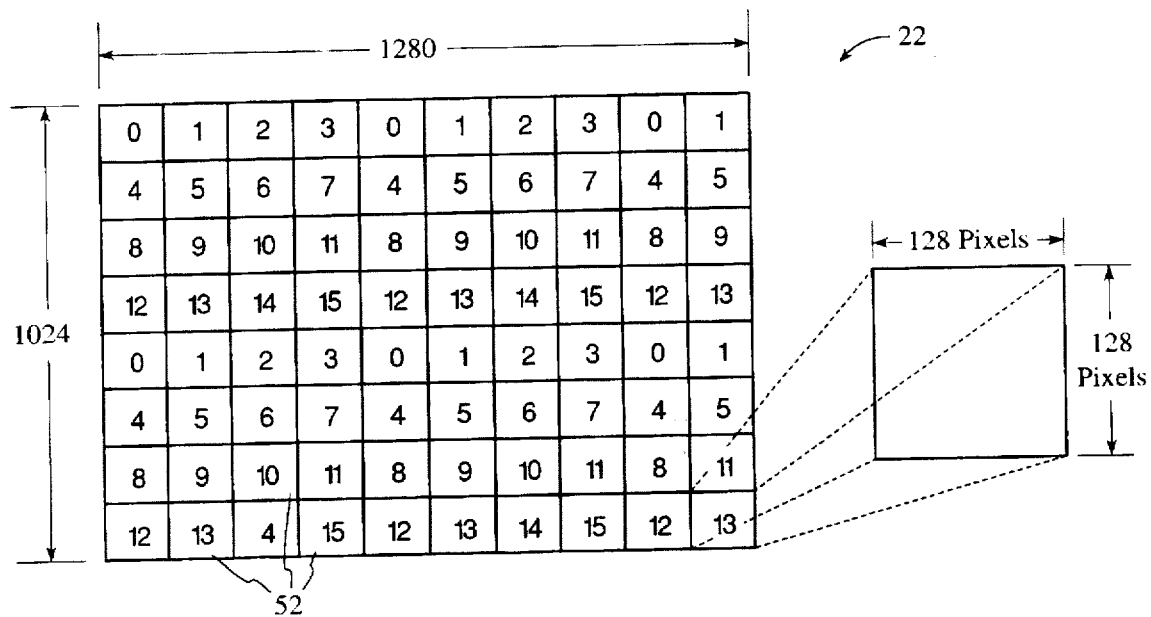


FIG. 4

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