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Poznanovic et al.

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(54) **SYSTEM AND METHOD OF ENHANCING EFFICIENCY AND UTILIZATION OF MEMORY BANDWIDTH IN RECONFIGURABLE HARDWARE**

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(51) **Int. Cl.**
G06F 12/00 (2006.01)

(52) **U.S. Cl.** **711/170; 711/154**

(58) **Field of Classification Search** **711/170-173; 712/15**

See application file for complete search history.

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Primary Examiner—Gary Portka

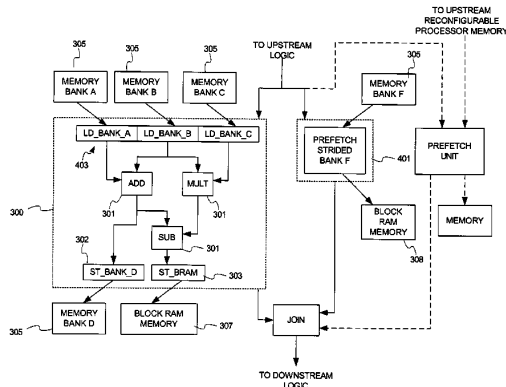
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(57) **ABSTRACT**

A reconfigurable processor that includes a computational unit and a data prefetch unit coupled to the computational unit, where the data prefetch unit retrieves data from a memory and supplies the data to the computational unit through memory and a data access unit, and where the data prefetch unit, memory, and data access unit is configured by a program. Also, a reconfigurable hardware system that includes a common memory; and one or more reconfigurable processors coupled to the common memory, where at least one of the reconfigurable processors includes a data prefetch unit to read and write data between the unit and the common memory, and where the data prefetch unit is configured by a program executed on the system. In addition, a method of transferring data that includes transferring data between a memory and a data prefetch unit in a reconfigurable processor; and transferring the data between a computational unit and the data prefetch unit.

19 Claims, 12 Drawing Sheets



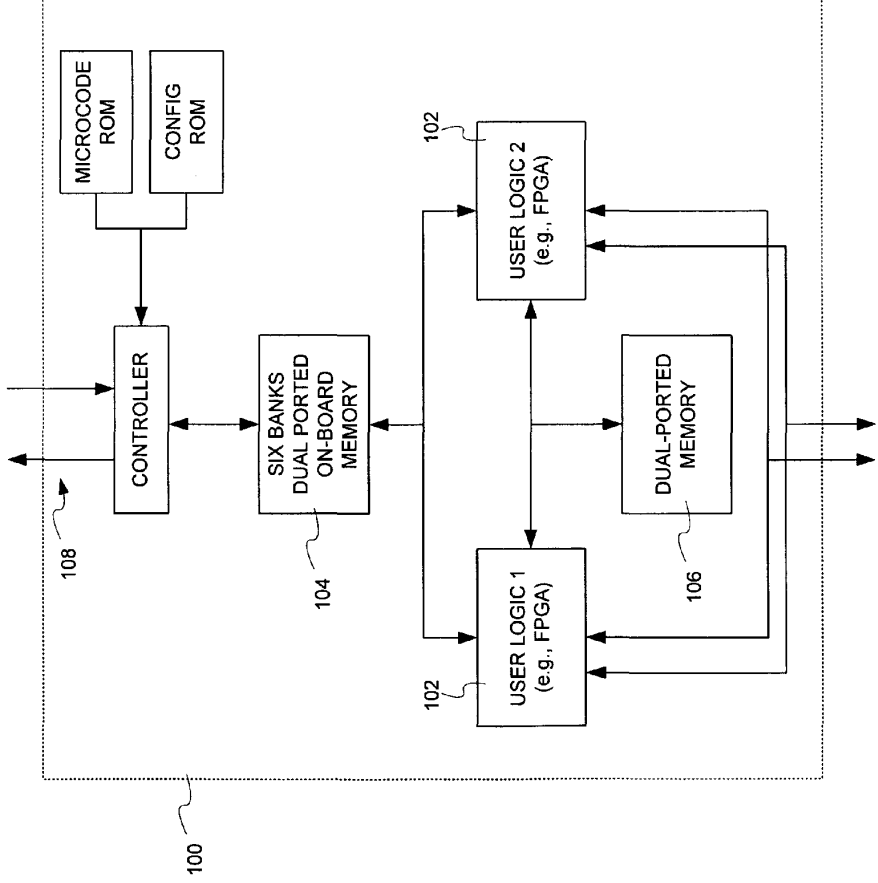


FIG. 1

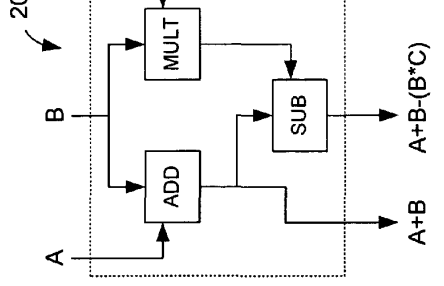


FIG. 2

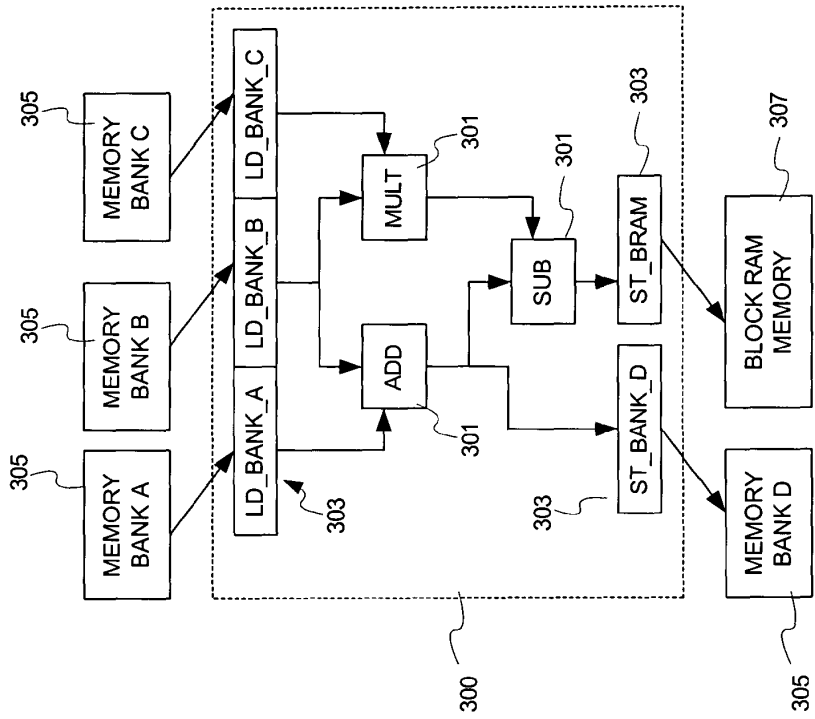


FIG. 3

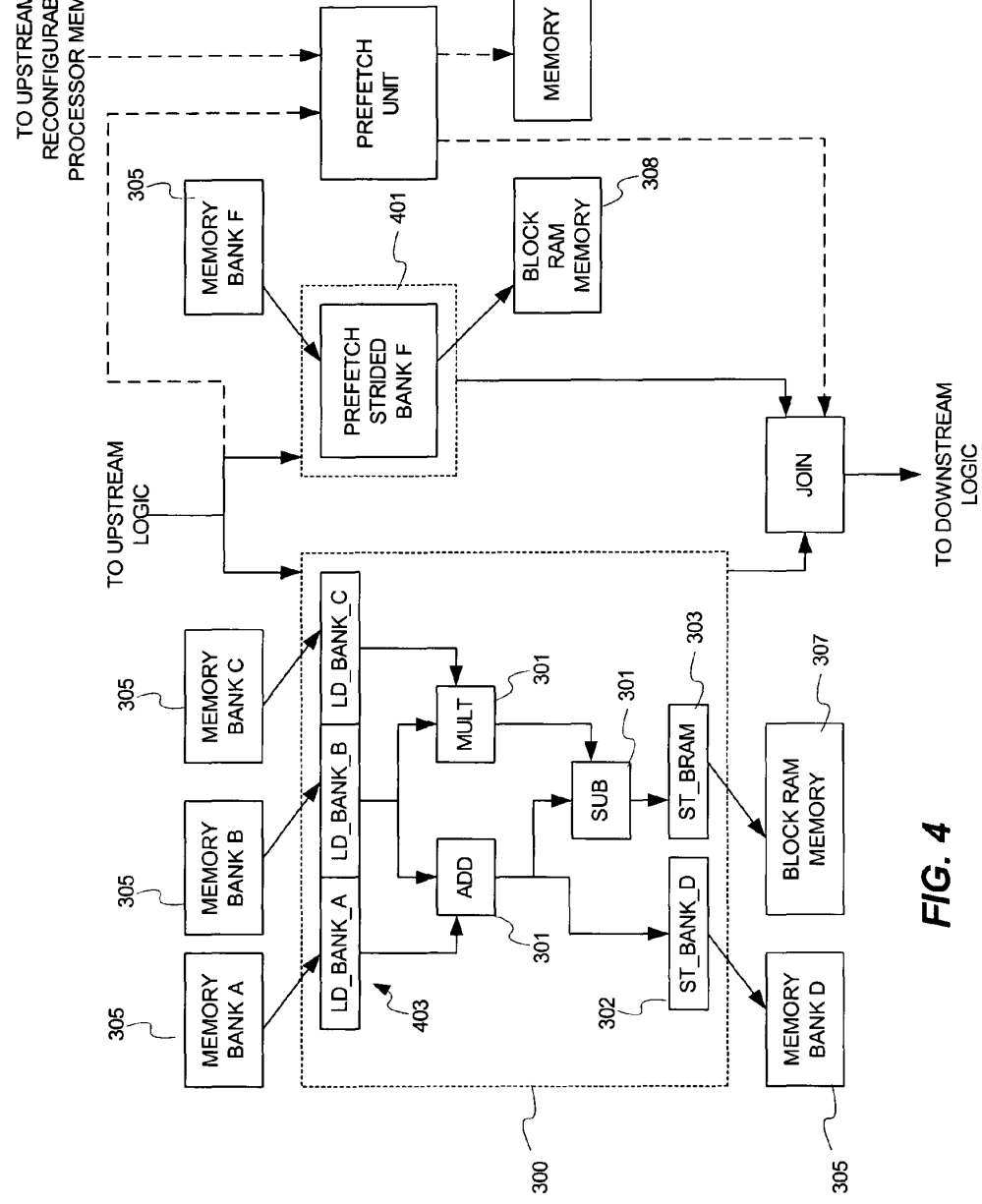


FIG. 4

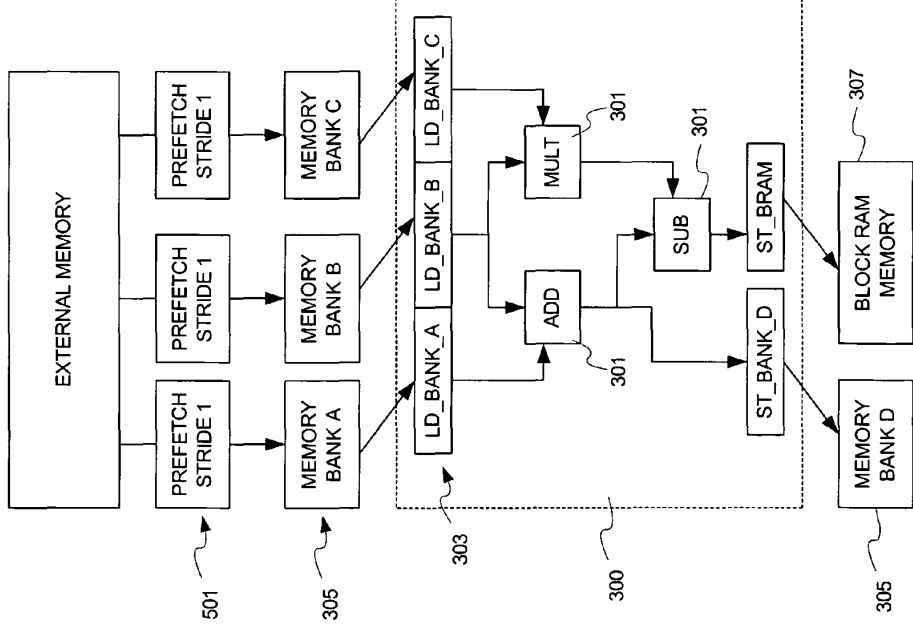


FIG. 5

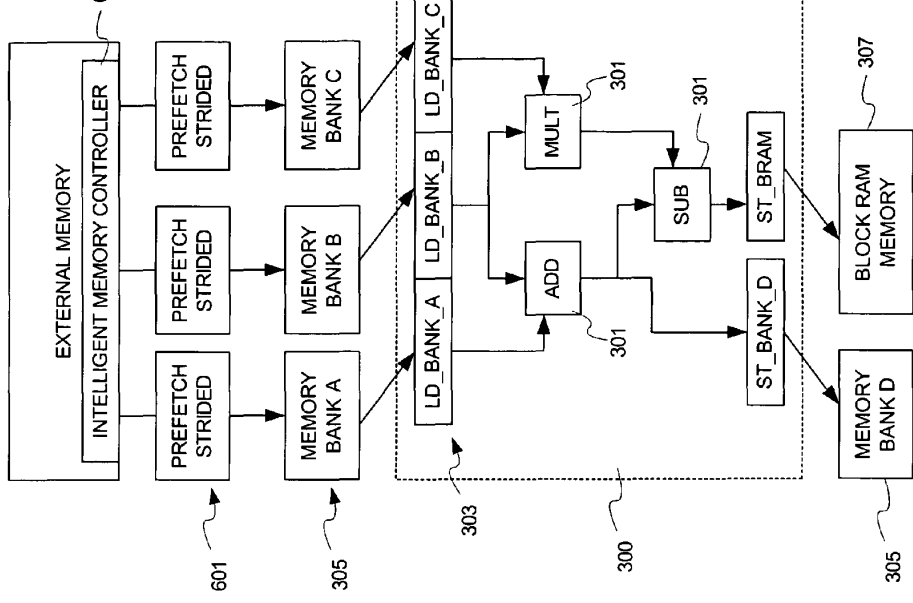


FIG. 6

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