ACROSS-THREAD OUT OF ORDER INSTRUCTION DISPATCH IN A MULTITHREADED MICROPROCESSOR

ABSTRACT OF THE DISCLOSURE

Instruction dispatch in a multithreaded microprocessor such as a graphics processor is not constrained by an order among the threads. Instructions are fetched into an instruction buffer that is configured to store an instruction from each of the threads. A dispatch circuit determines which instructions in the buffer are ready to execute and may issue any ready instruction for execution. An instruction from one thread may be issued prior to an instruction from another thread regardless of which instruction was fetched into the buffer first. Once an instruction from a particular thread has issued, the fetch circuit fills the available buffer location with the following instruction from that thread.

Fig 1