ABSTRACT

RESOURCE CONFLICT DETECTION METHOD AND APPARATUS INCLUDED IN A PIPELINED PROCESSING UNIT

A pipelined processing unit includes an instruction unit stage containing resource conflict apparatus for detecting and resolving conflicts in the use of register and indicator resources during the different phases of instruction execution. The instruction unit includes a plurality of resource registers corresponding in number to the number of instructions which can be processed concurrently by the processing unit. Decode circuits in response to each new instruction received by the instruction unit generate one or more sets of bit indication signals designating those resources required by the specific pipeline stage(s) executing the instruction for completing the execution of the instruction which are shared by those stages capable of completing the execution of instructions. Comparison circuits compare the set of bit indication signals for each new instruction that corresponds to resources needed by an earlier pipeline stage which in the preferred embodiment corresponds to a secondary execution unit, with the stored sets of bit indication signals for determining the presence of any resource conflict.

(Figure 1)