10.6

Reservation stations are units on the Tomasulo architecture that allow register renaming, eliminates the WAR and WAW hazards and make the hazard distribution possible in the architecture.

They are placed connected to register file, execution unit (mem, alu, FP unit), CDB. Since the architecture is with speculation also with a ROB device.

The station is composed of different fields: op code, Vi/j operand value fields, Qi/j operand label, A immediate field for load/store operation and a busy field.

Once the instruction is issued, a reservation station is assigned so that information of the instruction execution are written in the instruction such as the op code and, in case the operands value are not available (ex in execution) the label of the reservation station having it or the value of the operands.

On load/store instruction once the effective address is evaluated it is overwritten in the A field.

Once the instruction operands are made available, the res. Station that monitors the CDB retrieve it.

Once the write back is completed then the reservation station is set not busy and it can be reused by next instruction.

The advantages are distrubition of hazards, WAR and WaW are eliminated, register renaming.

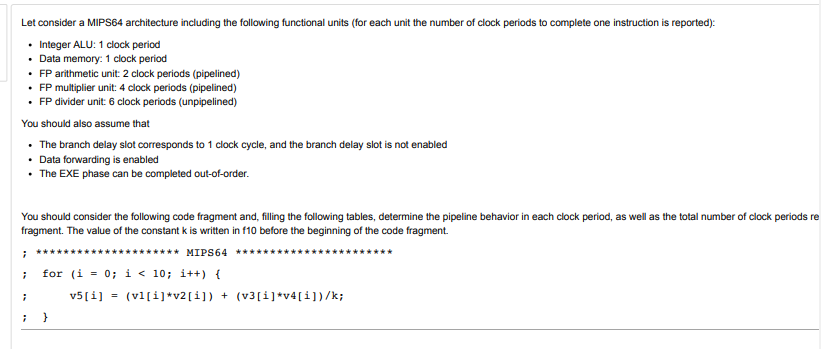


Immagine che contiene testo, schermata

Descrizione generata automaticamente