Umer Wazir

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Assignment 3

**ANSWER:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | issue | exe start | exe end | |  | | --- | | Complete/ Write to reorder | | commit |
| fld F2,0(x1) | 1 | 2 | 3 | 4 | 5 |
| fmul.d F4,F2,F0 | 2 | 5 | 10 | 11 | 12 |
| fld F6,0(x2) | 3 | 4 | 5 | 6 | 7 |
| beq x1,x2,Label | 4 | - | - | - | - |
| fadd.d F6,F4,F6 | 5 | 12 | 15 | 16 | 17 |
| fsd F6,0(x2) | 6 | 17 | 18 | 19 | 20 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Reorder Buffer | | | | | |
| Entry | Busy | Instruction | State | Destination | Value |
| 1 | No | Fld F2,0(x1) | Commit | F2 | Mem[O+reg[x1]] |
| 2 | Yes | Fmul F4,F2,F0 | Execute | F4 | #1\* reg[F0] |
| 3 | Yes | Fld F6,0(x2) | Execute | F6 | O+reg[x2] |
| 5 | Yes | Fadd F6,F4,F6 | Execute | F6 | #2+#3 |
| 6 | Yes | Fsd F6,0(x2) | Not issued | F6 | O+reg[x2] |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Reservation Station | | | | | | | |
| Name | Busy | op | Vj | Vk | Qj | Qk | A |
| Load1 | No | Fld |  |  |  |  |  |
| Load2 | Yes | Fld |  |  |  |  | O+reg[x2] |
| Add1 | Yes | Fadd |  |  | #2 | #3 |  |
| Add2 | No |  |  |  |  |  |  |
| Add3 | No |  |  |  |  |  |  |
| Mult1 | Yes | Fmul | Mem[O+reg[x1]] | reg[F0] |  |  |  |
| Std | Yes | Fsd |  |  |  |  | O+reg[x2] |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Register Status | | | | | | | | | |
| Field | F0 | F2 | F4 | F6 | F8 | F10 | F12 | ..... | F30 |
| Qi |  | fld | mul | Std |  |  |  |  |  |