

# Speculative Execution with Tomasulo

**TABLE 1. Reservation Stations**

| Unit name | Busy | Operation | Vj | Vk | Qj | Qk | Dest |
|-----------|------|-----------|----|----|----|----|------|
| Add1      |      |           |    |    |    |    |      |
| Add2      |      |           |    |    |    |    |      |
| Add3      |      |           |    |    |    |    |      |
| Mult1     |      |           |    |    |    |    |      |
| Mult2     |      |           |    |    |    |    |      |

**TABLE 2. Reorder Buffer**

| Entry | Busy | Instruction      | Issue | Ex Comp | Write Res | Commit | Dest | Value       |
|-------|------|------------------|-------|---------|-----------|--------|------|-------------|
| 1     |      | LD F6, 34(R2)    | 1     | 2       | 3         | 4      | F6   | M[34+R2]    |
| 2     |      | LD F2,45(R3)     | 2     | (10)    | 11        | 12     | F2   | M[45+R3]    |
| 3     |      | MULTD F0,F2, F4  | 3     | 21      | 22        | 23     | F0   | mult result |
| 4     |      | SUBD F8, F6, F2  | 4     | 13      | 14        | 24     | F8   | sub result  |
| 5     |      | DIVD F10, F0, F6 | 5     | 42      | 43        | 44     | F10  | div result  |
| 6     |      | ADDD F6, F8, F2  | 6     | 16      | 17        | 45     | F6   | add result  |
| 7     |      |                  |       |         |           |        |      |             |
| 8     |      |                  |       |         |           |        |      |             |
| 9     |      |                  |       |         |           |        |      |             |
| 10    |      |                  |       |         |           |        |      |             |

**TABLE 3. Load/Store Unit Status**

| Unit  | Busy | Address | Dest | Unit   | Busy | Address | Qj |
|-------|------|---------|------|--------|------|---------|----|
| Load1 |      |         |      | Store1 |      |         |    |
| Load2 |      |         |      | Store2 |      |         |    |
| Load3 |      |         |      | Store3 |      |         |    |
| Load4 |      |         |      |        |      |         |    |
| Load5 |      |         |      |        |      |         |    |
| Load6 |      |         |      |        |      |         |    |

**TABLE 4. Register Result Status**

| Register | F0 | F2 | F4 | F6 | F8 | F10 | F12 |
|----------|----|----|----|----|----|-----|-----|
| Fj       |    |    |    |    |    |     |     |