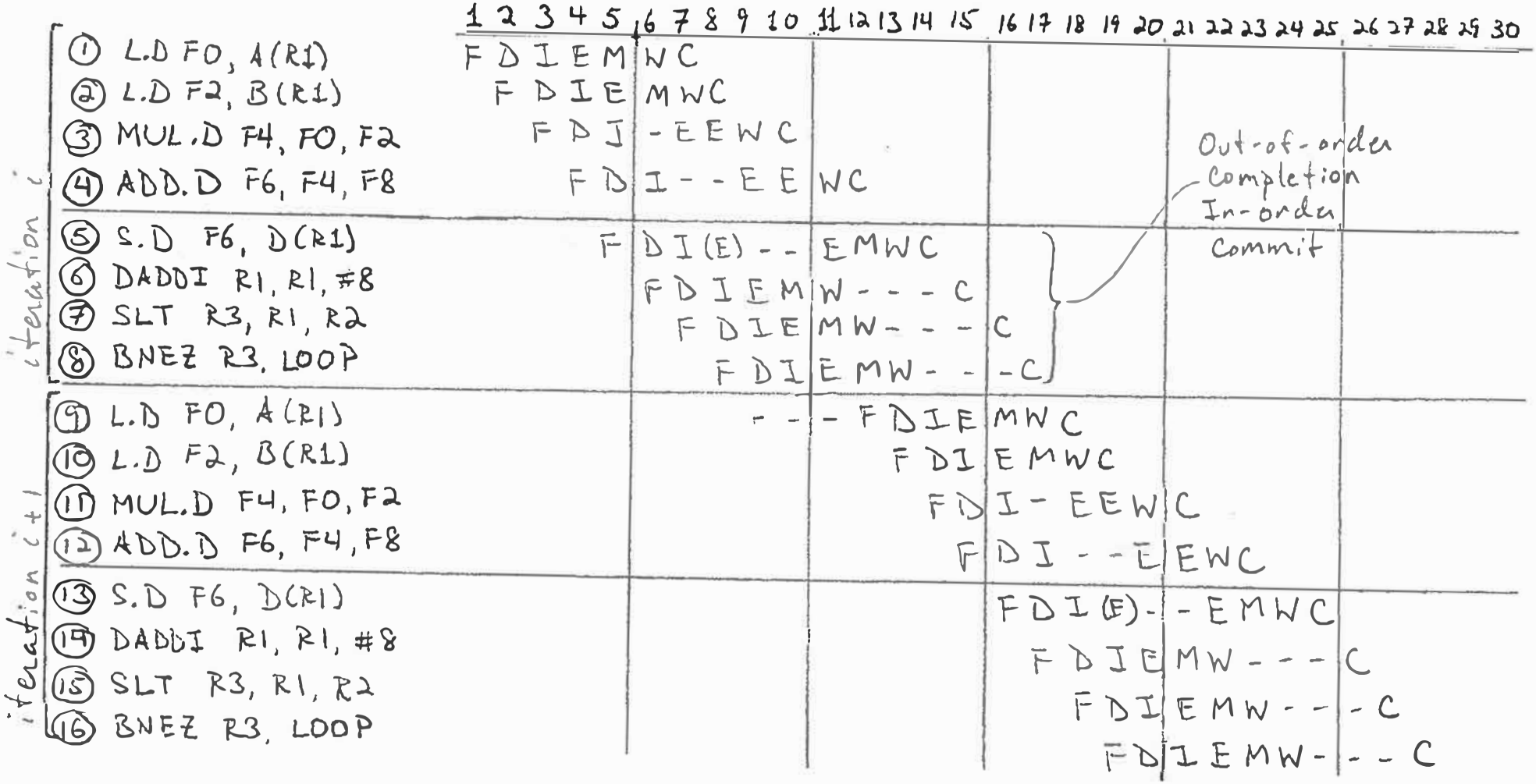
Maintaining Precise State: Reorder Buffer

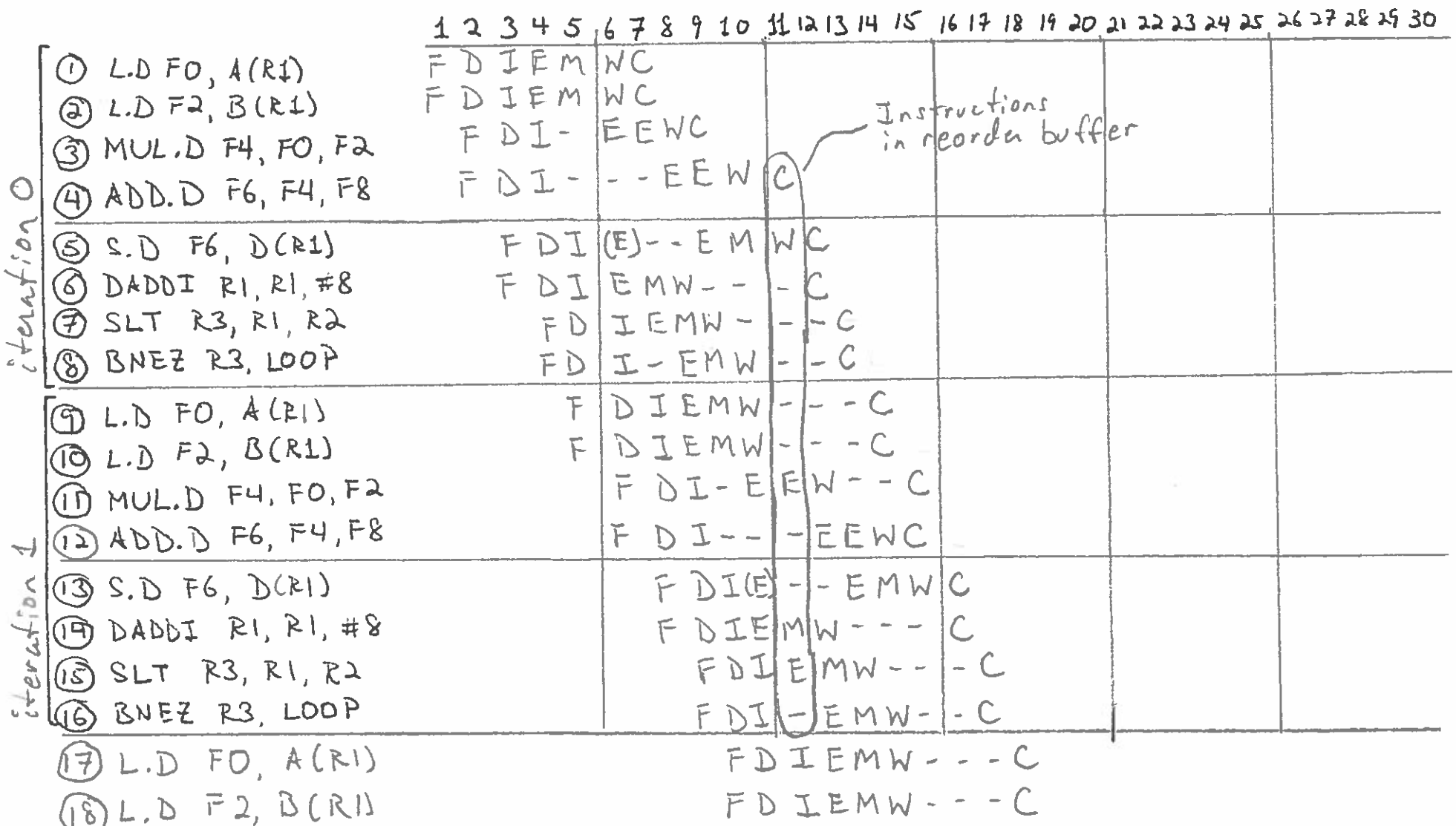



```
for (i=0; i<n; i++){
    D[i] = A[i] · B[i] + C;
}
```

i → R1, C → F8, n·8 → R2

MUL.D - 2 cycles
ADD.D - 2 cycles

Control Speculation through Dynamic Branch Prediction




```
for (i=0; i<n; i++) {
    D[i] = A[i] · B[i] + C;
}
```

MUL.D - 1 cycle
ADD.D - 1 cycle

Control Speculation: Branch Misprediction