

**cycle 4**

instruction status	i1	exec(2)							
	i2	issue							
	i3	dispatch							
	i4								

  

functional unit status		Ua	op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
shift		0								
mult1		1	i1	R4	R0	R2	?	?	1	1
mult2		1	i2	R6	R4	R8	mult1	?	0	1
add		1	i3	R8	R2	R12	?	?	1	1

  

register result status	R0	R2	R4	R6	R8	R10	R12	R14	R16
	0	0	mult1	mult2	add	0	0	0	0

i1 continues exec.  
i2 is stalled  
i3 is executed  
i4 blocked

**cycle 5**

instruction status	i1	exec(3)							
	i2	issue							
	i3	exec							
	i4								

  

functional unit status		Ua	op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
shift		0								
mult1		1	i1	R4	R0	R2	?	?	1	1
mult2		1	i2	R6	R4	R8	mult1	?	0	1
add		1	i3	R8	R2	R12	?	?	1	1

  

register result status	R0	R2	R4	R6	R8	R10	R12	R14	R16
	0	0	mult1	mult2	add	0	0	0	0

i1 continues exec.  
i2 is stalled  
i3 cannot write because  
 $F_k(i2) = F_i(i3) \Rightarrow \text{WHR}$

cycle 6 no change  
cycle 7 no change  
cycle 8 no change

**cycle 9**

instruction status	i1	write							
	i2	dispatch							
	i3	write							
	i4	issue							

  

functional unit status		Ua	op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
shift		0								
mult1		0							1	
mult2		1	i2	R6	R4	R8	mult1	?	1	1
add		1	i4	R4	R14	R16	?	?	1	1

  

register result status	R0	R2	R4	R6	R8	R10	R12	R14	R16
	0	0	add	mult2	0	0	0	0	0

After cycle 8:

i2 completes exec and starts write  
 • mult1 is cleared  
 •  $R_j(i2)$  is set to 1  
 → i2 is dispatched  
 i3 starts write  
 • add is replaced with i4  
 •  $P_8$  is reset  
 i4 is issued