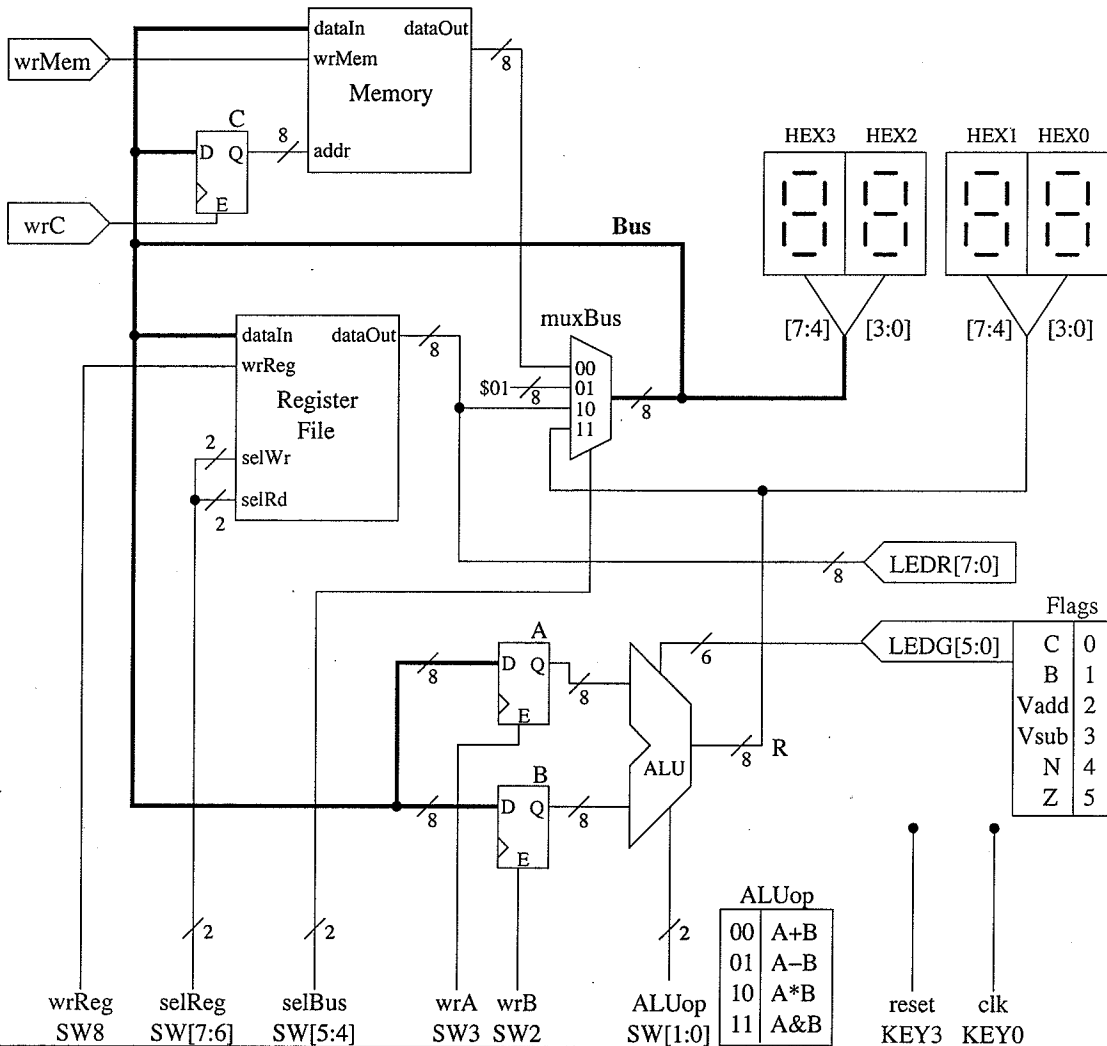


Cycle #	wr Mem	wrC	wr Reg	selReg [1:0]	selBus [1:0]	wrA	wrB	ALU op[1:0]	Micro-operation	Overall Operation
1									$C \leftarrow 1; A \leftarrow 1; B \leftarrow 1$	$Mem[2] \leftarrow Mem[1] + Mem[2]$
2									$A \leftarrow Mem[C]$	
3										
4										
5										
6									$C \leftarrow 1; A \leftarrow 1; B \leftarrow 1$	<ul style="list-style-type: none"> cannot do $C \leftarrow A+B$ at same time (why not?) doing it in next cycle is incorrect (A will have changed)
7									$A \leftarrow A+B$	
8									$B \leftarrow Mem[C]$	
9										
10										
11										
12										
13									$A \leftarrow 1; B \leftarrow 1$	<ul style="list-style-type: none"> cannot do $C \leftarrow A$ at same time or next cycle (why not?)
14									$C \leftarrow A+B$ (H)	
15									$A \leftarrow Mem[C]$	
16									$C \leftarrow 1$	
17									$B \leftarrow Mem[C]$	
18									$A \leftarrow A+B$	
19										
20										

none of these approaches work!

how to get $C=2$ again?



Cycle #	wr Mem	wrC	wr Reg	selReg [1:0]	selBus [1:0]	wrA	wrB	ALU op[1:0]	Micro-operation	Overall Operation
1									$B \leftarrow 1; C \leftarrow 1$	$Mem[2] \leftarrow Mem[1] + Mem[2]$ $(A = Mem[1] + 2)$ $(B = Mem[1])$ $(C = 2)$ $(A = Mem[2])$
2								$A \leftarrow Mem[C]$		
3								$A \leftarrow A + B$		
4								$A \leftarrow A + B$		
5								$B \leftarrow Mem[C]$		
6								$C \leftarrow A - B$		
7								$A \leftarrow Mem[C]$		
8								$Mem[C] \leftarrow A + B$		
9										
10										
11										
12									$A, B, C \leftarrow 1$	$A \leftarrow A + B$ $B \leftarrow Mem[C]$ $A \leftarrow A + B$ $C \leftarrow A - B$ $A \leftarrow Mem[C]$ $Mem[C] \leftarrow A + B$
13									$A \leftarrow A + B$	
14									$B \leftarrow Mem[C]$	
15									$A \leftarrow A + B$	
16									$C \leftarrow A - B$	
17									$A \leftarrow Mem[C]$	
18									$Mem[C] \leftarrow A + B$	
19										
20										

valid solution!

shorter solution!