

به نام خدا

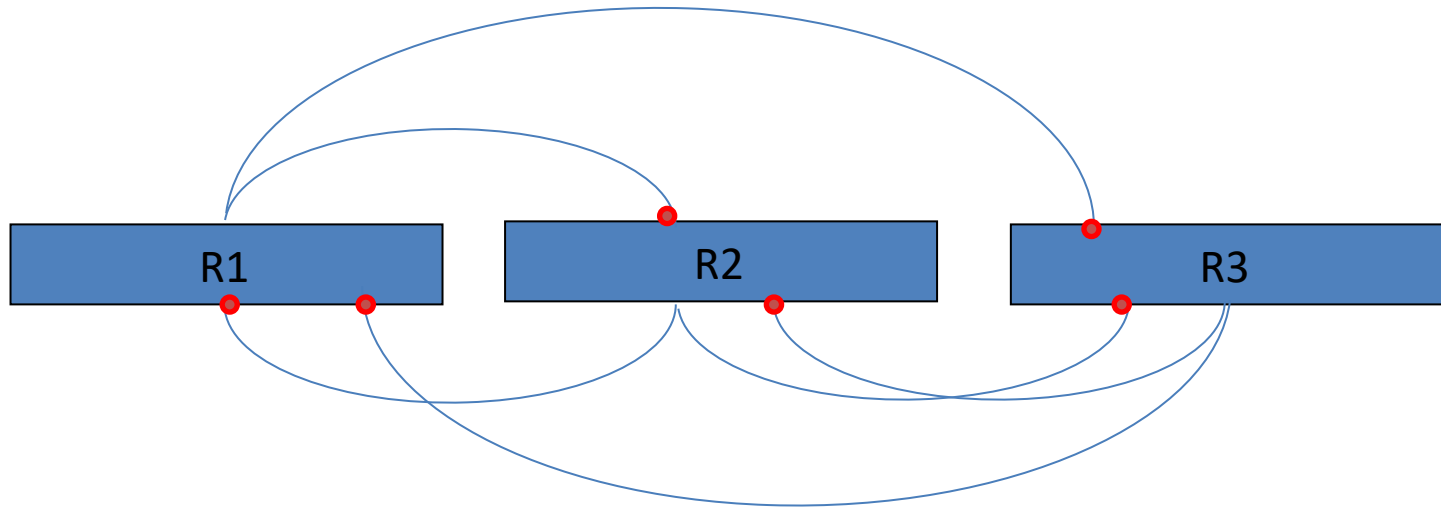
سازمان داخلی کامپیوتر پایه

ساختار کلی

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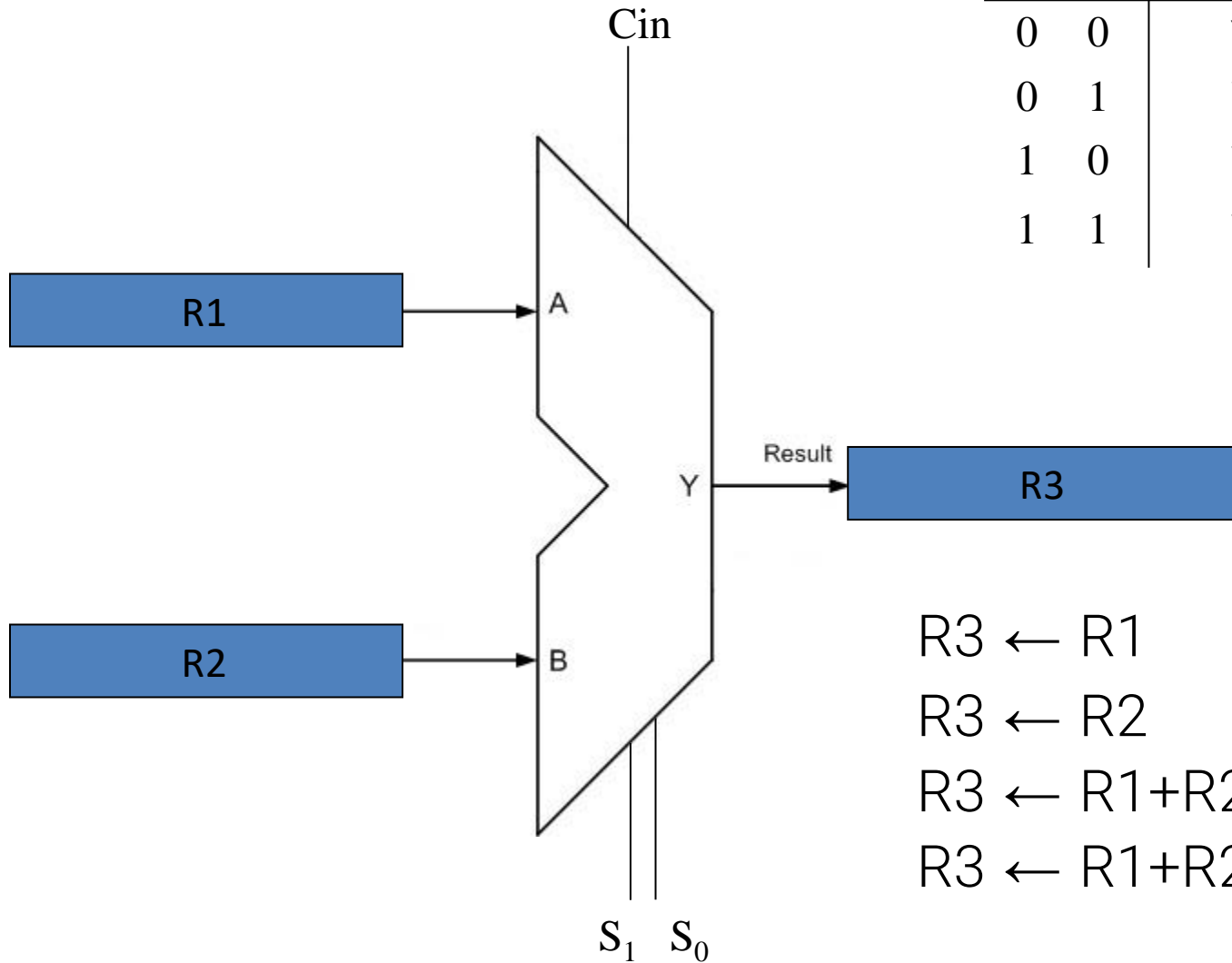


مثال



$R2 \leftarrow R1, R3 \leftarrow R2$

مثال



S ₁	S ₀	
0	0	Y=A
0	1	Y=B
1	0	Y=A+B
1	1	Y=A+B+C _{in}

$$R3 \leftarrow R1$$

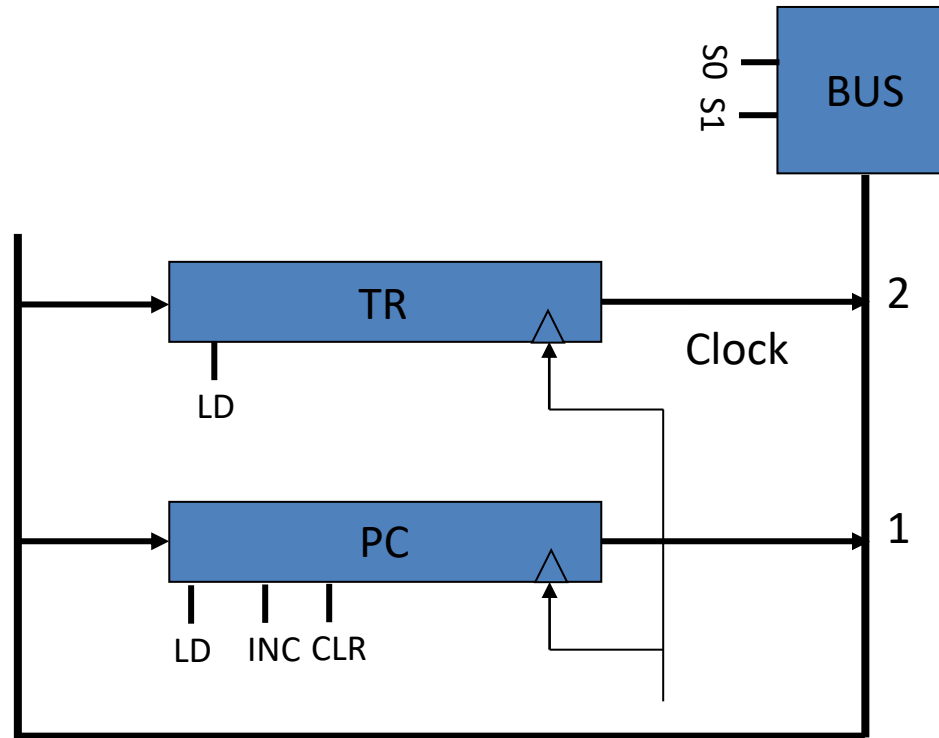
$$R3 \leftarrow R2$$

$$R3 \leftarrow R1+R2$$

$$R3 \leftarrow R1+R2+C_{in}$$

مثال

$PC \leftarrow TR$
 $TR \leftarrow PC$
 $PC \leftarrow PC + 1$
 $PC \leftarrow 0$



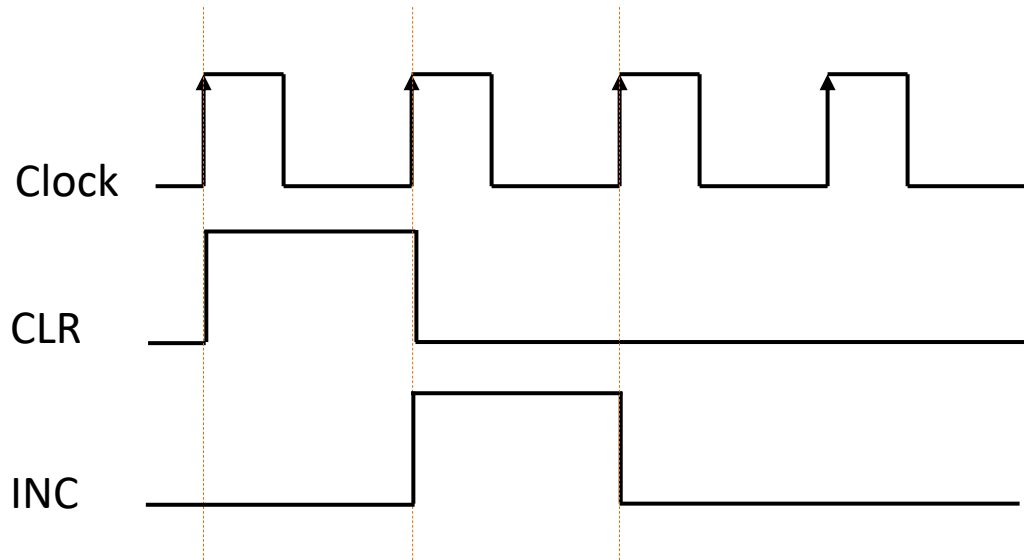
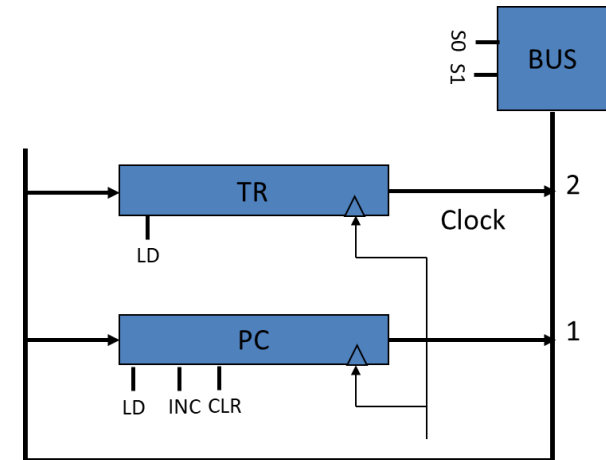
	S_1	S_0	
1:	0	1	$BUS \leftarrow PC$
2:	1	0	$BUS \leftarrow TR$

$TR \leftarrow PC + 1$ ❌

$PC \leftarrow 1$?

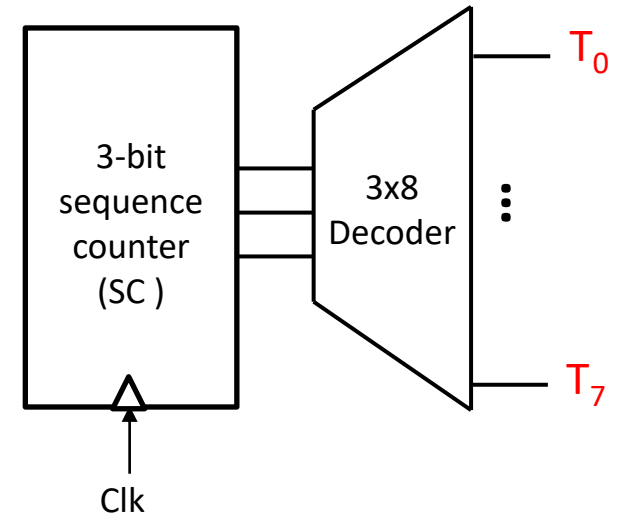
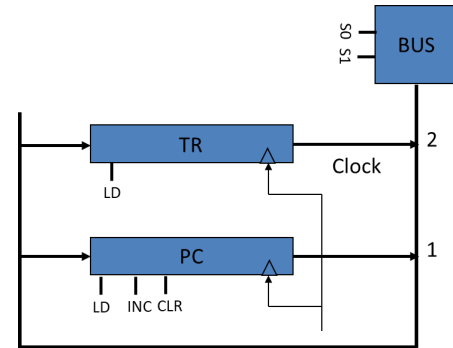
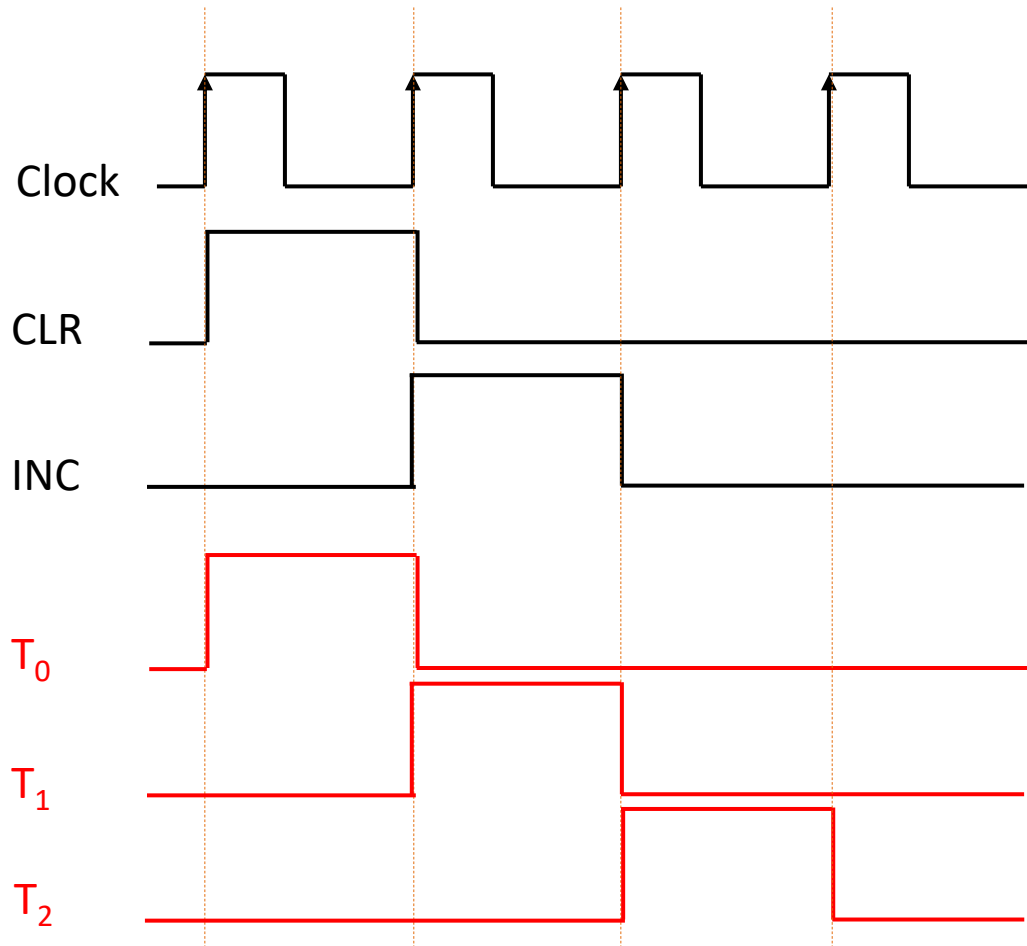
Timing and Control

$PC \leftarrow 1$ { Time1: $PC \leftarrow 0$
Time2: $PC \leftarrow PC + 1$

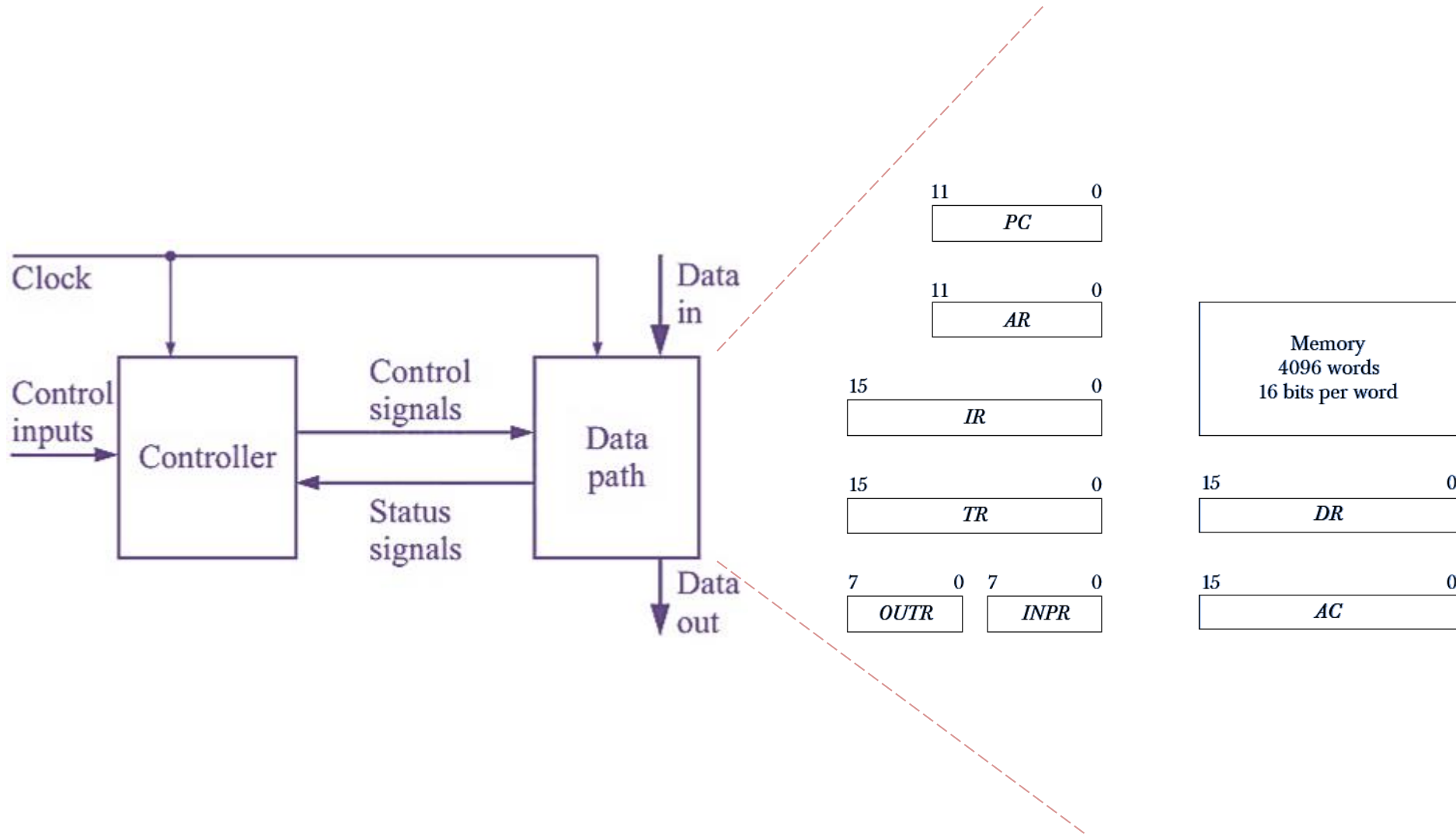


Timing and Control cnt.

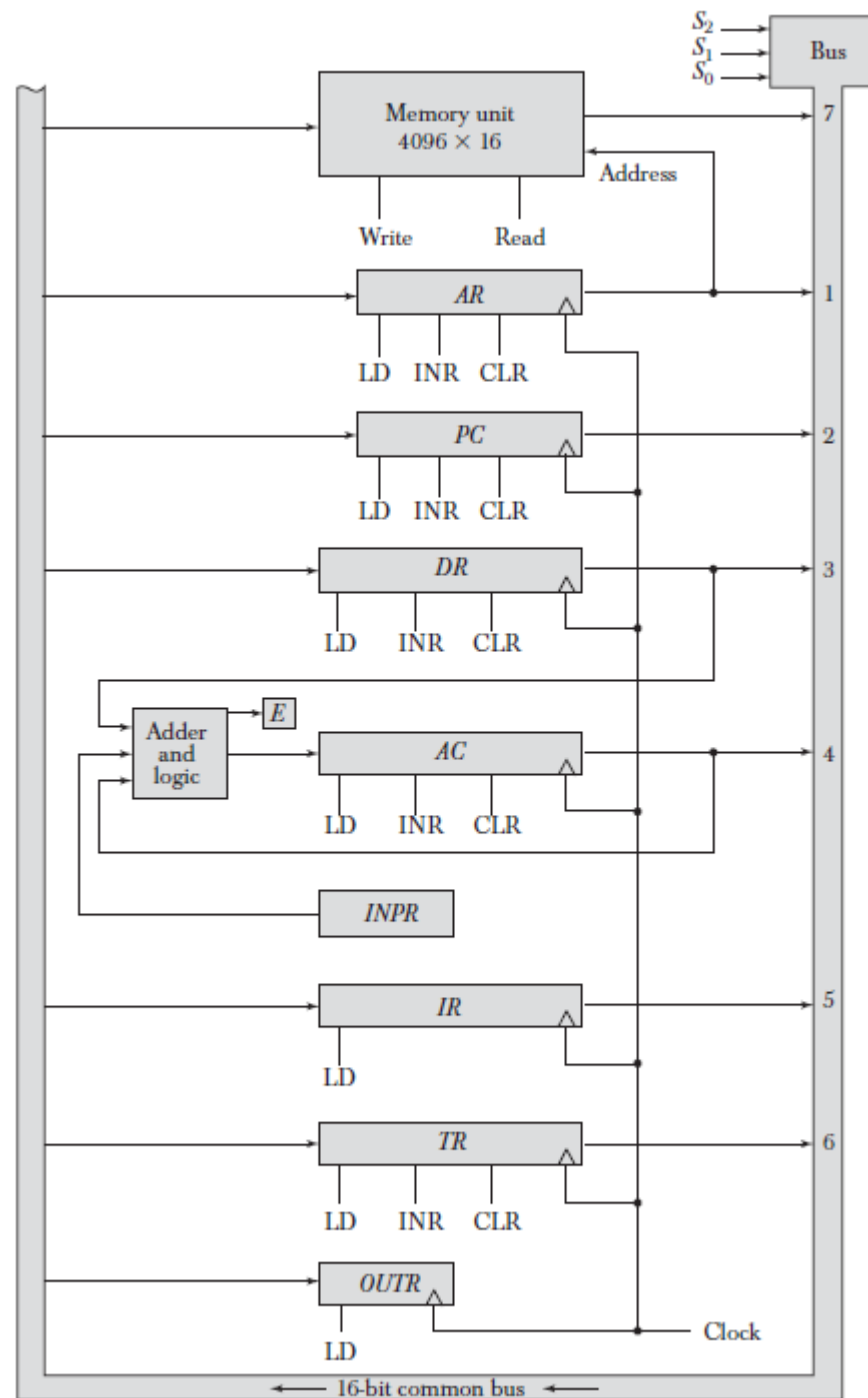
$PC \leftarrow 1 \begin{cases} T_0: PC \leftarrow 0 \\ T_1: PC \leftarrow PC+1 \end{cases}$



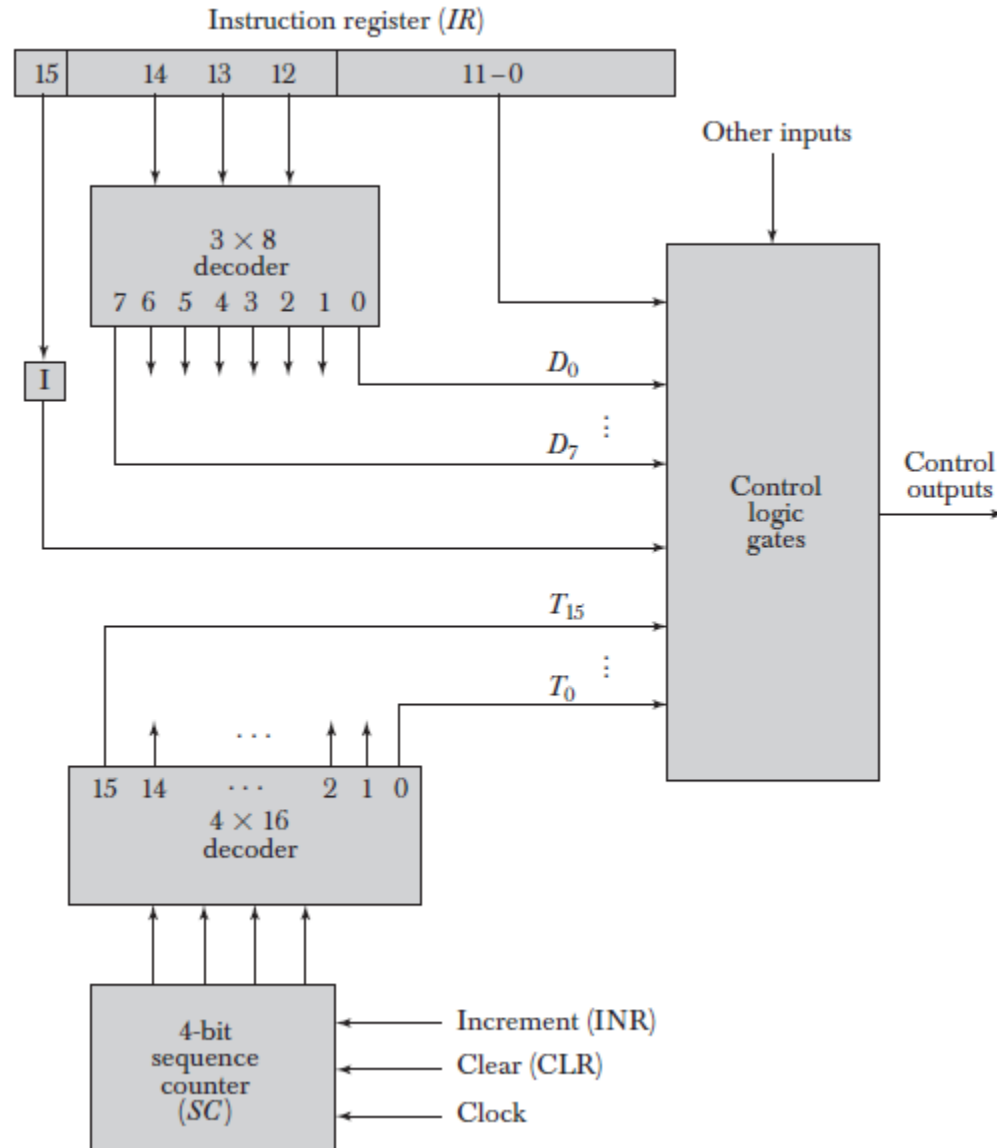
CPU



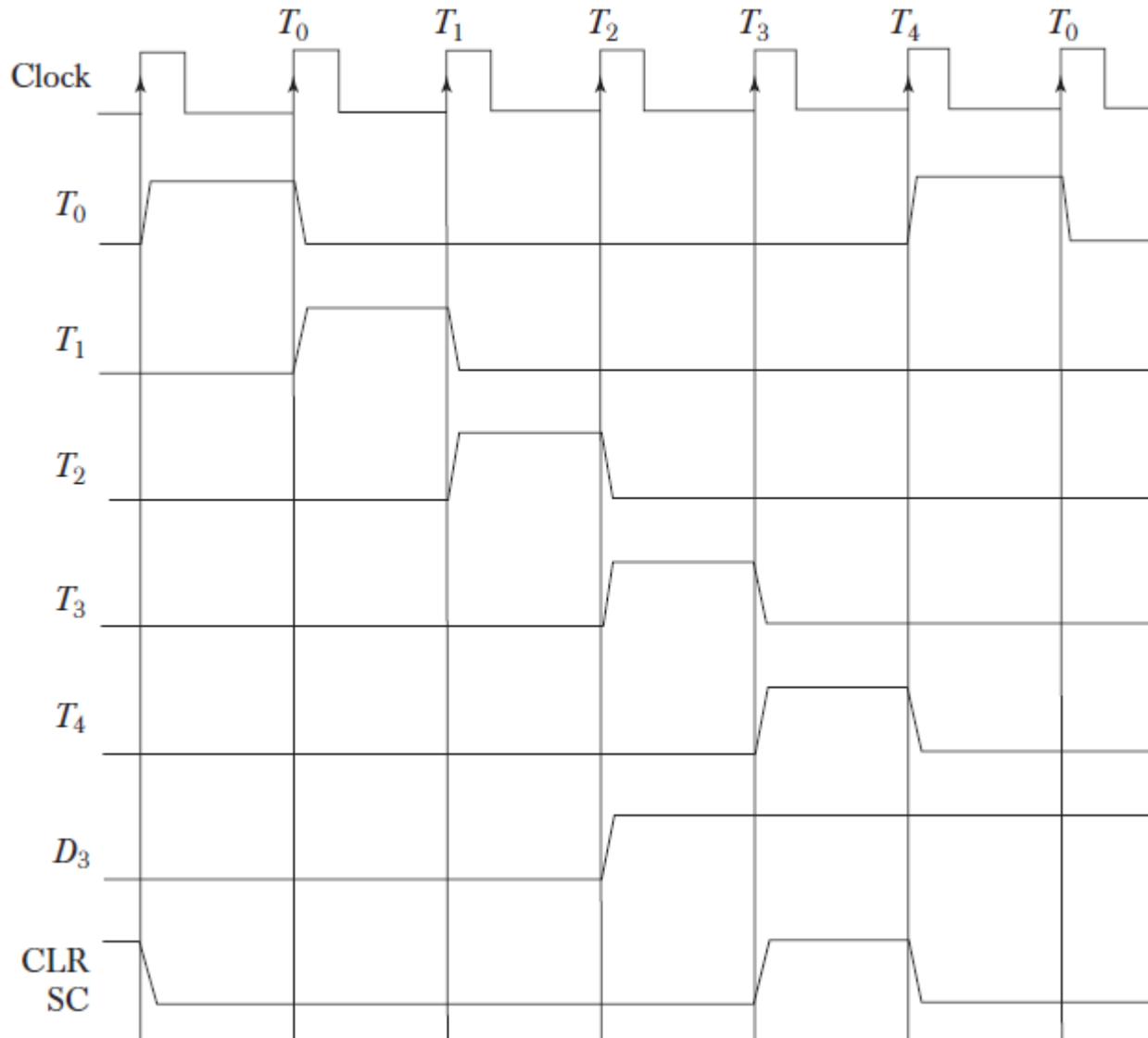
Data Path



Control unit of basic computer



Example of control timing signals



Control unit of basic computer

- Two major types of control organization
 - Hardwired control
 - Microprogrammed control
- Hardwired Organization
 - The control logic is implemented with gates, flip-flops, decoders, and other digital circuits
 - The advantage that it can be optimized to produce a fast mode of operation
- Microprogrammed Organization
 - The control information is stored in a control memory
 - Any required changes or modifications can be done by updating the microprogram in control memory

پایان

موفق و پیروز باشید