

INSTITUTO FEDERAL
SANTA CATARINA

Microprocessadores

Revisão

Microprocessadores

Introdução.....

Vamos relembrar alguns conceitos sobre o principal elemento de memória a ser utilizado os FLIP FLOP's. Este tópico de revisão visa apenas dar subsídios para a introdução de memórias, logo, solicito atenção especial a este tópico, pois futuramente será abordado o FF apenas como um bloco.

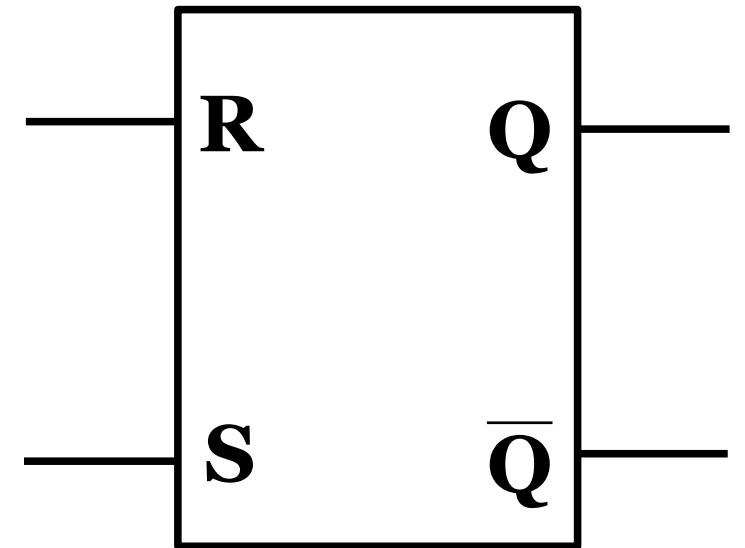
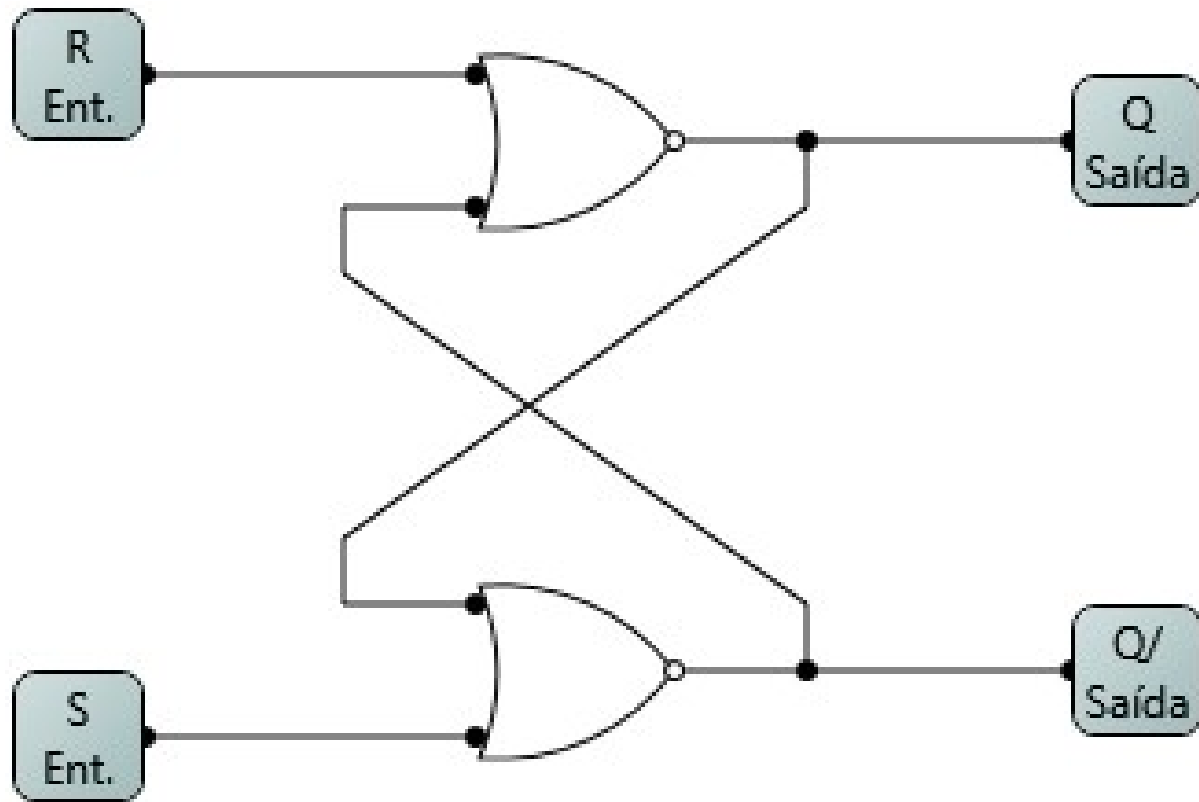
Microprocessadores

Roteiro.....

- Flip Flop RS básico;
 - Flip Flop RS com clock;
 - Flip Flop RS com preset e clear;
-

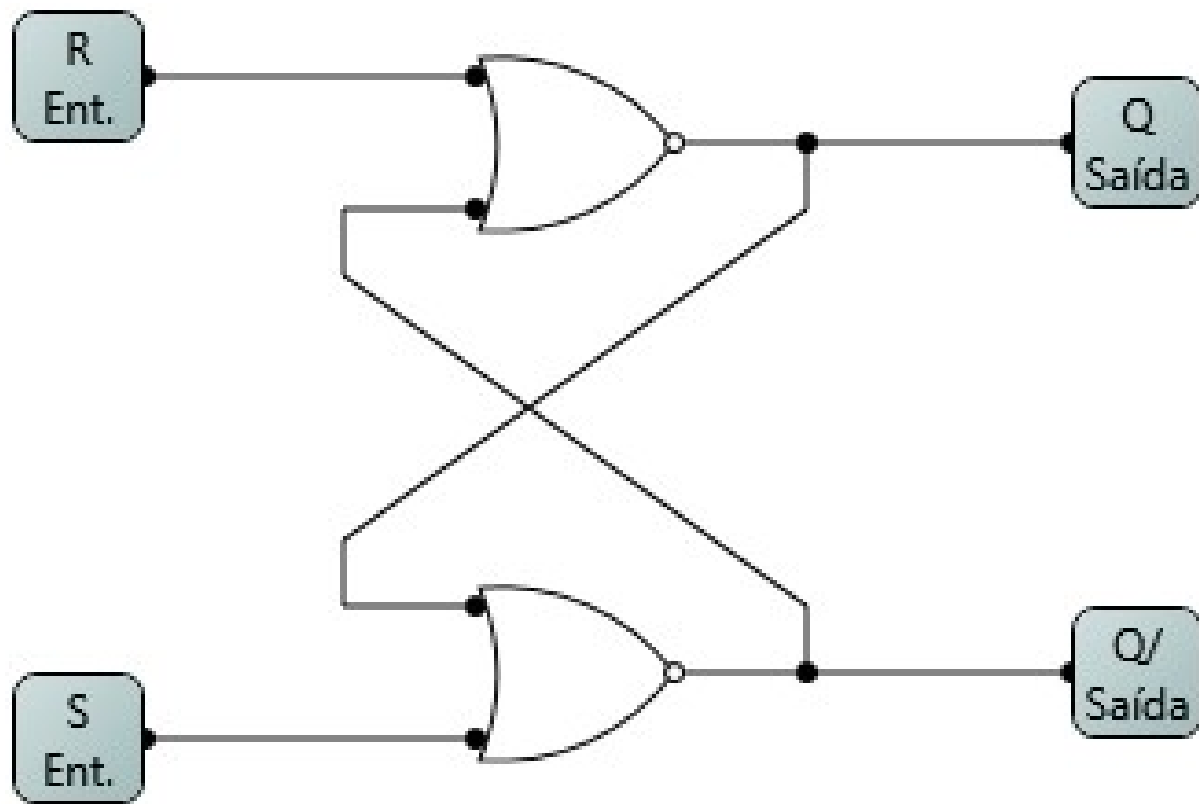
Microprocessadores

FF RS básico.....



Microprocessadores

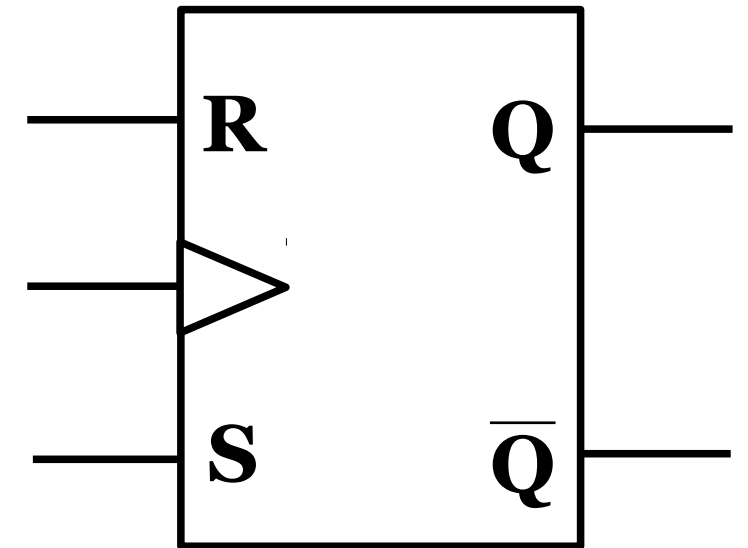
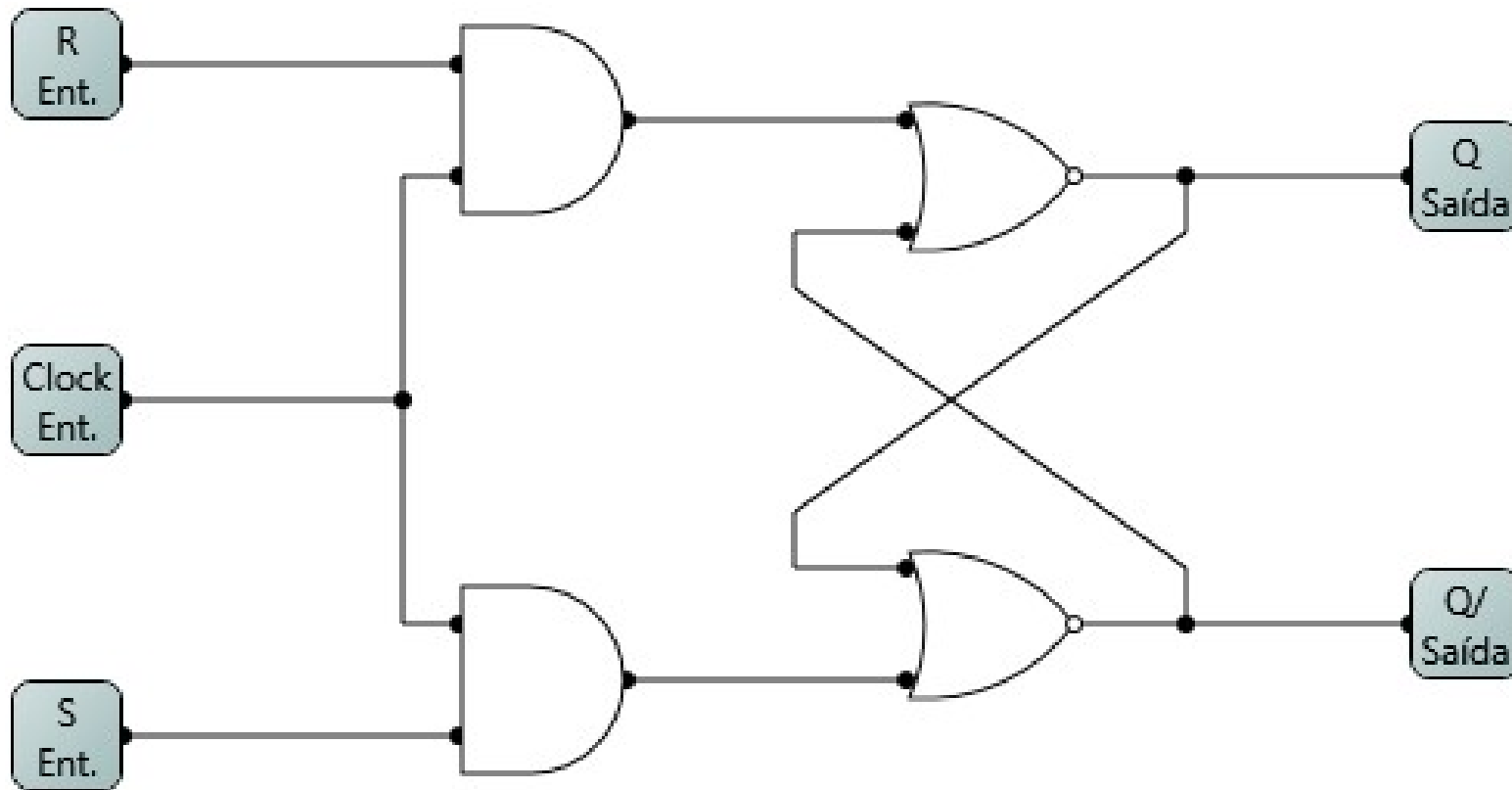
FF RS básico.....



S	R	Q
0	0	Qa
0	1	0
1	0	1
1	1	proibido

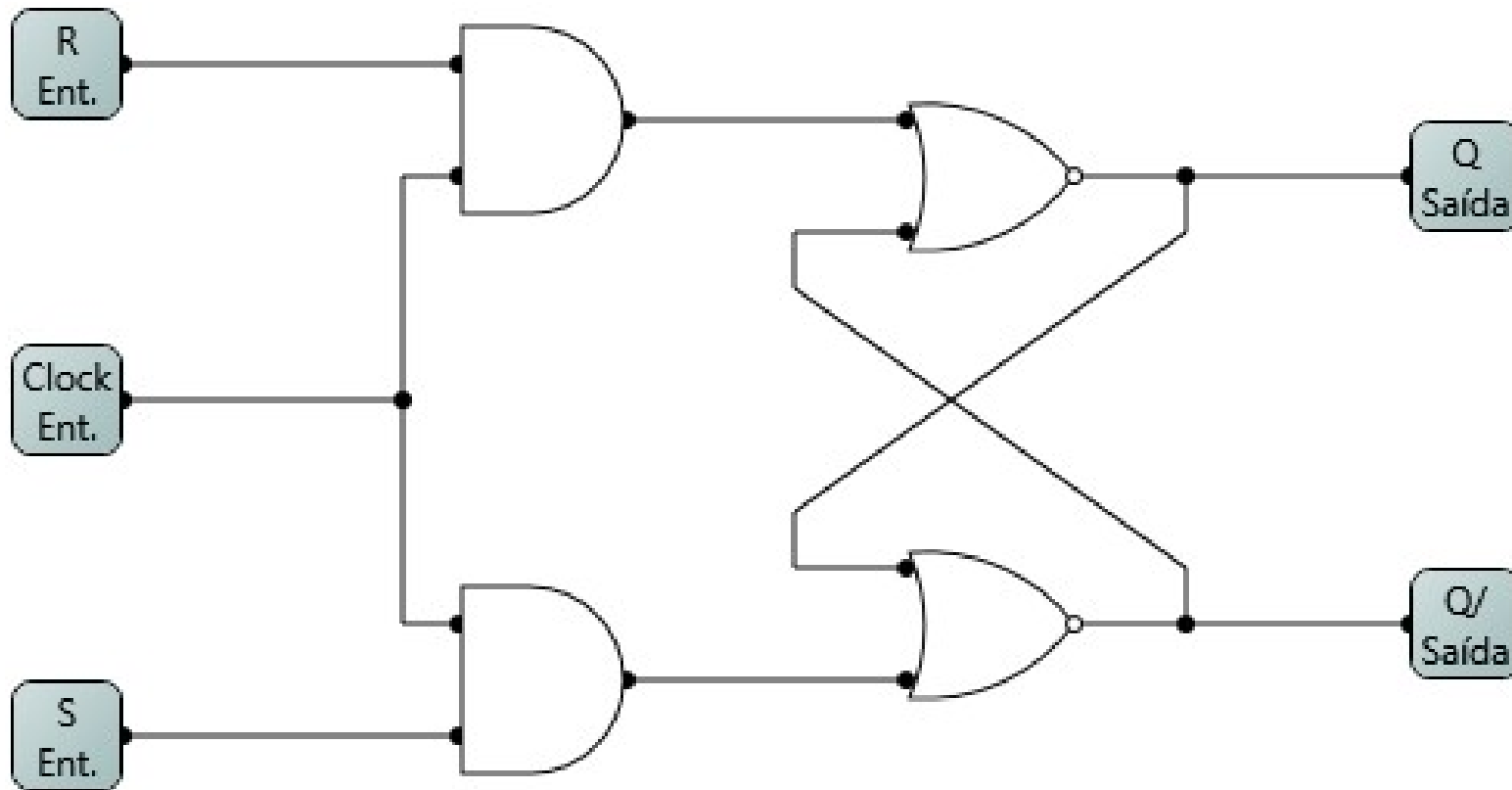
Microprocessadores

FF RS com clock.....



Microprocessadores

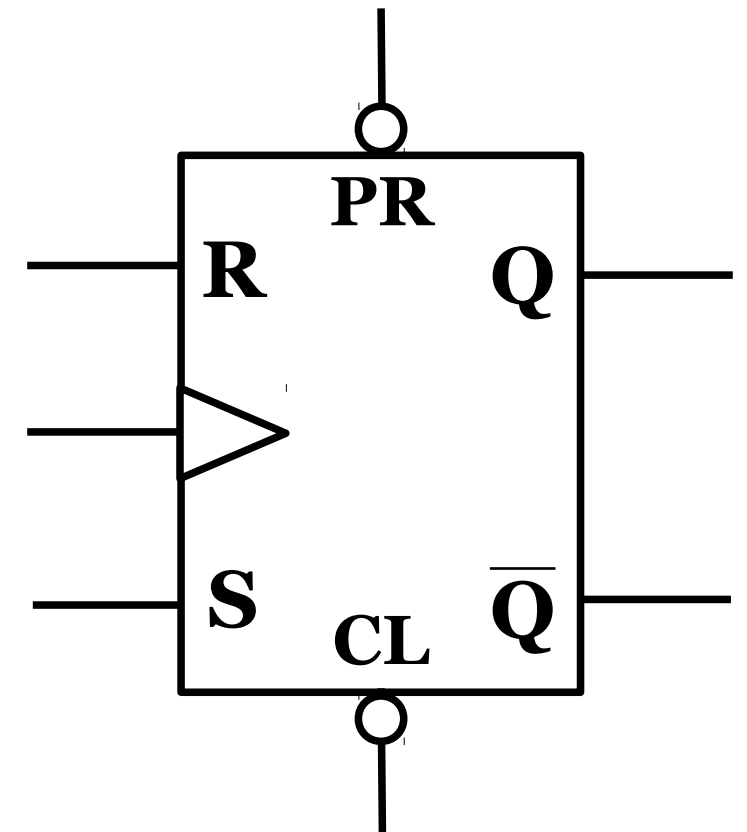
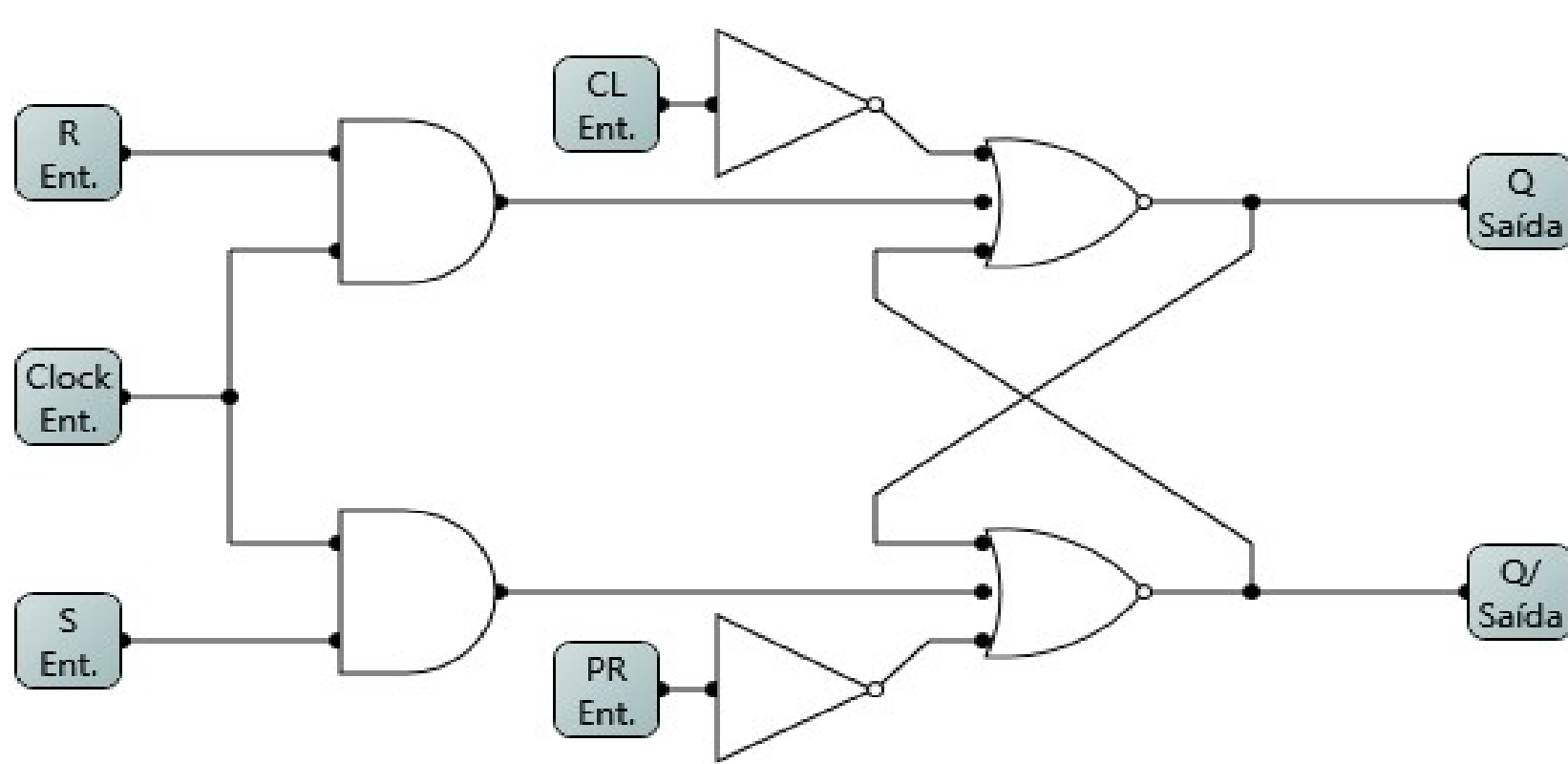
FF RS com clock.....



Clock	S	R	Q_F
0	X	X	Q_A
1	0	0	Q_A
	0	1	0
	1	0	1
	1	1	proibido

Microprocessadores

FF RS com preset e clear.....



Microprocessadores

FF RS com preset e clear.....

Clock	Preset	Clear	S	R	Q_F
0	1	1	X	X	Q_A
			X	X	
			X	X	
			X	X	
1	1	1	0	0	Q_A
			0	1	0
			1	0	1
			1	1	proibido

Clock	Preset	Clear	S	R	Q_F
X	1	0	X	X	0
			X	X	
			X	X	
			X	X	
X	0	1	X	X	1
			X	X	
			X	X	
			X	X	

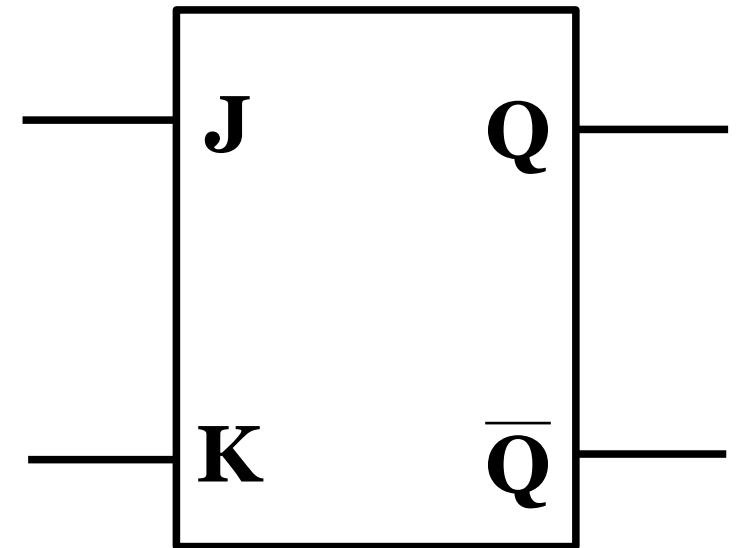
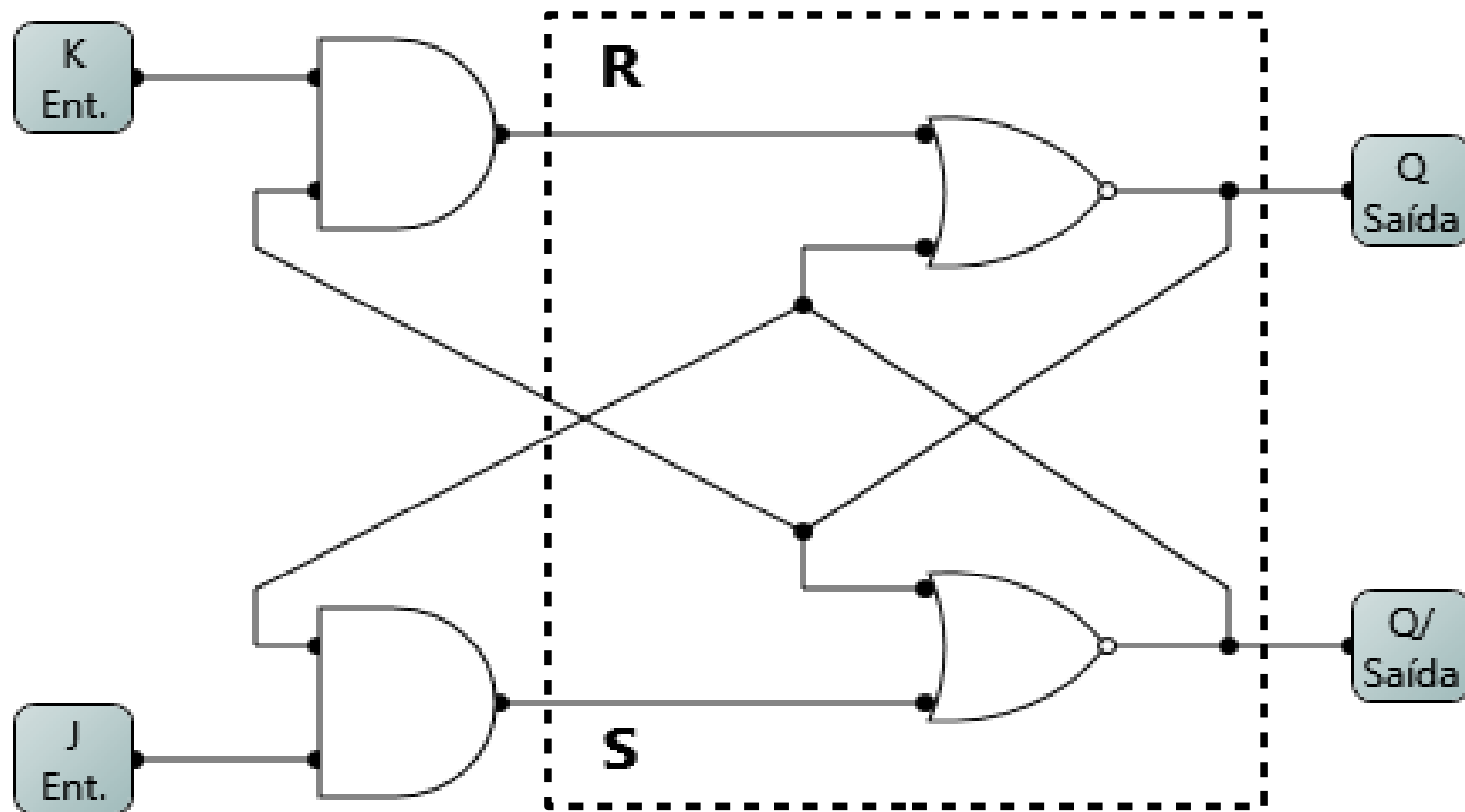
Microprocessadores

Roteiro.....

- Flip Flop JK básico;
 - Flip Flop JK com clock;
 - Flip Flop JK com preset e clear;
-

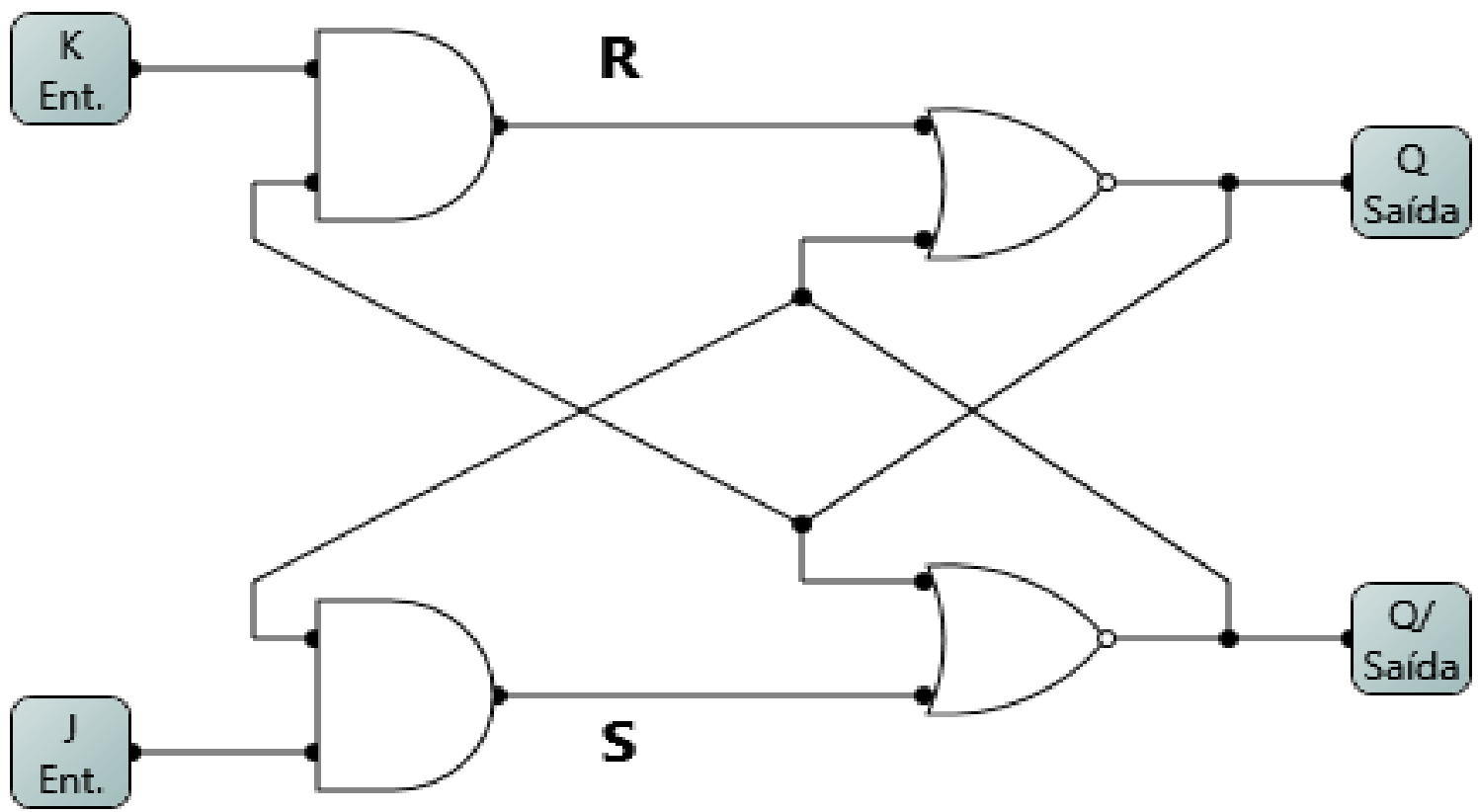
Eletrônica Digital

FF JK básico.....



Eletrônica Digital

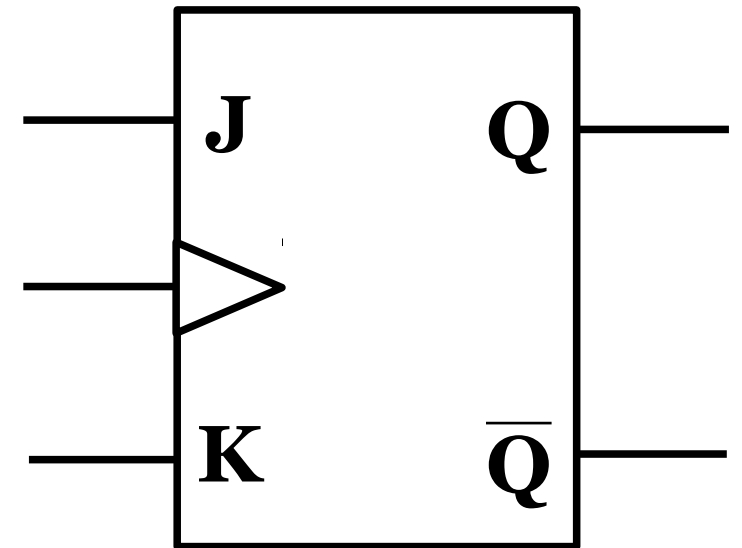
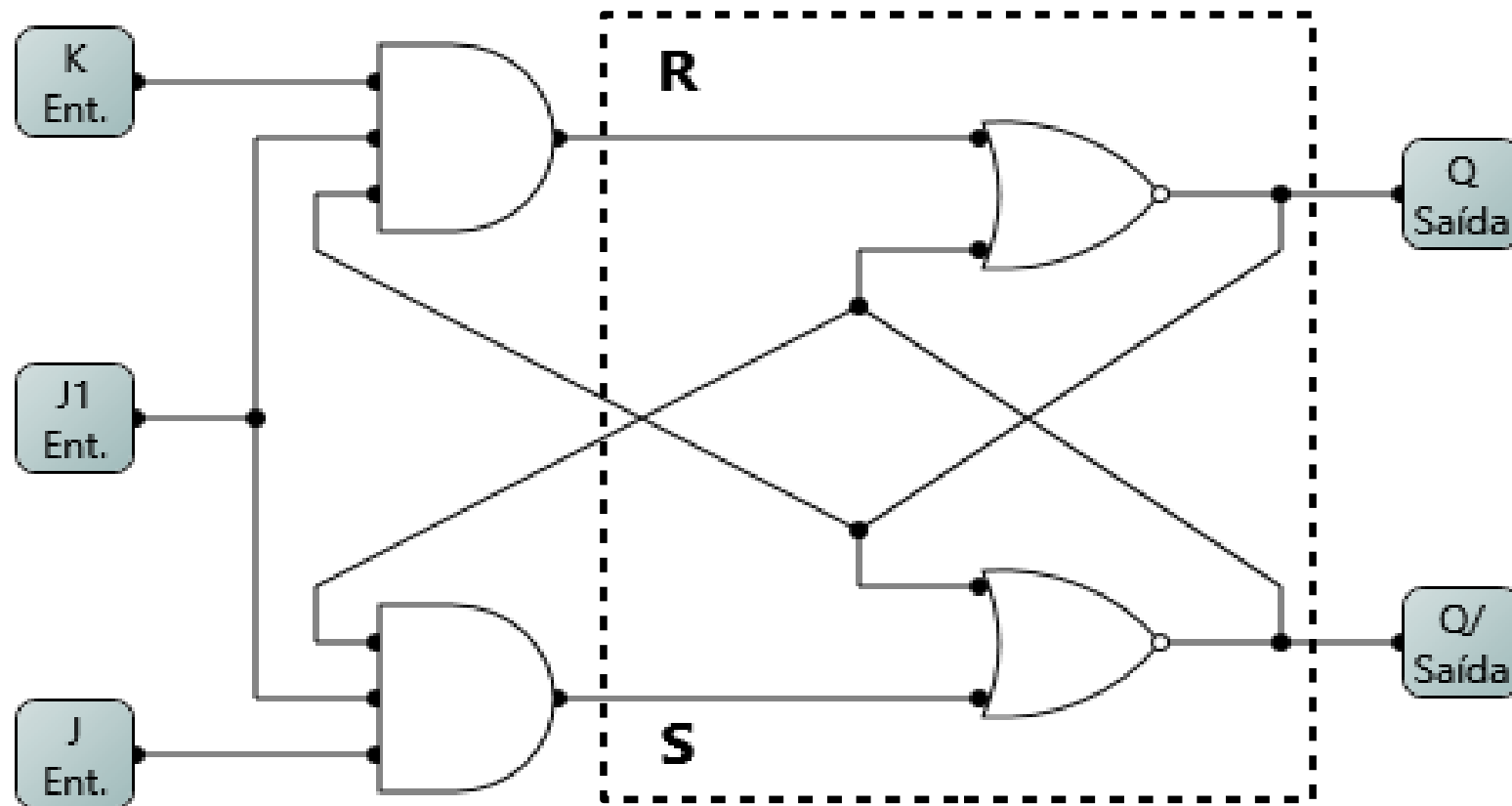
FF JK básico.....



J	K	Q
0	0	Q_A
0	1	0
1	0	1
1	1	$\overline{Q_A}$

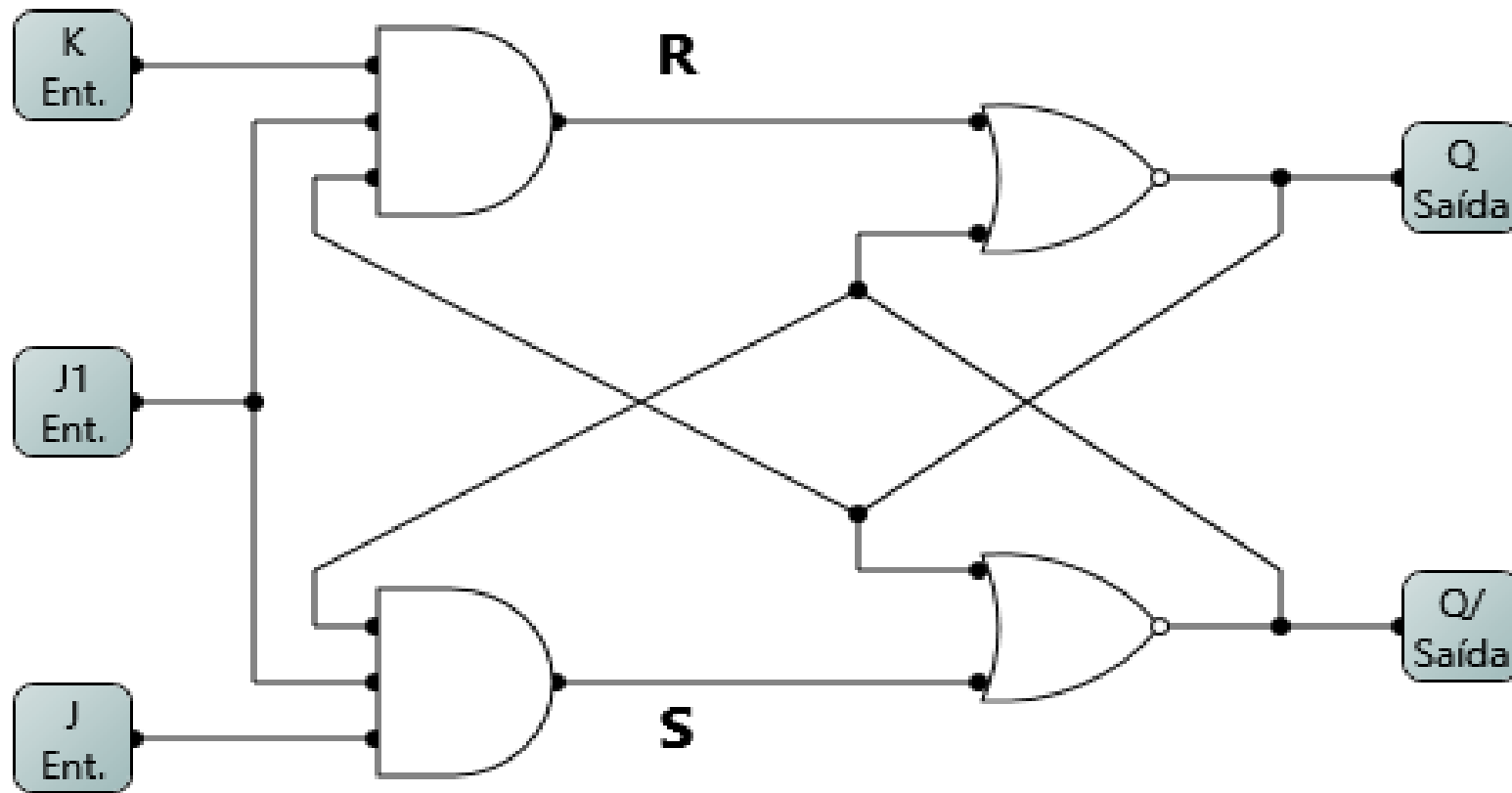
Eletrônica Digital

FF JK com clock.....



Eletrônica Digital

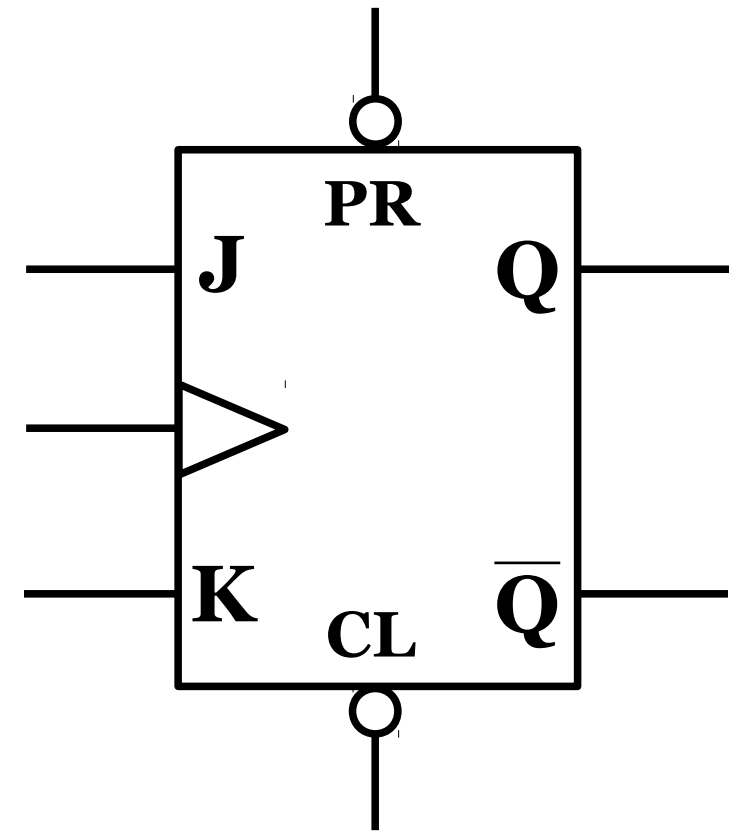
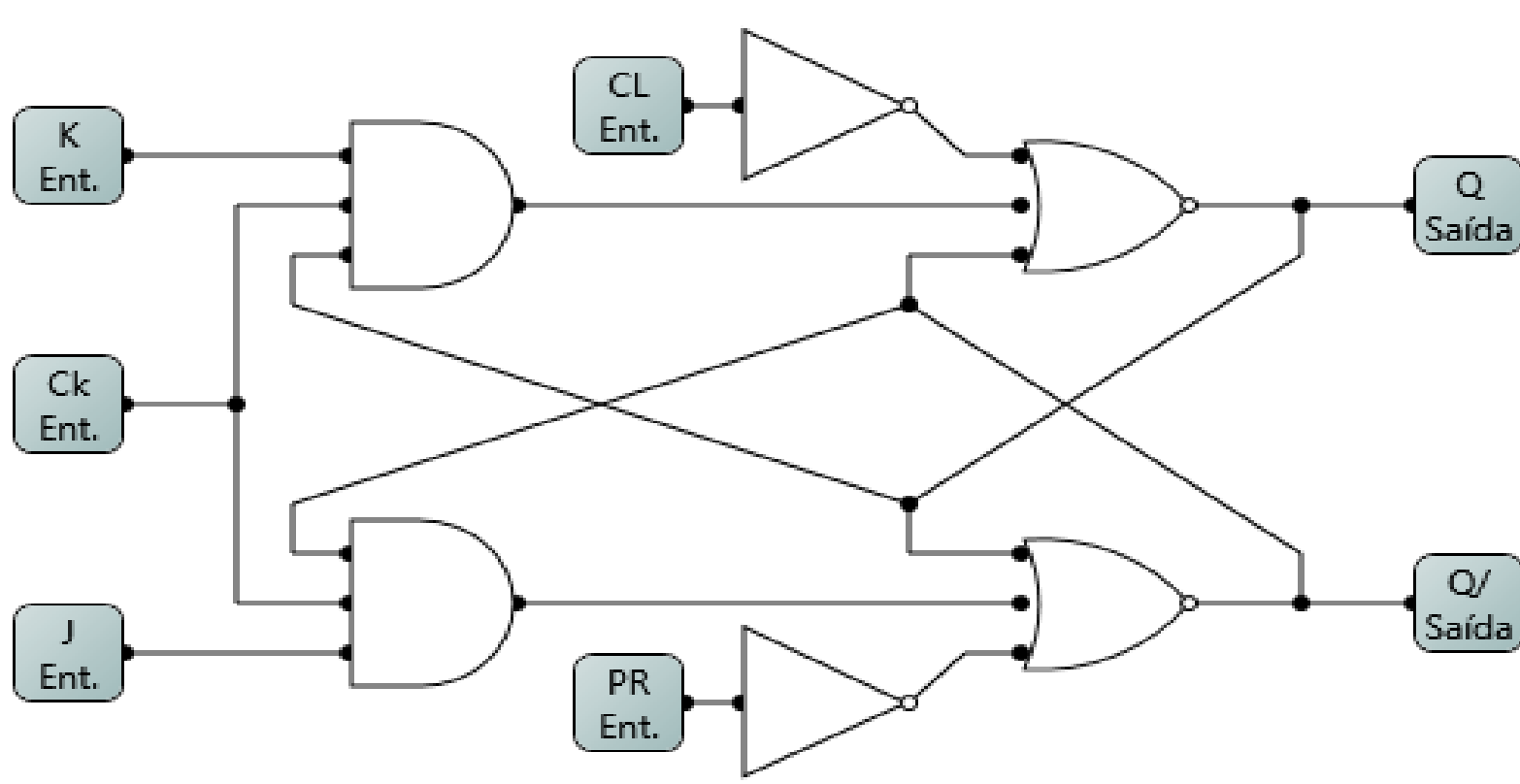
FF JK com clock.....



Clock	J	K	Q_F
0	X	X	Q_A
1	0	0	Q_A
	0	1	0
	1	0	1
	1	1	$\overline{Q_A}$

Eletrônica Digital

FF JK com preset e clear.....



Eletrônica Digital

FF JK com preset e clear.....

Clock	Preset	Clear	J	K	Q_F
0	1	1	X	X	Q_A
			X	X	
			X	X	
			X	X	
1	1	1	0	0	Q_A
			0	1	0
			1	0	1
			1	1	$\overline{Q_A}$

Clock	Preset	Clear	J	K	Q_F
X	1	0	X	X	0
			X	X	
			X	X	
			X	X	
X	0	1	X	X	1
			X	X	
			X	X	
			X	X	

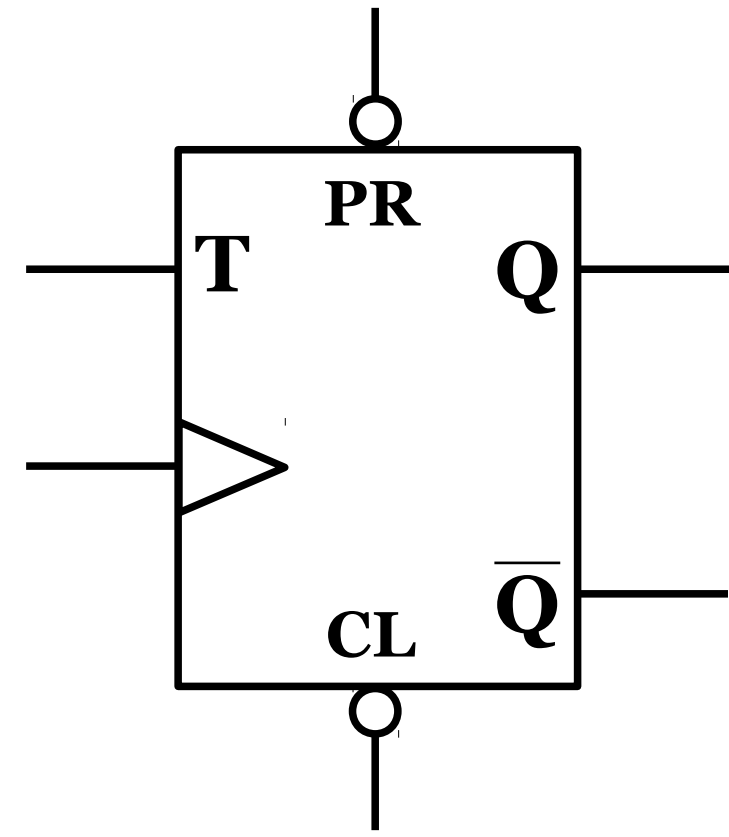
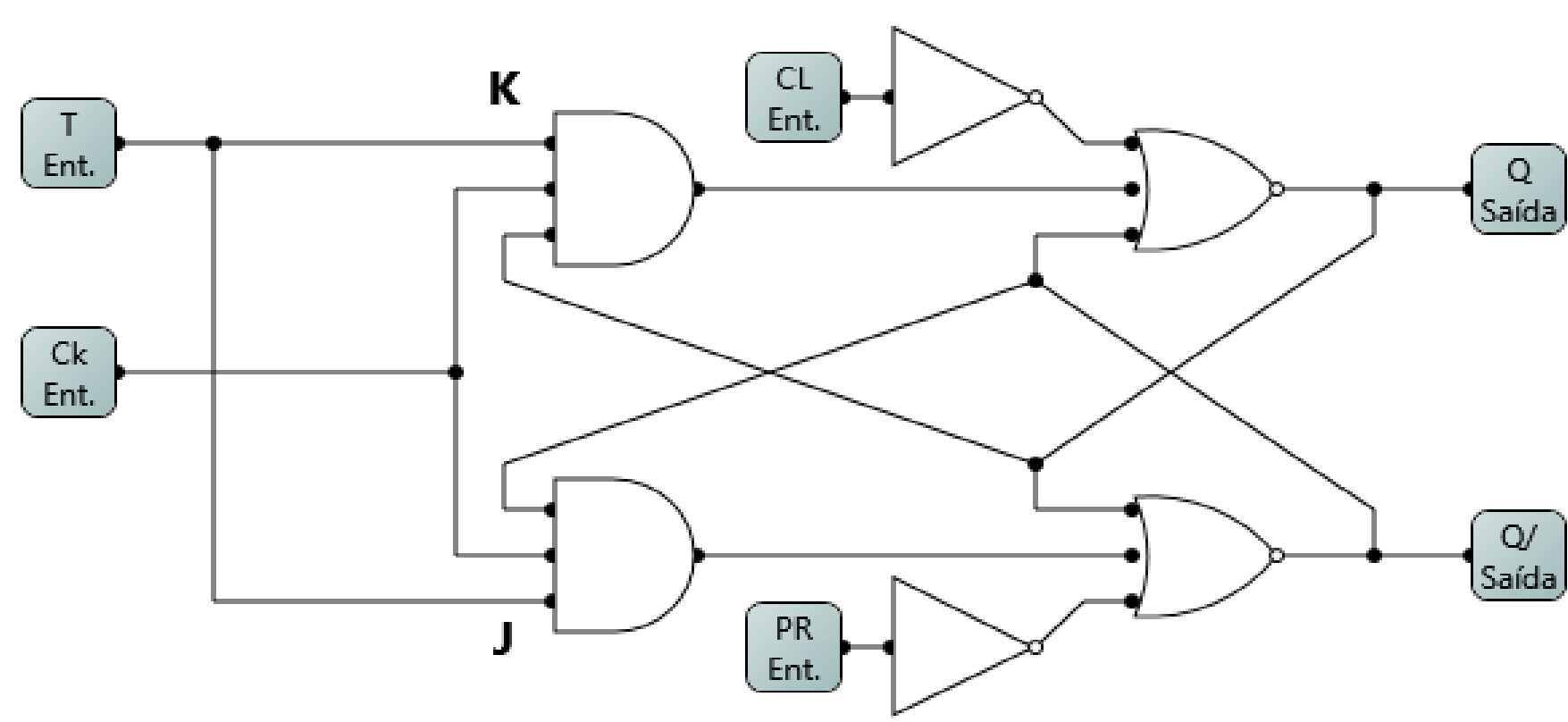
Microprocessadores

Roteiro.....

- Flip Flop T;
 - Flip Flop D;
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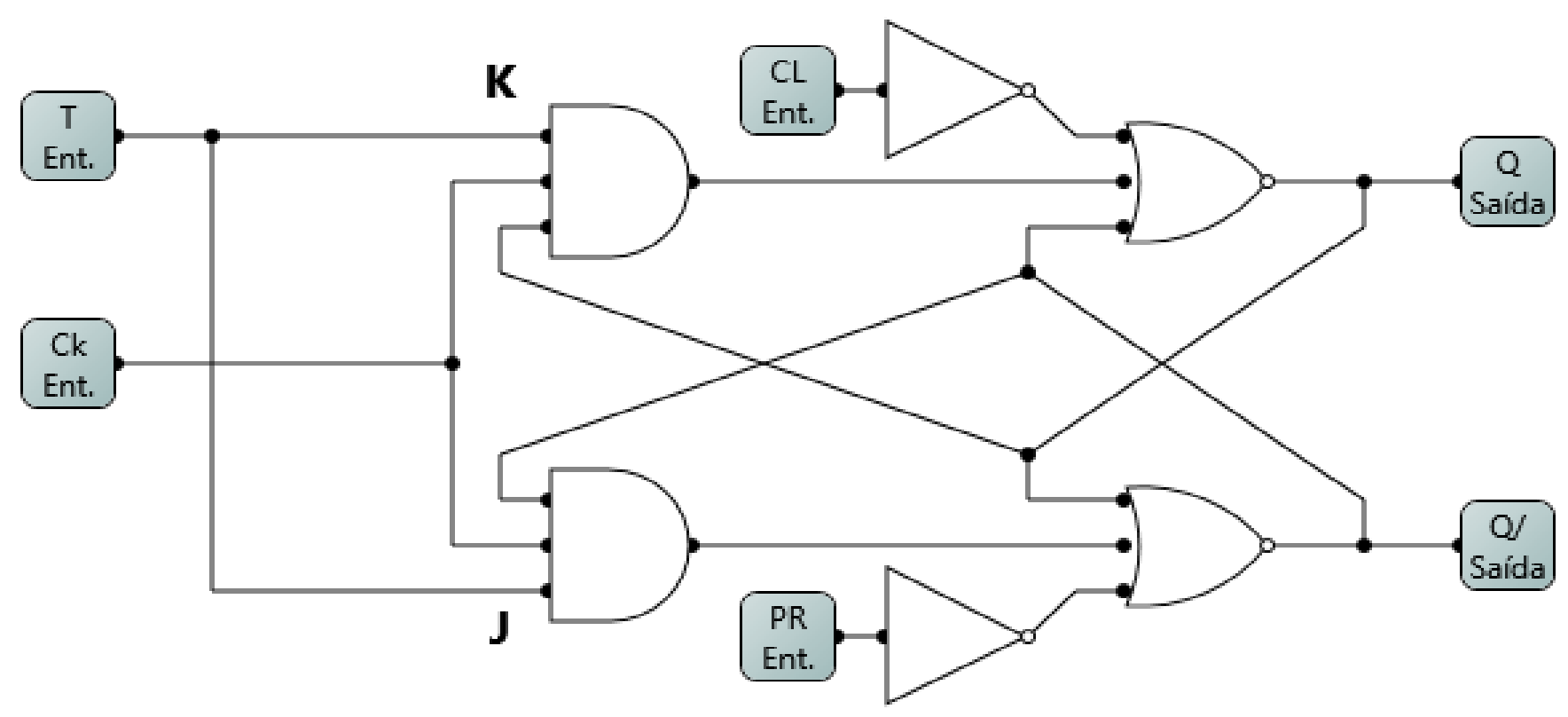
Eletrônica Digital

FF T com preset e clear.....



Eletrônica Digital

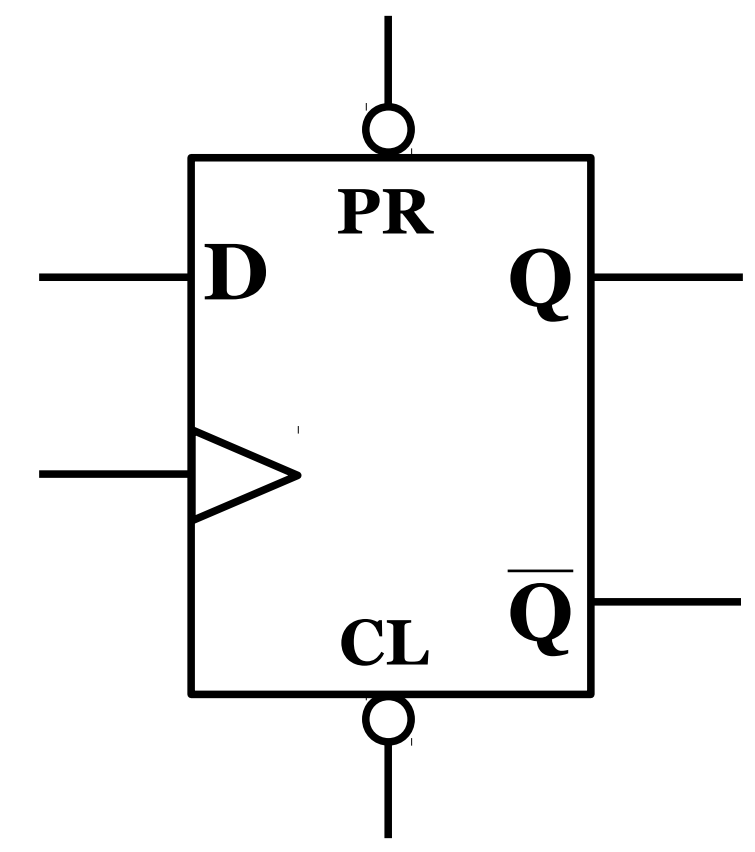
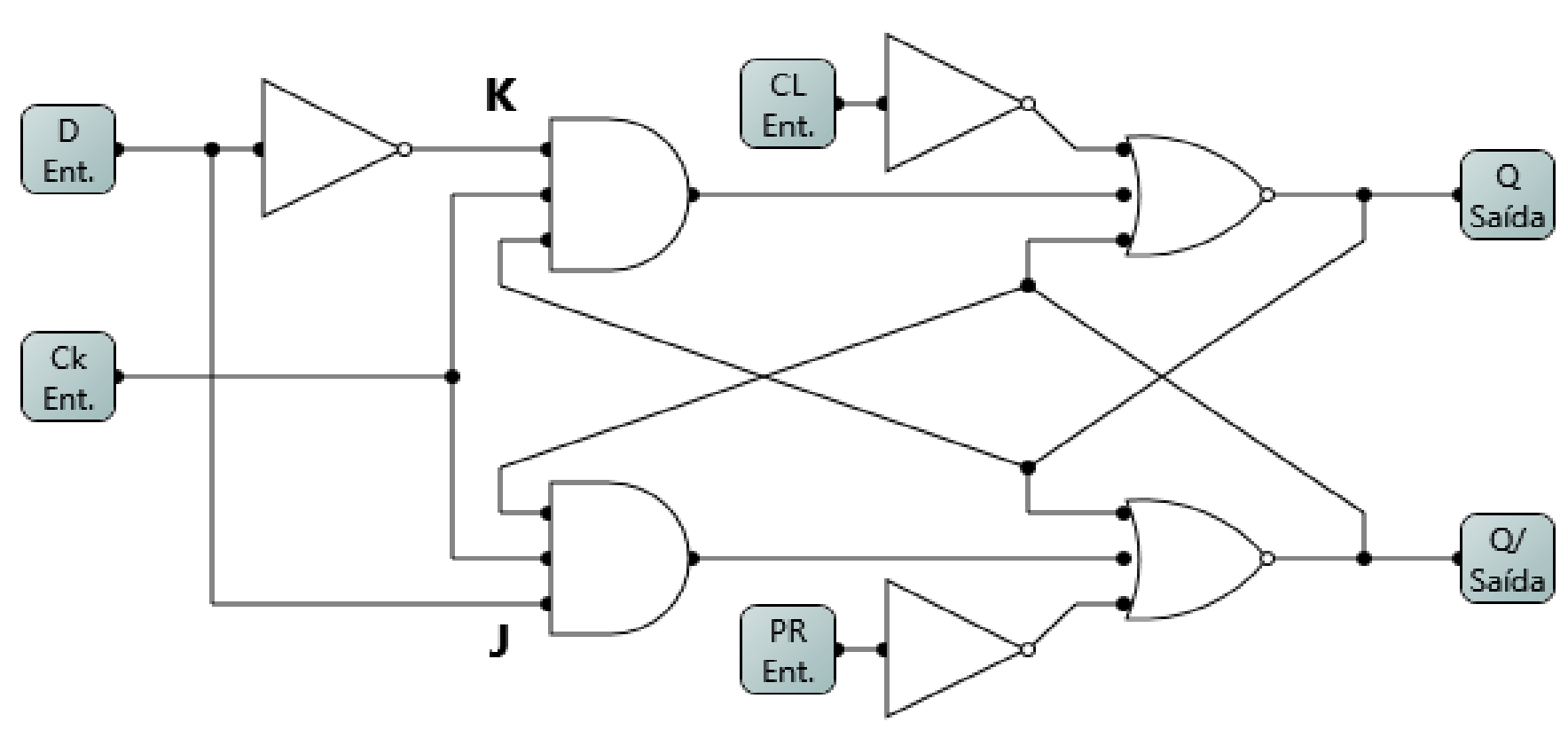
FF T com preset e clear.....



Clock	T	Q
0	X	Q_A
1	0	Q_A
	1	$\overline{Q_A}$

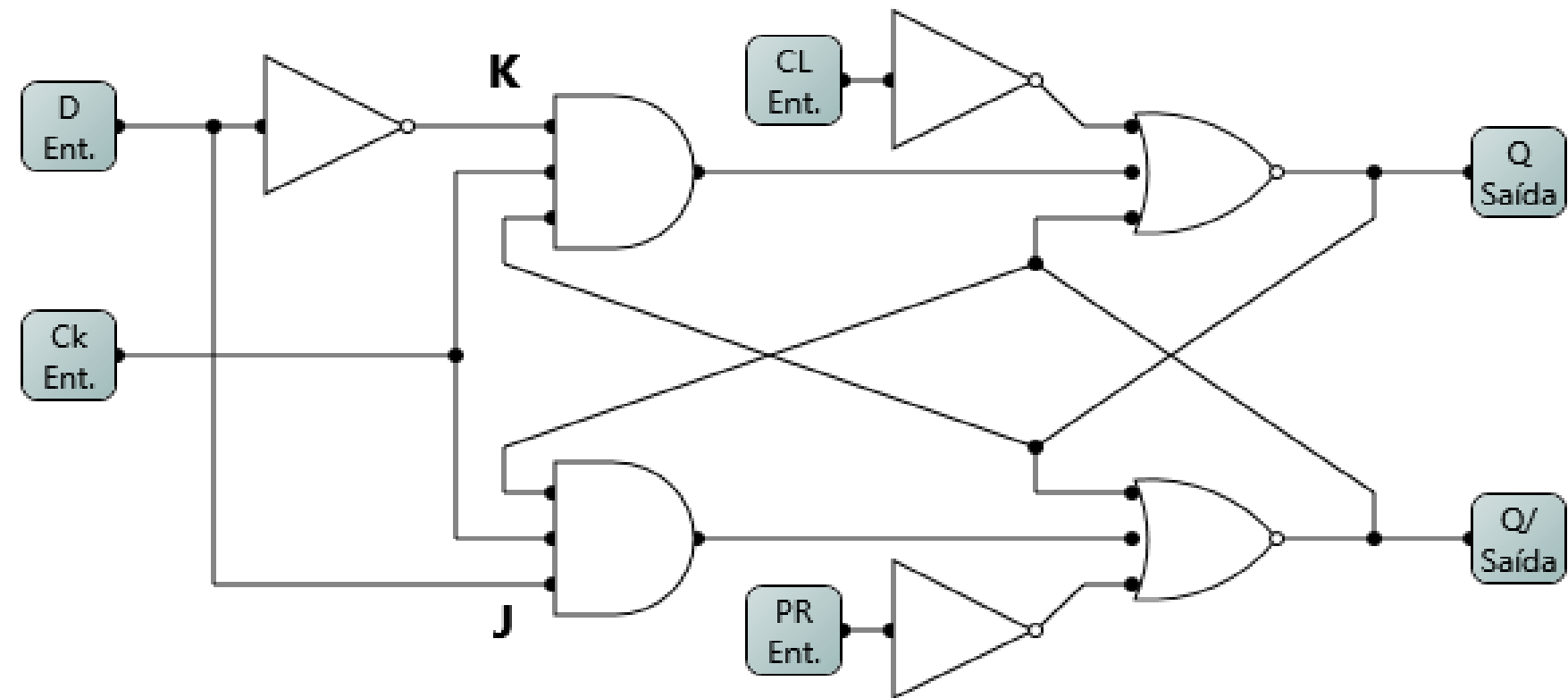
Eletrônica Digital

FF D com preset e clear.....



Eletrônica Digital

FF D com preset e clear.....



Clock	D	Q
0	X	Q_A
1	0	0
	1	1