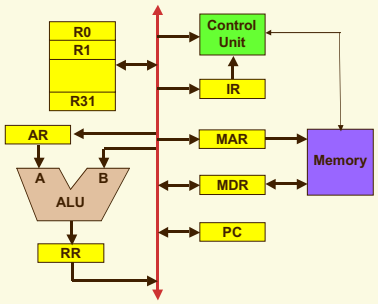
Data Path y Unidad de Control

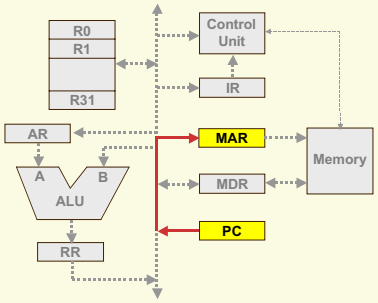
145

Single Bus Data Path



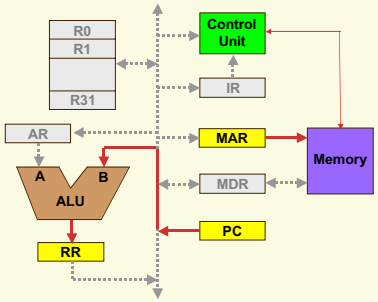
146

Fetch - Paso 1



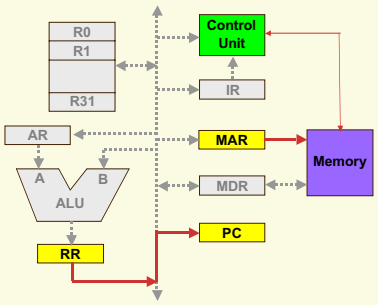
147

Fetch - Paso 2



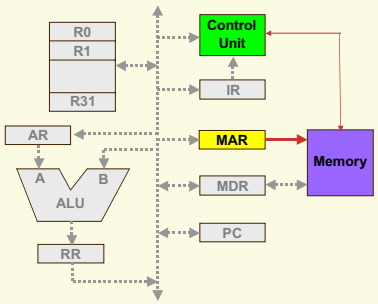
148

Fetch - Paso 3



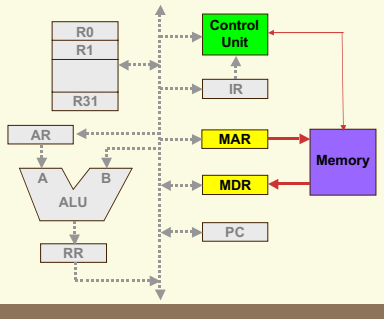
149

Fetch - Paso 4 (se repite)

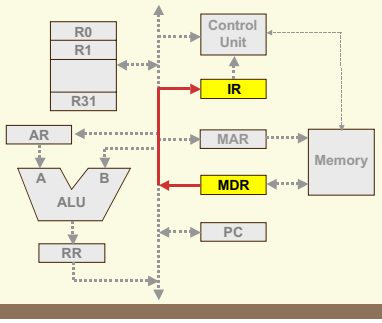


150

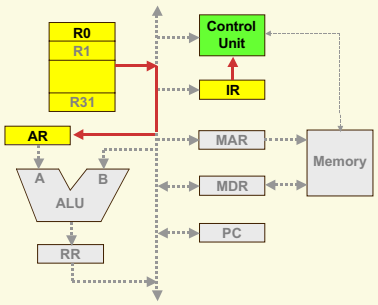
Fetch - Paso 5



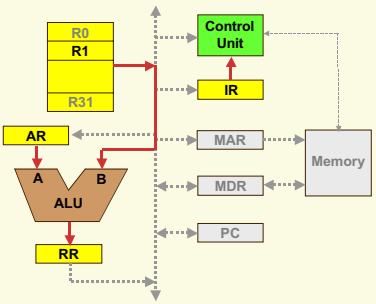
Fetch - Paso 6



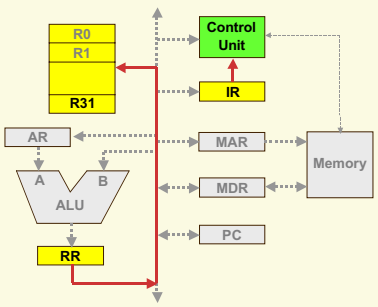
Add R0,R1,R31 - Paso 1



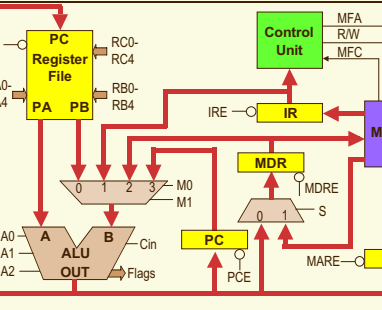
Add R0,R1,R31 - Paso 2



Add R0,R1,R31 - Paso 3



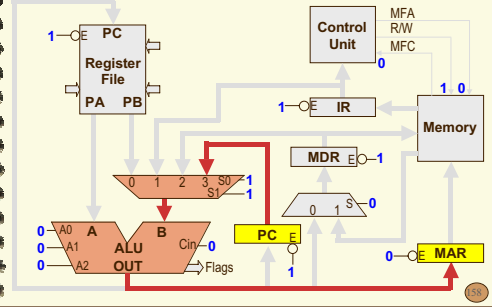
Multi Bus Data Path



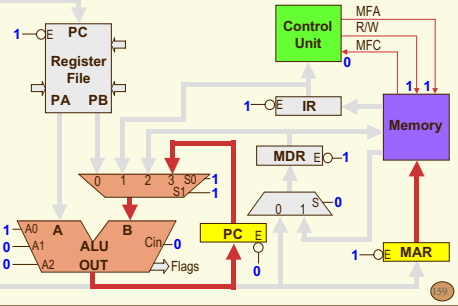
Funciones del ALU

A2-A0	OUT
000	B
001	B+4
010	A+B
011	A-B
100	A or B
101	A and B
110	SAR B
111	SLL B

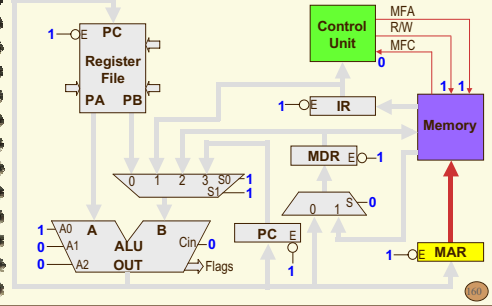
Fetch- Paso 1



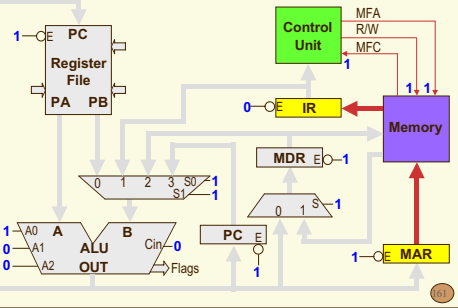
Fetch- Paso 2



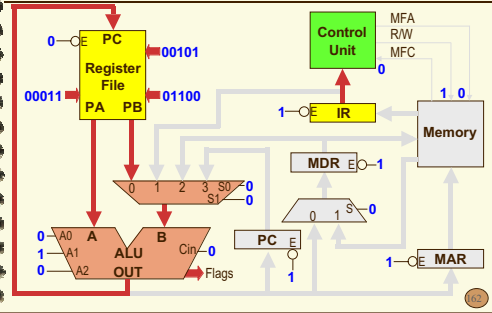
Fetch- Paso 3 (se repite)



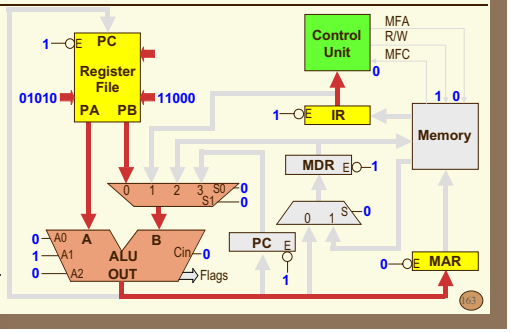
Fetch- Paso 4



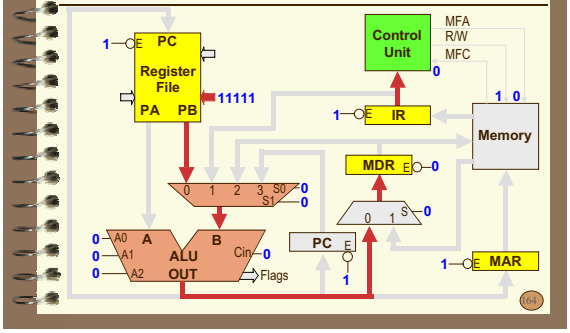
ADD R3, R12, R5 - Paso 1



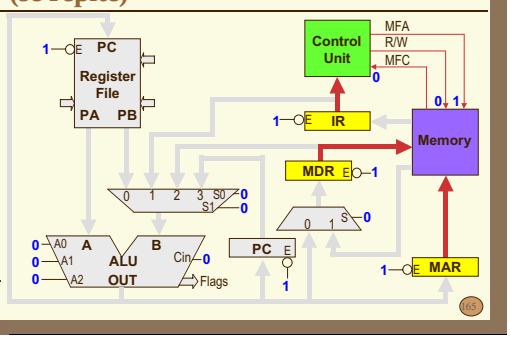
STORE R10, R24, R31 - Paso 1



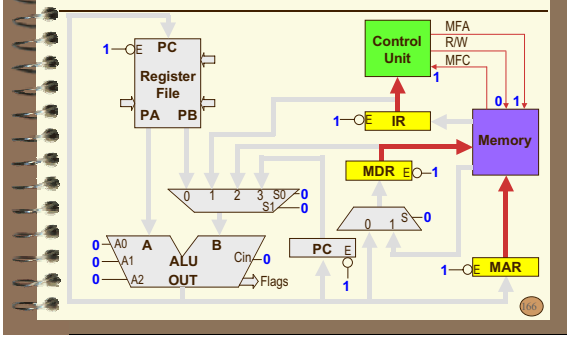
STORE R10, R24, R31 - Paso 2



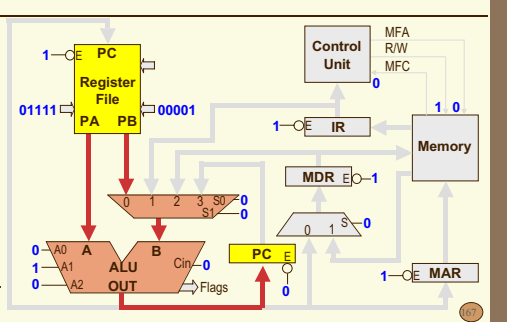
STORE R10, R24, R31 - Paso 3 (se repite)



STORE R10, R24, R31 - Paso 3



Branch R15, R1

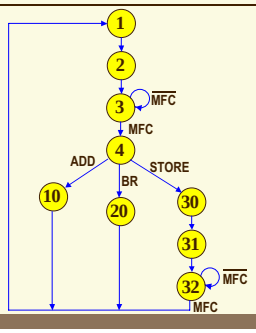


Señales de Control

Fetch

Paso	A2-A0	M1 M0	S	RA2-RA0	RB2-RB0	RC2-RC0	RFE	IRE	PCE	MARE	MDRE	R/W	MFA	Cin
1	000	11	X	XXXXX	XXXXX	XXXXX	1	1	1	0	1	X	0	X
2	001	11	X	XXXXX	XXXXX	XXXXX	1	1	0	1	1	1	1	X
3	XXX	XX	X	XXXXX	XXXXX	XXXXX	1	1	1	1	1	1	1	X
4	XXX	XX	X	XXXXX	XXXXX	XXXXX	1	0	1	1	1	1	1	X
ADD R3,R12,R5														
10	010	00	X	00011	01100	00101	0	1	1	1	1	X	0	X
STORE R10,R24,R32														
30	010	00	X	01010	11000	XXXXX	1	1	1	0	1	X	0	X
31	000	00	X	XXXXX	11111	XXXXX	1	1	1	1	0	X	0	X
32	XXX	XX	X	XXXXX	XXXXX	XXXXX	1	1	1	1	1	0	1	X

Diagrama de Estado (Ejemplo)



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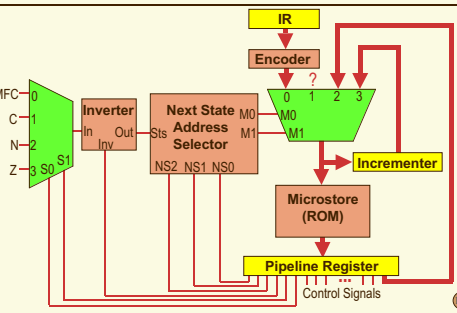
Unidad de Control Microprogramada



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Next State Address Selector

NS2	NS1	NS0	Sts	M1	M0	Selección
0	0	0	X	0	0	Encoder
0	0	1	X	0	1	?
0	1	0	X	1	0	Pipeline
0	1	1	X	1	1	Incrementer
1	0	0	0	0	0	Encoder
1	0	0	1	1	0	Pipeline
1	0	1	0	1	1	Incrementer
1	0	1	1	1	0	Pipeline
1	1	0	0	1	1	Incrementer
1	1	0	1	0	0	Encoder
1	1	1	X	0	0	-------

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Inverter

Inv	In	Out
0	0	0
0	1	1
1	0	1
1	1	0

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Señales de Control

Fetch Estado	S1S0	Inv	NS2-NS0	PL5-PL0	
1	XX	X	011	XXXXXX	
2	XX	X	011	XXXXXX	
3	00	1	101	000011	
4	XX	X	000	XXXXXX	
ADD R3,R12,R5					
10	XX	X	010	000001	
STORE R10,R24,R32					
30	XX	X	011	XXXXXX	
31	XX	X	011	XXXXXX	
32	XX	X	111	100000	????

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