Clase 9:
Intro RTL

Register Transfer Level Hardware Description Language

Práctico 9 Ejercicio 3

MODULE: Ej_3

MEMORY: A[8], B[8]

INPUTS: E[8], in

OUTPUTS: S[8]

1. A ← E
2. A ← A+1, S=A, B ← E
3. A ← A+1, S = A+B
4. A*in ← A+1, S=A, → 1

ENDSEQUENCE

CONTROLRESET (1)

END

Descripción RTL

MODULE: Ej_3

MEMORY: A[8], B[8]

INPUTS: E[8], in

OUTPUTS: S[8]

Encabezado: nombre, entradas, salidas, memoria

1. A ← E
2. A ← A+1, S=A, B ← E
3. A ← A+1, S = A+B
4. A*in ← A+1, S=A, → 1

Pasos secuenciales

ENDSEQUENCE

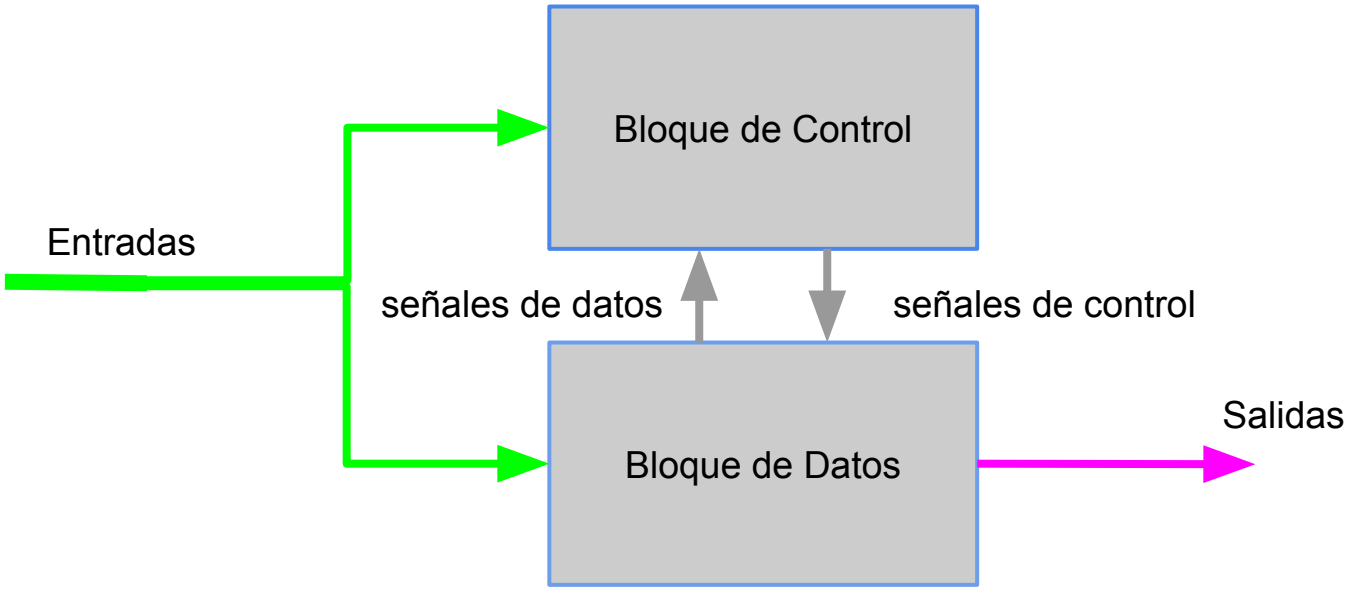
Las sentencias luego del ENSEQUENCE son válidas para todos los pasos

CONTROLRESET (1)

A qué paso voy luego de un reset

END

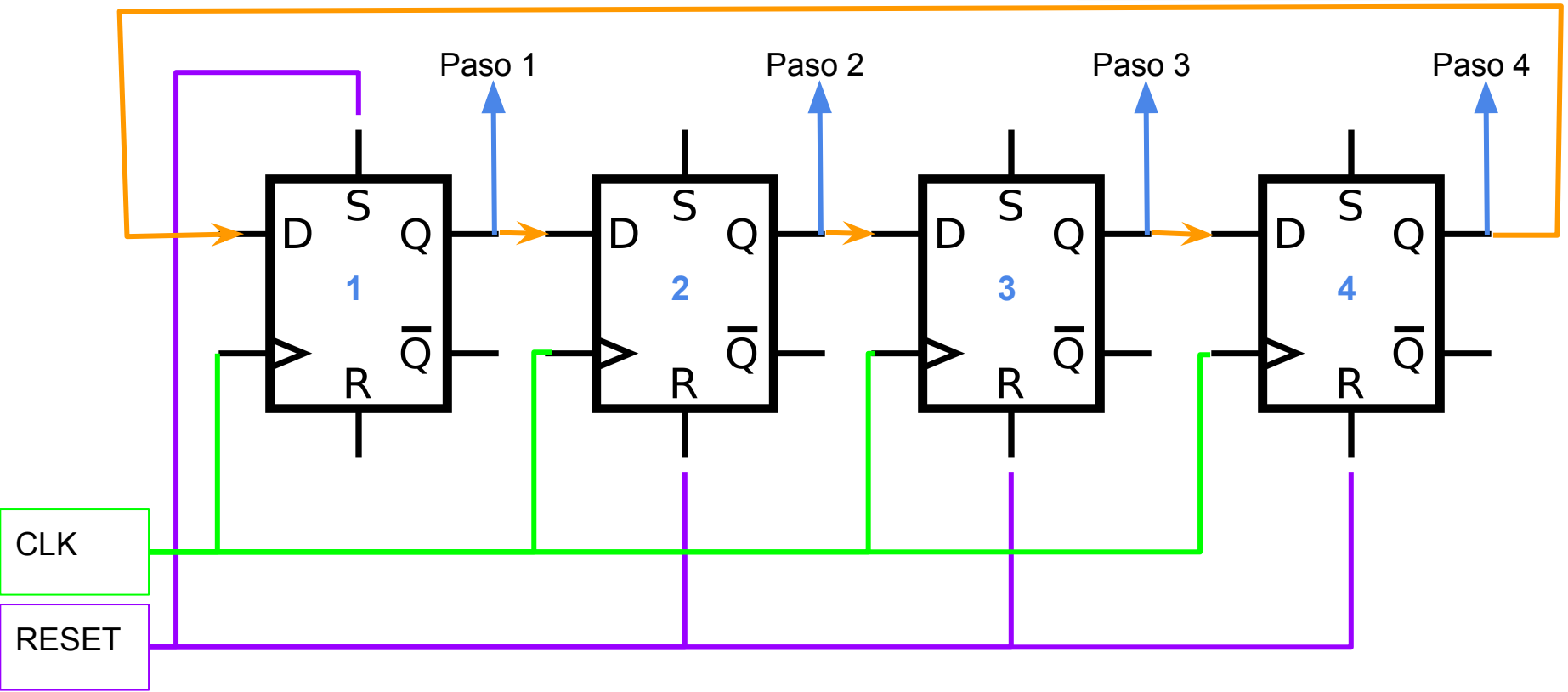
Estructura de circuito RTL



Bloque de Control

1. A ← E
2. A ← A+1, S=A, B ← E
3. A ← A+1, S = A+B
4. A*in ← A+1, S=A, → 1

ENDSEQUENCE
CONTROLRESET (1)



Bloque de Datos

```
MODULE: Ej_3
MEMORY: A[8], B[8]
INPUTS: E[8], in
OUTPUTS: S[8]
        1. A ← E
        2. A ← A+1, S=A, B ← E
        3. A ← A+1, S = A+B
        4. A*in ← A+1, S=A, → 1
ENDSEQUENCE
END
```

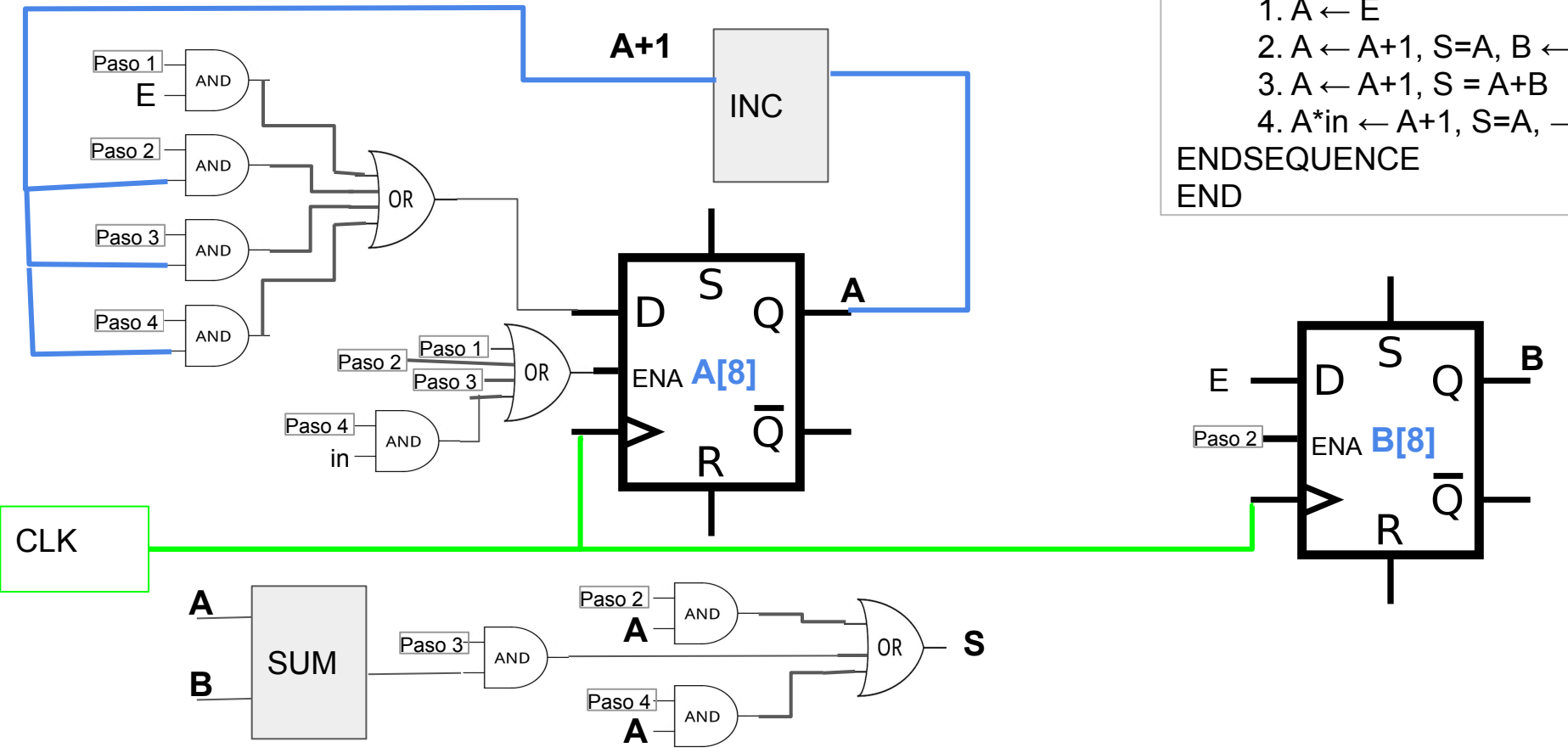
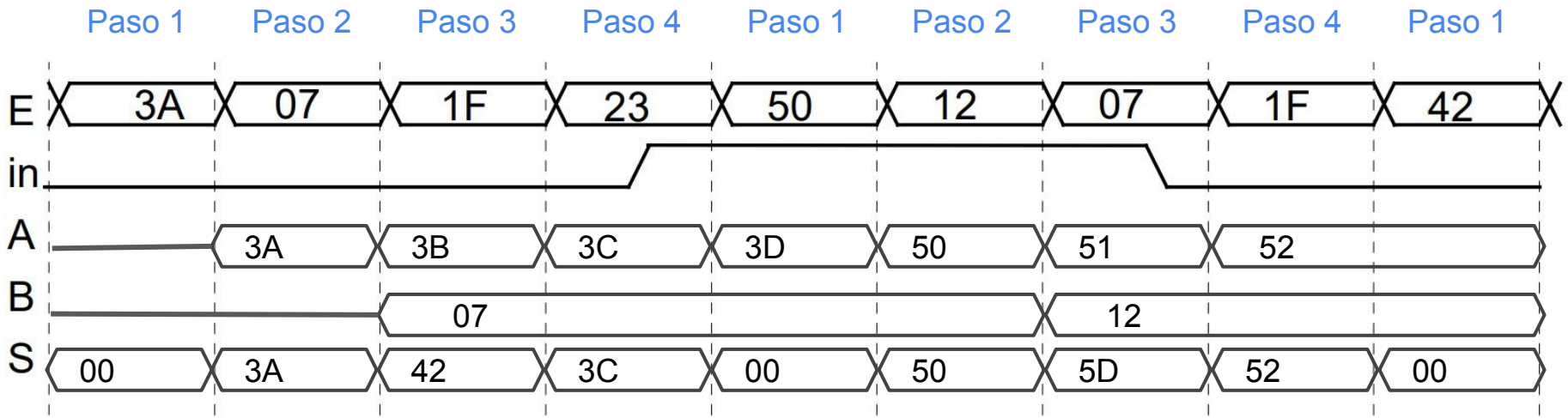


Diagrama de Tiempos

```
MODULE: Ej_3
MEMORY: A[8], B[8]
INPUTS: E[8], in
OUTPUTS: S[8]
        1. A ← E
        2. A ← A+1, S=A, B ← E
        3. A ← A+1, S = A+B
        4. A*in ← A+1, S=A, → 1
ENDSEQUENCE
END
```



Práctico 9 Ejercicio 3 modificado

MODULE: Ej_3_modificado

MEMORY: A[8], B[8]

INPUTS: E[8], in

OUTPUTS: S[8]

1. A ← E
2. A ← A+1, S=A, B ← E
3. A ← A+1, S = A+B
4. A*in <-- A+1, S=A, → (A=2,!(A=2))/(4,1)

ENDSEQUENCE

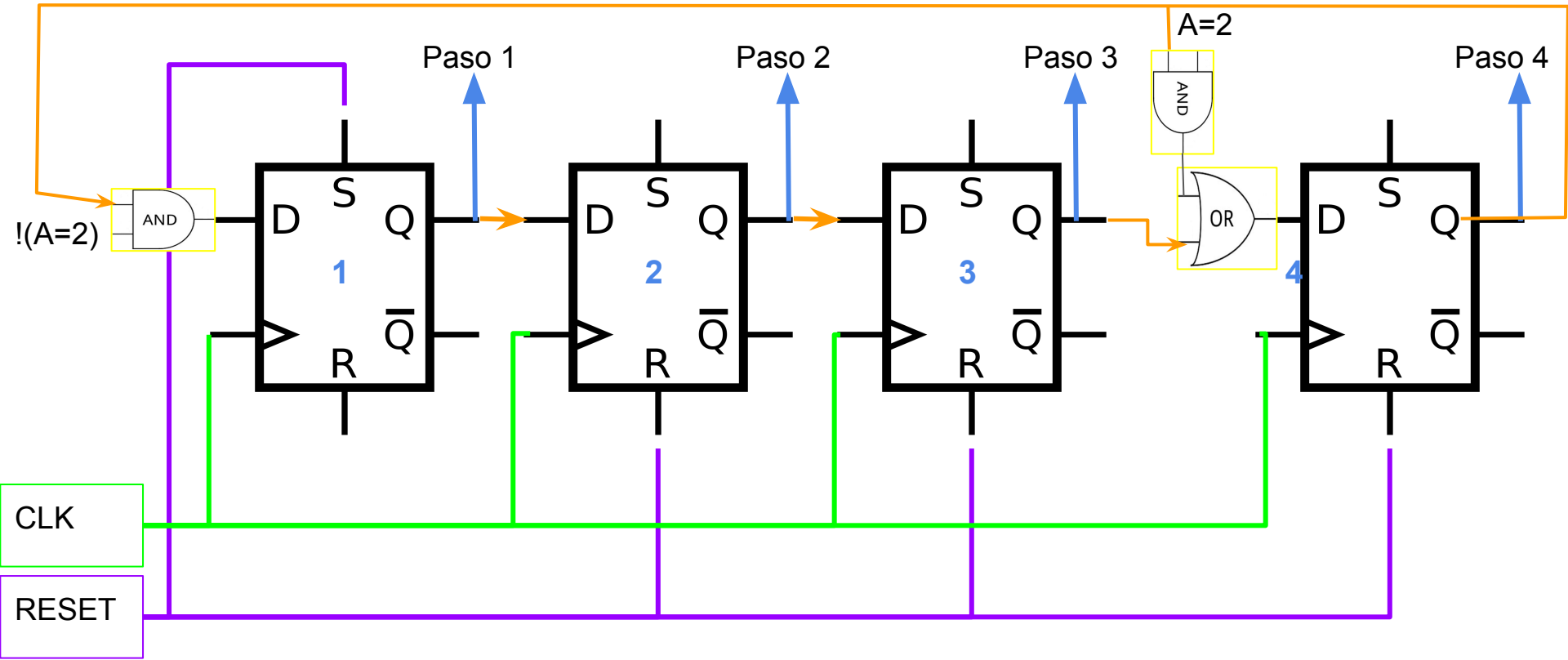
CONTROLRESET (1)

END

Bloque de Control Modificado

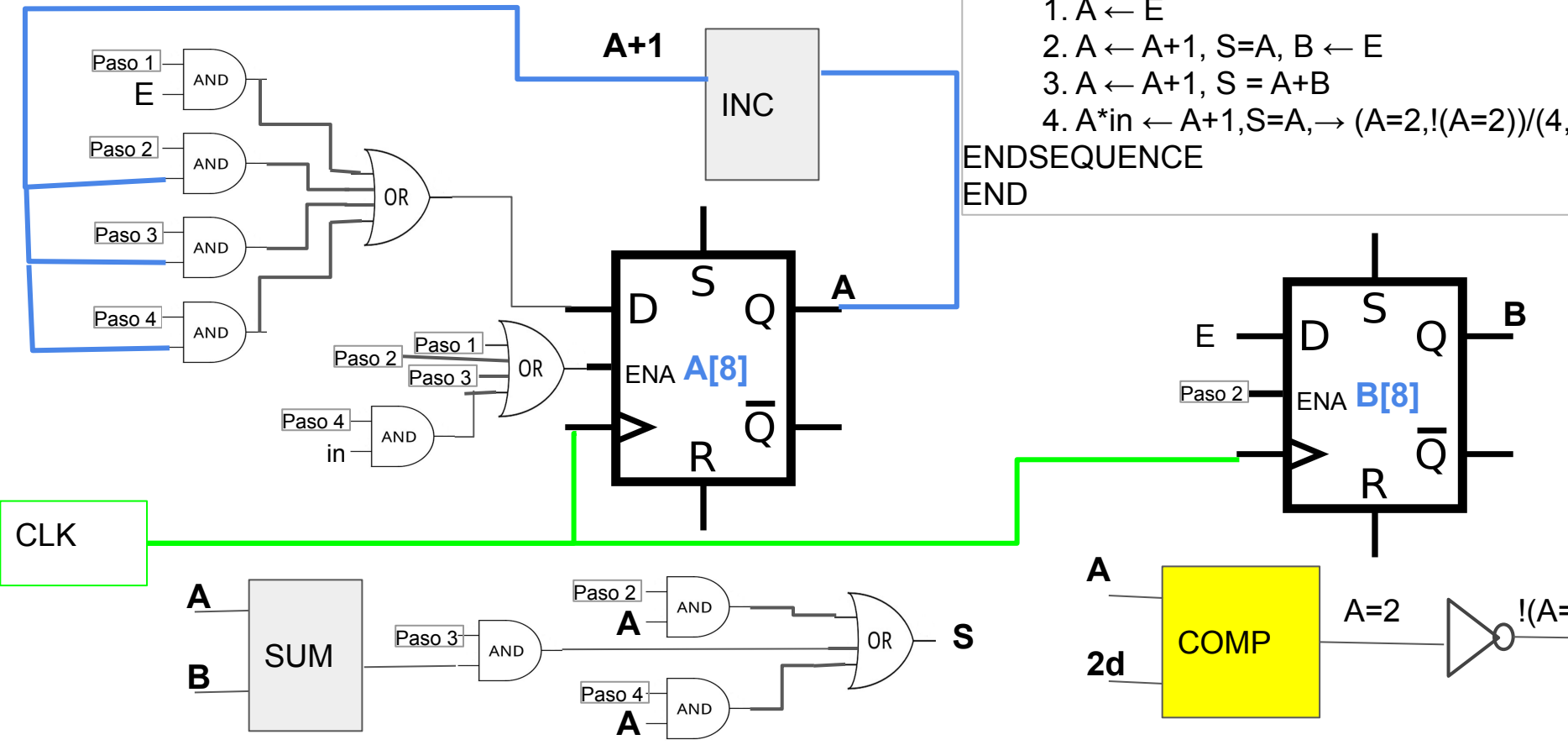
1. A ← E
2. A ← A+1, S=A, B ← E
3. A ← A+1, S = A+B
4. A*in ← A+1, S=A, → (A=2,!(A=2))/(4,1)

ENDSEQUENCE
CONTROLRESET (1)



Bloque de Datos Modificado

```
MODULE: Ej_3
MEMORY: A[8], B[8]
INPUTS: E[8], in
OUTPUTS: S[8]
        1. A ← E
        2. A ← A+1, S=A, B ← E
        3. A ← A+1, S = A+B
        4. A*in ← A+1,S=A,→ (A=2,!(A=2))/(4,1)
ENDSEQUENCE
END
```



Nuevo Diagrama de Tiempos

```
MODULE: Ej_3
MEMORY: A[8], B[8]
INPUTS: E[8], in
OUTPUTS: S[8]
        1. A ← E
        2. A ← A+1, S=A, B ← E
        3. A ← A+1, S = A+B
        4. A*in ← A+1,S=A,→ (A=2,!(A=2))/(4,1)
ENDSEQUENCE
END
```