BN

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BN Branch if Negative

Syntax: [*label*] BN n

Operands: $-128 \leq n \leq 127$

Operation: if negative bit is '1'
$(PC) + 2 + 2n \rightarrow PC$

Status Affected: None

Encoding:

1110	0110	nnnn	nnnn

Description: If the Negative bit is '1', then the program will branch.
The 2's complement number '2n' is added to the PC. Since the PC will have incremented to fetch the next instruction, the new address will be PC+2+2n. This instruction is then a two-cycle instruction.

Words: 1

Cycles: 1(2)

Q Cycle Activity:

If Jump:

Q1	Q2	Q3	Q4
Decode	Read literal 'n'	Process Data	Write to PC
No operation	No operation	No operation	No operation

If No Jump:

Q1	Q2	Q3	Q4
Decode	Read literal 'n'	Process Data	No operation

Example: `HERE BN Jump`

Before Instruction

PC	=	address (HERE)

After Instruction

If Negative	=	1;
PC	=	address (Jump)
If Negative	=	0;
PC	=	address (HERE+2)

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