Gates bitwise

A bitwise operation operates on one or more bit patterns or binary numerals at the level of their individual bits.

Contents

AND

Bitwise AND

Inputs:	N A B
Outputs:	N Out
Description:	Bitwise AND takes two binary representations of equal length and performs the logical AND operation on each pair of corresponding bits.

	0101 (decimal 5)
AND	0011 (decimal 3)
=	0001 (decimal 1)

OR

Bitwise OR

Inputs:	N A B
Outputs:	N Out
Description:	Bitwise OR takes two bit patterns of equal length and performs the logical inclusive OR operation on each pair of corresponding bits.

	0101 (decimal 5)
OR	0011 (decimal 3)
=	0111 (decimal 7)

NOT

Bitwise NOT

Inputs:	N A
Outputs:	N Out
Description:	Bitwise NOT, or complement, is a unary operation that performs logical negation on each bit, forming the ones' complement of the given binary value. Digits which were 0 become 1, and vice versa.

NOT	0111 (decimal 7)
=	1000 (decimal 8)

XOR

Bitwise XOR

Inputs:	N A B
Outputs:	N Out
Description:	A bitwise exclusive OR takes two bit patterns of equal length and performs the logical XOR operation on each pair of corresponding bits. The result in each position is 1 if the two bits are different, and 0 if they are the same.

	0101 (decimal 5)
XOR	0011 (decimal 3)
=	0110 (decimal 6)

Bit shift left

Bit Shift Left

Inputs:	N A B
Outputs:	N Out

Description:	The bits of input A are shifted left by the amount of places of input B.
	example:
	`  00010111 LEFT SHIFT BY ONE`
	`= 00101110`

Bit shift right

Bit Shift Right

Inputs:	N A B
Outputs:	N Out

Description:	The bits of input A are shifted right by the amount of places of input B.
	example:
	`  00010111 RIGHT SHIFT BY TWO`
	`= 00000101`

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